Rinnai Commercial - **Product specification guide**

Rinnai

Rinnai UK offers a solution for every application, from public health and NHS facilities to commercial properties like gyms and leisure centres to construction sites, sports arenas and music festivals.

With our enhanced combustion technologies, **Rinnai** continuous flow water heaters are providing a better experience for end-users and installers alike. Rinnai components are all vertically integrated meaning that they are manufactured by Rinnai, ensuring quality and performance.

Simply scan the QR code to visit real-life case studies where we have added serious value for the target markets below.

Hospital, health care and care homes

Leisure facilities and sports

Hotels and student accommodation

Education

Events

Laundry

Camping and caravans

Military

Catering and restaurants

Rinnai Sensei Next Generation Commercial Water Heaters

The **Rinnai Sensei** water heaters are the pinnacle in commercial water heating. The **Sensei** is a fully modulating, fully condensing, stainless steel, continuous flow water heater.

This unique water heater design offers turndown ratios of 13:1 and has many other new and exciting features. The **Sensei** range comes in 58.3kW and 47kW variants for both internal and external wall mounting. The **Sensei** range is A-rated and can offer flow rates above 1926 liters of temperature accurate hot water per hour.

The **Rinnai Sensei** is capable of being installed in a cascade arrangement meaning that multiple water heaters can be situated side by side to increase the flow rate and supply the most demanding applications. Newly incorporated features include flue damper, in-built sequencing controls, a stainless steel heat exchanger, easy gas conversion system and turbo-fan.

Our mission is to provide the best in class, added value water heating solutions at an economical cost within the industry.

Technical specification

INPUTS	GROSS EFFICIENCY	UP TO	LESS THAN	ERP
47 - 57.9kW	96%	1926 l/h	28mg/kWh	A Rated

Rinnai Sensei: Features and Benefits

Features

- Stainless steel heat exchanger
- 13:1 turndown ratio
- High capacity hot water flow rates up to 1927 l/hr
- 96% gross efficiency
- BMS integration and remote monitoring capacities
- Easy conversion gas orifice
- Built-in flue damper
- Turbo-fan system
- Switching Venturi
- Room sealed and common header flue options
- Cutting edge electronic controls system delivering temperature accurate hot water

Benefits

- Increased durability and warranty
- Optimises gas usages
- Guarantees a temperature accurate supply of hot water even for the heaviest of users
- Best in class efficiency
- Easy integration to Building Management System (BMS) and remote monitoring capability
- Simplifies NG to LPG conversion
- Streamlines flue installation and removes the need for additional flue components
- Extended flue runs of 45+ metres
- Provides consistent mixture of gas and air to the burner for low turndown ratios
- Increased performance and efficiency
- Ease of use and unparalleled levels of control

NEW INTEGRATED FLUE DAMPER

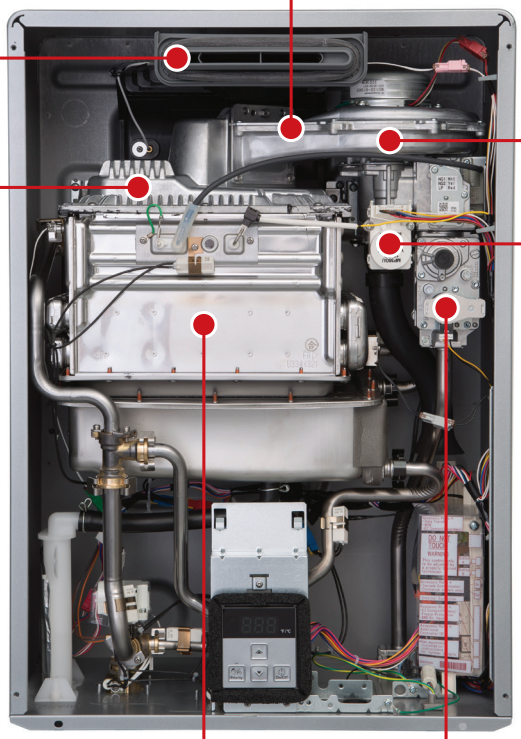
- Located between turbo fan and combustion chamber
- No need for additional flue damper

NEW GREATER FLUE OPTIONS

- Concentric internal model and external model available

NEW TURBO-FAN

- Enables longer flue runs
- Up to 30 metres flue runs (coaxial)
- Up to 45 metres (common header)



NEW FIBRE MESH PRE-MIX BURNER

- Provides even flame distribution for optimal performance for any demand

NEW SWITCHING VENTURI

- Provides consistent mixture of air and gas to the burner for low turn down ratios
- Self-compensates in areas with low or fluctuating gas pressures

NEW PRIMARY STAINLESS STEEL HEAT EXCHANGER

- Resists the corrosive nature of the condensate, which occurs early in the high-efficiency combustion process

NEW ZERO GOVERNOR GAS VALVE

- Optimises combustion performance by consistently delivering gas and air mixture

Model	N1300i (REU-N2635FFC)	N1300e (REU-N2635WC)	Unit
Appliance type	Condensing instantaneous water heater with automatic output variation		
Installation	Internal	External	
G20 Nat Gas min gas pressure	-0.10		mbar
G230 Air/Propane min gas pressure	-0.10		mbar
G30 Butane min gas pressure	-0.10		mbar
G31 Propane min gas pressure	-0.10		mbar
Flue system	Forced Room Sealed	Direct Forced Exhaust	-
Temperature range with water controller	37-50, 50,55,60,65,75		°C
Temperature range with push buttons	40,42,50,55,60,65,75,85		°C
Ignition	Direct Electronic ignition		-
Gas consumption & capacities min operation	[H_i=Net Calorif Value; H_s=Gross Calorific Value]		
G20 Nat Gas: Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G20 Nat Gas flow normal operating conditions V_m	0.42	0.42	m^3/h
G230 Air/Propane Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G230 Air/Propane flow normal operating conditions V_m	0.33	0.33	m^3/h
G30 Butane: Input Q_m: H_i/H_s | Output P_m	4.60 / 5.00 | 4.80	4.60 / 5.00 | 4.80	kW
G30 Butane: flow normal operating conditions M_m	0.36	0.36	kg/h
G31 Propane: Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G31 Propane: flow normal operating conditions M_m	0.31	0.31	kg/h
Gas consumption & capacities nominal operation	[H_i=Net Calorif Value; H_s=Gross Calorific Value]		
G20 Nat Gas: Input Q_n: H_i/H_s | Output P_n	42.30 / 47.00 | 45.00	42.30 / 47.00 | 45.00	kW
G20 Nat Gas flow ref. conditions V_r	4.50	4.50	m^3/h
G230 Air/Propane: Input Q_n: H_i/H_s | Output P_n	43.20 / 47.00 | 45.00	43.20 / 47.00 | 45.00	kW
G230 Air/Propane flow ref. conditions V_r	3.50	3.50	m^3/h
G30 Butane: Input Q_n: H_i/H_s | Output P_n	43.40 / 47.00 | 45.00	43.40 / 47.00 | 45.00	kW
G30 Butane: flow normal operating conditions M_n	3.40	3.40	kg/h
G31 Propane: Input Q_n: H_i/H_s | Output P_n	43.20 / 47.00 | 45.00	43.20 / 47.00 | 45.00	kW
G31 Propane: flow normal operating conditions M_n	3.40	3.40	kg/h
Fluegas Flowrate wet (Max. / Min. Load)	53/5	-	m^3/h
Fluegas Flowrate dry (Max. / Min. Load)	46/4	-	m^3/h
Flue Temp. (Max. / Min. Load)	<70	-	°C
CO_2 conc. (Max. / Min. Load)	9.30 / 8.20	-	%
CO/CO_2 (Max. / Min. Load)	107/0	-	ppm
CO/CO_2 (Max. / Min. Load)	9.30 / 8.20	-	%
NO_X (Max. / Min. Load)	38.10 / 6.70	-	ppm
Country of destination	Refer to dataplate		-
Gas category and pressure	II2H3B/P // II2H3P // II2HM3B/P G20: 20 mbar; G230: 20 mbar G31: 37 mbar; G30: 30 mbar		-
Type	C_{13}; C_{33}; C_{53}; C_{83P}; B_{33P}	A_3	-
Max water flowrate	35	35	l/min
Min operation flowrate	ON = 1.50 / OFF = 1.00 [1]		l/min
Min operating water pressure (P_{min})	0.10		bar
Water pressure (@nom/max flowrate - max) - (P_w)	3 - 10		bar
Electric consumption (remote/standby/antifrost)	230V/50Hz		-
Electric consumption (remote/standby/antifrost)	55 / 3 / 150	55 / 3 / 154	W
Noise	59	-	dB (A)
Ignition safety time TSAmax	3		sec.
Weight	28	28	kg
IP protection	IPx4D	IPx5D	-
Anti-freeze outside temperature protection	-20 [2]	-20 [3]	°C
NO_x (H_s)	27.40	27.40	mg/kWh

[1] Minimum water flowrate may vary depending on the temperature setting and the inlet water temperature.
[2] When NOT installled in an area of negative pressure
[3] When protected from direct wind exposure.

Model	N1600i (REU-N3237FFC)	N1600e (REU-N3237WC)	Unit
Appliance type	Condensing instantaneous water heater with automatic output variation		
Installation	Internal	External	
G20 Nat Gas min gas pressure	-0.10		mbar
G230 Air/Propane min gas pressure	-0.10		mbar
G30 Butane min gas pressure	-0.10		mbar
G31 Propane min gas pressure	-0.10		mbar
Flue system	Forced Room Sealed	Direct Forced Exhaust	-
Temperature range with water controller	37-50, 50,55,60,65,75		°C
Temperature range with push buttons	40,42,50,55,60,65,75,85		°C
Ignition	Direct Electronic ignition		-
Gas consumption & capacities min operation	[H_i=Net Calorif Value; H_s=Gross Calorific Value]		
G20 Nat Gas: Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G20 Nat Gas flow normal operating conditions V_m	0.42	0.42	m^3/h
G230 Air/Propane Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G230 Air/Propane flow normal operating conditions V_m	0.33	0.33	m^3/h
G30 Butane: Input Q_m: H_i/H_s | Output P_m	4.60 / 5.00 | 4.80	4.60 / 5.00 | 4.80	kW
G30 Butane: flow normal operating conditions M_m	0.36	0.36	kg/h
G31 Propane: Input Q_m: H_i/H_s | Output P_m	4.00 / 4.40 | 4.20	4.00 / 4.40 | 4.20	kW
G31 Propane: flow normal operating conditions M_m	0.31	0.31	kg/h
Gas consumption & capacities nominal operation	[H_i=Net Calorif Value; H_s=Gross Calorific Value]		
G20 Nat Gas: Input Q_n: H_i/H_s | Output P_n	52.10 / 57.90 | 55.50	52.10 / 57.90 | 55.50	kW
G20 Nat Gas flow ref. conditions V_r	5.50	5.50	m^3/h
G230 Air/Propane: Input Q_n: H_i/H_s | Output P_n	53.30 / 57.90 | 55.50	53.30 / 57.90 | 55.50	kW
G230 Air/Propane flow ref. conditions V_r	4.40	4.40	m^3/h
G30 Butane: Input Q_n: H_i/H_s | Output P_n	53.40 / 57.90 | 55.50	53.40 / 57.90 | 55.50	kW
G30 Butane: flow normal operating conditions M_n	4.20	4.20	kg/h
G31 Propane: Input Q_n: H_i/H_s | Output P_n	53.30 / 57.90 | 55.50	53.30 / 57.90 | 55.50	kW
G31 Propane: flow normal operating conditions M_n	4.10	4.10	kg/h
Fluegas Flowrate wet (Max. / Min. Load)	65/5	-	m^3/h
Fluegas Flowrate dry (Max. / Min. Load)	57/4	-	m^3/h
Flue Temp. (Max. / Min. Load)	<70	-	°C
CO_2 conc. (Max. / Min. Load)	9.30 / 8.10	-	%
CO/CO_2 (Max. / Min. Load)	122 / 6	-	ppm
CO/CO_2 (Max. / Min. Load)	9.30 / 8.10	-	%
NO_X (Max. / Min. Load)	40.10 / 5.40	-	ppm
Country of destination	Refer to dataplate		-
Gas category and pressure	II2H3B/P // II2H3P // II2HM3B/P G20: 20 mbar; G230: 20 mbar G31: 37 mbar; G30: 30 mbar		-
Type	C_{13}; C_{33}; C_{53}; C_{83P}; B_{33P}	A_3	-
Max water flowrate	35	35	l/min
Min operation flowrate	ON = 1.50 / OFF = 1.00 [1]		l/min
Min operating water pressure (P_{min})	0.10		bar
Water pressure (@nom/max flowrate - max) - (P_w)	3 - 10		bar
Electric consumption (remote/standby/antifrost)	230V/50Hz		-
Electric consumption (remote/standby/antifrost)	75 / 3 / 150	75 / 3 / 154	W
Noise	59	-	dB (A)
Ignition safety time TSAmax	3		sec.
Weight	29	29	kg
IP protection	IPx4D	IPx5D	-
Anti-freeze outside temperature protection	-20 [2]	-20 [3]	°C
NO_x (H_s)	27.40	27.40	mg/kWh

[1] Minimum water flowrate may vary depending on the temperature setting and the inlet water temperature.
[2] When NOT installled in an area of negative pressure
[3] When protected from direct wind exposure.

Product Fiche

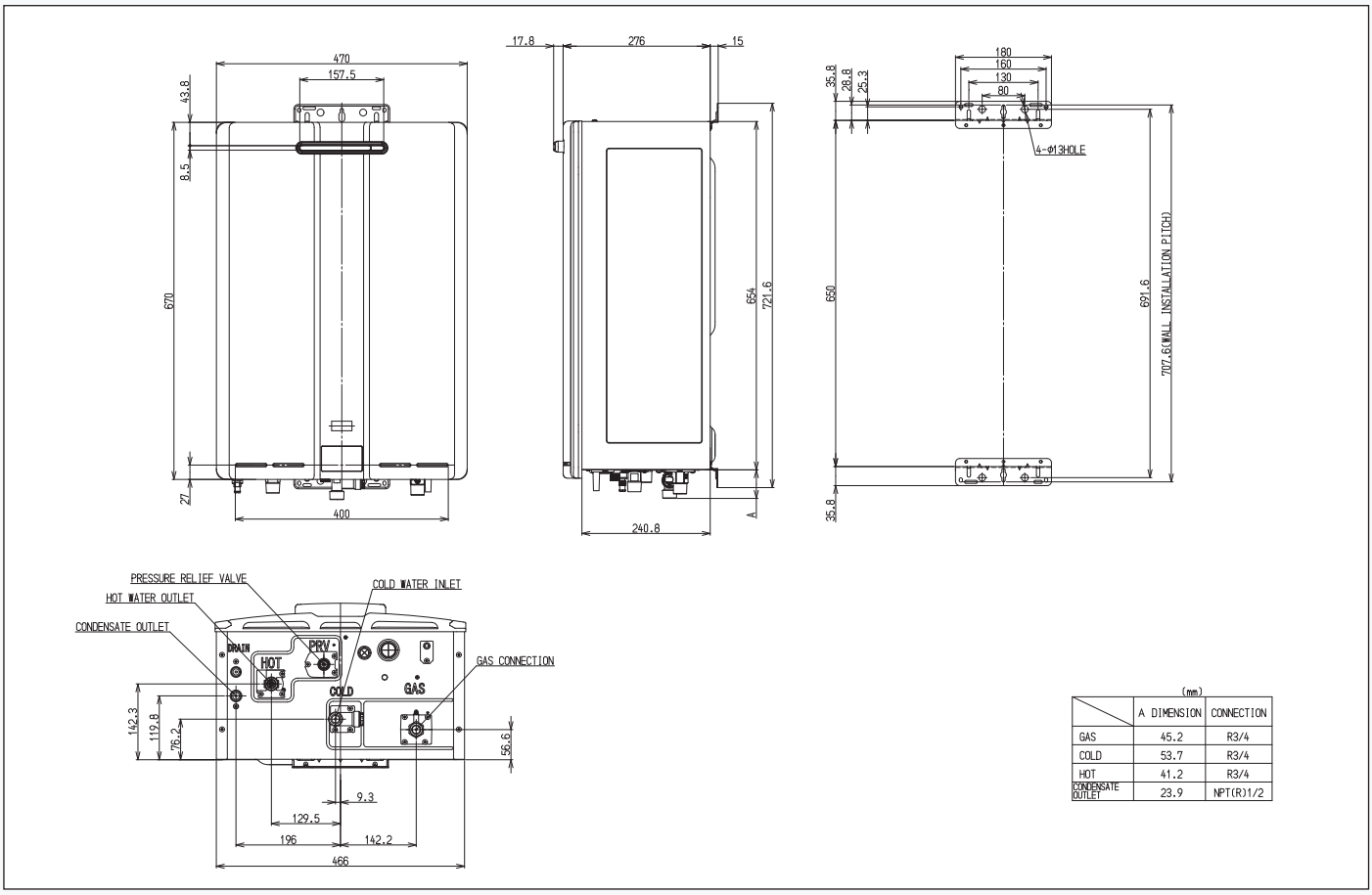
			Unit
Supplier's name	Rinnai UK		
Supplier's model	N1300i (REU-N2635FFC-E)	N1300e (REU-N2635WC-E)	
Load profile	XL	XL	
Water heating energy efficiency class	A	A	
Water heating energy efficiency class Water heating energy efficiency (ηwh)	86.9	86.9	%
Annual electricity consumption (AEC)	19.5	19.5	kWh/annum
Annual fuel consumption (AFC) - (Hs)	17.1	17.1	GJ/annum
Temperature setting [1]	55	55	°C
Indoor sound power level (LWA)	59	-	db

Values tested with appliance set @60°C - Gas: G20mbar - High calorific value (Hs) - According to Reg. UE 812/2013.
[1] 40°C with water control connected.

			Unit
Supplier's name	Rinnai UK		
Supplier's model	N1600i (REU-N3237FFC-E)	N1600e (REU-N3237WC-E)	
Load profile	XXL	XXL	
Water heating energy efficiency class	A	A	
Water heating energy efficiency class Water heating energy efficiency (ηwh)	85.7	85.7	%
Annual electricity consumption (AEC)	22.3	22.3	kWh/annum
Annual fuel consumption (AFC) - (Hs)	22.4	22.4	GJ/annum
Temperature setting [1]	55	55	°C
Indoor sound power level (LWA)	59	-	db

Values tested with appliance set @60°C - Gas: G20mbar - High calorific value (Hs) - According to Reg. UE 812/2013.
[1] 40°C with water control connected.

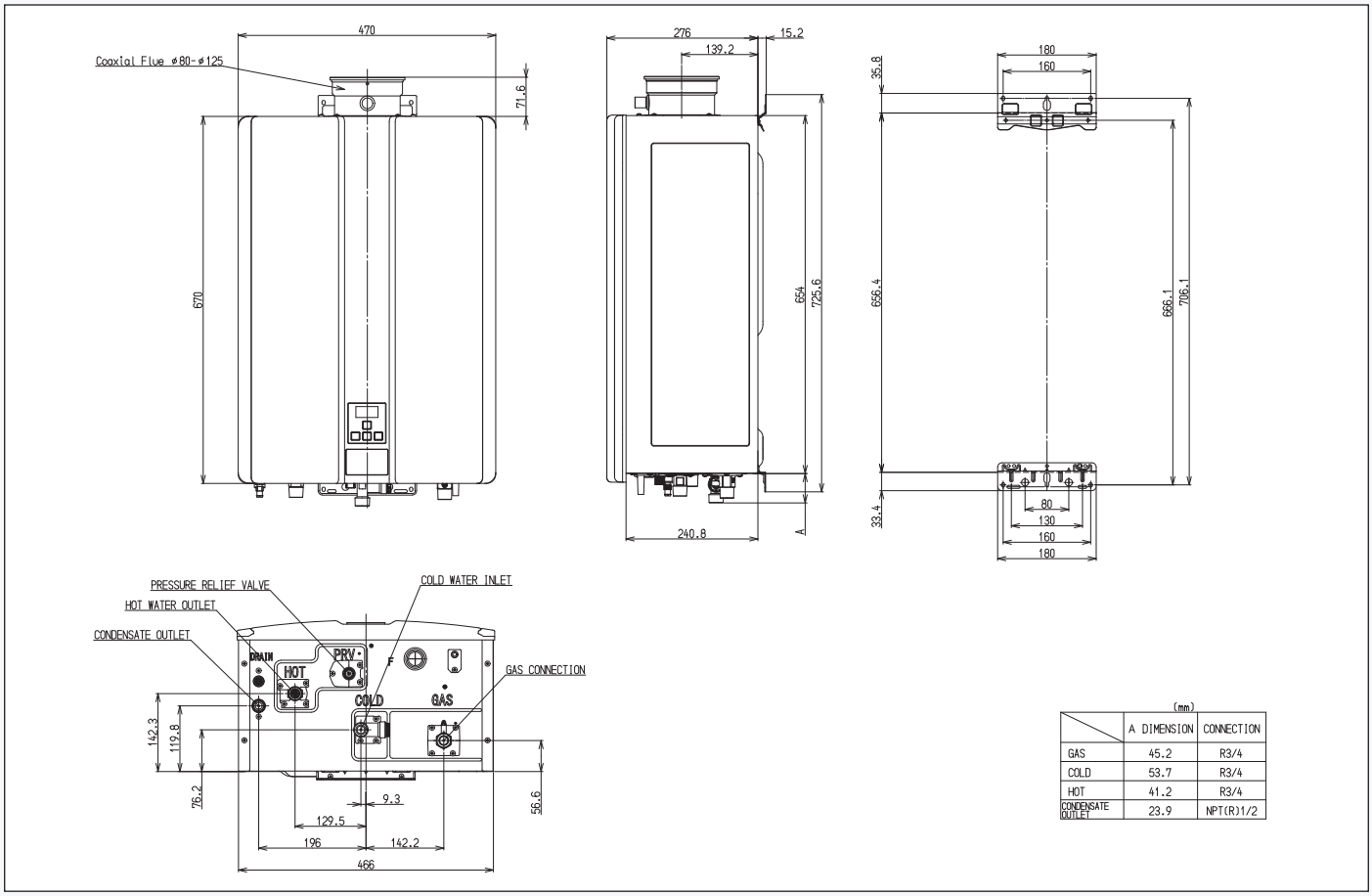
Product Dimensions - Model N1300e and Model N1600e



(mm)

	A DIMENSION	CONNECTION
GAS	45.2	R3/4
COLD	53.7	R3/4
HOT	41.2	R3/4
CONDENSATE OUTLET	23.9	NPT(R)1/2

Product Dimensions - Model N1300i and Model N1600i



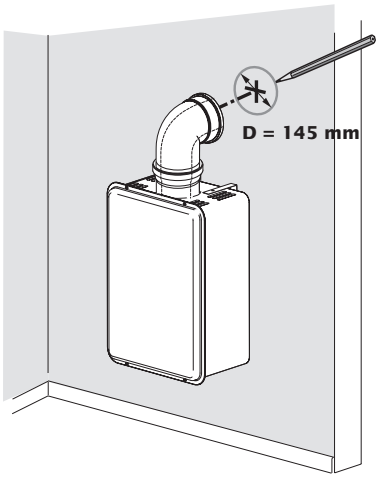
(mm)

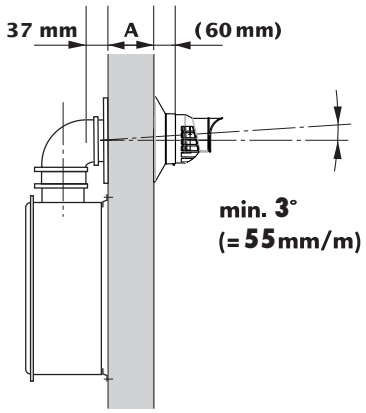
	A DIMENSION	CONNECTION
GAS	45.2	R3/4
COLD	53.7	R3/4
HOT	41.2	R3/4
CONDENSATE OUTLET	23.9	NPT(R)1/2

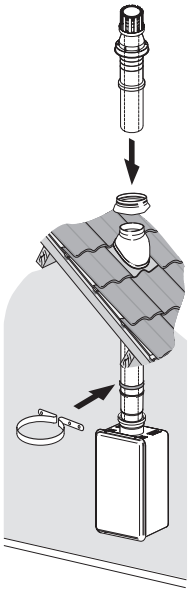
Flueing and Ancillaries

The most flexible flueing in the industry...

The Rinnai Sensei range uses smaller, lighter, less expensive concentric flues. Flue runs of up to 30m are achievable and common flue systems are available to streamline installations of multiple Rinnai Sensei water heaters.







*Contact us for more information on flue configurations as we can support you with specifications.

AWFKM-01	**Condensing (80/125) Std Horizontal Flue Kit L:74cm Exc Terminal**
AWFKM-07	**Condensing (80/125) Std Vertical Flue Kit L:44cm Exc Terminal**
AWFKM-03	Condensing (80/125) 87 degree Bend
AWFKM-02 (1 Pair)	2 off Condensing (80/125) 45 degree Bends
AWFKM-05	Condensing (80/125) 500mm Flue (Can be cut to required length)
AWFKM-06	Condensing (80/125) 1000mm Flue
AWFKM-08	Plume Management Kit
AWF50-10	Roof/Attic Pipe Clamp
AWF50-12	Stand-off Pipe Clamp
AWF50-08	Flat Roof Flashing Plate
AWF50-25	Ubiflex Universal Tile (15-55 degrees)
AWF50-11	25-45° Pitched Roof Flashing
AWF50-18	35-55° Pitched Roof Flashing
AWG-02	Water Heater Terminal Guard

Controls

RINNAI LEGIONELLA PROTECTION SYSTEM	
AW-PURE	Rinnai Auto Pasteurisation Unit
ERROR INDICATION	
AWBMS-01	Error Indication Switch
RINNAI GATEWAY SYSTEM	
AW-TGGATEWAY	Rinnai BACnet/Modbus Gateway (For KM Series)
ELECTRICAL SEQUENCING (MAXIMUM 2 HEATERS)	
AWEZC-01	Ez Connect Cable
AWM5B-M	Multi unit sequencer
AWM5B-MB	Multi unit sequencer

Potable Water Unvented System Kits

Valve Kits

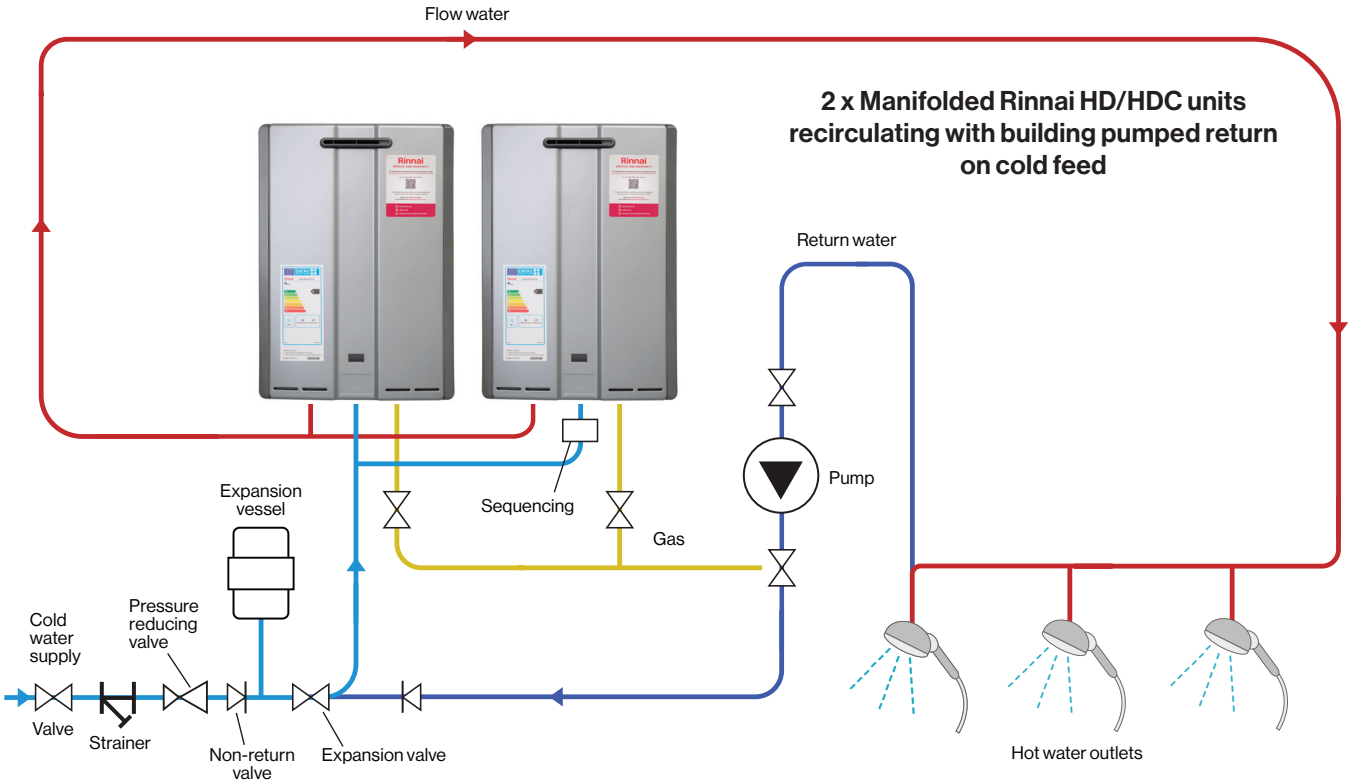
We can supply you with any combination of valves or expansion vessels to suit your hot water solution.

Rinnai Code	Description
AWUV-01	Rinnai ¾" Valve Kit
AWUV-02	Rinnai 1" Valve Kit
AWUV-03	Rinnai 1¼" Valve Kit
AWUV-04	Rinnai 1½" Valve Kit
AWUV-05	Rinnai 2" Valve Kit
AWV-ISOLATION	Rinnai Infinity Valve Pack (Shut off valves)

Expansion Vessels

Rinnai Code	Description
AWBUFF-12	Rinnai 12L Vessel
AWBUFF-19	Rinnai 19L Vessel
AWBUFF-35	Rinnai 35L Vessel
AWBUFF-50	Rinnai 50L Vessel
AWBUFF-80	Rinnai 80L Vessel
AWBUFF-100	Rinnai 100L Vessel

Rinnai Infinity and Sensei water heaters can deliver temperature accurate hot water, so when used in conjunction with the valve packs and expansion vessels above they can seriously reduce the risk of onsite legionella in the domestic hot water circuit whilst also aiding G3 unvented systems compliance.



Rinnai Infinity VCM Commercial Water Heaters

The **Rinnai Infinity VCM** range consists of internal and external water heaters. The internal model is a room sealed, wall hung, natural gas or LPG fired continuous flow water heater.

The **Infinity Low NOx HD55i Internal** is capable of supplying more than 820 litres per hour raised 50˚C. Making it an ideal choice for high capacity system specifications as up to 25 units can be cascaded to supply any application.

The **Infinity Low NOx** range incorporates patented burner technology meaning that the appliances produce less than 20ppm NOx future-proofing the systems against legislative changes. The **Rinnai Infinity Low NOx HD55e** water heater is an external wall-mounted, continuous flow water heater, capable of running on natural gas or LPG and supplying more than 820 litres/hr.

The mixture of power and flexibility ensures that the **Infinity Low NOx** commercial water heater is ideal for light commercial to large industrial sites.

Technical specification

INPUT	UP TO	LESS THAN	ERP
52.6kW	820 l/h	20mg/kWh	A Rated

Features and Benefits

Features

- High capacity flow rates (in excess of 820 l/hr)
- 19:1 turndown ratio
- Copper finned heat exchanger technology
- ERP A Rated
- Internal and external models available
- Lightweight, compact and solid construction
- Room sealed and wide range of flue options
- Natural gas & LPG models available
- Frost protection fitted as standard
- Low NOx performance less than 20 ppm

Benefits

- Satisfies even the heaviest hot water demand
- Optimises gas usages
- Excellent for heat transfer, reliable and low maintenance
- Best in class efficiency
- Installation flexibility
- One man lift, easy install and robust structure
- 80/125 coaxial flue system with extended flue run capability
- No need for conversion kits
- Protect appliances against the damaging effects of cold weather
- Best in class NOx performance

Model	HD55i (REU-VCM2837FFUDHD-E)	HD55e (REU-VCM2837WDHD-E)	Unit
Installation	Internal	External	
G20 Nat Gas Press Low / High	1,57 / 7,33	1,39 / 6,18	mbar
G230 Air/Propane Press Low / High	1,88 / 8,40	1,75 / 7,80	mbar
G31 Propane / G30 Butane Press Low / High	2,14 / 11,80	2,28 / 11,00	mbar
Flue System	Forced Room Sealed	Direct Forced Exhaust	
Temp. Range Controllers	37-46,48,50,55, (HD:60,65,75)	37-46,48,50,55, (HD:60,65,75)	°C
Temp. via dip switches	40, 42, 50, 55, 60, 65, 75, 85	40, 42, 50, 55, 60, 65, 75, 85	°C
Ignition	Direct Electronic Ignition		
Gas consumption & capacities min operation	[H_i=Net Calorif Value; H_s=Gross Calorific Value]		-
G20 Nat Gas: Input Q_m: H_i/H_s | Useful output P_m	2.72/3.02|2.33	2.72/3.02|2.33	kW
G20 Nat Gas flow normal operating conditions V_m	0,29	0,29	m^3/h
G230 Air/Propane Input Q_m: H_i/H_s | Useful output P_m	2.78/3.02|2.33	2.78/3.02|2.33	kW
G230 Air/Propane flow normal operating conditions V_m	0,23	0,23	m^3/h
G30 Input Q_m: H_i/H_s | Useful output P_m	3.16/3.43|2.64	3.16/3.43|2.64	kW
G30 flow normal operating conditions M_m	0,25	0,25	kg/h
G31 Input Q_m: H_i/H_s | Useful output P_m	2.78/3.02|2.33	2.78/3.02|2.33	kW
G31 flow normal operating conditions M_m	0,22	0,22	kg/h
Gas Consumption & Capacities nominal condit.	[H_i=Net Calorific Value; H_s=Gross Calorific Value]		
G20 Nat Gas: Input Q_n: H_i/H_s | Useful output P_n	52.6/58.4|48.5	52.6/58.4|48.5	kW
G20 Nat Gas flow ref. conditions V_r	5,6	5,6	m^3/h
G230 Air/Propane: Input Q_n: H_i/H_s | Useful output P_n	53.7/58.4|48.5	53.7/58.4|48.5	kW
G230 Air/Propane flow ref. conditions V_r	4,4	4,4	m^3/h
G30 Input Q_n: H_i/H_s | Useful output P_n	61.3/66.4|55.1	61.3/66.4|55.1	kW
G30 flow normal operating conditions M_n	4,8	4,8	kg/h
G31 Input Q_n: H_i/H_s | Useful output P_n	53.7/58.4|48.5	53.7/58.4|48.5	kW
G31 flow normal operating conditions M_n	4,2	4,2	kg/h
Country of destination	Refer to dataplate		
Gas category and pressure	II2H3P, II2H3B/P, II2HM3B/P G20-20mbar, G230-20mbar, G31-37mbar, G30-30mbar		
Type	C13,C33,C53	A3	
Max Flow	37	37	L/min
Min Operation Flow	ON=1,5 * / OFF=1,0 *	ON=1,5 * / OFF=1,0 *	L/min
Operating Water Pressure (P_w)	1,0 * - 10	1,0 * - 10	Bar
Power Supply	230V/50Hz		
Electric Consumption (1 remote)	97	65	W
Electric Consumption standby (1 remote)	2	2	W
Electric Consumption (antifrost)	120	104	W
Ignition Safety Time $T_{SAmax)}$	4,2	4,2	Sec.
Weight	21	20	kg
IPx Protection	-	IPX4	-
Anti-freeze outside temperature	-20°C **	-20°C ***	°C
NOx at Max Input GCV O2 0% G20	52	52	mg/kWh
Load Profile	XL	XL	
Water Heating Efficiency ηwh	82.4	82.4	%
Daily Fuel Consumption Qfuel	24.178	24.178	kWh
Daily Electrical Consumption Qelec	0.036	0.036	kWh
Sound Power Level L WA	67	-	dB

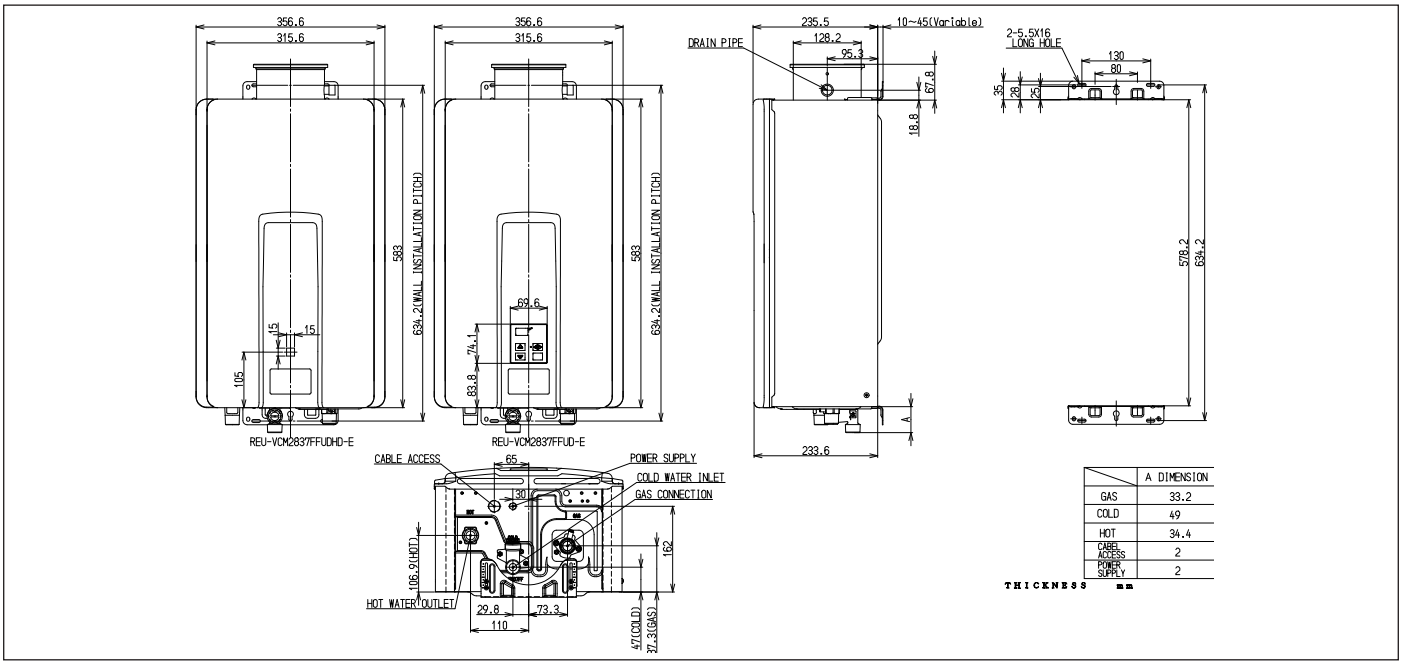
*** Minimum operation pressure and flow based on temperature setpoint and inlet conditions.**
**** When the water heater is not installed in an area of negative pressure.**
***** When protected from direct wind exposure.**

Product Fiche

Supplier's name	Rinnai UK Ltd	
Model name	HD55i (REU-VCM2837FFUDHD-E)	HD55e (REU-VCM2837WDHD-E)
Declared Load Profile on Energy Label	XL	XL
Energy Efficiency Class	A	A
Water Heating Efficiency ηwh (%)	82.4	82.4
Annual Electricity Consumption AEC (kWh/annum)	8	8
Annual Fuel Consumption AFC (GJ/annum)	18	18
Second Load Profile	XXL	XXL
Energy Efficiency Class	B	B
Water Heating Efficiency ηwh (%)	76.8	77.7
Annual Electricity Consumption AEC (kWh/annum)	14	12
Annual Fuel Consumption AFC (GJ/annum)	25	25
Default Thermostat Setting (°C)	55/HD Range 65	55/HD Range 65
Sound Power Level LWA (dB)	67	-

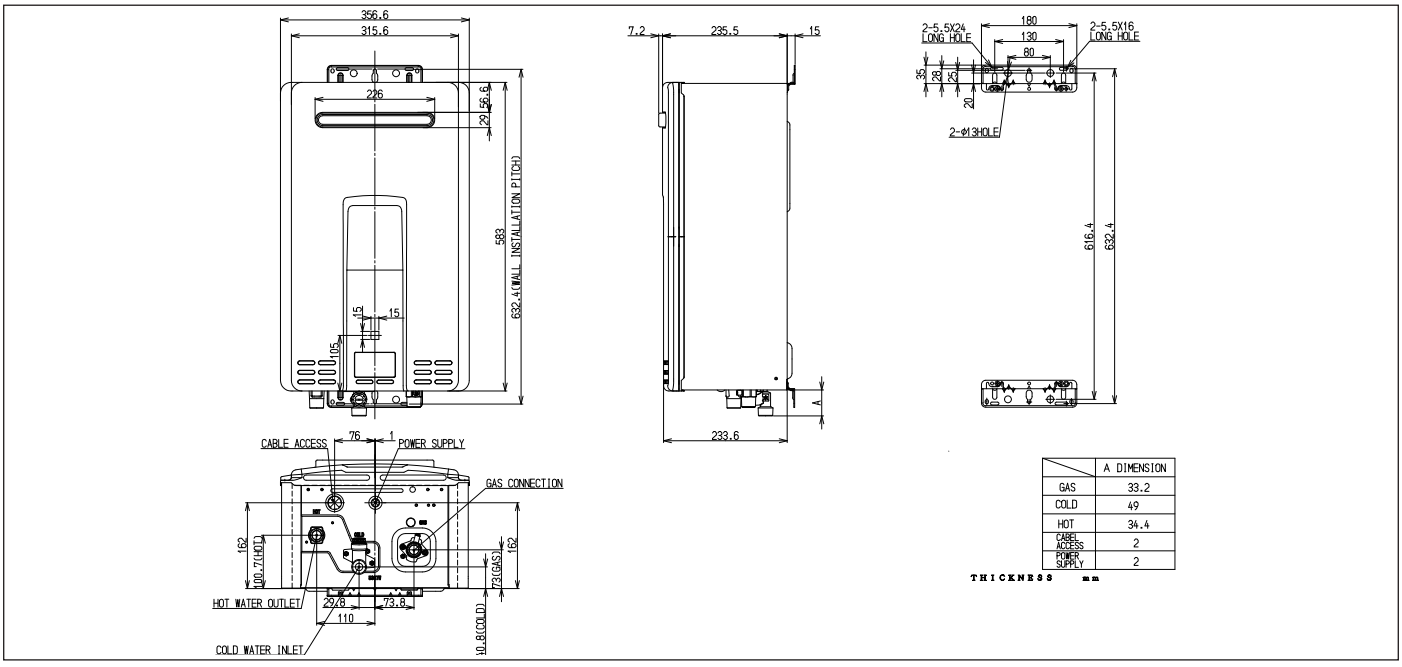
*Values are tested with Natural Gas, G20, and temperature setting at 60°C under the reg. 812/2013 and calculated based on the gross calorific value (Hs).

Product Dimensions - Model 55i



	A DIMENSION
GAS	33.2
COLD	49
HOT	34.4
CABEL ACCESS	2
POWER SUPPLY	2

Product Dimensions - Model 55e

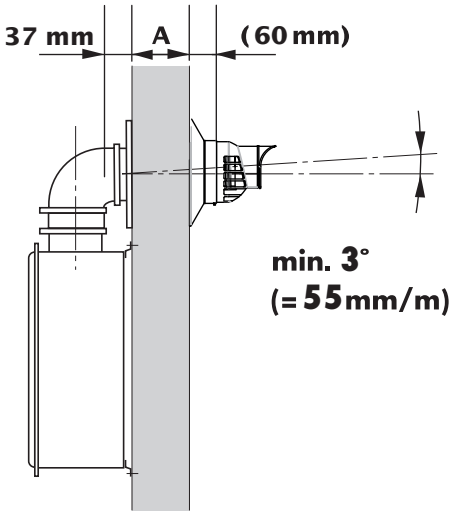


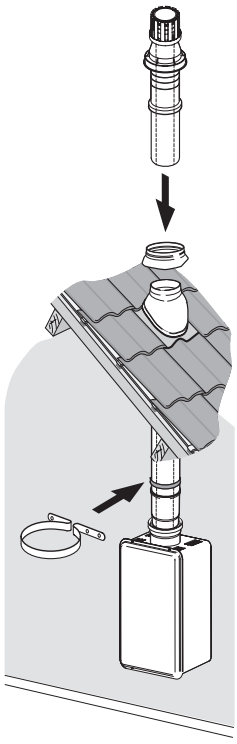
	A DIMENSION
GAS	33.2
COLD	49
HOT	34.4
CABEL ACCESS	2
POWER SUPPLY	2

Flueing and Ancillaries

The Infinity VCM series uses small diameter, lightweight flue components.

All flue components are push-fit and easy to install. Extended flue runs are achievable, horizontal and vertical flue kits come complete in easy to install packages. There is no need for additional room ventilation with the Rinnai Infinity range adding to the ease of installation and reducing overall project costs.





Rinnai code	Description
AWF50-01	**HD55i Horizontal Flue Kit (VRM) length 53cm ex terminal**
AWF50-07	**HD55i Vertical Flue Kit (VRM) length 49cm ex terminal**
AWF50-05	500mm Flue Extension (can be cut to required length)
AWF50-06	1000mm Flue Extension
AWF50-03	90° Flue Elbow Male/Female
AWF50-02 (1 Pair)	2 off 45° Flue Elbows Male/Female
AWF50-10	Roof/Attic Pipe Clamp
AWF50-12	Stand off Pipe Clamp
AWF50-08	Flat Roof Flashing Plate
AWF50-25	Ubiflex Universal Tile (15-55 degrees)
AWF50-14	Sipon Pack for condensate trap
AWG-02	Water Heater Terminal Guard
AWV-ISOLATION	Rinnai Infinity Valve Pack (Shut-off valves)

* for secondary return system please refer to page XX

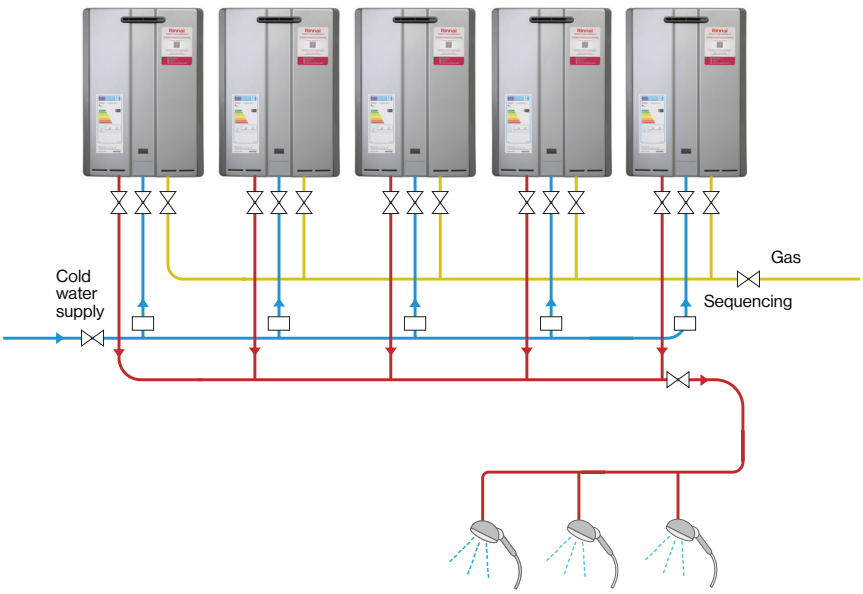
Infinity and Sensei Plus

Rinnai Infinity PLUS and **Sensei Plus** are custom made water heating solutions that bring together multiple units of our award winning continuous flow water heaters into single, easy to handle modules.

The PLUS system incorporates water heaters, skid systems, pipework and electrical connections providing the complete pre-fabricated turnkey solution. All that is needed are the final connections to the associated services. Infinity and Sensei PLUS have been developed to guarantee the maximum amount of affordable, ecologically friendly, safe and temperature accurate hot water required at any one time by even the most demanding commercial users.

Each PLUS module comprises either two or three Rinnai Infinity or Sensei units and as any number of modules can be manifolded, the capacity is infinite even where demand for instantaneous hot water peaks massively at certain times of the day. The PLUS arrangement also assists with energy and compliance initiatives as the PLUS arrangement maximises system modulation and by smart controls optimises system efficiencies.

		N1600i/e (N3237)					N1300i/e (N2632)				
Gross efficiency		96%					96%				
Number of units		1	2	3	4	5	1	2	3	4	5
Nat Gas kW output		55.5	111	166.5	224	280	45.1	90.2	135.3	180.4	225.5
Temperature rise by litres per											
50 degrees C	Minute	16.0	32.1	48.1	64.2	80.2	12.9	25.8	38.7	51.7	64.6
	Hour	962	1925	2887	3849	4811	775	1550	2325	3100	3875
60 degrees C	Minute	13.4	26.7	40.1	53.5	66.8	10.8	21.5	32.3	43.1	53.8
	Hour	802	1604	2406	3208	4010	646	1292	1937	2583	3229
70 degrees C	Minute	11.5	22.9	34.4	45.8	57.3	9.2	18.5	27.7	36.9	46.1
	Hour	687	1375	2062	2749	3437	554	1107	1661	2214	2768
80 degrees C	Minute	10.0	20.0	30.1	40.1	50.1	8.1	16.1	24.2	32.3	40.4
	Hour	601	1203	1804	2406	3007	484	969	1453	1937	2422



Infinity VCM PLUS specification charts

Gross efficiency		83.0%				
Number of units		1	2	3	4	5
Nat Gas kW input		58.4	116.8	175.2	233.6	292.0
Nat Gas kW output		48.5	97.0	145.5	194.0	242.5
Temperatures rise by Litres per		HD55i or HD55e				
50°C	Second	0.23	0.46	0.69	0.92	1.15
	Minute	13.9	27.7	41.6	55.4	69.3
	Hour	831	1,663	2,494	3,326	4,157
55°C	Second	0.21	0.42	0.63	0.84	1.05
	Minute	12.6	25.2	37.8	50.4	63
	Hour	756	1,512	2,268	3,024	3,780
60°C	Second	0.19	0.38	0.58	0.77	0.96
	Minute	11.5	23.1	34.6	46.2	57.7
	Hour	693	1,386	2,079	2,771	3,464
65°C	Second	0.178	0.36	0.53	0.71	0.89
	Minute	10.7	21.3	32.0	42.6	53.3
	Hour	640	1,279	1,919	2,558	3,198
70°C	Second	0.165	0.33	0.49	0.66	0.82
	Minute	9.9	19.8	29.7	39.6	49.5
	Hour	594	1,188	1,782	2.376	2,969
75°C	Second	0.15	0.31	0.46	0.62	0.77
	Minute	9.2	18.5	27.7	37.0	46.2
	Hour	554	1,109	1,663	2,217	2,771

- 58.4kW input
- 831 litres per hour
- Ideal for restaurants, hairdressers and schools
- Less than 20ppm NOx
- Natural gas or LPG models available

Sensei Storage and Infinity VCM Storage System

In situations where a very large demand of hot water is required, Rinnai Infinity PLUS storage offers a cost effective solution.

Using a modular system of either internal or external Rinnai VCM or Sensei condensing water heaters and a stainless steel storage vessel, demands in excess of 20,000 litres per hour can be satisfied.

Rinnai's stainless steel storage vessels do not require electric immersion heating elements and these items may be supplied as an optional extra if required.

The modular system offers the additional benefit of operational cover should a water heater fail; easy access and isolation of a unit for servicing.

Rinnai's Infinity PLUS storage represents a very competitive and energy efficient hot water solution for larger heavy duty applications.

Rinnai Condensing Water Heaters can be used to maintain the temperature in a large storage vessel.

This approach could be used where the hot water requirement exceeds the flow capacity of the manifolded units, or where there is an intermittent demand for hot water in buildings such as hotels, hospitals, apartments, etc.

A Rinnai Infinity PLUS storage system includes:

- **Delivery to site**
- **A number of VCM or Sensei condensing water heaters (larger systems available on request)**
- **An equal number of standard flue kits (internal heaters only)**
- **An equal number of pipe cover boxes (external heaters only)**
- **Common header flue kits are available to further streamline installation**

- Hot water storage vessel (300L, 500L, 800L or 1000L Stainless steel)
- Hot water storage vessel valve pack (Double check valve, two isolation valves)

Rinnai utilise all 'A' rated appliances.

For more information, contact our ErP helpline on:

01928 531870

- An equal number of continuous flow water heater valve packs (Isolation valves for cold water, hot water, gas inlet)
- A primary pump with valves
- An unvented kit (1" or 1½" pipework) with:
  - Isolation valve
  - Pressure reducing valve with gauge
  - Strainer
  - Double check valve
  - Safety relief valve, 6 bar
- Expansion vessel, 50L or 80L
- 2 Drain cocks, ½"
- 1 Tundish, 1¼"
- 1 Temperature and pressure relief valve
- 1 Control thermostat
- 1 Overheat thermostat

SENSEI Plus Storage flow rates

N1300i						
	Plus 300 (300 litre vessel)			Plus 500 (500 litre vessel)		
	1st Hour	Continuous	Storage Recovery Time	1st Hour	Continuous	Storage Recovery Time
Number of water heaters	50°C ΔT		Minutes	50°C ΔT		Minutes
1	1073	773	24	-	-	-
2	1847	1546	12	-	-	-
3	2620	2319	8	-	-	-
4	-	-	-	3593	3092	10
5	-	-	-	4366	3865	8

SENSEI Plus Storage flow rates

N1600i						
	Plus 300 (300 litre vessel)			Plus 500 (500 litre vessel)		
	1st Hour	Continuous	Storage Recovery Time	1st Hour	Continuous	Storage Recovery Time
Number of water heaters	50°C ΔT		Minutes	50°C ΔT		Minutes
1	1254	954	19	-	-	-
2	2208	1908	10	-	-	-
3	3162	2862	7	-	-	-
4	-	-	-	4316	3816	8
5	-	-	-	5270	4770	7

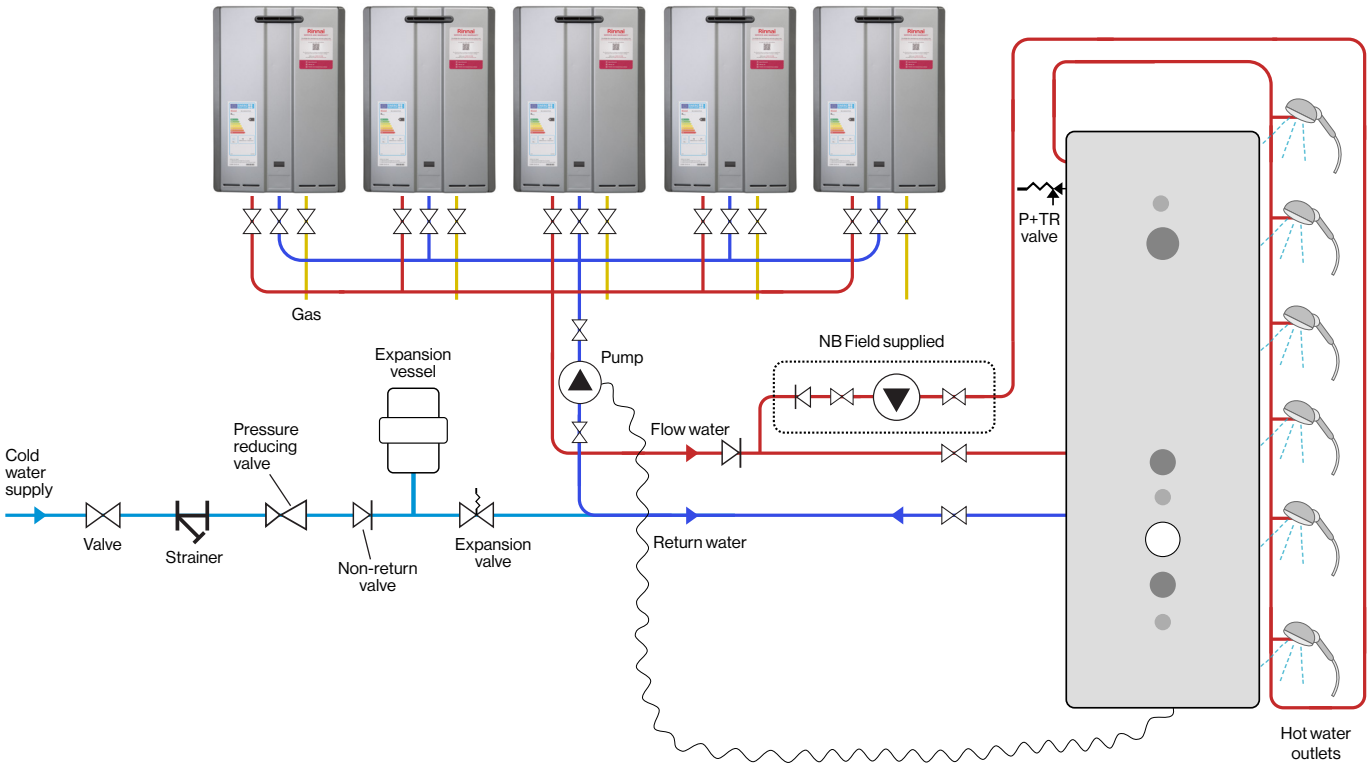
Infinity VCM Plus storage flow rates

HD55i						
	Plus 300 (300 litre vessel)			Plus 500 (500 litre vessel)		
	1st Hour	Continuous	Storage Recovery Time	1st Hour	Continuous	Storage Recovery Time
Number of water heaters	50°C ΔT		Minutes	50°C ΔT		Minutes
1	1133	833	22	-	-	-
2	1966	1666	11	-	-	-
3	2799	2499	8	-	-	-
4	-	-	-	3832	3332	9
5	-	-	-	4665	4165	8

Note: All recovery times have been rounded up to the nearest minute.

Individual unit performance charts

ΔT°C	N1300i		N1600i		HD55	
	L/MIN	L/HOUR	L/MIN	L/HOUR	L/MIN	L/HOUR
25	25.8	1547	31.8	1907	27.8	1667
30	21.5	1289	26.5	1589	23.2	1389
35	18.4	1105	22.7	1362	19.8	1191
40	16.1	967	19.9	1192	17.4	1042
45	14.3	859	17.7	1060	15.4	926
50	12.9	773	15.9	954	13.9	833
55	11.7	703	14.4	867	12.6	758
60	10.7	644	13.2	795	11.6	695
65	9.9	595	12.2	734	10.7	641
70	9.2	552	11.4	681	9.9	595
75	8.6	516	10.6	636	8.7	521



Renewable hot water solutions

Rinnai offers both flat plate and evacuated tube collectors, each with specific benefits to suit your application.

Either option will provide years of low maintenance, low cost energy to heat your water provided the units are correctly sized and installed.

Orientation

Both flat plate and evacuated tube collectors work best when facing due south. However evacuated tube collectors will outperform flat plate collectors when a due south location is not an option, i.e. east/west facing or both.

Performance

The performance of a flat plate collector is close to that of an evacuated tube collector in the summer months when facing due south. Evacuated tube collectors have better overall results in both early and late season and they are not affected. by adverse weather conditions and even produce impressive temperatures on cloudy days. The flat plate collectors are exceptionally sturdy and durable, perhaps more suited to vulnerable locations. Evacuated tube collectors have multiple glass tubes which heat up by absorbing the sun's energy. The vacuum insulated tube retains most of this heat and the constant profile of the round tube means that the collector is always perpendicular to the sun's rays.

Swimming pools

Swimming pools and jacuzzis are ideal applications for the use of solar thermal heating because they are generally used most in the summer when the energy that can be obtained from the sun's radiation is at its maximum. Rinnai can help you to design, size and install a solar heating system for your swimming pool or jacuzzi that could also be set up to heat your domestic hot water at the same time, saving more money on your ever increasing fuel bills.

Hot water boost applications

Fossil fuel is only used when the renewable thermal energy store is below its set-point, thus reducing the dependency on fossil fuel and reducing CO2 emission. Rinnai can provide solar thermal systems with either flat plate or evacuated tube collectors and solar cylinders. These products are also suitable for installation with ground source and air source heat pumps. For more information please telephone: **01928 531870**

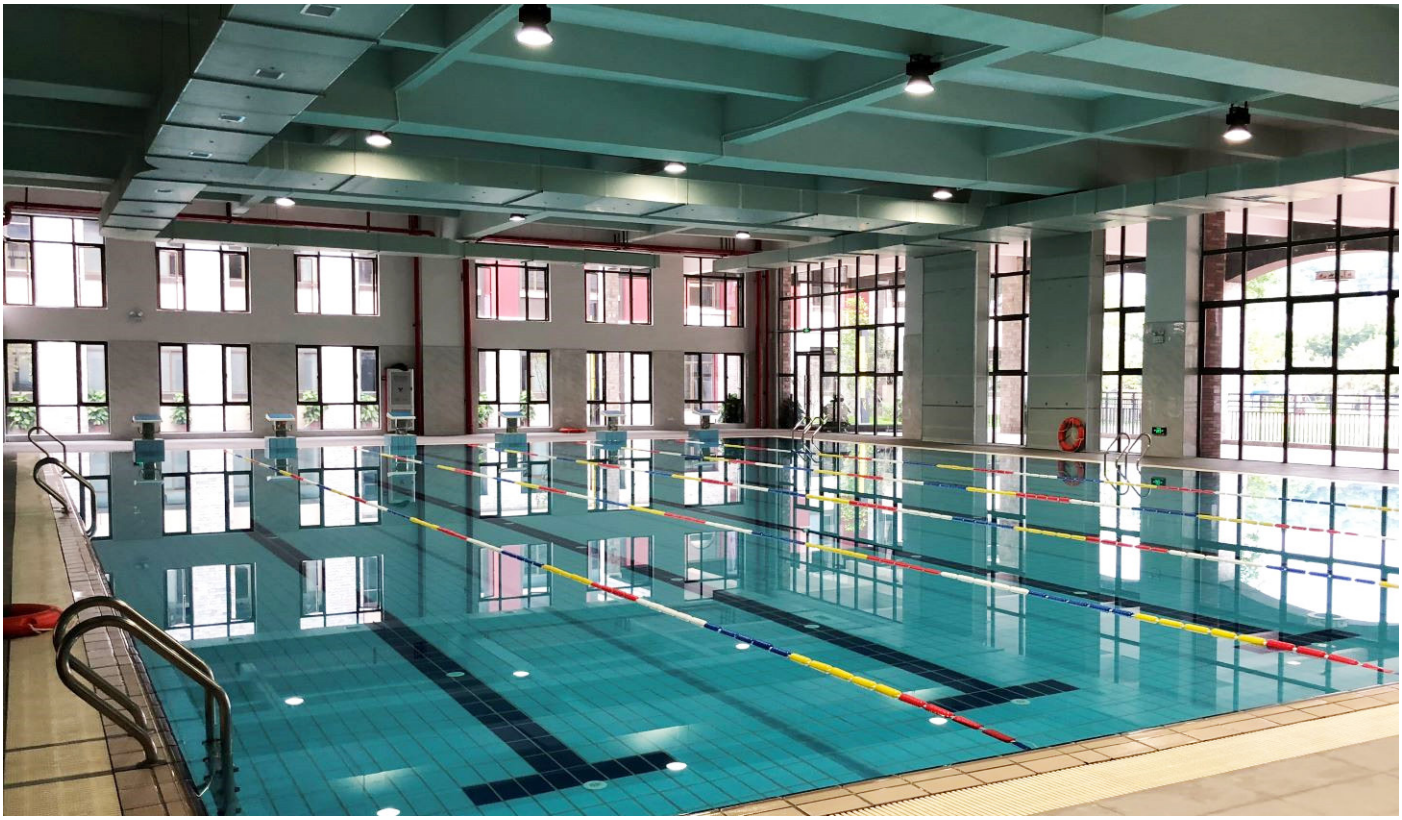
	Evacuated tube collectors	Flat plate collectors
Dimensions		
Height (mm)	1980	2039
Width (mm)	2460	1139
Total area (m^2)	4.87	2.32
Weight (kg)	96	44.4
Number of heat pipes	30	-
Absorber area (m^2)	2.42	2.14
Absorption coefficient	>93%	95%
Emission coefficient	<6%	5%
Stagnation temparature (°C)	192	209
Maximum operating pressure (bar)	10	6
Tube material	Borosilicate glass	-
Hail resistance	>25mm hailstones	-
Outer tube diameter (mm)	58	-
Outer tube thickness (mm)	1.5	-
Fluid content (ltr)	-	1.2
Material coating	Selective absorber	Copper/Sunselect

Rinnai utilise all 'A' rated secondary heat sources.

For more information, contact our ErP helpline on:

01928 531870

Note: This information is intended as a guide only, it does not imply compliance with water or gas installation regulations. Components will vary depending on the actual installation. Check local regulations before installation.

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