



navien Condensing Water Heater

Installation Manual

Model _____

NPE-24AWE

NPE-24SWE

NPE-32AWE

NPE-32SWE

- These appliances are for use with natural gas or LPG. (An LPG conversion kit is included with the water heater.)
 - Type: B23-B33-B53-C13-C33-C43-C53-C63-C83
- Keep this manual near this water heater for future reference whenever maintenance or service is required.

WARNING

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

-Do not store or use petrol or other flammable vapours and liquids in the vicinity of this or any other appliance.

-WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliances.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call the National Gas Emergency Helpline on (Freephone) 0800 111999 or your gas supplier from a neighbour's phone. Follow the instructions received.

-Installation and service must be performed by a Gas Safe registered installer, service agency or the gas supplier.

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1. Safety Information

The following safety symbols are used in this manual. Read and follow all safety instructions in this manual precisely to avoid unsafe operating conditions, fire, explosion, property damage or personal injury.

DANGER

Indicates an imminently hazardous situation which, if not avoided, could result in severe injury or death.

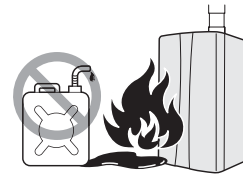
WARNING

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

CAUTION

Indicates a potentially hazardous situation that, if not avoided, could result in property damage.

DANGER



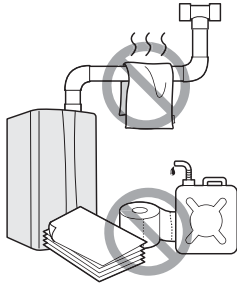
If you smell gas:

- Do not try to light any appliances.
- Do not touch any electrical switches or use landline phones.
- From a neighbour's phone, call your gas provider and follow their instructions.
- If you cannot reach your gas provider, call the fire department.

Do not use or store flammable products, such as petrol, solvents or adhesives in the same room or area as the water heater.

- The water heater has a main burner flame that can turn on at any time and can ignite flammable vapours. Vapours from flammable liquids can explode and catch fire, causing severe burns.
- Vapours cannot be seen and are heavier than air. They can travel long distances along the ground and can be carried from other rooms to the water heater's main burner flame by air current.
- Keep all flammable products far away from the water heater and store them in approved containers. Keep the containers closed tightly and out of the reach of children and pets.

WARNING



- **Do not store or use petrol or other flammable liquids near this water heater.**
Doing so may result in fire or explosion.
- **Do not place combustibles, such as newspapers or laundry, near the water heater or flue system.**
Doing so may result in a fire.
- **Do not place or use hair sprays, spray paints or any other compressed gases near the water heater or flue system, including the flue termination.**
Doing so may result in fire or explosion.
- **Do not operate the water heater with the front cover opened.**
Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage or personal injury.
- **Do not operate this water heater without proper flue system.**
Doing so may result in fire or carbon monoxide (CO) poisoning, which may result in property damage or personal injury.
- **Do not touch the power cord or internal components of the water heater with wet hands.**
Doing so may result in electric shock.

WARNING

This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

WARNING

Disconnect the plug of the power supply before carrying out any maintenance of the appliance.

CAUTION

- **Do not turn on the water heater unless the water and gas supplies are fully opened.**
Doing so may damage the water heater.
- **Do not turn on the water if the cold water supply shut-off valve is closed.**
Doing so may damage the water heater.
- **Do not use this water heater for anything other than its intended purpose, as described in this manual.**
- **Do not remove the front cover unless the power to the water heater is turned off or disconnected.**
Failure to do so may result in electric shock.

- **When servicing the controls, label all wires prior to disconnecting them.**
Failure to do so may result in wiring errors, which can lead to improper or dangerous operation. Verify proper operation after servicing.
- **Do not use unapproved replacement or accessory parts.**
Doing so may result in improper or dangerous operation and will void the manufacturer's warranty.
- **Do not place anything in or around the flue terminals, such as a clothes line, that could obstruct the air flow in or out of the water heater.**
- **This water heater has been approved for use in the UK and Ireland only.**
Using the water heater in any other country will void the manufacturer's warranty.

General Installation Guidelines

Building regulations and Benchmark

Building regulations require that installation should comply with manufacturer's instruction. It is therefore important that the commissioning checklist is completed by the installer.



Benchmark places responsibilities on both manufacturers and installers.

The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference. Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit www.centralheating.co.uk for more information.

Gas safety regulations

The water heater must be installed by an installer authorized by the Ministry of Industry and it must be started up by an Official Technical Assistance Service authorized by Navien.

All Gas Safe registered engineers carry an ID card with their license number and a photograph. You can check your engineer is registered by telephoning 0800 408 5500 or online at www.gassaferegister.co.uk.

In **GB**, this must be carried out by a competent person* as stated in the Gas Safety (Installation & Use) Regulations (as may be amended from time to time).

In **IE**, this must be carried out by a competent person as stated in I.S 813 "Domestic Gas Installations".

The manufacturer will not accept any liability whatsoever for loss, damage or injury arising as a result of failure to observe the instructions for use, maintenance and installation of the appliance.

*A competent person: One who works for a Gas Safe registered company and holds current certificates in the relevant ACS modules.

Installation Instructions

Current legislation must be taken into account on installing this appliance, and it must be installed in a place with suitable ventilation.

In **GB**, the installation must be carried out by a Gas Safe Registered installer. It must be carried out in accordance with the current and relevant requirements of legislation and guidance including:

- The Gas Safety (Installation & Use) Regulations
- The appropriate Building Regulations either The Building Regulations, The Building Regulations (Scotland), The Building Regulations (Northern Ireland)
- Water Fittings Regulation and local byelaws
- I.E.E. Wiring Regulations
- Health and Safety Regulations

Where no specific instructions are given, reference should be made to the relevant British Standard Code of Practice.

Standard	Description
BS 5440: Part 1	Flues and ventilation: Flues
BS 5440: Part 2	Flues and ventilation: Air supply
BS 5546	Installation of hot water supplies for domestic purposes
BS 6891	Installation of low pressure gas
BS 6644	Installation of gas-fired hot water boiler
BS 6700	Installation of services supplying water for domestic use
IGE/UP/10 Part 1 Edition 2	Installation of Gas appliances in Commercial

Standard	Description
BS 5482	Butane and propane installation

In **IE**, the installation must be carried out by a competent Person and installed in accordance with the current edition of I.S.831 'Domestic Gas Installations', I.S.820 'Non-Domestic Gas Installations', the current Building Regulations and reference should be made to the current ETCI rules for electrical installations.

This water heater has been approved for use in the UK and Ireland only. Using the water heater in any other country will void the manufacturer's warranty.

Liability and Responsibility

Our products are manufactured in compliance with the requirements of the European applicable Directives. They are therefore delivered with CE marking and all relevant documentation. In the interest of customers, we are continuously endeavoring to make improvements in product quality. All the specifications stated in this document are therefore subject to change without notice.

The manufacturer will not accept any liability for loss, damage or injury arising as a result of:

- Failure to abide by the instructions on using the appliance.
- Failure to regularly maintain the appliance, or faulty or inadequate maintenance of the appliance.
- Failure to abide by the instructions on installing the appliance.

Request to Installers

CAUTION

In order to use this water heater safely, read this instruction 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 completion of installation, be sure to hand the Operation Manual to the customer upon filling in all of the required items.

Miscellaneous

Installation in hard water areas

In areas with hard water (hardness level exceeding 200 ppm), it is important to install a scale reducer. The advice of the local water authority should be sought.

Gas Conversion

The boiler is configured for natural gas. If LPG conversion is required, use the conversion kit supplied with the water heater.

EC Conformity Declaration



Navien, hereby declares that the water heater models:

NPE-24AWE, NPE-32AWE, NPE-24SWE, and NPE-32SWE

to which this declaration refers, conform to and comply with the essential requirements of the following applicable European Standards and Directives.

Gas appliances: Directive 2009/142/EC Standards EN 437 and EN 26

Water Heater Efficiency: Directive 92/42/EEC
Regulation (EU) No. 814/2013
Regulation (EU) No. 812/2013

Low voltage: Directive 2006/95/EEC

Electro-magnetic Compatibility: Directive 2004/108/EEC

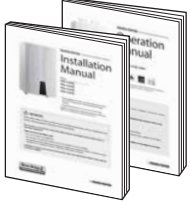
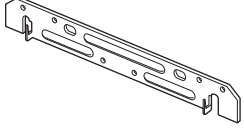
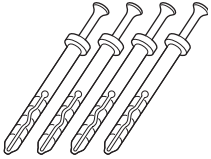
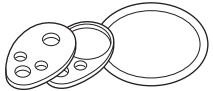
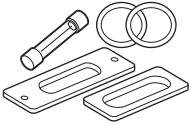
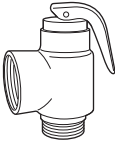
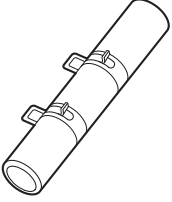
Noise: Standard EN 15036-1, EN-ISO 3743-1

Navien, manufactures its products using a Quality Assurance system in compliance with Standard EN-ISO 9001:2000.

2. About the Water Heater

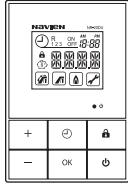
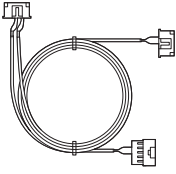

2.1 Items Included

When you open the box, you will find the following items with the water heater. Check the box for each of the following items before installing the water heater.

	
<p>Installation & User's Information Manual</p>	<p>Wall Mounting Bracket</p>
	
<p>Tapping Screws & Anchors</p>	<p>Propane Gas Change Kit</p>
	
<p>Spare Parts</p>	<p>Pressure Relief Valve</p>
	
<p>Condensate trap hose</p>	

2.2 Accessories

The following optional accessories are available for the water heater:

	
<p>Remote Controller</p>	<p>Ready-Link Communication Cable</p>
	
<p>External Pump Connector (<150W,1.5A)</p>	

2.3 Specifications

The following table lists the specifications for the water heater. Additional specifications about water, gas, electric, and air supplies (flue system) appear in the Installation section.

Specifications		Unit	NPE-24AWE	NPE-24SWE	NPE-32AWE	NPE-32SWE
DHW input range		kW	39.6 / 4.0	39.6 / 4.0	52.8 / 5.2	52.8 / 5.2
DHW output range		kW	42.3 / 4.4	42.3 / 4.4	56.6 / 5.8	56.6 / 5.8
Efficiency at maximum load		%	106.6	106.6	107.2	107.2
Efficiency at minimum load		%	111.0	111.0	111.0	111.0
DHW Flow Rate at 25°C temp. rise		l/min	24.0	24.0	32.0	32.0
DHW Flow Rate at 40°C temp. rise		l/min	15.0	15.0	20.0	20.0
Category			II2H3P			
Type			Instantaneous hot water production			
Appliance protection rating			IP X5D			
Min. DHW Working Pressure		bar	1.0			
Min. DHW Working Flow		l/min	1.8			
Max. DHW Working Pressure		bar	10.0			
Adjustable DHW Temperature Range		°C	36 ~ 85			
Dimensions (Width x Depth x Height)		mm	440 x 336 x 695	440 x 336 x 695	440 x 336 x 695	440 x 336 x 695
Weight		kg	34	30	37	34
Installation type			Wall-mounted			
Connection diameter	Cold Water Inlet	mm	22			
	Hot Water Inlet	mm	22			
	Gas Inlet	mm	22			
Power Supply	Main Supply		230V / 50Hz			
	Max. power consumption	W	200W			
Flue exhaust / Air intake system types			B23, B33, B53, C13, C33, C43, C53, C63, C83			
Flue exhaust / Air intake system diameters		mm	Coaxial Ø60/100 and Ø80/125 - Dual duct Ø80/80			
Coaxial length Ø60/100	Max. Horizontal	m	20			
	Max. Vertical	m	21			
Equivalent elbow length Ø60/100	90°	m	2.4			
	45°	m	1.2			
Coaxial length Ø80/125	Max. Horizontal	m	68			
	Max. Vertical	m	70			
Equivalent elbow length Ø80/125	90°	m	2.4			
	45°	m	1.2			
Equivalent length of adapter Ø60/100 → Ø80/125		m	0.5			
Max. dual duct length Ø80/80		m	110			
Equivalent elbow length Ø80	90°	m	2.2			
	45°	m	1.4			

The following table lists the product information (EU regulation No 812/2013 and No 814/2013)

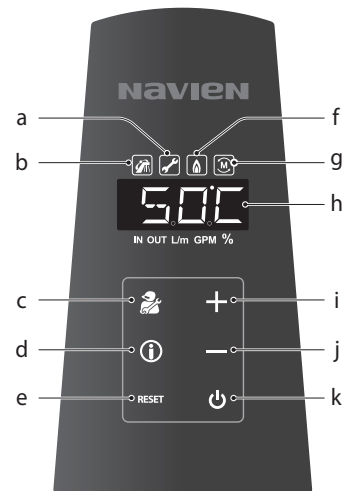
KD Navien	Symbol	Unit	NPE-24AWE	NPE-24SWE	NPE-32AWE	NPE-32SWE
Declared load profile			XL	XL	XXL	XXL
Water heating energy efficiency class			A	A	A	A
Water heating energy efficiency	η_{wh}	%	102.6	105.8	105.4	106.7
Daily electrical consumption	Q_{elec}	kWh	0.100	0.104	0.111	0.111
Annual electrical consumption	AEC	kWh	41	57	24	24
Daily fuel consumption	Q_{fuel}	kWh	18.106	17.380	23.001	22.721
Annual fuel consumption	AFC	GJ	14	14	18	18
Sound power level, indoors	L_{WA}	dB	56	56	58	58
Emissions of nitrogen dioxide	NOx	mg/kWh	25	25	23	23

Specific precaution

Read the user's information and installation manual before the application is assembled, installed or maintained.

2.4 The Front Panel

The front panel allows you to adjust the water temperature and view the operating status or error codes. Remove the protective sheet from the front panel before using it.



Error

A code will appear on the display



Hot Water Recirculation

Recirculation Mode



Diagnostics button

For installers only



Information button

Shows basic information



Reset button

Resets the water heater (When an error occurs)



Combusting

When the gas burner is on



Master Unit

Cascade operation



Display



Up button

Increases the temperature



Down button

Decreases the temperature

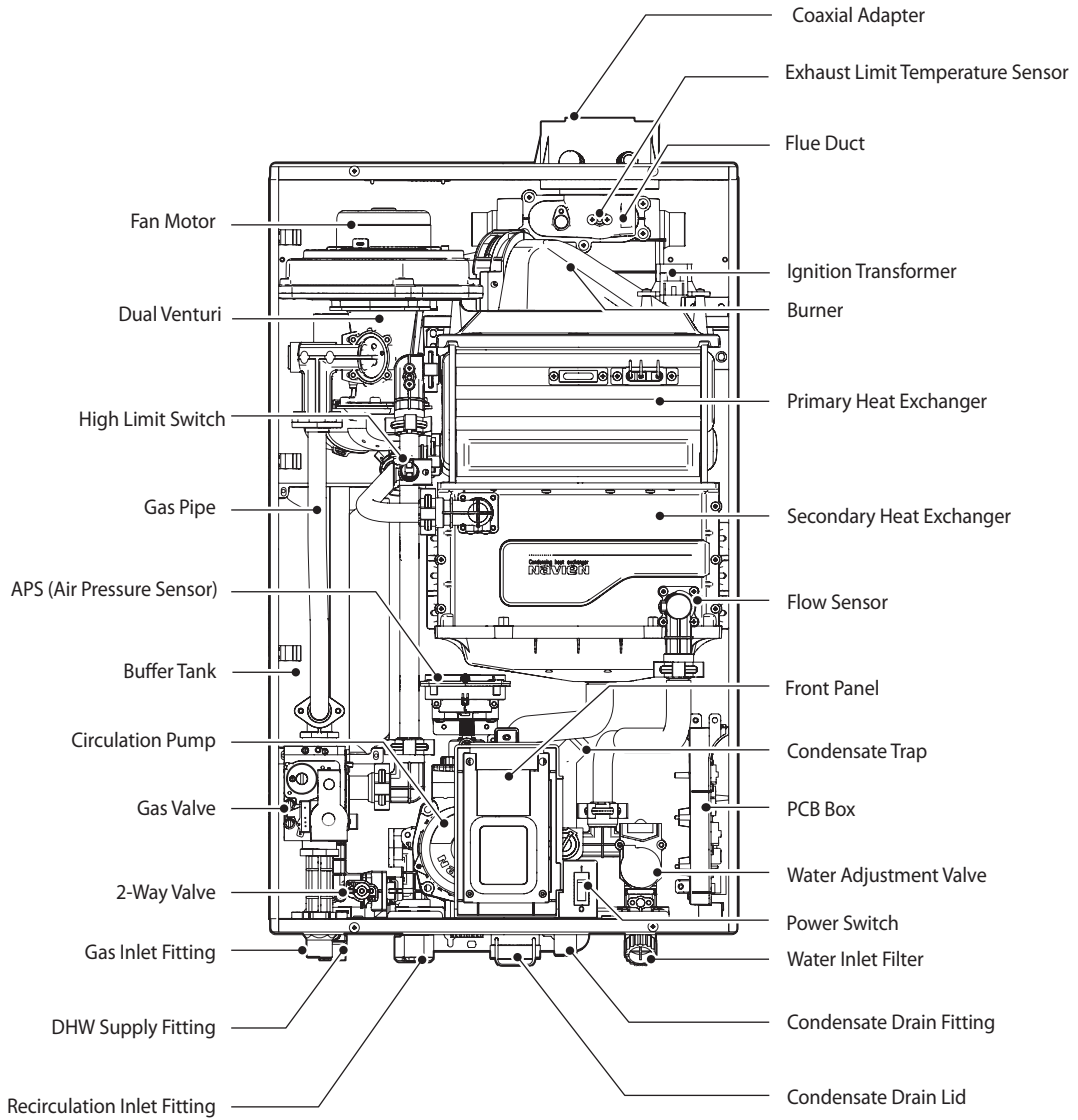


Power button

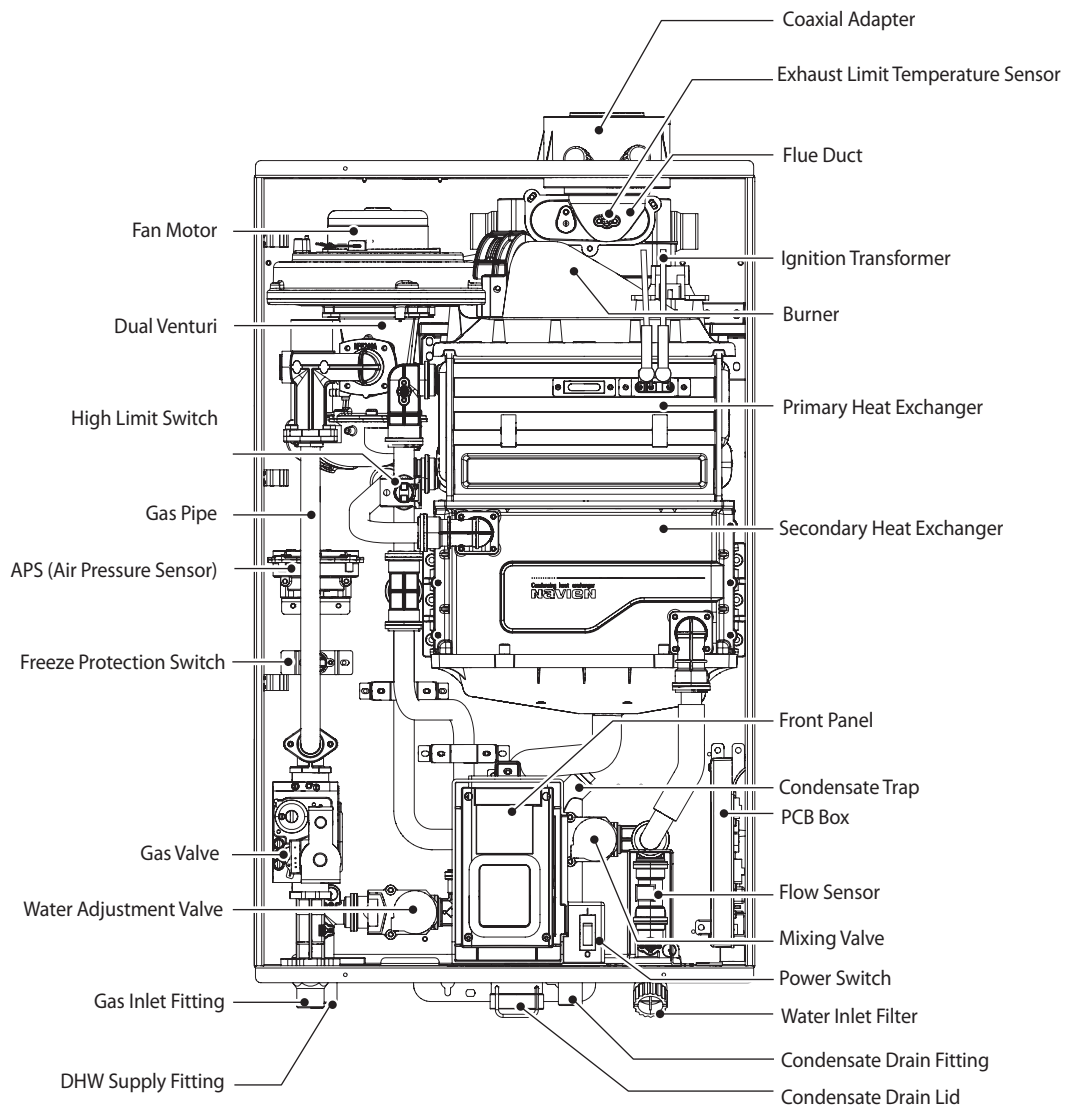
Turns the water heater on or off

2.5 Components

The following diagram shows the key components of the water heater. Component assembly diagrams and particular parts lists are included in the Appendixes.



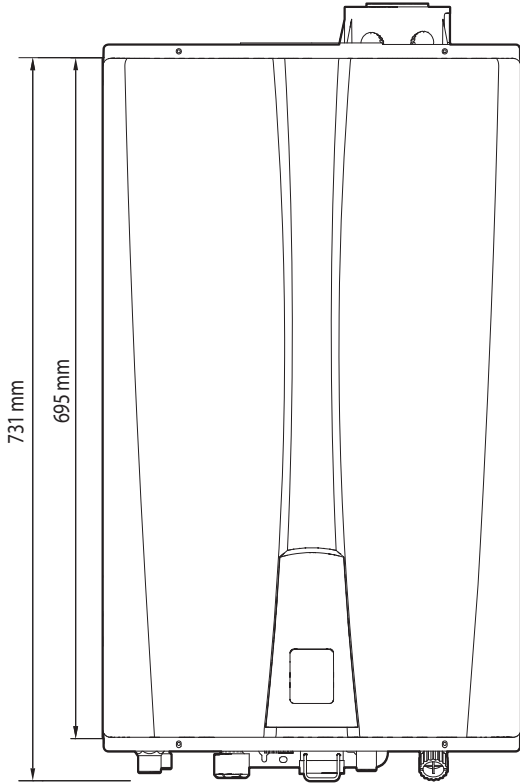
[NPE-24AWE/32AWE]



[NPE-24SWE/32SWE]

2.6 Dimensions

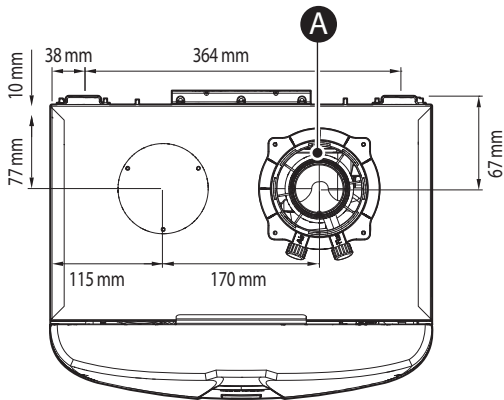
The following diagrams show the dimensions of the water heater and the table lists the supply connections.



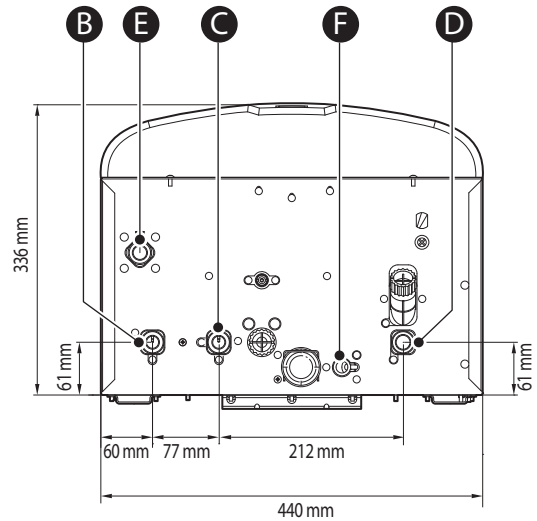
Supply Connections

	Description	Diameter
A	Flue Exhaust / Air Intake	Ø60/100 Ø80/125
B	Hot Water Outlet	22 mm
C	Recirculation Inlet	22 mm
D	Cold Water Inlet	22 mm
E	Gas Inlet	22 mm
F	Condensate Outlet	15 mm

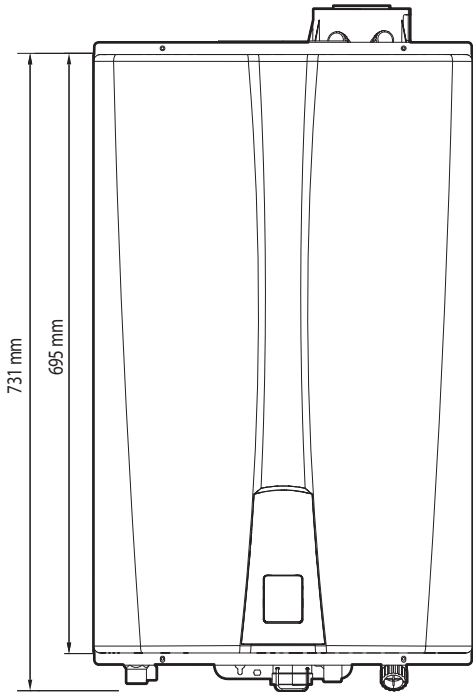
Overhead View



Bottom View



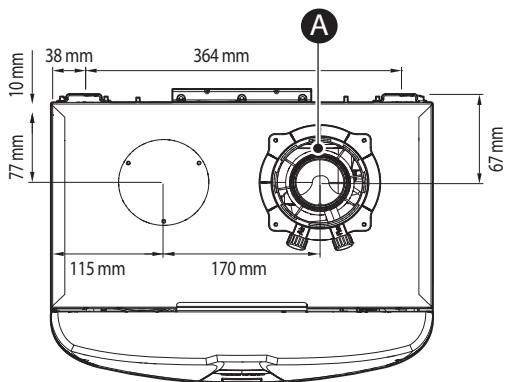
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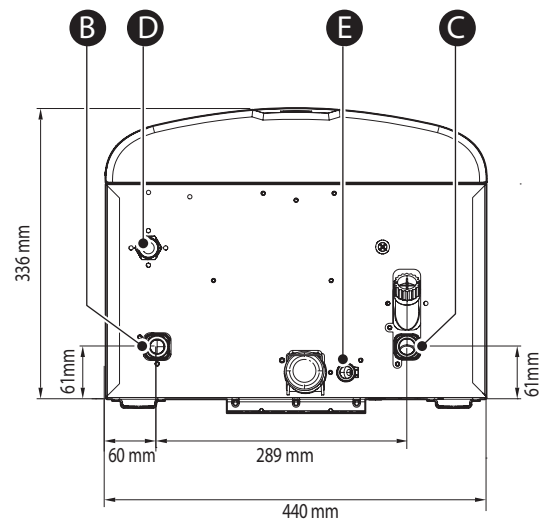
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D	Gas Inlet	22 mm
E	Condensate Outlet	15 mm

Overhead View



Bottom View



[NPE-24SWE/32SWE]

3. Installing the Water Heater

3.1 Choosing an Installation Location

When choosing an installation location, you must ensure that the location provides adequate clearance for the water heater, adequate flue and drainage options, and sufficient access to gas, water, and electrical supplies.

Carefully consider the following factors when choosing an installation location:

Compliance Requirements

This water heater must be installed by qualified personnel in compliance with the applicable Laws and Regulations. In general, these Laws and Regulations are the Basic Gas Installation Standards, the Heating, Air Conditioning and Domestic Water Installation Regulation and all other local regulations.

Access to Utilities

- Water—the installation location should be near where the domestic water supply enters the building.
- Gas—the installation location should be near where the gas supply enters the building.
- Electricity—the installation location should be near where the electrical supply enters the building.

Humidity and Contact with Water

When installing the water heater, avoid places with excessive humidity. The water heater has electric gas ignition components. Water spray or droppings can get inside the water heater and damage the ignition system. The water heater must be installed in a way to ensure that the gas ignition system components are protected from water (dripping, spraying, rain, etc.) during operation and service.

If the water heater is installed in a very humid room (a shower room or bathroom, for example), the Low Voltage regulation and the Technical Building Code must be observed for correct installation.

Proximity to Fixtures and Appliances

Install the water heater near fixtures that deliver or use hot water, such as bathroom, kitchen, and laundry room faucets. Select a location that minimizes the water piping required between major fixtures. If the distances are long or if the user requires “instant” hot water, installation of a recirculation line which circulates domestic hot water back to the water heater from the furthest fixture is recommended. Insulate as much of the hot water supply and recirculation lines as possible.

Adequate Drainage

The water heater produces a significant amount of condensate during operation. This condensate must be removed from the water heater, and suitably treated if national legislation so requires. The water heater should be located near a suitable drain and where damage from a possible leak will be minimal. Installing the water heater in a location without a drain will void the warranty and Navien will not be responsible for water damage that occur as a result. For more information about condensate drainage, refer to “3.5 Connecting the Condensate Drain Line” on page 27.

The water heater must be located in an area where leakage of the unit or connections will not result in damage to the area adjacent to the appliance or to lower floors of the structure. When such locations cannot be found, installation of an adequately drained drain pan under the water heater is highly recommended. When installing the drain pan, ensure that the installation does not restrict combustion air flow.

Adequate Flue and Ventilation

No specific ventilation is required in the room the water heater is installed in. If it is installed in a cupboard or compartment, no specific ventilation is required, providing the aforementioned dimensions are observed. The requirements and recommendations stipulated in the Regulation for Heating Installations in Buildings (RITE) and any other applicable legislation in this field must be observed.

Select a location that requires minimal flue. Consider flue restrictions caused by windows, doors, air intakes, gas meters, foliage, and other buildings. For more information about flue system, refer to “3.6 Flue System” on page 28.

To ensure adequate flue and ventilation, follow these guidelines:

- Maintain proper clearances from any openings in the building.
- Install the water heater with a minimum clearance of 300 mm above an exterior grade or as required by local codes.
- Do not enclose the flue termination.
- Install the exhaust flue in an area that is free from any obstructions, where the exhaust will not accumulate.
- Do not install the water heater where moisture from the exhaust may discolour or damage walls.
- Do not install the water heater in bathrooms, bedrooms or any other occupied rooms that are normally kept closed or not adequately ventilated.

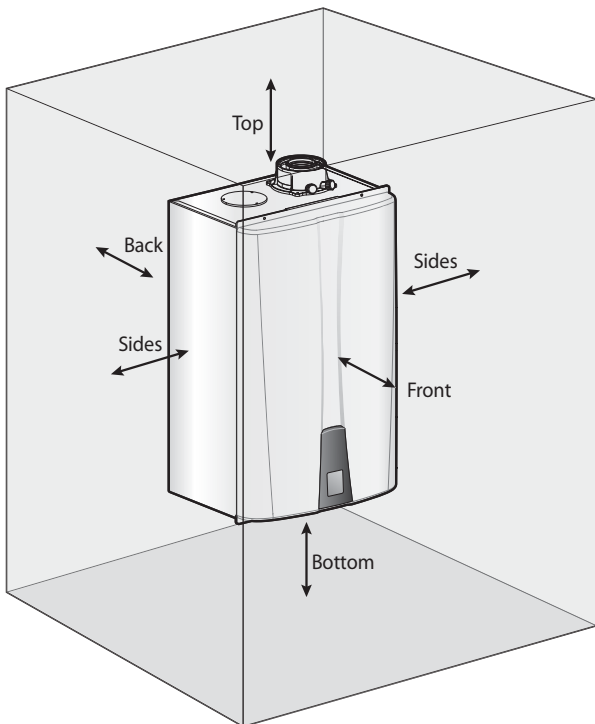
The requirements and recommendations stipulated in the Regulation for Heating Installations in Buildings (RITE) and any other applicable legislation in this field must be observed.

Adequate installation clearances

! CAUTION

Do not install the water heater on carpeting.

Install the water heater in an area that allows for service and maintenance access to utility connections, piping, filters, and traps. Based on the installation location, ensure that the following clearances are maintained:



Clearance from:	Indoor Installation
Top	250 mm minimum
Front	100 mm minimum
Bottom	300 mm minimum
Back	20 mm minimum
Sides	76 mm minimum

Clean, debris and chemical-free combustion air

- Do not install the water heater in areas where dust and debris may accumulate or where hair sprays, spray detergents, chlorine or similar chemicals are used.
- Do not install the water heater in areas where petrol or other flammables are used or stored.
- Ensure that combustible materials are stored away from the water heater and that hanging laundry or similar items do not obstruct access to the water heater or its flue system.

About Water Quality

Proper maintenance of the water heater is required when water quality does not meet standards. Damage caused by poor water quality is not covered under warranty. The following table shows the maximum contaminant levels allowed. If you suspect that your water is contaminated in any way, discontinue use of the water heater and contact an authorized technician or licensed professional.

Installation in hard water areas

In areas with hard water (hardness exceeding 200 ppm), it is important to install a scale reducer. The advice of the local water authority should be sought.

Contaminant	Maximum Allowable Level
Total Hardness	Up to 200 mg/l (12 grains/gallon)
Aluminum	0.05 to 0.2 mg/l
Chloride	Up to 250 mg/l
Copper	Up to 1.0 mg/l
Iron	Up to 0.3 mg/l
Manganese	Up to 0.05 mg/l
pH	6.5 to 8.5
Sulfate	Up to 205 mg/l
Total Dissolved Solids (TDS)	Up to 500 mg/l
Zinc	Up to 5 mg/l
Chlorine	Up to 4 mg/l

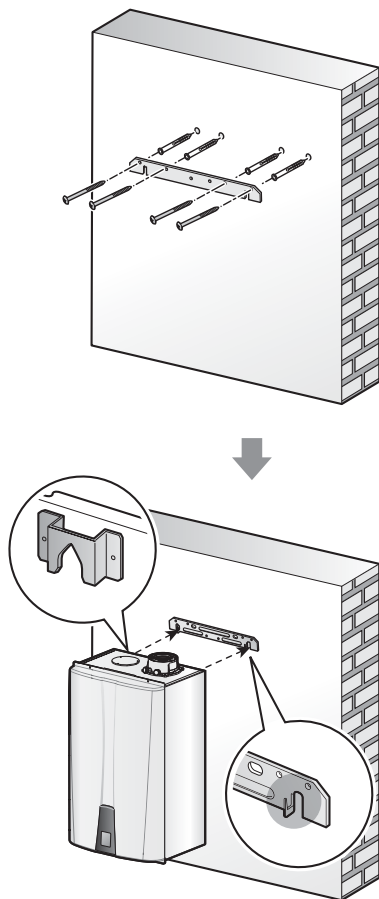
3.2 Mounting the Water Heater to the Wall

Navien NPE-AWE/NPE-SWE water heaters come with an upper mounting bracket that is pre-drilled at 400 mm on centre for easy installation on standard wall studs. If the strength of the wall is insufficient or if the framing is non-standard or uneven, reinforce the area before installing the water heater. Avoid installation on common walls as the unit will make some operational noises while it is running.

To mount the water heater to the wall:

1. Affix the bracket securely to the wall and ensure that it is level and that it can support the weight of the water heater.
2. Align the grooves on the back of the water heater with the tongues on the mounting bracket and hang the water heater on the bracket.

When mounted with the mounting bracket, the water heater will have a 20 mm clearance from the back of the wall.



WARNING

- **The water heater is heavy.** Always lift the unit with assistance. Be careful not to drop the water heater while lifting or handling it to avoid bodily injury or damage to the unit.
- **Do not** rest the water heater on the bottom end after removing it from the shipping carton. Doing so may result in excessive pressure on protruding pipes and result in product damage. If you must put the water heater down, lay it on its back or put it inside the protective shipping base.



DANGER

- The water heater must be mounted on a suitable wall that can support its weight and prevent explosion or fire.
- Do not install the water heater near paper or other flammable objects.
- Do not install the water heater near domestic waste.

3.3 Connecting the Gas Supply

WARNING

- If a gas type other than the one specified on the water heater reference plate is used, it could cause a fire or even an explosion.
- It is important to ensure that the gas supply is suitable for the type and capacity of the water heater.
- Thoroughly check the seal and draining of the entire installation, as a gas leak could cause serious damage.

DANGER

- Gas leaks can cause explosions resulting in serious personal and material damage.
- Keep all doors and windows open while you are bleeding the gas pipes and put out any cigarettes, flames or other possible source of ignition.

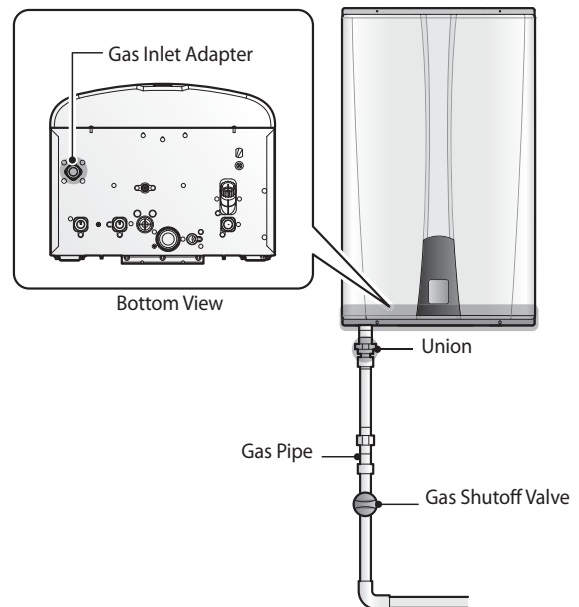
For the installation of any type of gas, the installer must be authorised by the Ministry of Industry and strictly follow the applicable Gas Regulations. The gas installation must comply with the Gas Installation Regulation.

However, the following recommendations must be complied with, at the least:

- Before installing the gas pipes, check the type of gas is compatible with the water heater.
- Check that the gas meter in the home can measure the rate of gas supply required.
- The gas pipe diameter is not determined by the water heater connection. It should be calculated in accordance with its length and consequently its pressure drop.
- The pipes must be directly connected to the main gas supply pipe, not connected in parallel to other gas appliances.
- Check there are no leaks from the installation.
- The gas supply company is solely responsible for connecting the gas meter to the gas installation.

To connect the gas supply:

1. Connect the gas supply pipe to the connection located on the underside of the appliance.
2. After completing the gas installation, check there are no leaks and bleed the air from all the pipes, following the procedures described in the applicable standards to this respect.



3.3.1 Gas Pipe Material

WARNING

The water heater must be left running for 10 minutes before checking the gas pressure, to obtain thermal equilibrium.

The gas installation pipes must be made of suitable materials and comply with the applicable legislation to this respect.

The gas connection must be made using a rigid pipe, inserting a shut-off valve between the water heater and the pressure regulator.

All the pipes must be suitably fixed in place.

3.3.2 Propane Gas Installations (LPG)

DANGER

- Thoroughly check the seal and the drainage of the entire installation, as a gas leak could cause serious damage.
- If a propane-fired water heater is installed in an interior room or compartment underground, one side of the building must be open to the exterior.
- If a gas tank is used, it must be installed in a cool, shaded place away from direct sunlight. It must also be thoroughly secured to prevent it from tipping over, which could cause an explosion.

If the water heater is used with propane, a gas regulator suitable for this type of gas must be installed. The connection and installation must be made in accordance with the applicable regulations and standards at the time of installation.

Note The output pressure of the pressure regulator must be in accordance with Standard EN 437.

3.3.3 Measuring the Inlet Gas Pressure

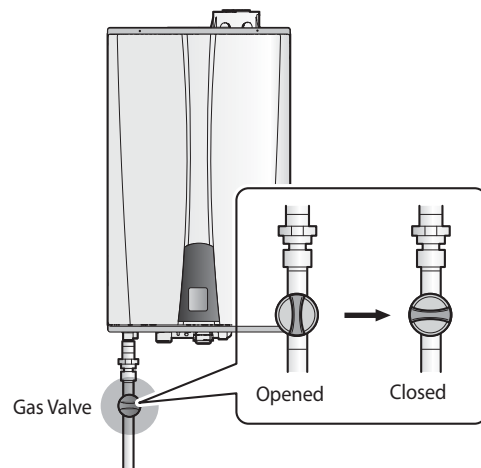
WARNING

The water heater cannot function properly without sufficient inlet gas pressure. Measuring the inlet gas pressure should be performed by a licensed professional only.

The inlet gas pressure must be maintained between 17 mbar and 25 mbar for natural gas and between 25 mbar and 35 mbar for liquefied propane.

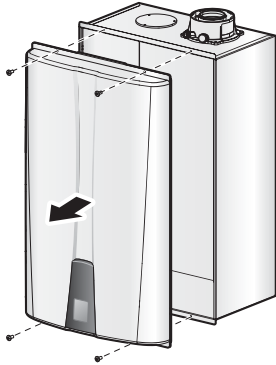
To measure the inlet gas pressure:

1. Shut off the manual gas valve on the gas supply line.



2. Open a hot water faucet. The water heater should turn on and the gas in the gas supply line will be purged.

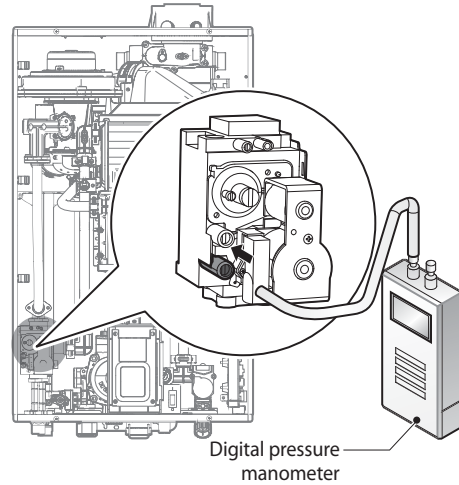
3. Leave the faucet on until the water heater shuts down due to a lack of gas supply, and then turn off the hot water faucet.
4. Remove the front cover by loosening the four Phillips head screws securing it to the case.



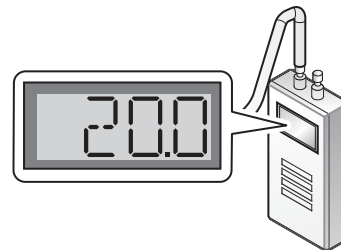
! CAUTION

Ensure that no cables are in the way before folding down the PCB assembly. If the assembly is stuck, do not force it. Doing so may damage the cables and result in serious malfunctions. Check again to ensure that no cables or any other parts are in the way before you proceed.

5. Loosen the screws indicated in the figure below and connect a manometer to the pressure port. Reset the manometer to zero before use.



6. Re-open the manual gas valve and check for leaks.
7. Open multiple fixtures that have high flow rates, such as bathtub and shower faucets, to ramp the water heater up to its maximum firing rate.
8. When the water heater reaches its maximum firing rate, check the inlet gas pressure reading on the manometer. The gas pressure must fall within the ranges specified on page 19.



3.4 Connecting the Water Supply

When connecting the water supply, follow these guidelines:

- Do not remove the factory installed recirculation inlet cap unless a return line is connected to this fitting. Water leakage will occur if this cap is loose or missing ("A" model only).
- Use only pipes, fittings, valves, and other components, such as solder, that are approved for use in potable water systems.
- Tighten the water heater connection valves with care to avoid damage.
- We recommend using unions and manual shut-off valves on the cold water inlet, DHW outlet, and recirculation water inlet.
- Strive to make the hot water piping system as short as possible, to deliver hot water to the fixtures more quickly.
- To conserve water and energy, insulate all water piping—especially the hot and recirculation water lines. Never cover the drain or pressure relief valve. If the water heater is installed in a closed water supply system, such as one having a backflow preventer in the cold water supply line, means shall be provided to control thermal expansion. Contact the water supplier or local plumbing inspector for information about how to control this situation.
- After installing the water heater, clean the inlet water filter that is located inside the cold water inlet, and then test the water heater for proper flow and inspect for leaks. Instruct the water heater owner that the filter must be cleaned periodically to maintain proper water flow.

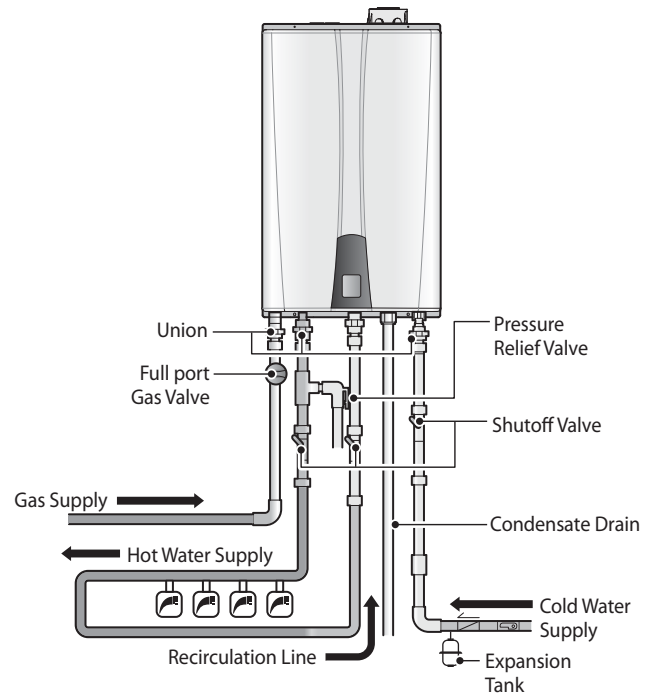
WARNING

- Tighten the water heater water connections, taking care not to damage them. Do not force the tube connections excessively, as this could damage the connections and cause leaks.
- Any dirt in the tubes could reduce water heater efficiency and cause it to malfunction.
- Any pipes exposed to the elements or which could freeze in winter must be insulated with suitable insulating material.

CAUTION

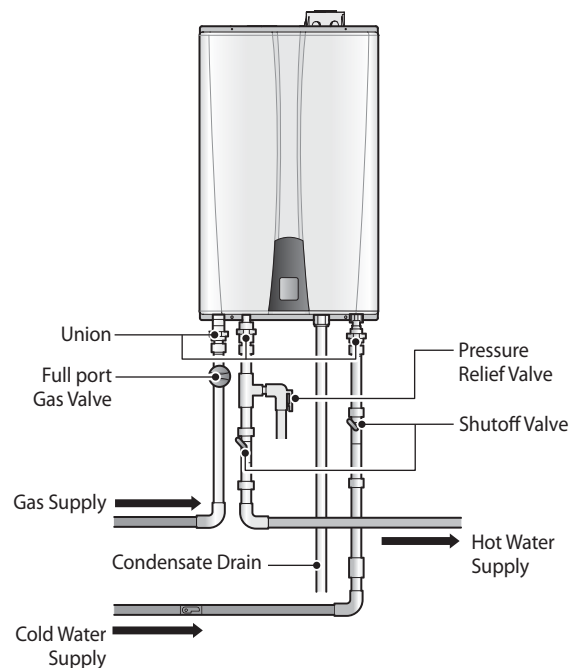
Failure to follow the instructions provided in this section will void the warranty and may result in property damage, fire or serious injury.

- The following is a typical water piping example for NPE-24AWE/32AWE models.



[NPE-24AWE/32AWE]

- The following is a typical water piping example for NPE-24SWE/32SWE models.



[NPE-24SWE/32SWE]

3.4.1 Selecting a Recirculation Mode ("AWE" model only)

On all "AWE" model Navien water heaters, you can choose from two pre-heating modes: internal recirculation mode or external recirculation mode. To select a recirculation mode, you must set the DIP switches on the front panel, and set the position of the 2-way valve inside the water heater. By default, the DIP switches are set to OFF.

When the optional ComfortFlow recirculation mode is activated, energy consumption increases because the water heater operates to maintain the water temperature within the circulation loop. You can use the Navien Intelligent Preheating feature, set the timer on the optional Remote Controller to reduce energy consumption.

The recirculation feature of the "AWE" models has three performance advantages:

- Elimination of any minimum flow rate requirement.
- Elimination of any hot/cold/hot stacking—the "cold water sandwich" effect.
- Quicker hot water delivery to fixtures, which results in less water wasted.

Note When using external recirculation mode with the built-in pump, observe the following maximum recirculation pipe lengths including fittings (22 mm pipe is recommended):

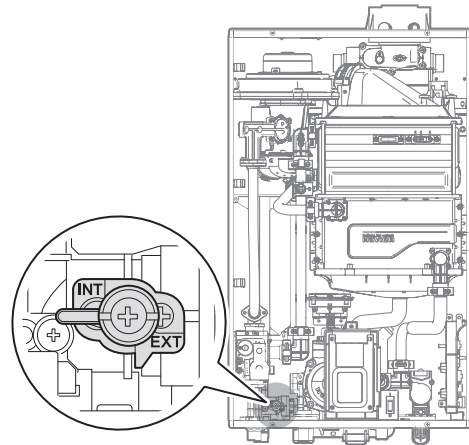
- 15mm Copper Pipe- 30 m of equivalent length
- 20mm Copper Pipe- 150 m of equivalent length

Lengths in excess of these limits will require an external recirculation pump.

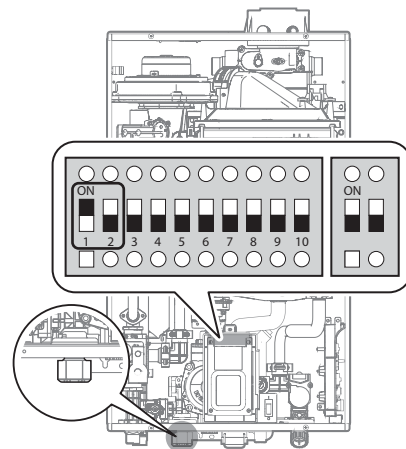
Internal Recirculation Mode

To use the internal recirculation mode:

1. Connect the water supply.
2. Set the 2-way valve inside the water heater to "INT."



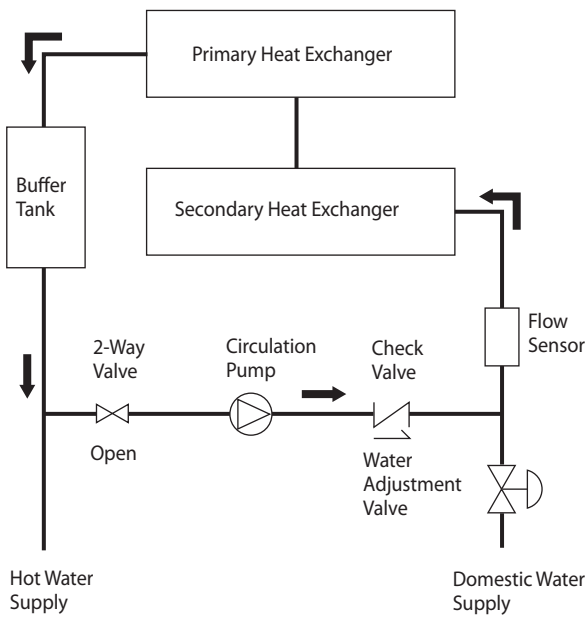
3. Set the front panel DIP switches at the far left (set of 10) to: 1—ON; 2—OFF.



! CAUTION

Do not remove recirculation cap. (Internal Recirculation Mode)

The following diagram shows the internal recirculation flow for pre-heating:

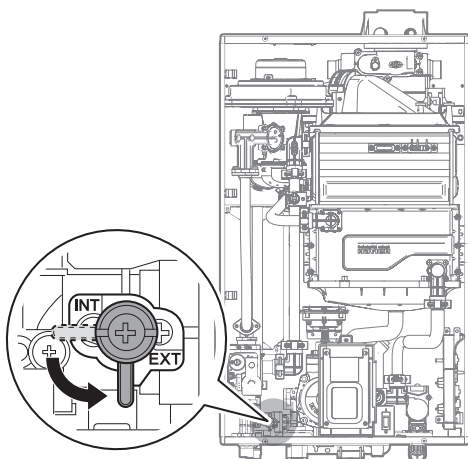


Internal Recirculation Mode

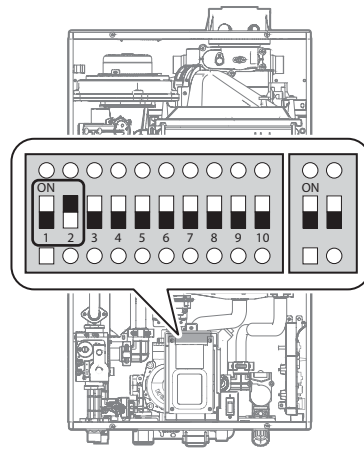
External Recirculation Mode

To use the external recirculation mode:

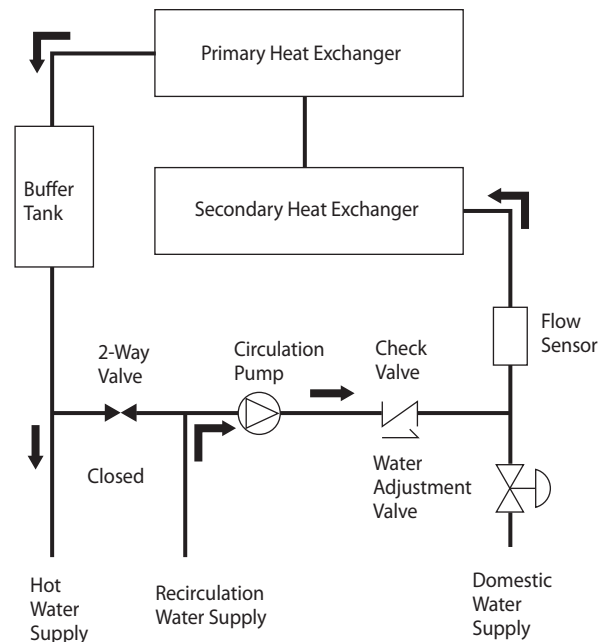
1. Connect the water supply to support recirculation. Refer to the [NPE-24AWE/32AWE] water piping diagram.
2. Set the 2-way valve inside the water heater to "EXT."



3. Set the front panel DIP switches at the far left (set of 10) to: 1—OFF; 2—ON.



The following diagram shows the external recirculation flow for pre-heating:



External Recirculation Mode

3.4.2 External Pump Wire Connection

An external pump may be connected to the water heater for recirculation applications. When selecting a circulator, it shall be sized to maintain a flow of 7 to 15 LPM through the water heater. Follow the instructions below when connecting the pump wire accessory to the PCB.

WARNING

Failure to follow the instructions below may result in property damage or personal injury. To avoid the danger of electric shock, make sure that the water heater is turned off before connecting the wire to the PCB.

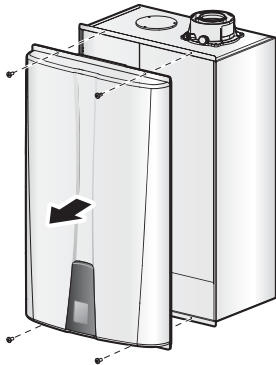
CAUTION

An external pump cannot be used in an external recirculation mode application utilizing a by-pass Valve.

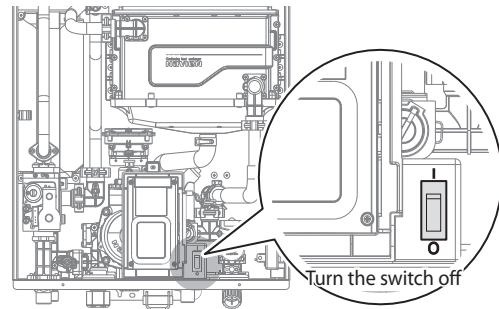
<Specifications>

- Maximum Power Consumption: 150W, 1.5A
- Length: 183 cm (wire length : 4m)
- ※ When using a pump with larger power requirements than the listed specification above, a relay should be used to ensure proper operation.

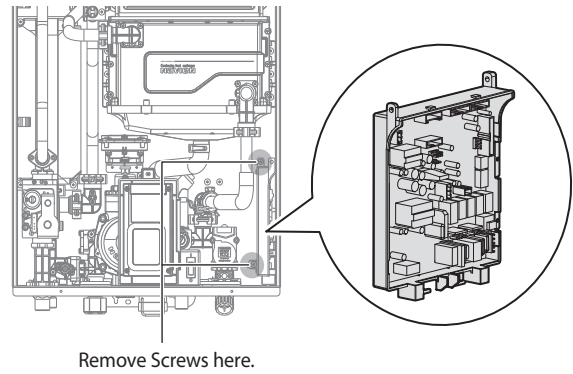
1. Remove the water heater front cover by loosening the four Phillips head screws securing it to the case.



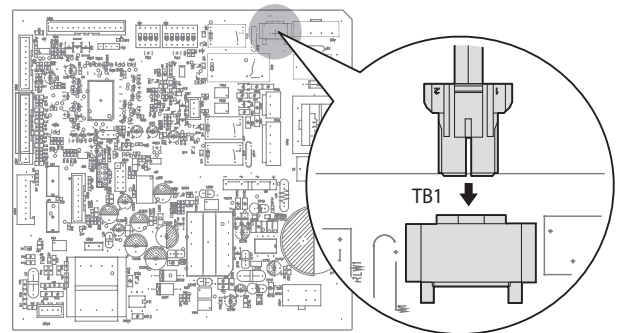
2. Locate the power switch on the right side of the front panel and switch the system off.



3. Remove the two screws holding the PCB box in place and remove the PCB box from the system.

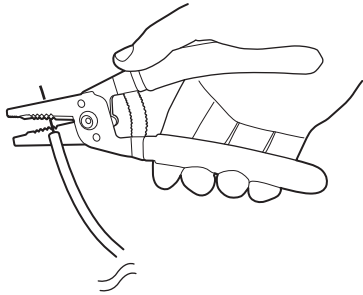


4. Connect the external pump wiring connector to the connector socket on the PCB(TB1).



5. Put the PCB box back in its original place and secure it using the two mounting screws.

- Remove the plastic insulation from the external pump wire with a wire stripper before connecting it to the pump.



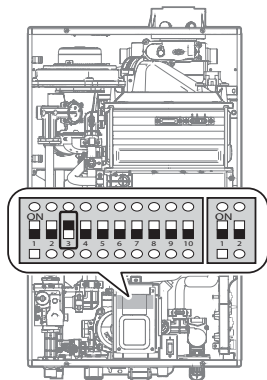
- Connect the External Pump Wire to the proper wires from the pump junction box.



WARNING

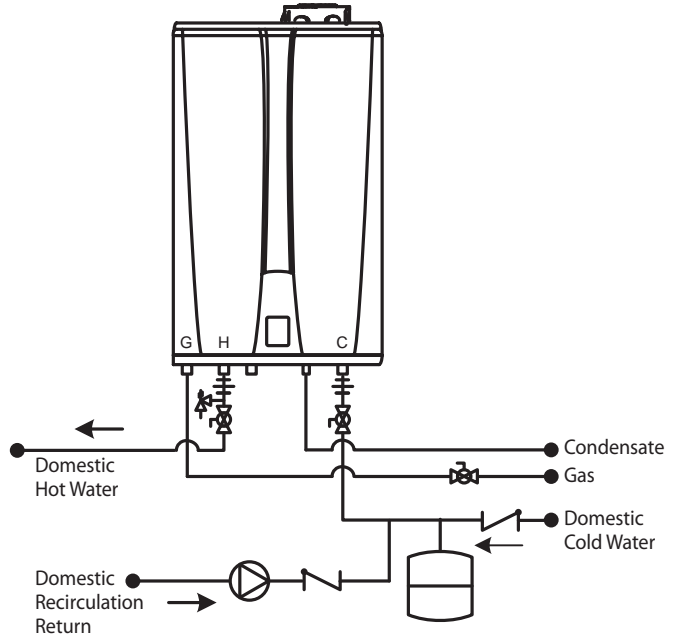
To avoid danger of electrocution turn OFF the water heater until external pump connected.

- Locate the 10 Dip switch(SW1) on the front panel and turn on the proper switches based on the desired recirculation setting (see Recirculation Dipswitch Settings below).

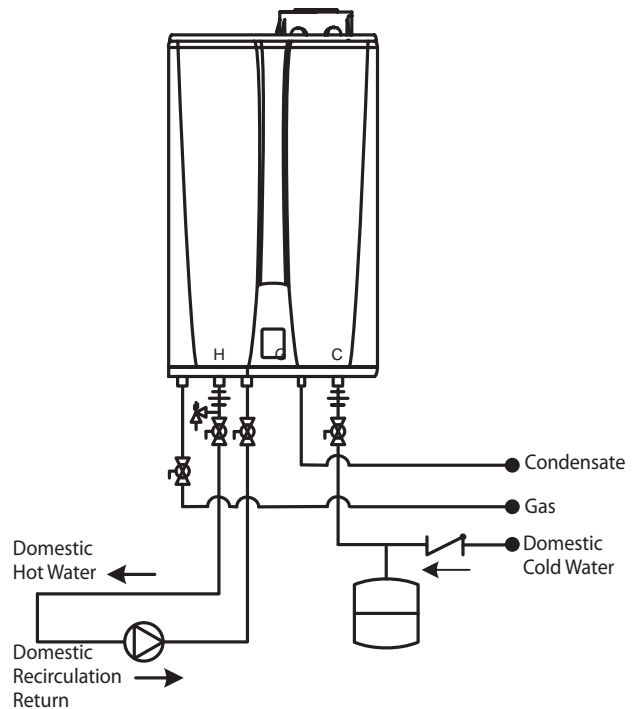


- Turn on the switch beside the front panel.

- Put the water heater cover back on and secure it with the four screws.



Recirculation Using External Pump Only



**Recirculation Using Two Pumps
(Navien Internal Pump & External Pump)**

3.4.3 Connecting a Pressure Relief Valve

WARNING

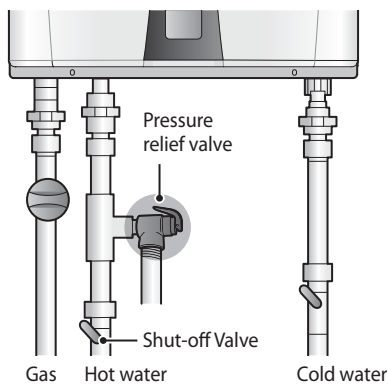
Improper installation of the pressure relief valve may result in property damage or personal injury. Follow all instructions and guidelines when installing the pressure relief valve. The valve should be installed only by a licensed professional.

To complete the installation of the water heater, you must install an approved 20mm, maximum 10 bar pressure relief valve on the hot water outlet. The water heater has a built-in high temperature shut off switch, so install a "pressure only" relief valve. This valve is supplied along with the water heater.

The pressure relief valve should be placed as close to the water heater as possible. No other valve should be placed between the pressure relief valve and the water heater.

When installing the valve, follow these guidelines:

- Ensure that the discharge capacity of the pressure relief valve is equal to or greater than the maximum pressure rating of the water heater.
- Ensure that the maximum kW rating on the pressure relief valve is equal to or greater than the maximum input kW rating of the water heater.
- Direct the discharge piping of the pressure relief valve so that hot water will not splash on anyone or any nearby equipment.
- Attach the discharge line to the pressure relief valve and run the end of the line to within 150-300 mm of the floor.
- Ensure that the discharge line will allow free and complete drainage without restriction. Do not install a reducing coupling or other restriction on the discharge line.
- If the relief valve discharges periodically, this may be due to thermal expansion in a closed water supply system. Contact the water supplier or local plumbing inspector on how to correct this situation. Do not plug the relief valve.



3.5 Connecting the Condensate Drain Line

The Navien NPE-AWE/NPE-SWE water heaters create condensation when it operates. This condensation has an acidic pH of 3-5. Follow all local codes and regulations when disposing of condensate from the water heater. We recommend draining the condensate into a laundry tub, as the alkali in laundry detergent will neutralize the acid in the condensate. However, other suitable waste drain locations may be used according to the local legislation.

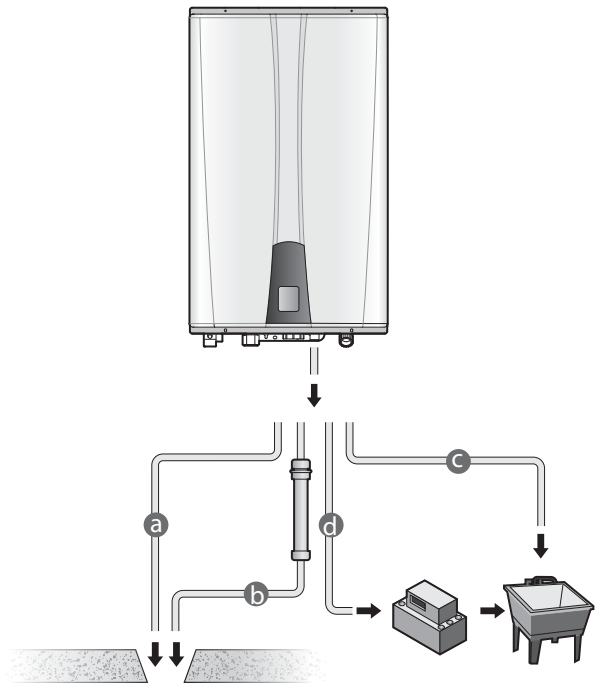
CAUTION

- Do not cap or plug the integrated condensate line. If prevented from draining, condensate can damage the water heater.
- The condensate line must have a negative slope to drain properly.

The requirements recommended for the condensate drain line installation are as follows:

- For correct condensate drain line installation, the tube must have a minimum diameter of Ø22 mm.
- The tube must be made of a material that can withstand corrosion, e.g. PVC, PCV-U, ABS, PVC-C or PP. It must not be made of metal.
- For safety reasons, the end of the tube must be as close as possible to the draining point.
- When the condensate drainage is connected to a general drain network inside the building, the effects of overpressure that could occur inside it must be taken into account, installing suitable pressure release and ventilation elements.
- The length of the tubes outside the building must be as short as possible. They must also be installed with as much tilt as possible. The tubes must be insulated if they are exposed to extremely cold weather or blizzards. If the tubes are not insulated, they must have a diameter of at least Ø32 mm.
- The drain tube must have a minimum tilt of 2.5° downstream of the water heater.
- For tubes with Ø22 mm, the maximum permitted length is 3 metres.
- If the appliance is installed in a non-heated premises, the tube system must be treated as if it was an outdoor installation.
- To prevent the risk of tripping, the outdoor tubes must be fixed to the walls.

Before connecting the condensate drain, choose one of the following disposal options:



- From the water heater directly into an external drain.
- From the water heater, through a neutralizing agent, and then into an external drain.

Note If you choose this option, the neutralizing agent must be replaced periodically. Depletion of the neutralizing agent will vary, based on the usage rate of the water heater. During the first year of operation, the neutralizer should be checked every few months for depletion and replaced as needed.

- From the water heater into a condensate pump and neutralizing agent

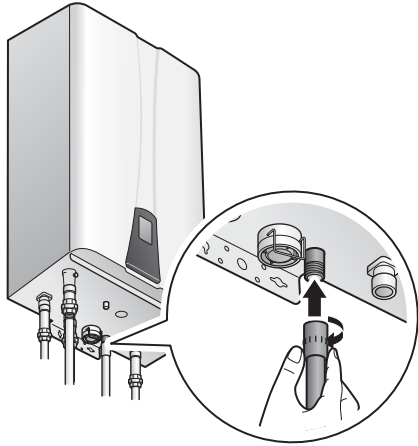
Note The bottom of the water heater must be higher than the top of the laundry tub to use this option. The condensate line must have a negative slope to drain properly.

- From the water heater into a condensate pump, and then into a laundry tub.

Note A pump can be used when there is a long distance between the water heater and the laundry tub or when the bottom of the water heater is lower than the top of the laundry tub.

To connect the condensate drain:

1. Connect a drain line to the 13 mm fitting at the bottom of the water heater.
Use only corrosion-resistant material for the drain line, such as PVC or CPVC. Do not reduce the size of this fitting or the drain line to less than 13 mm.



2. Place the free end of the drain line into an appropriate drain.
3. If you are using a condensate pump, ensure that the pump allows for up to 3.78 LPH of drainage for each water heater in the system.
4. If you are not using a condensate pump, ensure that the drain line is pitched downward at a minimum slope of 6 mm per 30 cm.

Note Water must be poured into the exhaust connection to fill the condensate trap.

3.6 Flue System

WARNING

Improper flue of the water heater can result in excessive levels of carbon monoxide, which can lead to severe personal injury. Flue should be performed only by a licensed professional.

No specific ventilation is required in the room the water heater is installed in. If it is installed in a cupboard or compartment, no specific ventilation is required, providing the aforementioned dimensions are observed. The requirements and recommendations stipulated in the Regulation for Heating Installations in Buildings (RITE) and any other applicable legislation in this field must be observed.

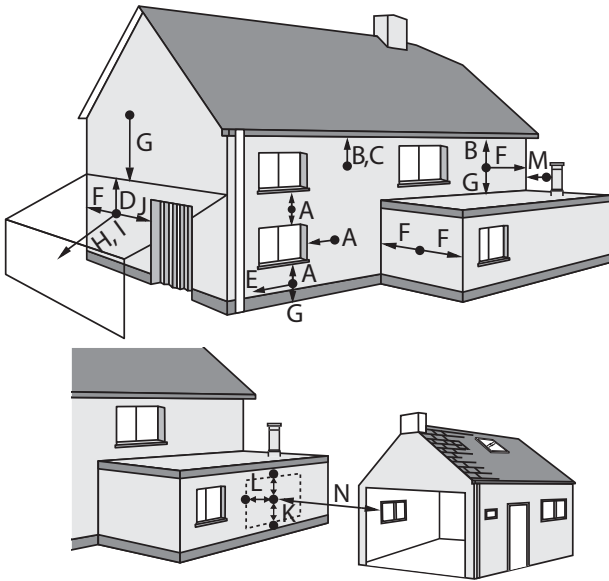
3.6.1 Flue Terminal Positions

CAUTION

- The terminal must be fitted with suitable protection if it is less than 2 m from a balcony, on a flat roof or surface that could be accessed by people.
- The wall that the gas removal and air intake ducts are fixed to must not be made of combustible or flammable materials. The wall that the end of the duct passes through must lead to the outside of the home. There must be no hazardous materials or obstructions near the duct.
- If the outlet passes through a wall made of combustible material the end terminal must be covered with at least 20 mm of incombustible material and must maintain a distance of at least 50 mm from any flammable material.
- The parts connecting the flue outlet must be correctly joined using sealing gaskets. Ensure that there are no leaks from any part of the removal circuit.
- Switch off the water heater and wait for the pipes to cool down before cleaning the gas removal and air intake ducts.
- The gas removal and air intake ducts must be protected from snow accumulation.

The installation of the flue exhaust and combustion air intake system must be calculated and made by sufficiently qualified and authorised staff. On designing and mounting the installation, all national and local regulations, standards and stipulations applicable at the time of installation must be taken into account.

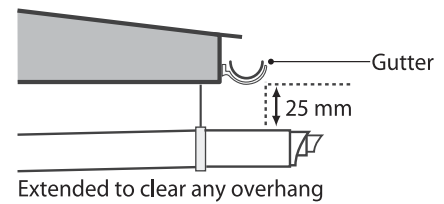
The minimum distances between the flue exhaust terminal and the building elements must comply with those shown in the following table:



Terminal Position		Minimum Distance (mm)
A	From openings (e.g. doors, windows, ventilation grilles)	300
B	Under a cornice	200
C	Under a gutter or drainpipes	75
D	Under a balcony or car port roof	200
E	From vertical drainpipes	150
F	From internal and external corners of the building	300
G	From the ground, roof and balconies	300
H	When no other outlet is installed	600
I	From the wall with the pipe to the front wall	1200
J	From openings (e.g. doors, windows) under the roof	1200
K	Vertically from a flue	1500
L	Horizontally from a flue	300
M	Vertical flue clearance (Non combustible building material)	500
N	From a front surface with openings	2000

Note

- For vertical ducts, the outlet must be at least 60 cm from any opening.
- The dimensions (B, C, D, and E) may be reduced to 25 mm, as long as the flue terminal is extended to clear any overhangs.



3.6.2 Selecting a Flue System

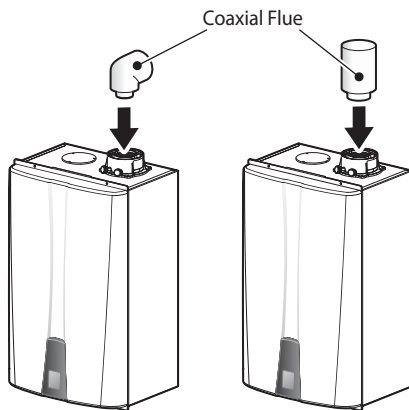
WARNING

- The gas removal ducts must not be in contact with or near flammable materials and they must not pass through any structures or walls of buildings made of such materials.
- If you replace the water heater, the old gas removal system must be replaced by a new one.
- The standard flue must be installed level. If flue extensions are needed, they must have a 3 degree fall back to the appliance.

The fume extraction connection depends on the type of system chosen (coaxial removal system or dual duct removal system). Carefully follow the instructions given below:

Coaxial System

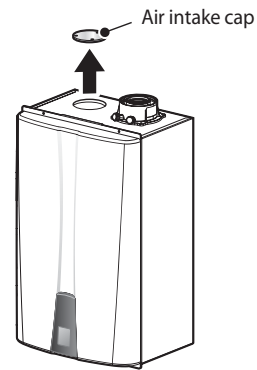
For coaxial system, fit the components as shown in the figure:



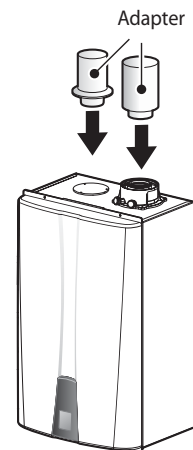
Dual Duct System

For dual duct system, fit the components as shown in the figure:

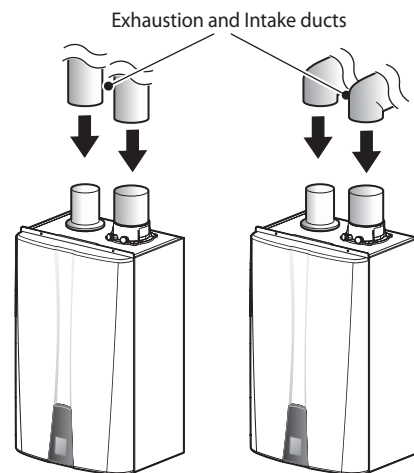
1. Remove the air intake cap.



2. Connect the corresponding adapters to the water heater (the gas removal and air intake adapters).



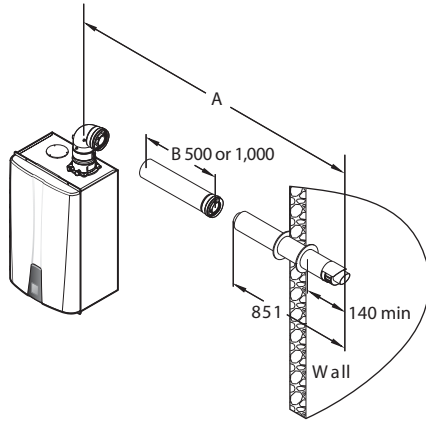
3. Connect the gas removal and intake ducts.



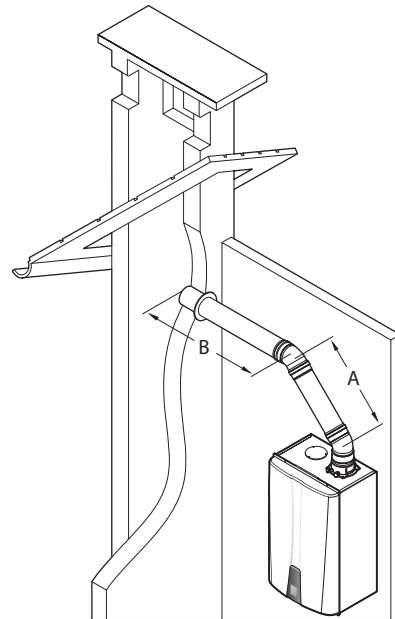
3.6.3 Coaxial Systems

3.6.3.1 Horizontal Coaxial Removal (Type C₁₃)

Standard Removal System

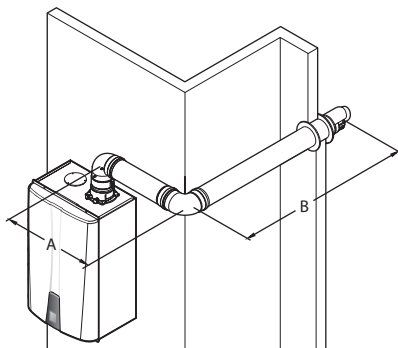


$\varnothing 60/100 \Rightarrow$ Max. length: $A=20$ m
 $\varnothing 80/125 \Rightarrow$ Max. length: $A=68$ m



$\varnothing 60/100 \Rightarrow$ Max. length: $A+B-(2 \times 45^\circ \text{elbow}) = 20-2.4 = 17.6$ m
 $\varnothing 80/125 \Rightarrow$ Max. length: $A+B-(2 \times 45^\circ \text{elbow}) = 68-2.4 = 65.6$ m

Extended Removal System

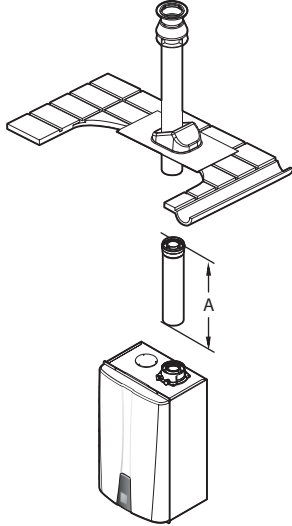


$\varnothing 60/100 \Rightarrow$ Max. length: $A+B-(2 \times 90^\circ \text{elbow}) = 20-4.8 = 15.2$ m
 $\varnothing 80/125 \Rightarrow$ Max. length: $A+B-(2 \times 90^\circ \text{elbow}) = 68-4.8 = 63.2$ m

Pipe Diameter (mm)	Maximum Length (m)	Elbow	Equivalent Length (m)
$\varnothing 60/100$	20	45°	1.2
		90°	2.4
$\varnothing 80/125$	68	45°	1.2
		90°	2.4

3.6.3.2 Vertical Coaxial Removal (Type C₃₃)

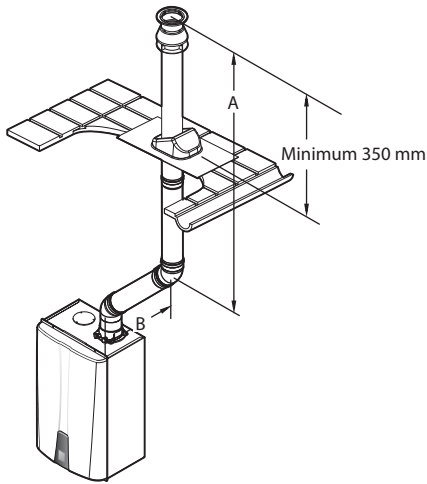
Standard Removal System



Ø60/100 => Max. length: A=21 m

Ø80/125 => Max. length: A=70 m

Extended Removal System



Ø60/100 => Max. length: A+B-(2x45°elbow) = 21-2.4 = 18.6 m

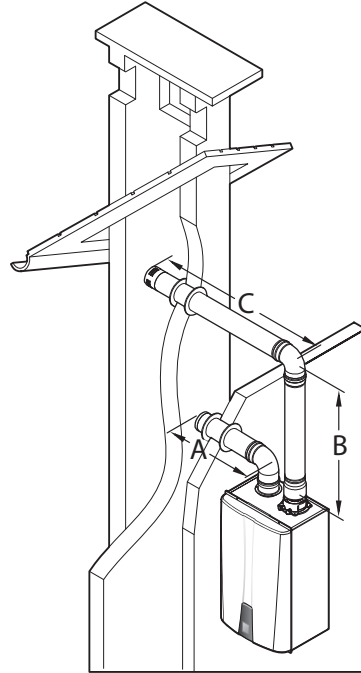
Ø80/125 => Max. length: A+B-(2x45°elbow) = 70-2.4 = 67.6 m

Pipe Diameter (mm)	Maximum Length (m)	Elbow	Equivalent Length (m)
Ø60/100	21	45°	1.2
Ø80/125	70		

3.6.4 Dual Duct Systems

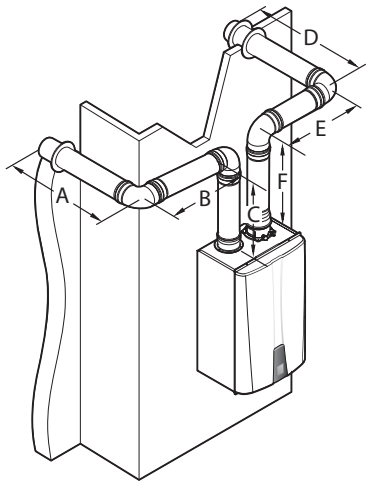
3.6.4.1 Horizontal Dual Duct Removal (Type C₅₃)

Standard Removal System



Ø80/80 => Max. length: A+B+C-(1x90°elbow) = 110-2.2 = 107.8 m

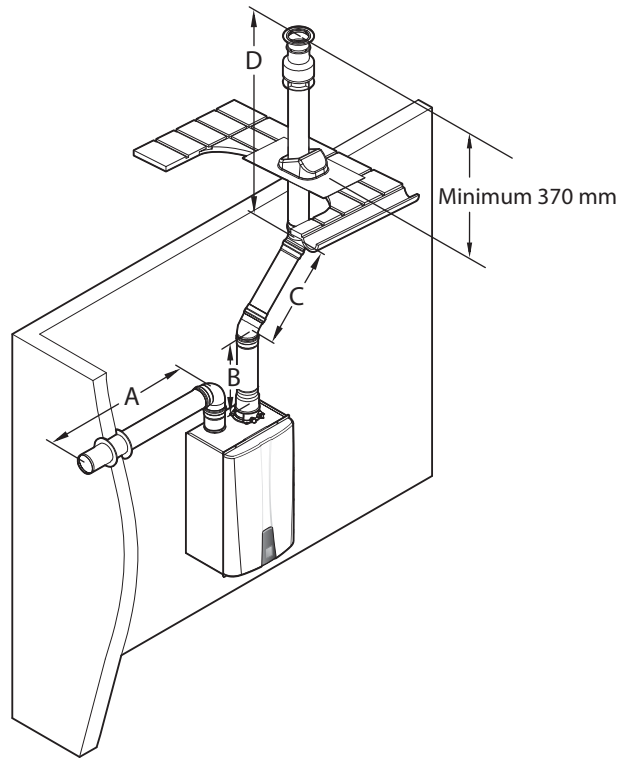
Extended Removal System



$\text{Ø}80/80 \Rightarrow \text{Max. length: } A+B+C+D+E+F-(4 \times 90^\circ \text{elbow})$
 $= 110 - (4 \times 2.2) = 101.2 \text{ m}$

Pipe Diameter (mm)	Maximum Length (m)	Elbow	Equivalent Length (m)
Ø80/80	110	90°	2.2

3.6.4.2 Vertical Dual Duct Removal (Type C₈₃)



$\text{Ø}80/80 \Rightarrow \text{Max. length: } A+B+C+D-(2 \times 45^\circ \text{elbow})$
 $= 110 - (2 \times 1.4) = 107.2 \text{ m}$

Pipe Diameter (mm)	Maximum Length (m)	Elbow	Equivalent Length (m)
Ø80/80	110	45°	1.4

3.6.5 Measuring Flue Length

The gas removal and air intake systems may be oriented in any direction (north, south, east or west). Some special components such as elbows are used to help reach certain positions. Each removal terminal kit includes an adapter for connection to the water heater and a removal terminal.

The total length of the tubes must not exceed the maximum value defined. If the removal installation includes elbows while calculating the total length you must take into account that each elbow has a resistance equal to a specific linear Leq equivalent length (see table).

There are two different types of terminals (horizontal and vertical), for both the coaxial removal system and the dual duct removal system.

Carefully study the diagrams representing the different types of removal and select the one that best suits the conditions of your installation. To choose the removal accessories required for each installation, see the list of accessories on the NAVIEN price list.

Maximum Total Length

Type	Pipe Diameter (mm)	Orientation	Maximum Length (m)
Coaxial	Ø60/100	Horizontal	20
		Vertical	21
	Ø80/125	Horizontal	68
		Vertical	70
Dual Duct	Ø80/80	Horizontal	110
		Vertical	

Equivalent Length of Elbows and Adapters

1.2	Pipe Diameter (mm)	Elbow	Equivalent Length (m)
Coaxial	Adapter Ø60/100 -> Ø80/125	-	0.5
		Ø60/100	45°
	90°		2.4
	Ø80/125	45°	1.2
		90°	2.4
	Dual Duct	Ø80/80	45°
90°			2.2

3.6.6 Terminating the Flue

Before installing the water heater, determine what type of flue termination is appropriate for the installation location and situation. The subsections that follow describe some typical flue configurations.

CAUTION

Minimum Clearance to Metering devices and Relief equipment. Maintain a minimum horizontal clearance of 1.22 m from electric meters, gas meters, regulators, and relief equipment. Do not install the water heater above or below electric meters, gas meters, regulators or relief equipment unless a 1.22 m horizontal clearance is maintained.

3.7 Electrical Connections

WARNING

Improperly connecting the electrical supplies can result in electrical shock and electrocution. Follow all applicable electrical codes of the local authority having jurisdiction. Connecting the electrical components should be performed only by a licensed professional.

DANGER

- You must ensure that the water heater is disconnected from the electrical supply before carrying out any servicing inside the water heater and, particularly, on the electric terminal strips.
- If the electrical supply is connected electrical contact could occur, causing serious damage and/or death due to electrocution.

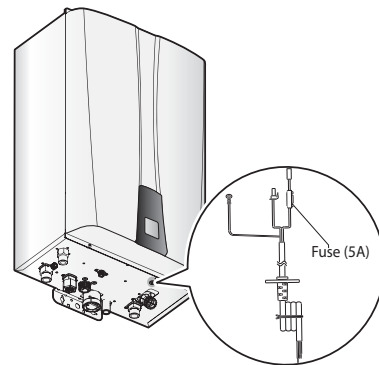
CAUTION

Label all wires before disconnecting them when you work on the controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

The water heater electrical connections must be made by sufficiently qualified staff in strict compliance with the sections below and with any electrical safety regulations applicable at the time of installation.

Note The water heater has an electrical protection degree of IPX5D. The electrical connection must be made via a bipolar switch located on the same premises as the water heater. The switch must have a minimum pole separation of 3 mm.

The water heater is pre-fitted with a main supply cable.



When connecting the power supply, ensure the following:

- The water heater must be electrically grounded.
- Connect the water heater to a main supply of 230V AC, 50 Hz electrical supply.
- A fuse with 5A electrical rating must be used.

3.8 Setting the DIP Switches

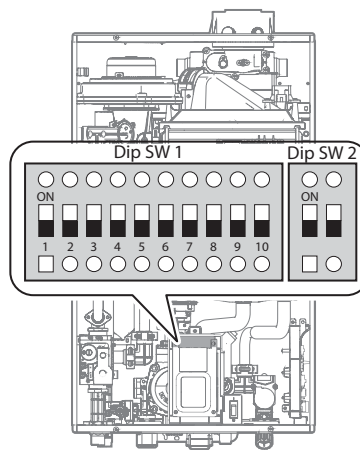
The water heater has two DIP switch locations: on the main PCB and on the front panel. Each location has two sets of DIP switches that control the functionality of the water heater. Set the DIP switches appropriately, based on the installation environment.

3.8.1 PCB DIP Switches

The two sets of DIP switches on the circuit board configure the water heater’s model settings. These configurations are set at the factory and should not be changed.

3.8.2 Setting the Front Panel DIP Switches

The two sets of DIP switches on the front panel configure the water heater’s pump and recirculation, well pump, storage tank and lime alarm, Cascade Flue and Gas Type settings. Some of these configurations are set at the factory and should not be changed. The following tables describe the functions of the DIP switches and their settings:



• Dip Switch 1 (set of 10)

Switch	Function	Setting		Remark
1-3	Recirculation Mode - Internal Pump (AWE model Only)	No Recirculation	1-OFF 2-OFF 3-OFF	<p>*Intelligent Preheating: Learns the user's hot water usage patterns and starts preheating prior to an anticipated draw.</p> <ul style="list-style-type: none"> Preheating starts when remote controller is not connected. When remote controller is connected, preheating starts and operates based on the timer. Set the timer on the remote controller to use hot water at the time of your choice. Intelligent preheating does not function in Cascade Mode (Preheating OFF). Freeze protection is still available with preheating OFF. <p>**External Pump: These settings are to be used when an external pump is wired to the water heater.</p> <p>***Lime Alarm: Displays a "760" error when the set time period has been reached to indicate a flush or service is necessary.</p>
		Internal Recirculation	1-ON 2-OFF 3-OFF	
		External Recirculation	1-OFF 2-ON 3-OFF	
		Intelligent Preheating*	1-ON 2-ON 3-OFF	
	Recirculation Mode - External Pump Connected**	External Recirculation (External Pump Only)	1-OFF 2-OFF 3-ON	
		External Recirculation (with Internal Pump) AWE model Only	1-ON 2-OFF 3-ON	
1-OFF 2-ON 3-ON				
Intelligent Preheating	1-ON 2-ON 3-ON			
4	-			
5	Well Pump	Well Pump Operation	5-ON	
		Do not Use Well Pump	5-OFF	
6	DHW Storage Tank	Storage Tank Operation	6-ON	
		Do not Use Storage Tank	6-OFF	
7-8	Lime Alarm***	Do not Use Alarm	7-OFF 8-OFF	
		06 months Alert	7-ON 8-OFF	
		12 months Alert	7-OFF 8-ON	
		24 months Alert	7-ON 8-ON	
9-10	Gas Category	G20(LNG)/G30(LPG)	9-OFF 10-OFF	
		G25(LNG)/G31(LPG)	9-ON 10-OFF	
		G27(LNG)	9-OFF 10-ON	

• Dip Switch 2 (set of 2)

Switch	Function	Setting	
1	Cascade Flue (Cascade System Only)	Cascade	OFF
		Individual	ON
2	Gas Type	LNG	OFF
		LPG	ON

4. Installing a Cascading System

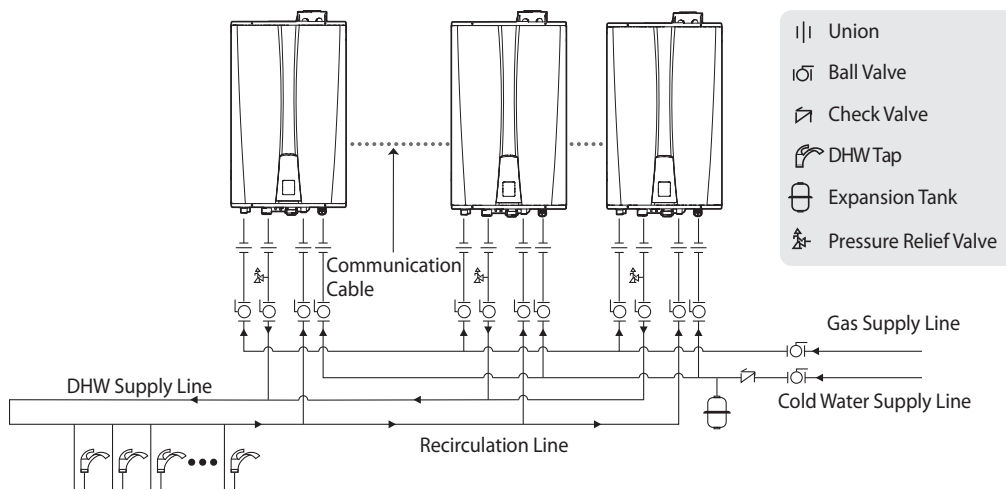
When installing a cascading system, carefully consider the design of the system and the features of the installation location. Follow all local codes and regulations, as well as all guidelines for installing the water heater. The following sections describe additional considerations that are specific to installing cascading systems. Read them carefully before designing or installing the system.

4.1 Connecting Water Supplies

Several options are available for plumbing a cascading system of water heaters. The options shown here are only examples. The setup you choose will vary based on the installation location, local building codes, and other factors. Follow all applicable regulations when installing a cascading system.

You can connect up to 16 water heaters to meet high-volume hot water demands. Some possible connection options include the following:

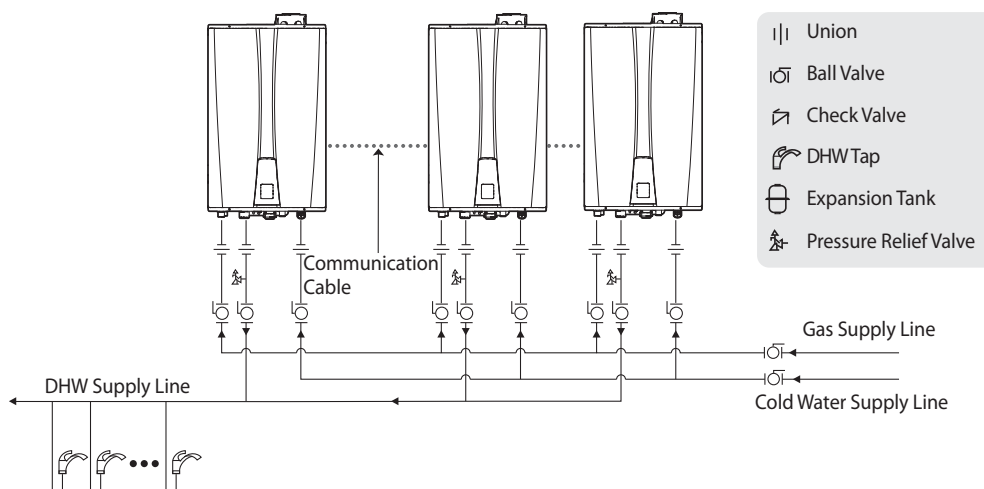
- Recirculation via Internal Pumps ("A" model only):



[NPE-24AWE, NPE-32AWE]

Note The recommended minimum recirculation flow rate for each water heater is 7.57 LPM. Depending on the number of water heaters and the diameter of the recirculation line, it may not be necessary to connect all water heaters to the recirculation line. If this is the case, set the unconnected water heaters to internal recirculation mode. The master water heater must always be connected to the recirculation line and set to external recirculation mode.

- NPE-SWE:



[NPE-24SWE, NPE-32SWE]

4.1.1 Piping Sizes and Considerations

When plumbing a cascading system, consider the following pipe diameters and flow rates. Note that flow rates above 2 m/s may cause pipe erosion. These specifications may vary depending on installation conditions.

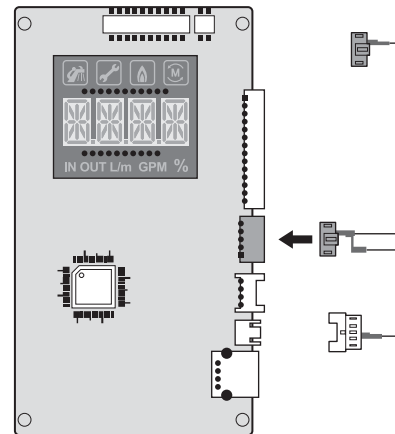
Qty	$\Delta T=12.2^{\circ}\text{C}$ Flow rate (LPM)	Water Velocity (m/s)	Pipe Diameter (mm/in)	
1	30	1.5	20A	¾ in
2	54.43	1.7	25A	1 in
3	81.64	1.68	30A	1 ¼ in
4	108.89	1.58	40A	1 ½ in
5	136.11	2	40A	1 ½ in
6	163.32	1.36	50A	2 in
7	190.54	1.59	50A	2 in
8	217.64	1.82	50A	2 in
9	244.97	1.33	65A	2 ½ in
10	272.22	1.44	65A	2 ½ in
11	299.43	1.62	65A	2 ½ in
12	326.65	1.78	65A	2 ½ in
13	353.86	1.93	65A	2 ½ in
14	381.07	2.07	65A	2 ½ in
15	408.29	1.56	80A	3 in
16	435.54	1.66	80A	3 in
17	462.75	1.77	80A	3 in
18	489.97	1.87	80A	3 in
19	517.18	1.97	80A	3 in
20	544.4	2.08	80A	3 in
21	571.61	1.24	100A	4 in
22	598.82	1.29	100A	4 in
23	626.08	1.36	100A	4 in
24	653.29	1.42	100A	4 in
25	680.51	1.48	100A	4 in
26	707.72	1.54	100A	4 in
27	734.93	1.6	100A	4 in
28	762.15	1.66	100A	4 in
29	789.4	1.71	100A	4 in
30	816.61	1.77	100A	4 in

Note The table above is based on model NPE-32AWE.

4.2 Connecting the Communication Cables

Up to 16 water heaters can be connected with Navien Ready-Link communication cables. Select one of the water heaters in the cascading system as the master water heater, and then connect the other water heaters to it as slaves. Before making any connections, ensure that the power is turned off to all water heaters.

Connect the Ready-Link cables to the J6 ports on the right side of the front panel:

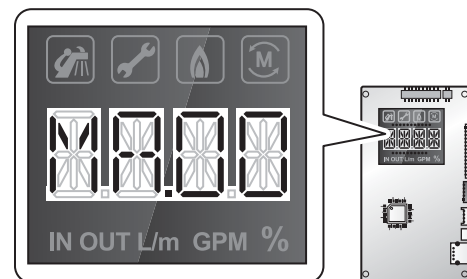


4.2.1 Configuring the Communication Settings

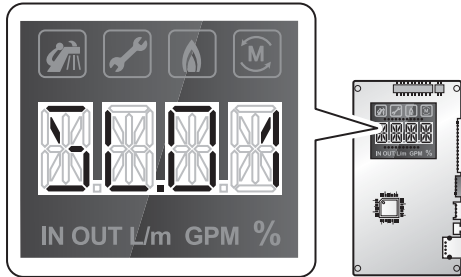
After connecting the Ready-Link communication cables, restore power to the water heater and turn on all water heaters using the Power button.

To configure the communication settings:

1. On the master water heater, press and hold the **Diagnostic** and **Up(+)** buttons for more than 5 seconds. "MA.00" will appear on the display to confirm that this water heater is set as the master.



2. On the slave water heater, press and hold the **Diagnostic** and **Down(-)** buttons for more than 2 seconds. "SL.01" will appear on the display to confirm that this water heater is set as a slave.



3. Repeat step 2 to configure the rest of the slave water heaters in the system.
4. On the master water heater, press and hold the **Diagnostic** and **Up(+)** buttons for more than 5 seconds. All the display screens on the configured water heaters will return to the temperature display.

Note

- To add additional slaves at a later time, repeat step 2.
- To cancel the cascading communication setup, on the master water heater, press and hold the **Diagnostic** and **Reset** buttons for more than 5 seconds. The water heaters will revert to independent operation. Repeat steps 1-4 to reassign the master water heater.

5. Installation Checklist

After installing the water heater, review the following checklist. Complete the water heater start-up process by carrying out the checks listed in the table below.

If you have additional questions or need assistance with installation, contact an official Technical Assistance Service (TAS) or refer to the technical support section of Navien's website (www.navienuk.com).

Check	Value measured	Notes
Check that the water heater is filled with water and check for any leaks in the installation.		
Check the gas type. If the reference label is changed on gas type changeover, check the gas inlet pressure.		
Check that the gas circuit is hermetically sealed.		
Check the connection to the water supply. <ul style="list-style-type: none"> • Check if the water supply pressure is sufficient. • Check each fixture to ensure hot water is being supplied. • Check the installation of an approved pressure relief valve on the water heater. 		
Check that the control panel is working correctly. <ul style="list-style-type: none"> • Check that it functions normally when the water heater is switched on. • Check that the DHW temperature indicated is correct. • Check that the reset operation is performed correctly. • Check that the parameters on the technical menu are correctly adjusted. 		
Check the DIP Switch setting. <ul style="list-style-type: none"> • Check all the DIP switch on the PCB and front panel. • Measure the CO₂ value. 		
Check the connection to the condensate drain. <ul style="list-style-type: none"> • Check the installed condensate drain line from the water heater. 		

6. Maintaining the Water Heater

6.1 Cleaning the Water Heater

! CAUTION

Make sure the water heater is turned off and the power supply is disconnected before cleaning the water heater. The water heater may remain hot for several minutes after it is turned off. To prevent burns, wait until the water heater has cooled down before cleaning.

To clean the water heater, wipe the outside with a damp cloth. Use a non-acidic, non-abrasive cleaner to remove any surface stains. The front panel is moisture resistant, but it is not waterproof. Keep it as dry as possible.

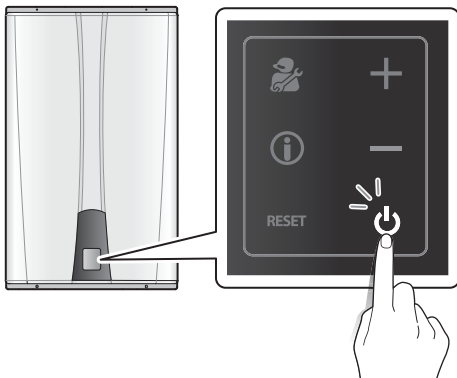
6.2 Draining the Water Heater

You need to drain the water heater before performing maintenance tasks, such as cleaning the inlet water filter or to prevent the water heater from freezing when it will not be used for an extended period.

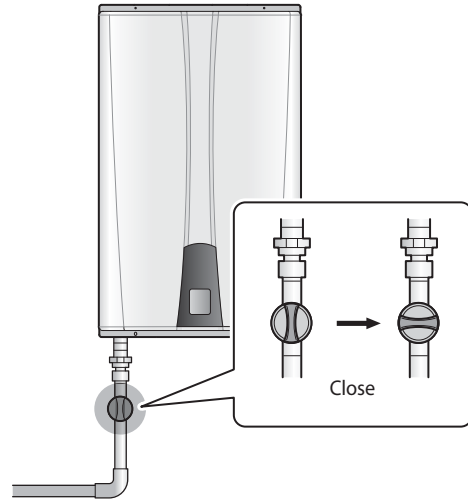
Refer to the "2.6 Dimensions" on page 13 for details about part locations.

To drain the water heater:

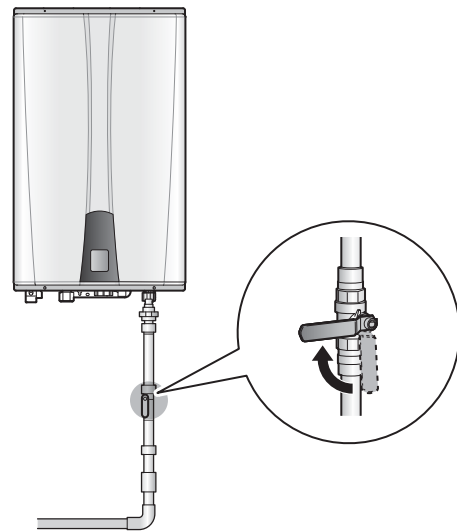
1. Place a bucket under the water heater, to collect the residual water inside the water heater.
2. Press the Power button on the front panel to turn off the power to the water heater.



3. Close the gas valve.

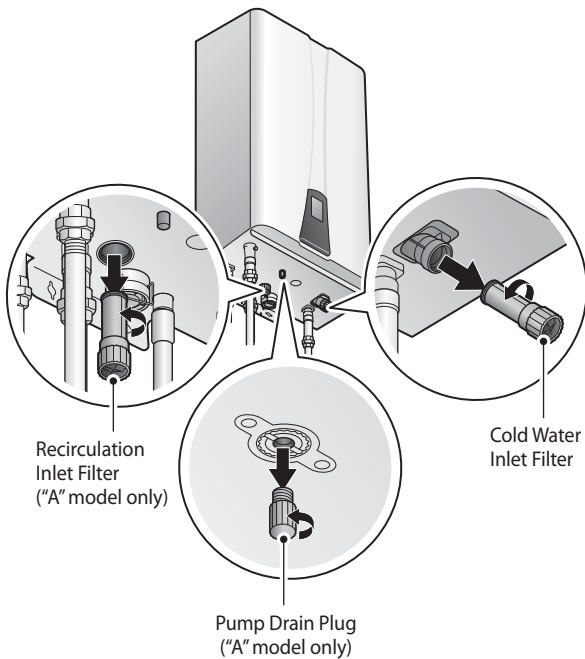


4. Close the water supply valve on the inlet to the water heater. If there is no valve, turn off the water supply at the water main.



5. Open all hot water faucets completely. The water that remains in the plumbing lines will drain out.

- Remove the recirculation inlet filter from the bottom of the water heater ("A" model only).



- Open the pump drain plug ("A" model only).
- Remove the cold water inlet filter.
- Allow the residual water to drain from the water heater.
- When the water is completely drained, reinsert the recirculation inlet filter and the cold water inlet filter, and then close the pump drain plug.
- To refill the water heater follow the steps of "Draining the Water Heater" in reverse.

6.3 Cleaning the Heat Exchanger

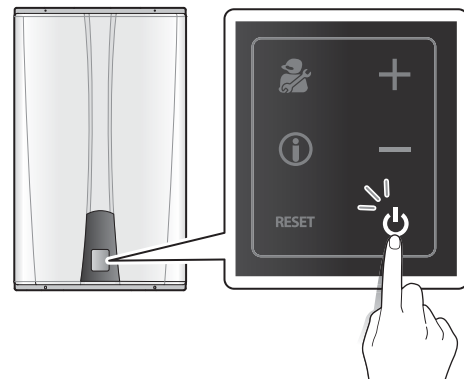
WARNING

Before cleaning the heat exchanger, make sure the water heater is off.

To properly maintain the water heater, you should clean the heat exchanger annually.

To clean the heat exchanger:

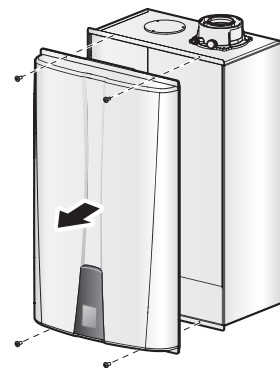
- Press the Power button on the front panel to turn off the water heater.



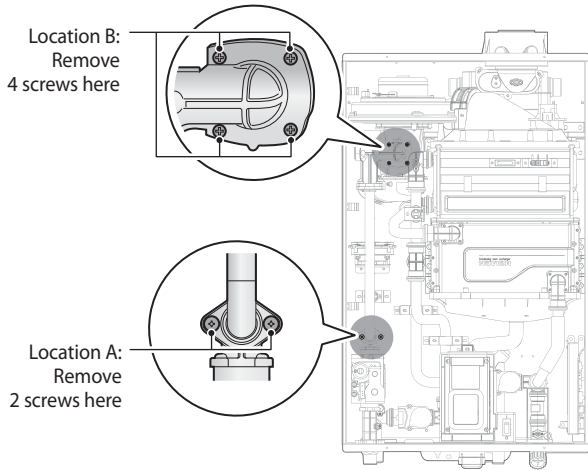
- Disconnect the power supply to the water heater.
- Turn off both gas and water supply to the water heater.

Note Wait at least 30 minutes for the heat exchanger to cool down.

- To gain access to the internal components, remove the front cover by loosening the four Phillips head screws located at the top and bottom of the front cover assembly.

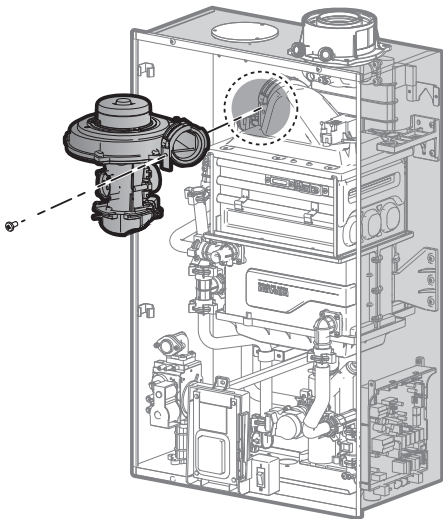


- Once the front cover is removed, place it in a safe location to prevent accidental damage.
- Use a Phillips screwdriver to remove the two screws from Location A and four screws from Location B where the gas inlet pipe is attached to the fan motor assembly and gas valve.

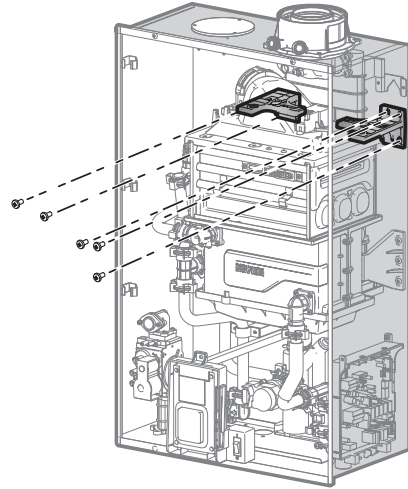


NPE-24AWE/SWE and NPE-32AWE/SWE

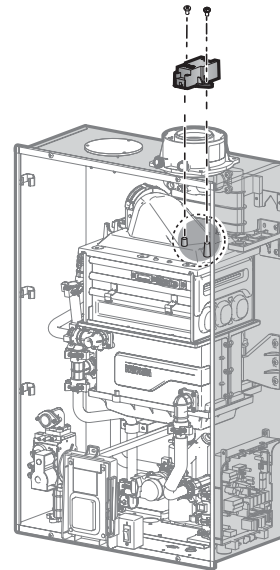
- Remove the screw connecting the fan motor assembly and the mixing chamber, and then remove the fan motor assembly.



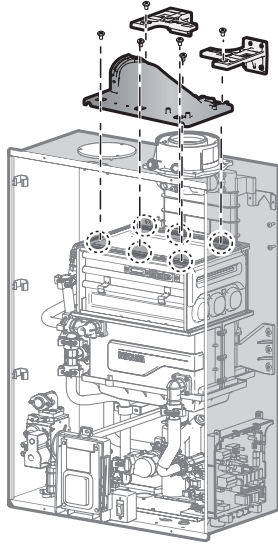
- Remove the five bolts securing the chamber brackets.



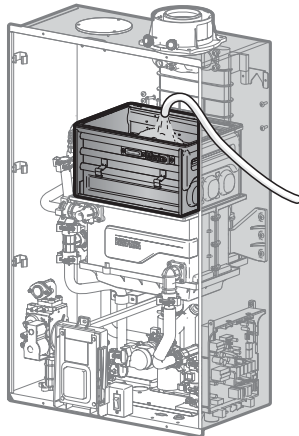
- Remove the two screws connecting the ignition transformer to the heat exchanger and then remove the ignition transformer.



- Remove the six bolts connecting the mixing chamber and the heat exchanger, and then remove the mixing chamber, burner and the chamber brackets.



- Use the brush to dislodge the debris and pour water down the channels to flush out the debris.



Note

- It is important to keep electric parts of the water heater safe from water.
- Navien recommends to use a hose.
- If the water pressure of the hose is too high, water may splash to other electric parts of the water heater. Keep the water pressure of the hose as low as it can.
- If the water heater is installed in high area and you cannot see the inside of the heat exchanger, use a solid support and be careful not to fall.

- As cleaning the heat exchanger is finished, reassemble the parts.

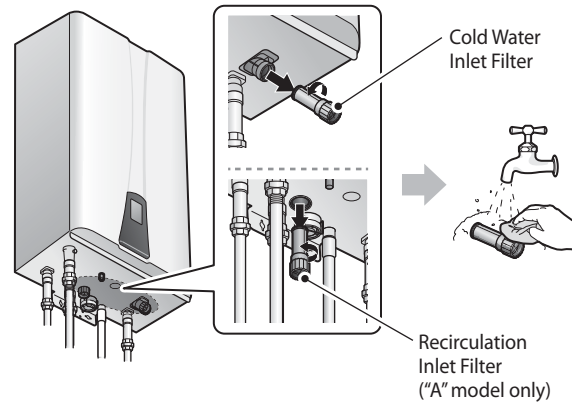
Note

This water heater requires very little maintenance, however a qualified technician should inspect the water heater at the beginning of every heating season and/or when there is a problem.

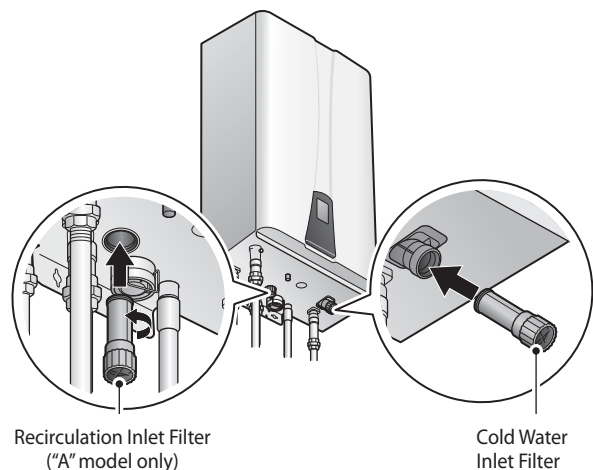
6.4 Cleaning the Inlet Water Filter and Recirculation Inlet Filter

To clean the filters:

- Drain the water heater. Refer to "6.2 Draining the Water Heater" on page 42.
- While the filters are removed, rinse it with clean running water (cold) and, if necessary, scrub it clean with a brush.



- Reinsert and tighten the filters.



- Refill the water heater. Refer to "6.2 Draining the Water Heater" on page 42.

6.5 Protecting the Water Heater from Freezing

CAUTION

Damage due to freezing is not covered by the Navien limited warranty.

If the water heater is connected to a circuit that could freeze, the circuit pipes must be suitably insulated.

All pipes installed outdoors must be insulated according to applicable legislation.

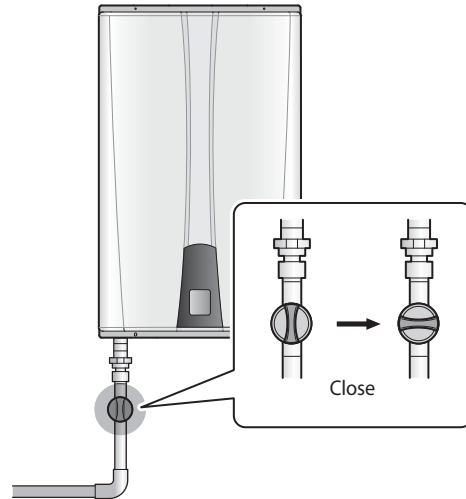
The water heater electronic control includes an freeze protection function that prevents the water heater from freezing in very cold weather. It remains on standby and takes priority over all other water heater functions while the water heater is connected to the electrical mains and gas supply, i.e. it remains enabled even when the water heater is in standby position.

To ensure that the water heater does not freeze, follow these guidelines:

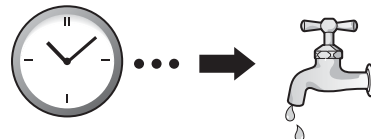
- **Do not unplug the power supply cord**, except for routine maintenance. The water heater has a freeze protection function that requires electricity. The freeze protection function will operate regardless of whether or not the power is turned on or off, as long as the electric supply is still connected.
- **Do not close the gas valve**, except for routine maintenance, as this will limit additional freeze protection ("A" model only).
- If the power or gas supplies must be disconnected for an extended period, drain the water heater. Freezing damage may occur if there is water remained in the water heater in cold weather.
- **If the water heater will not be used for an extended period, drain the water heater.**

If hot water will not flow and you suspect that the water heater is frozen, follow these steps:

1. Press the Power button on the front panel to turn off the water heater.
2. Close the gas valve.



3. Open the hot water faucet that is closest to the water heater.
4. Use a hair dryer or a portable electric heater to heat up both the primary and secondary Heat Exchangers.
5. Check every few minutes to see if water is running at the open faucet.



6. When the water starts flowing again, check the water heater and piping for leaks. If you detect any leaks or the water heater is not operating properly, contact an authorised technician or licensed professional.

7. Appendixes

7.1 Gas Conversion

This water heater is configured for Natural Gas from the factory. If conversion to Propane Gas is required, the conversion kit supplied with the water heater must be used.



WARNING

This conversion kit shall be installed by a qualified Gas Safe Engineer* in accordance with all applicable codes and requirements of the authority having jurisdiction. The information in these instructions must be followed to minimize the risk of fire or explosion or to prevent property damage or personal injury. The qualified Gas Safe Engineer is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

A*qualified Gas Safe Engineer is any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for the connection, utilization, repair or servicing of gas utilization equipment or accessories; who is experienced in such work, familiar with all precautions required, and has complied with all of the requirements of the authority having jurisdiction.

Tools Required:

- Phillips Screwdriver
- Flathead Screwdriver
- 5/32 " or 4 mm Allen Wrench
- Combustion Analyser or Dual Port Manometer
- Gas Leak Detector

Included Items:

- Orifice Size (refer to below table)

Model	G20	G30
NPE-24 AWE/SWE	Ø4.80/Ø6.05	Ø3.85/Ø4.75
NPE-32 AWE/SWE	Ø4.80/Ø6.60	Ø3.80/Ø5.00

Table 1. Orifice size

Procedure:

1. Turn off both gas and water supply to the water heater.
2. Using a Phillips hand screwdriver, remove four screws (two from the top and two from the bottom) of the front cover assembly to gain access to the internal components. See Figure 1 for illustration of the front cover on the unit.

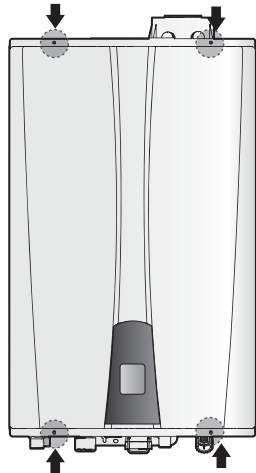


Figure 1. NPE Series Front cover

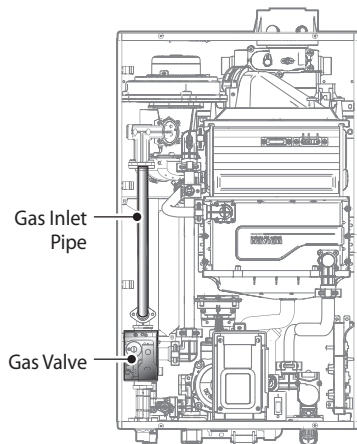


Figure 2. NPE Series Internal Components

3. Once the front cover is removed, place it in a safe location to prevent accidental damage. With the internal components exposed, locate the gas inlet pipe and the Gas Valve near the left side of the unit which are highlighted in Figure 2.
4. Use a Phillips screwdriver to remove the two screws at Location A - the connection below the Gas Valve where it connects to the pipe. See Figure 3 for reference. Once the screws are removed, carefully separate the pipe from the Gas Valve.
5. Once the gas inlet pipe is detached from the Gas Valve, find Location B - the connection above the Gas Valve where it is attached to the Fan Motor Assembly. Carefully remove the four screws by hand using a Phillips screwdriver and pull the Gas Valve away from the Fan Assembly to access the Gas Orifice.

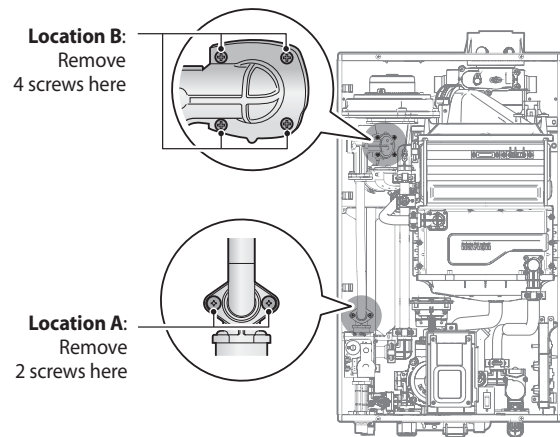


Figure 3. Detaching Gas Inlet Pipe from Gas Valve and Fan Motor Assembly

- Once the Gas Orifice is exposed, remove the two screws that hold the part in place. Remove the Gas Orifice from its housing and prepare the new Gas Orifice for the LP conversion for installation.

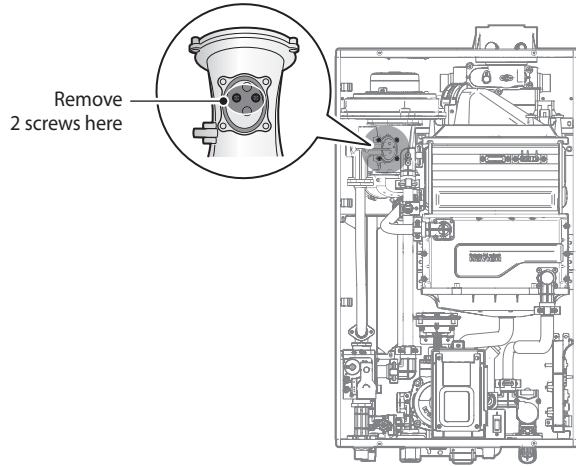


Figure 4. Access to Gas Orifice in Fan Assembly

! WARNING

- DO NOT adjust or attempt to measure gas valve outlet pressure. The gas valve is factory-set for the correct outlet pressure. This setting is suitable for natural gas and propane, requiring no field adjustment.
- Attempting to alter or measure the gas valve outlet pressure could result in damage to the valve, causing potential severe personal injury or substantial property damage. Navien water heaters are shipped ready to fire natural gas ONLY.

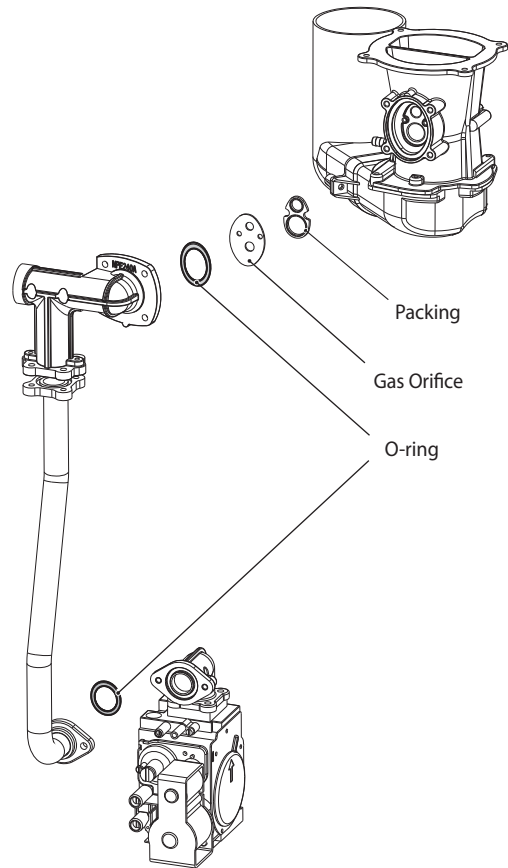


Figure 5. Exploded view of Gas assembly

! DANGER


See Figure 5. Inspect the O-ring and packing between the venturi, gas pipe and gas valve whenever they are disassembled. The O-ring and packing must be in good condition and must be installed. Failure to comply will cause a gas leak, resulting in severe personal injury.

- Replace the old Orifice piece with the new part for use with LP gas. Ensure that the Orifice is properly seated inside the port before proceeding to the next step.

- Replace the gas inlet pipe to its original position and use all screws to secure all connections.

Note Do not overtighten as this may damage or crack the components.

- Set the Front Panel Dip switch according to the following figure and table.



WARNING

Be sure to turn off the power before changing the DIP switch setting.

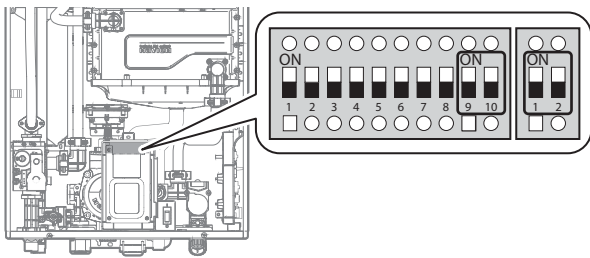


Figure 6. Front Panel Dip Switch Settings


Dip Switch 1 (set of 10)

Switch	Function	Setting	
9 - 10	Gas Category	G20(LNG) / G30(LPG)	9-OFF 10-OFF
		G25(LNG) / G31(LPG)	9-ON 10-OFF
		G27(LNG)	9-OFF 10-ON

Dip Switch 2 (set of 2)

Switch	Function	Setting	
2	Gas Type	LNG	OFF
		LPG	ON

Table 2. Front panel dip switch settings



DANGER

- When conversion is required, be sure to set the Front Panel DIP switches according to the supply gas type.
- Failure to properly set the DIP switches could cause carbon monoxide poisoning, resulting in severe personal injury.

- Turn on the gas and water supply to the water heater.

- Measure and adjust the gas/air ratio using a combustion analyser (recommended). Perform the following tasks:
 - Rotate and remove the cap to access the emissions monitoring port as shown in Figure 7.
 - Insert the analyser into the port (Figure 7).

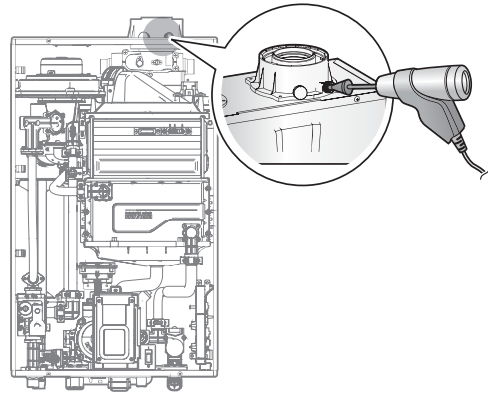


Figure 7. Measuring and Adjusting the Gas/Air Ratio

Model	Gas	Max	Min
		%CO ₂	%CO ₂
NPE-24 AWE/SWE	G20	9.18	9.18
	G25	9.18	9.49
	G25.1	10.63	10.53
	G27	9.13	9.14
	G30	11.56	10.95
NPE-32 AWE/SWE	G31	10.65	10.18
	G20	9.31	9.27
	G25	9.40	9.30
	G25.1	10.45	10.35
	G27	9.00	8.75
	G30	11.30	11.10
	G31	10.48	10.18

Table 3. CO₂ value
(CO₂ Value must be within 0.5% of the values listed.)

- c. Fully open several hot water fixtures and set the water heater to operate at 1-stage MIN mode (refer to 7.1.1 Setting the Operation Mode). Measure the CO₂ value at low fire.
If the CO₂ value is not within 0.5% of the value listed in Table 2, the gas valve set screw will need to be adjusted. If adjustment is necessary, locate the set screw as shown in Figure 8. Using a 5/32" or 4 mm Allen wrench, turn the set screw no more than 1/4 turn clockwise to raise or counterclockwise to lower the CO₂ value.

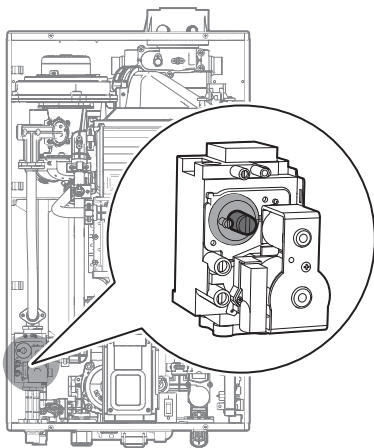


Figure 8. Set Screw Location

Note The set screw is located behind the screw-on cover. This must be removed first.

- d. Fully open several hot water fixtures and set the water heater to operate at 2-stage MAX mode (refer to 7.1.1 Setting the Operation Mode). Measure the CO₂ value at high fire.
If the CO₂ values do not match Table 2 at high fire, do not adjust the gas valve. Check for the proper Gas Orifice.

! DANGER

Improper gas valve settings can cause severe personal injury or substantial property damage.

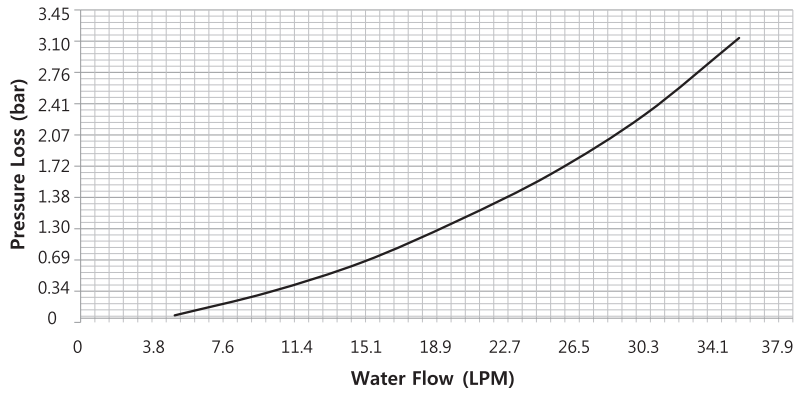
7.1.1 Setting the Operation Mode

1. Using the Front Panel, press and hold the Diagnostics Button for over 5 seconds until "1.TST" is displayed.
2. Press the + (Up) button once to change the display to "2.OPR".
3. Press the Information Button once to access the Operation Mode menu.
4. Press the + (Up) button once to set the water heater to operate at 1-stage MIN ("MIN.1").
5. To set the water heater to operate at 2-stage MAX, press the + (Up) button 3 times or until "MAX.2" is displayed.
6. To exit the Operation Mode and return the water heater to normal operation, press the Reset button twice.

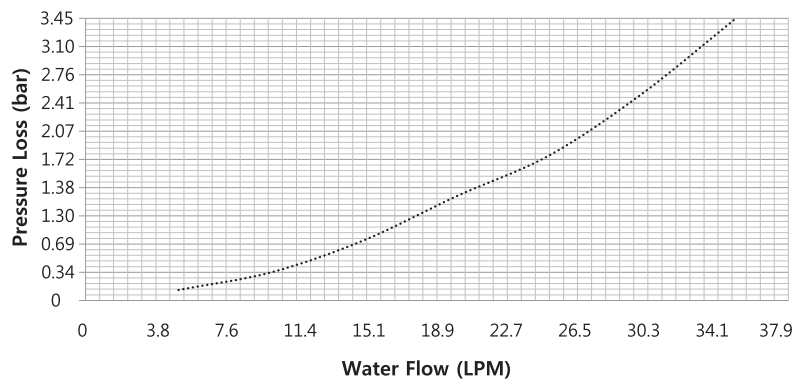


7.2 Technical Data

Pressure Drop Curve

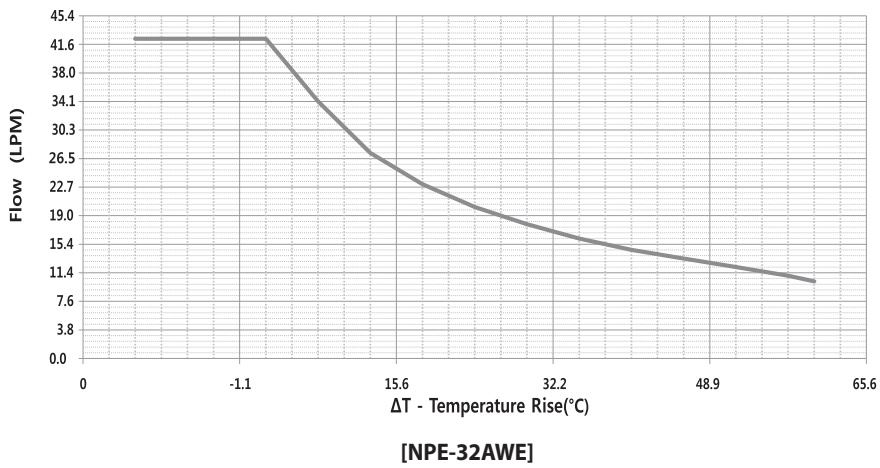
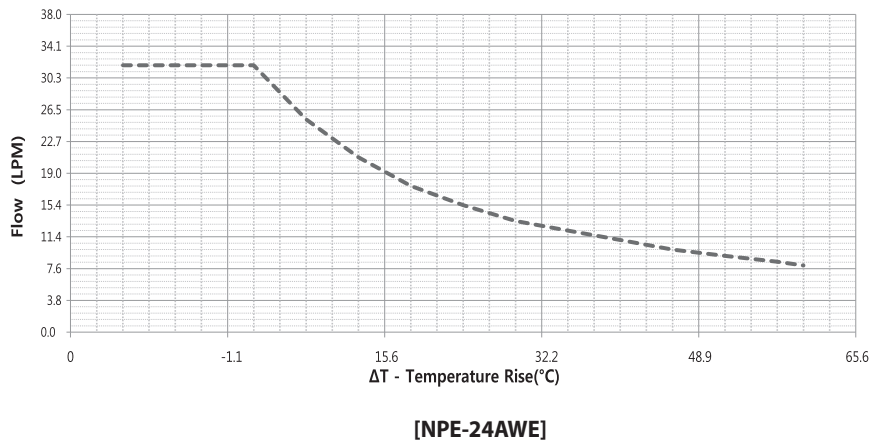


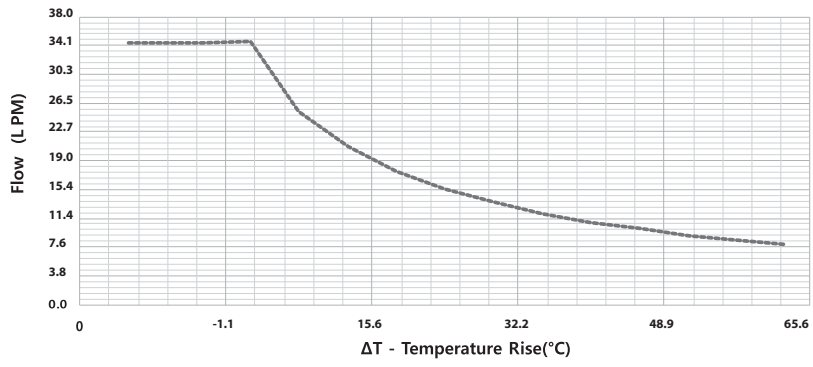
[NPE-24AWE/24SWE]



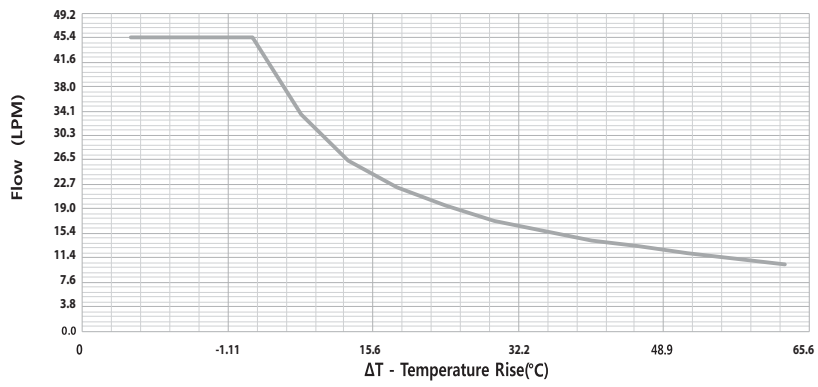
[NPE-32AWE/32SWE]

Outlet Flow Data



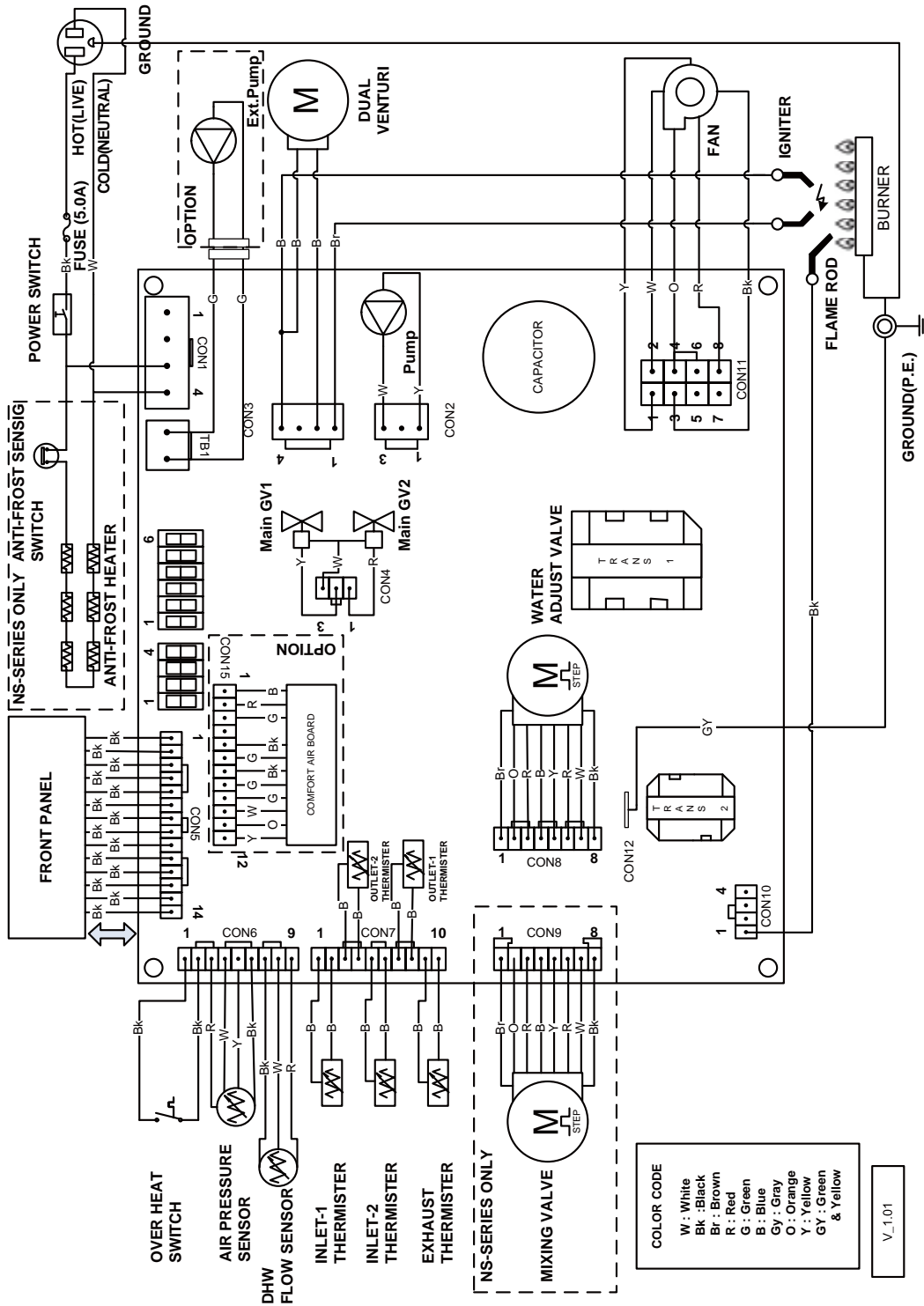


[NPE-24SWE]



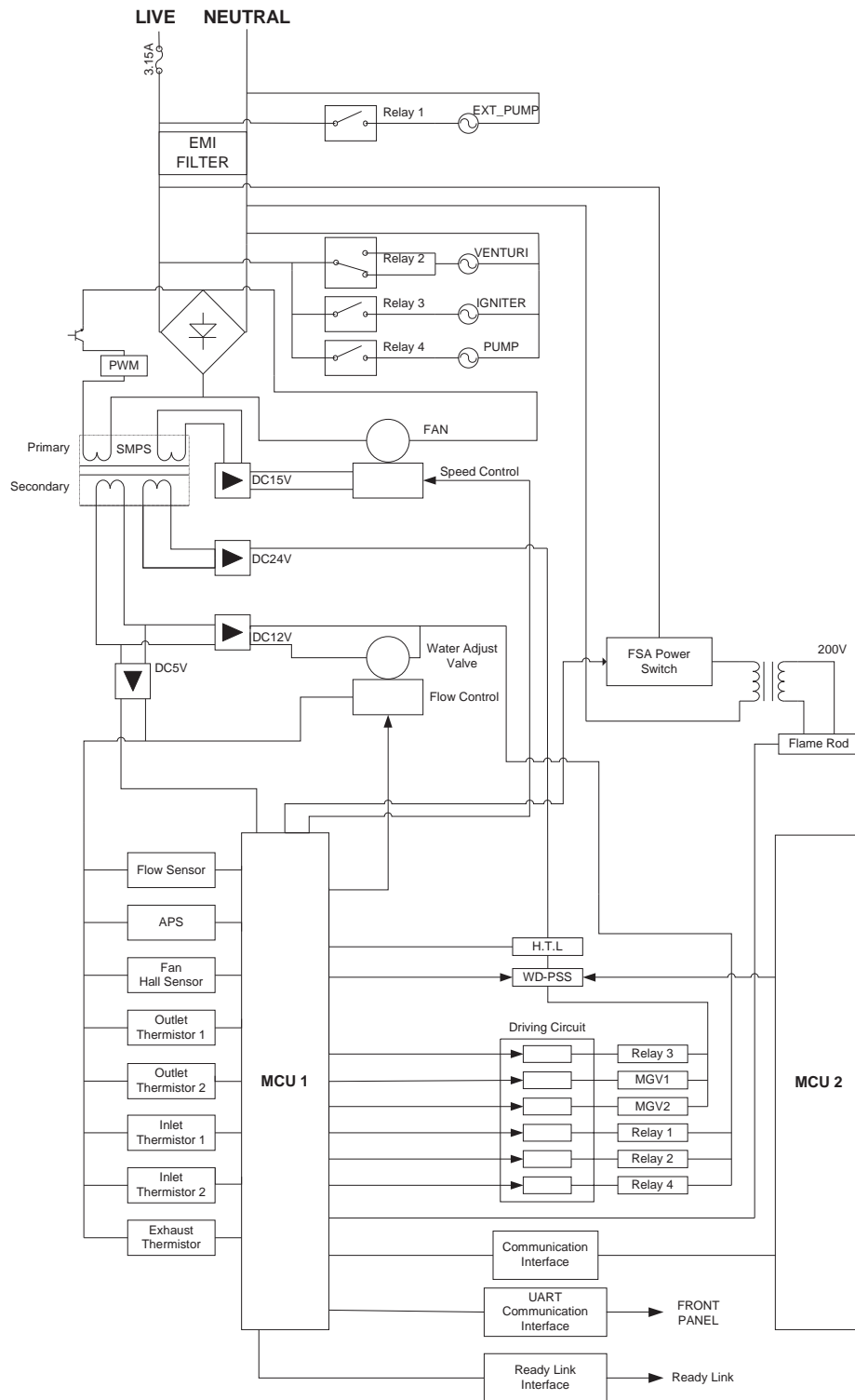
[NPE-32SWE]

7.3 Wiring Diagram

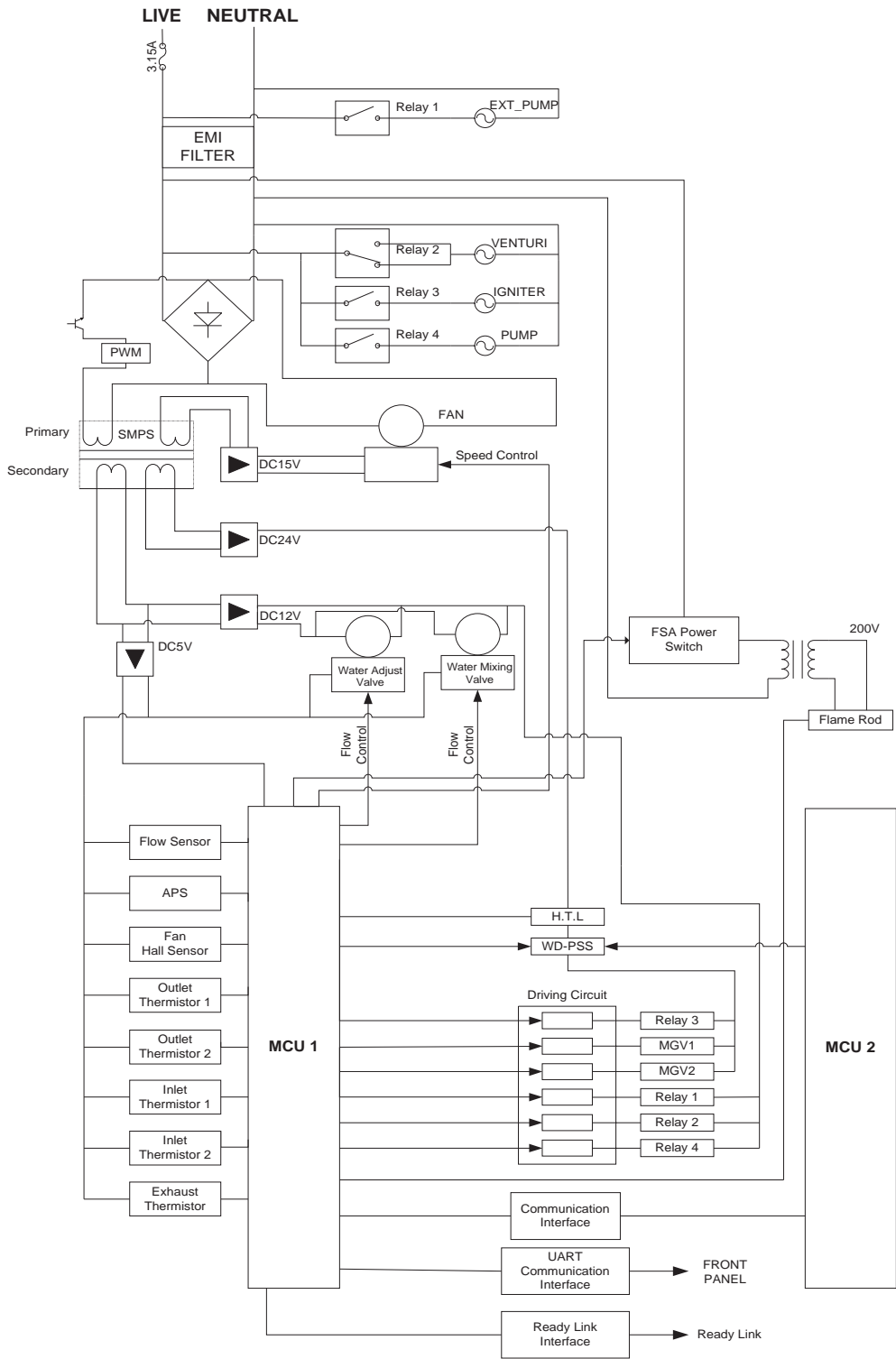


[NPE-24AWE/32AWE/24SWE/32SWE]

7.4 Ladder Diagram



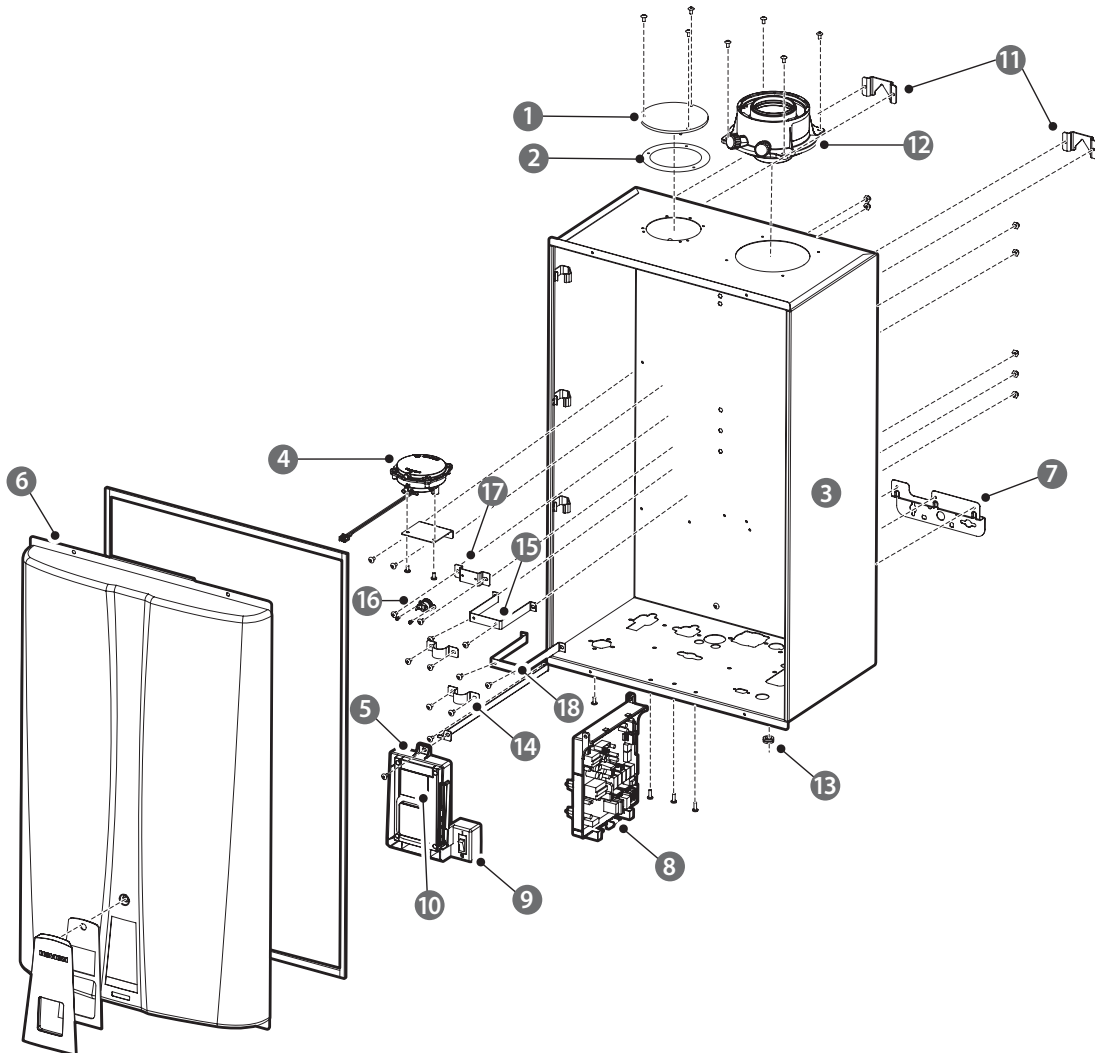
[NPE-24AWE/32AWE]



[NPE-24SWE/32SWE]

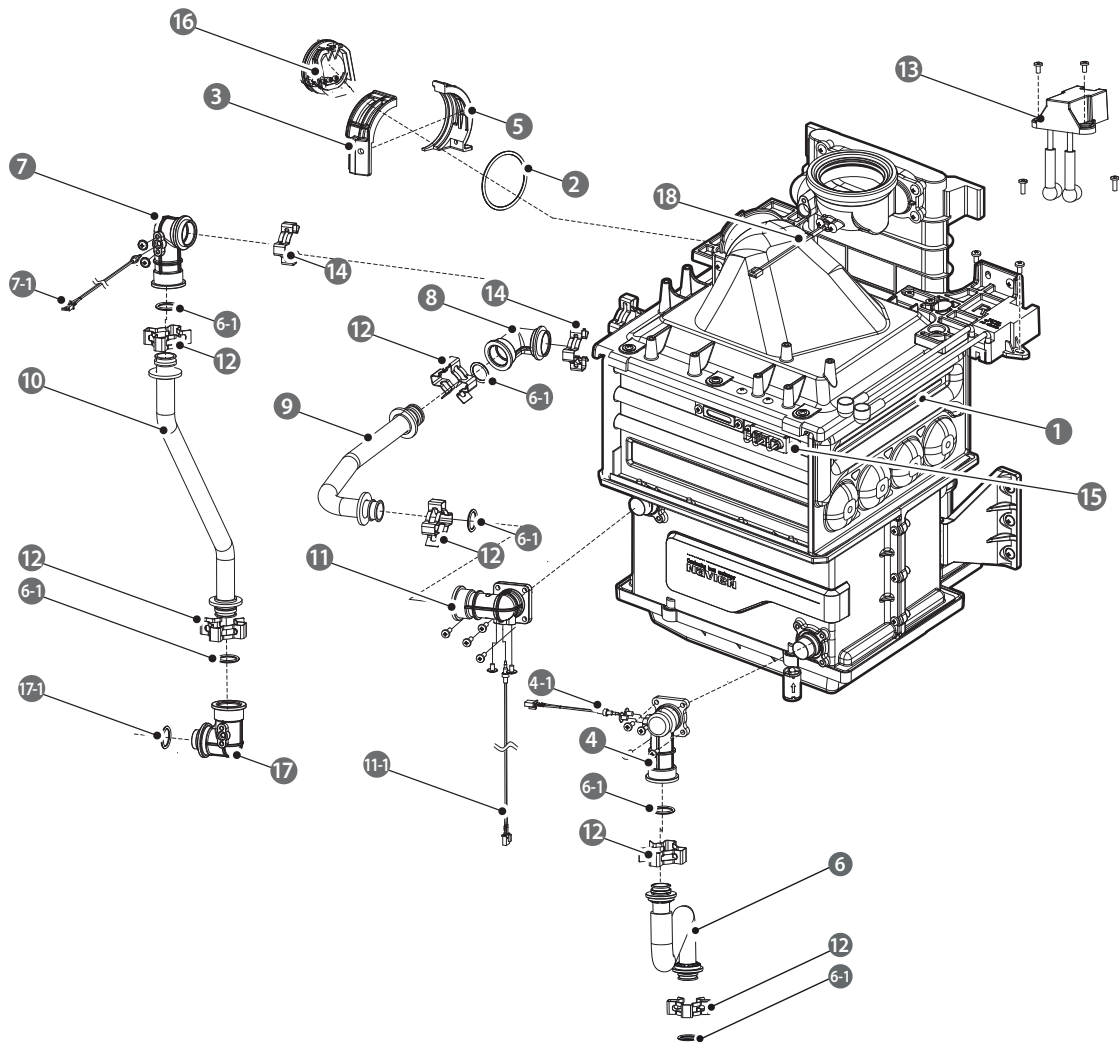
7.5 Component Assembly Diagrams and Parts Lists

7.5.1 Case Assembly



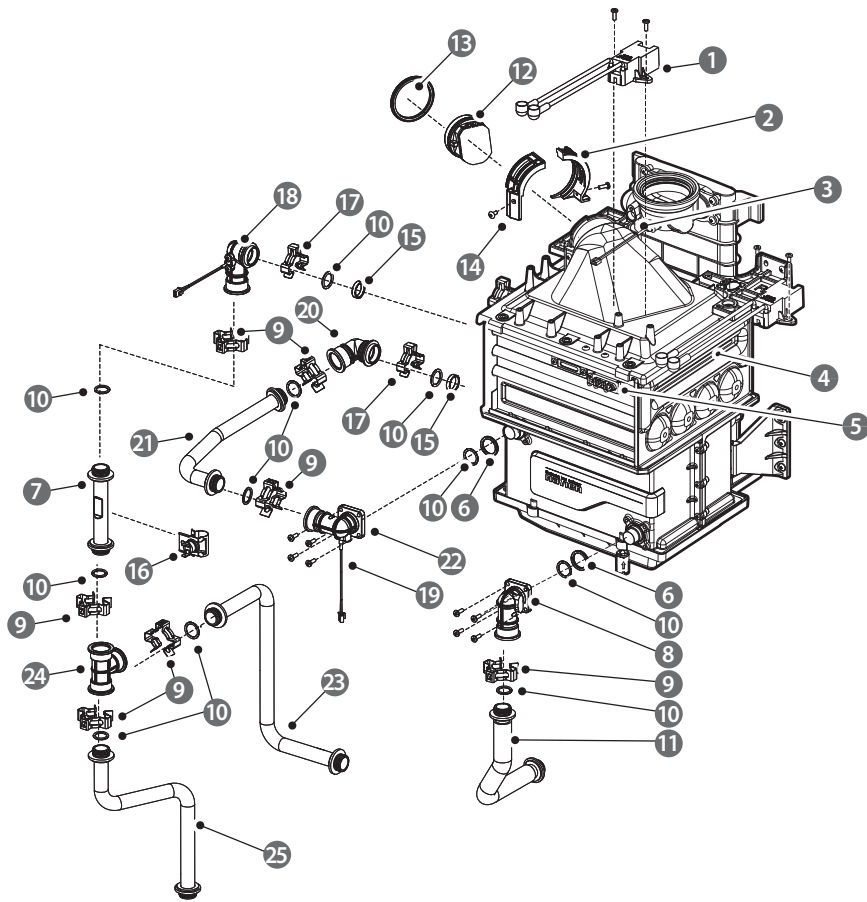
#	Description	Model	#	Description	Model
1	Air Intake Cover		10	Front Panel	
2	Air Intake Cover Seal		11	Case Bracket	
3	Case		12	Coaxial Adapter	
4	Air Pressure Sensor		13	Rubber Ring	
5	Panel Bracket		14	Saddle	NPE-24SWE/32SWE
6	Cover		15	Saddle Bracket 1	NPE-24SWE/32SWE
7	Case Lower Bracket		16	Freeze Protector Sensor	NPE-24SWE/32SWE
8	PCB		17	Freeze Protector Sensor Bracket	NPE-24SWE/32SWE
9	Power Switch		18	Saddle Bracket 2	NPE-24SWE/32SWE

7.5.2 Burner Assembly(NPE-24AWE/32AWE)



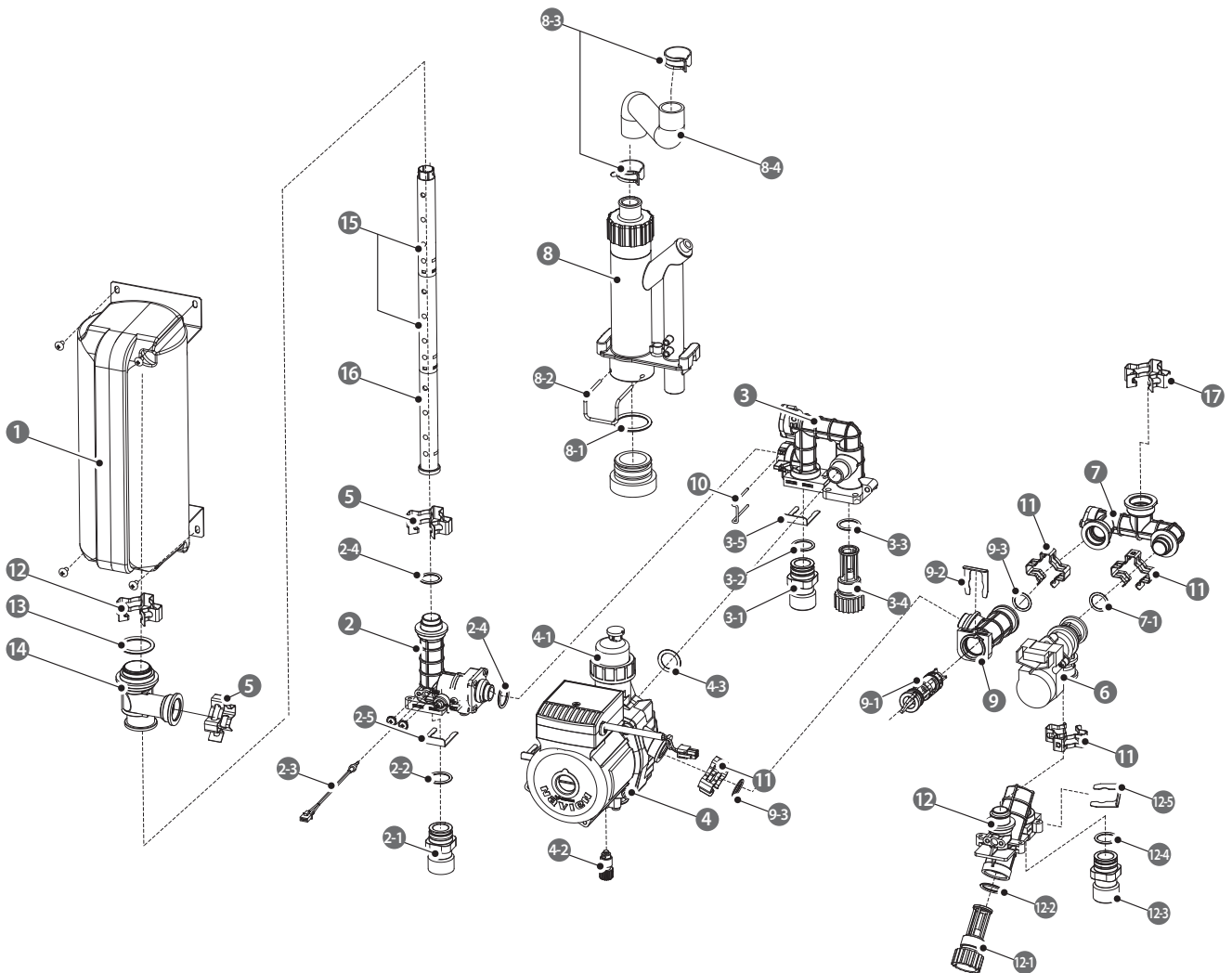
#	Description	Model	#	Description	Model
1	Heat Exchanger Assembly	NPE-24AWE NPE-32AWE	10	Hot Water Outlet Pipe	NPE-24AWE NPE-32AWE
2	Fan O-Ring (G50)		11	WPA-A (Screw)	
3	Fan Bracket(F)		11-1	Thermistor	
4	Flow Sensor Assembly		12	Fastner	
5	Fan Bracket(R)		13	Ignition Transformer	
6	Cold Inlet Pipe	NPE-24AWE NPE-32AWE	14	Fastner	
6-1	O-Ring (Φ17.5x2.7t)		15	Ignitor	
7	WPA-A (Clip)		16	Damper	
7-1	Thermistor		17	Buffer Tank Inlet Adapter	
8	WPA-B		17-1	O-Ring (P16)	
9	H-Ex Middle Pipe	NPE-24AWE NPE-32AWE	18	Thermistor	

7.5.3 Burner Assembly(NPE-24SWE/32SWE)



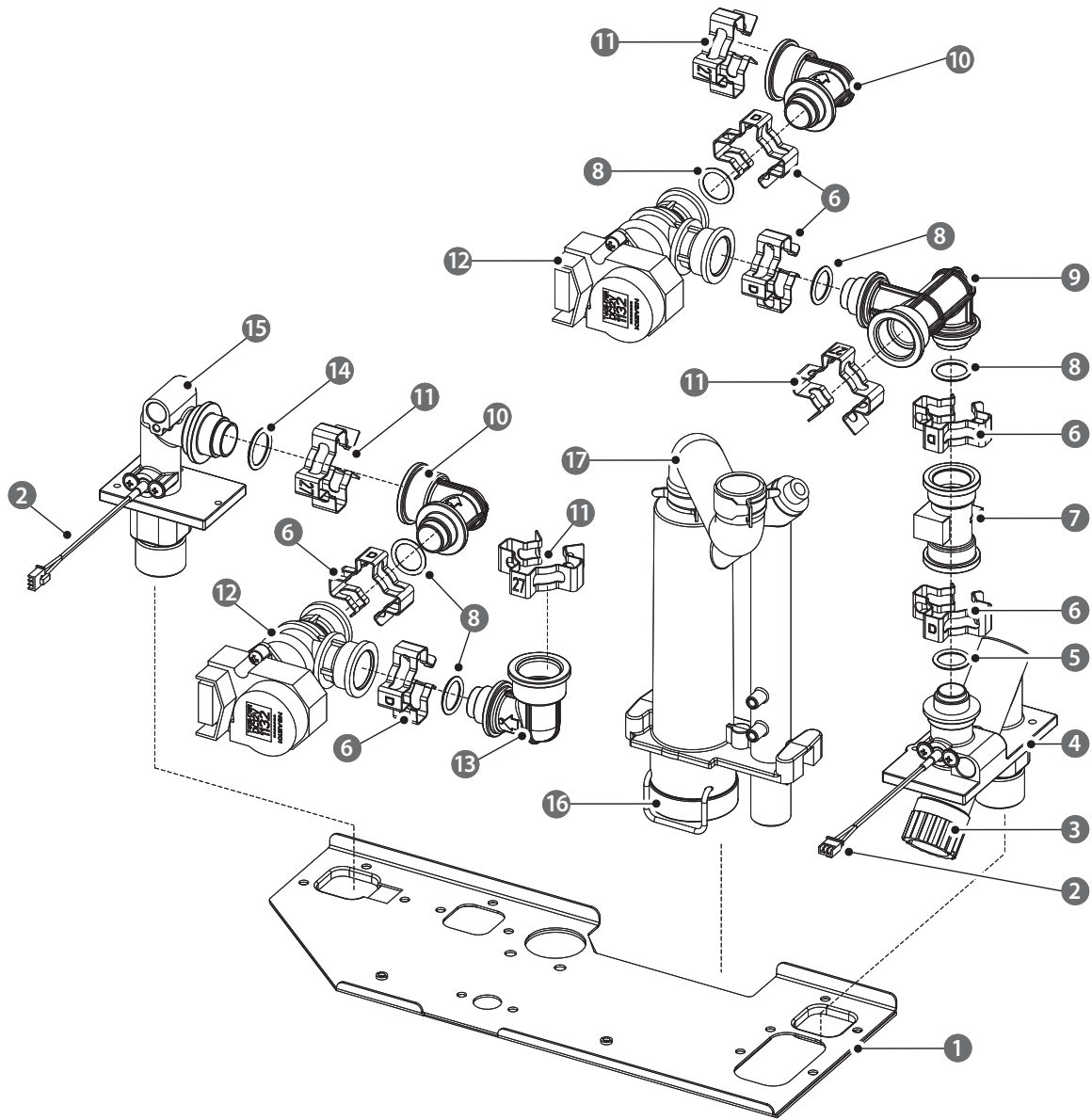
#	Description	Model	#	Description	Model
1	Ignition Transformer		14	Fan Bracket (F)	
2	Fan Bracket (R)		15	Backup Ring	
3	Thermistor	Exhaust	16	High Limit Switch	
4	Heat Exchanger Assembly	NPE-24SWE NPE-32SWE	17	Fastner	
5	Ignitor		18	WPA-A (Clip)	
6	Packing (Φ26.5x2.4t)		19	Thermistor	Water
7	Heat Exchanger Outlet Pipe	NPE-24SWE NPE-32SWE	20	WPA-B	
8	WPA-C (Screw)		21	H-Ex Middle Pipe	NPE-24SWE/24AWE NPE-32SWE/32AWE
9	Fastner		22	WPA-A (Screw)	
10	O-Ring (Φ17.5x2.7t)		23	Mixing Pipe	NPE-24SWE NPE-32SWE
11	Cold Inlet Pipe	NPE-24SWE NPE-32SWE	24	WPA-T	
12	Fan Damper		25	Hot Water Outlet Pipe	NPE-24SWE NPE-32SWE
13	Fan Packing				

7.5.4 Waterway Assembly(NPE-24AWE/32AWE)



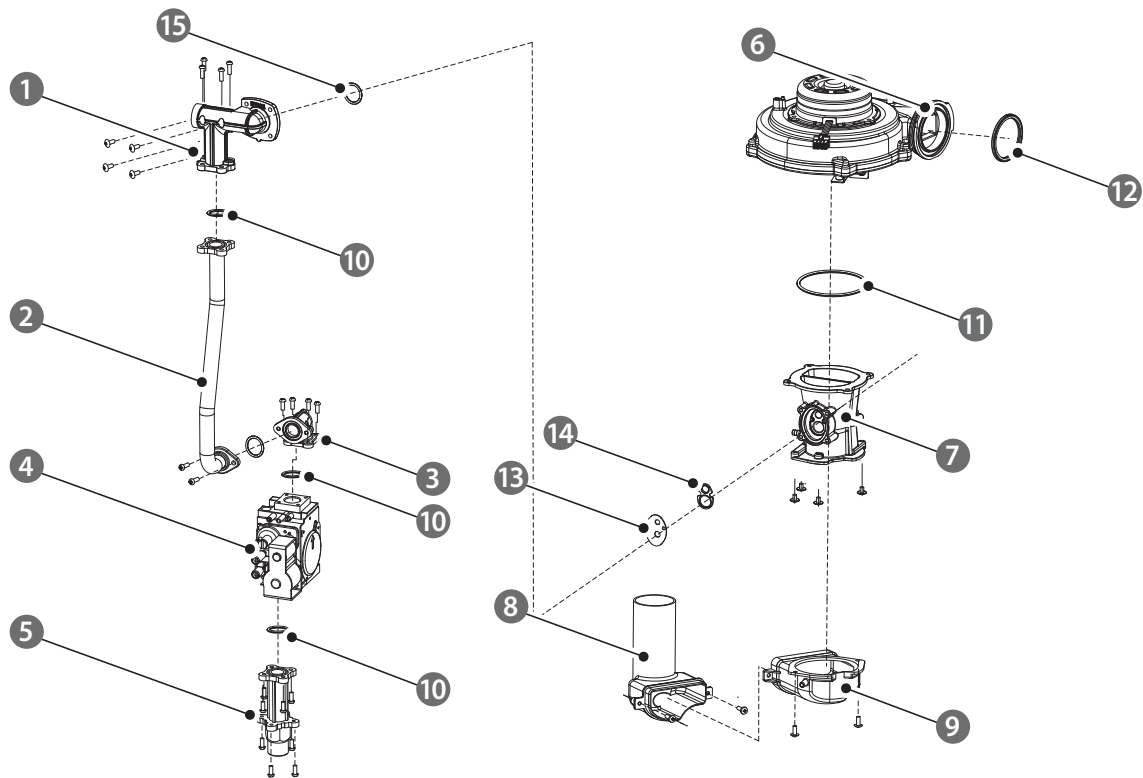
#	Description	Model	#	Description	Model	#	Description	Model
1	Buffer Tank		4-2	Drain Plug		9-3	O-Ring (P16)	
2	Hot Water Outlet Pipe Assembly		4-3	O-RING (P18)		10	Return Pipe clip	
2-1	Pipe Adapter		5	Fastner		11	Fastner	
2-2	O-RING (P20)		6	Water Adjustment Valve (WAV)		12	Cold Water Inlet Pipe Assembly	
2-3	Thermistor (Red)				7	WAV Outlet Pipe Assembly		12-1
2-4	O-RING (P16)		7-1	O-Ring (P16)		12-2	O-RING (P19)	
2-5	Pipe Clip		8	Syphon		12-3	Pipe adapter	
3	Return Pipe Assembly		8-1	O-Ring (Φ31.7x3.5t)		12-4	O-RING (P20)	
3-1	Pipe adapter		8-2	Syphon Clip		12-5	Pipe Clip	
3-2	O-RING (P20)		8-3	Hose Clip		13	O-RING (P29)	
3-3	O-RING (P19)		8-4	Syphon Hose		14	Buffer Tank Adapter	
3-4	Water Filter		9	Pump Outlet Pipe Assembly		15	Buffer Tank Pipe A	
3-5	Pipe Clip		9-1	Check Valve		16	Buffer Tank Pipe B	
4	Circulation Pump		9-2	Pipe Clip		17	Fastner	
4-1	Pump Air Separator							

7.5.5 Waterway Assembly(NPE-24SWE/32SWE)



#	Description	Model	#	Description	Model
1	Bracket		10	Outlet Adapter	
2	Thermistor		11	Fastner	
3	Water Filter		12	Water Adjustment Valve (WAV)	
4	Cold Water Inlet Adapter		13	Inlet Adapter	
5	O-Ring (P15)		14	O-Ring (P18)	
6	Fastner		15	How Water Outlet Adapter	
7	Flow Sensor		16	Siphon	
8	O-Ring (P16)		17	Siphon Hose	
9	Flow Sensor Outlet Adapter				

7.5.6 Fan(Gas) Assembly



#	Description	Model	#	Description	Model
1	Gas Adapter	NPE-24AWE/24SWE	9	Silence Adapter	NPE-24AWE/24SWE
		NPE-32AWE/32SWE			NPE-32AWE/32SWE
2	Gas Pipe	NPE-24AWE/24SWE	10	O-Ring (P20)	
		NPE-32AWE/32SWE	11	O-Ring (G75)	
3	Gas Connector		12	Fan Packing	
4	Gas Valve		13	Gas Orifice	NPE-24AWE/24SWE
5	Gas Inlet Adapter				NPE-32AWE/32SWE
6	Fan Assembly		14	Venturi packing	
7	Dual Venturi	NPE-24AWE/24SWE	15	O-Ring (P34)	
		NPE-32AWE/32SWE			
8	Silence	NPE-24AWE/24SWE			
		NPE-32AWE/32SWE			

GAS FIRED CONTINUOUS FLOW WATER HEATER COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the water heater as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer name:		Telephone number:	
Address:			
Water Heater Make & Model:			
Serial Number:			
Commissioned by (PRINT NAME):		Gas Safe Register Number:	
Company name:		Telephone number:	
Company address:			
		Commissioning date:	
To be completed by the customer on receipt of a Building Regulations Compliance Certificate*:			
Building Regulations Notification Number (if applicable)			
CONTROLS			
Is there a separate temperature control fitted	Yes		No
Have they been explained to the customer	Yes		No
Has the Appliance been set to the required MAX temp.	Yes		No
If NO has the Appliance been set to the required temp.	Yes		No
SYSTEM			
Is there a filter on the incoming mains	Yes		No
Is the system on a secondary return	Yes		No
Has an unvented kit been installed	Yes		No
If yes please record Safety Valve Size and rating	Size	Rating	
Does the discharge pipe comply with current building regulations			Yes
Please record location of Pressure Reducing Valve			
Pressure Reducing Valve Setting			
Expansion Vessel Size			
Expansion Vessel Charge Pressure			
Has the system been installed with a storage vessel	Yes		No
DOMESTIC HOT WATER MODE			
Gas Rate at High Fire	m ³ /hr	ft ³ /hr	
Burner Pressure	Lo mbar	Hi mbar	
Inlet Pressure Dynamic at Hi Fire and all other appliances running	mbar		
Inlet water temp			°C
Water Heater Set Temperature			°C
Maximum Flow Rate Achieved	L/min		
Is the installation in a hard water area (above 150mg/L)	Yes		No
If Yes What Type of Scale Reducer has been Fitted			
Hot Water checked at all outlets	Yes	Temp	°C
FLUEING			
What type of water heater is fitted	Internal	External	
EXTERNAL is the unit mounted fully outside	Yes		No
If NO explain in detail where the appliance is mounted			
INTERNAL does the flueing comply with current standards	Yes		No
If the flueing to manufacturers instructions	Yes		No
CONDENSING WATER HEATERS ONLY			
Has the condensate drain has been installed as per manufacturers instructions and/or BS5446/BS6798	Yes		No
FULL INSTALLATION			
Record the following:	At max rate: CO ppm	and	CO/CO2 Ratio
	At min. Rate: (where possible) CO ppm	and	CO/CO2 Ratio
Does the hot water system fully comply with the appropriate Building Regulations			Yes
The water heater and associated products have been installed and commissioned in accordance with all manufacturers instructions			Yes
The full operation of the water heater and any controls have been demonstrated to and understood by the customer			Yes
The manufacturers literature including Benchmark Checklist and Service Record, has been explained and left with the customer			Yes
Commissioning Engineer's Signature			
Customer's Signature			
(To confirm satisfactory demonstration and receipt of manufacturer's literature)			

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



SERVICE RECORD

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions. Always use the manufacturer's specified spare part when replacing controls.

SERVICE 01					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 02					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 03					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 04					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 05					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 06					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 07					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 08					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 09					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

SERVICE 10					Date:
Engineer name:					
Company name:					
Telephone No:					
Gas safe register No:					
Record:	At max. rate:	CO	ppm	AND	CO ₂ %
	At min. rate: (Where Possible)	CO	ppm	AND	CO ₂ %
Comments:					
Signature					

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.



Memo

Installation Manual

Getting Service

If your water heater requires service, you have several options for getting service:

- Contact an official Technical Assistance Service (TAS) at 0844 332 2323 or go to the website (www.navien.co.uk).
For warranty service, always contact an official Technical Assistance Service (TAS) first.
- Contact the technician or professional who installed your water heater.
- Contact a Gas Safe Registered engineer.

When you contact an official Technical Assistance Service (TAS), please have the following information at hand:

- Model number
- Serial number
- Date purchased
- Installation location and type
- Error code, if any appears on the front panel display.

Version: 1.02(Apr. 23, 2018)