Commercial Condensing
Selection Guide

Rinnai
Relax. It's a Rinnai.

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What is Rinnai Heavy Duty Condensing Continuous Flow?

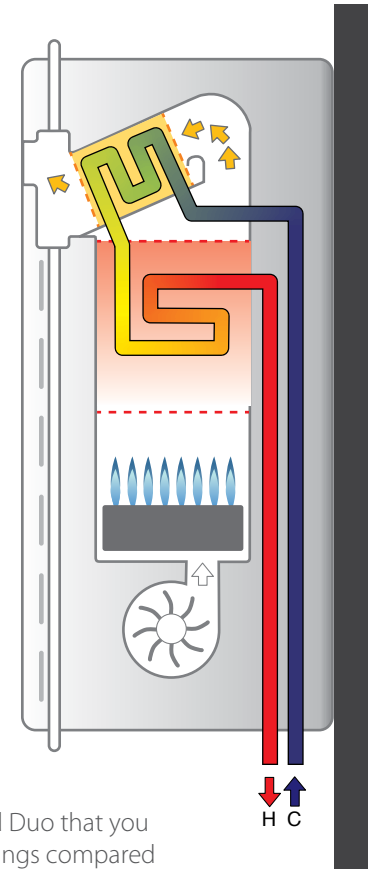
Condensing technology takes Rinnai Heavy Duty Continuous Flow Water Heating one step further by delivering more efficiency than ever before. The unique condensing design incorporates two innovative heat exchangers to achieve optimum heating value from every mega joule of Natural Gas or Propane. Residual heat from flue gases is recaptured to pre-heat incoming water, which then circulates to the primary copper heat exchanger.

How it works:

1. Cold water enters the heater
2. Cold water travels to the secondary latent heat exchanger where it is pre-heated by approximately 5°C
3. The pre-heated water then flows into the primary heat exchanger where it is heated using less energy to reach the required temperature
4. Hot water leaves the heater at the set temperature

6%
Heat Loss

94%
Efficiency



Enjoy all the same benefits from your Manifold Pack or Demand Duo that you have come to expect from Rinnai, plus even greater energy savings compared to traditional water heating systems.

Example:

An apartment block with 50 units each with 2 bedrooms would consume an estimated 5000 litres of hot water daily.

1295 MJ is required to heat the daily water consumption by 50°C using 81% efficient non condensing technology

1115 MJ is required to heat the daily water consumption by 50°C using 94% efficient condensing technology

Offering a total saving of **65,700 MJ** annually

Continuing the tradition of Rinnai Heavy Duty Continuous Flow Water Heating, there are 2 models available with condensing technology to cater for both internal and external installations.

Flow rates

The maximum flow rate through a continuous flow water heater is dependent on the outlet temperature and the cold water temperature. It cannot be exceeded and will be limited to that flow rate to ensure the temperature does not fall below the set point.

The heaters are available with an output temperature of 42, 50, 55, 60, 65, 75 and 85°C

Model	*Flow @ 20 Deg rise l/min*	*Flow @ 25 Deg rise l/min*	*Flow @ 35 Deg rise l/min*	*Flow @ 50 Deg rise l/min*	*Flow @ 60 Deg rise l/min*	*Flow @ 75 Deg rise l/min*
HDC211e	37	32	22.8	16	13.3	10.6
HDC211i	37	32	22.8	16	13.3	10.6

Manifold Packs

A Rinnai Manifold Pack consists of 2 to 25 Heavy Duty Continuous Flow Water Heaters plumbed together to allow higher flow rates than a single unit can provide. For larger applications requiring more than 25 modules please contact Rinnai.

The maximum flow rate through a condensing manifold pack is the same principal as individual units, just on a larger scale.

How to make a selection

The following information is required to select a manifold pack:

> Inlet water temperature (eg: 15°C average coastal cold water temperature)

> Temperature required at point of use (eg: 40°C for a shower)

> Simultaneous flow rate required (eg: 5 x 3 star (AAA) 9 l/min showers = 45 l/min)

> Internal or external installation (i.e. whether a flue system is required)

Tropical		*Coastal*		*Inland*		*Alpine*		*Model*	*Gas Rate MJ/hr*
Number of Showers	*Flow @ 20°C rise l/min*	*Number of Showers*	*Flow @ 25°C rise l/min*	*Number of Showers*	*Flow @ 35°C rise l/min*	*Number of Showers*	*Flow @ 45°C rise l/min*		
4	37	3-4	32	2	22	1-2	15	HDC211	211
12	111	7	64	4-5	44	3	30	MP2C211	422
16	148	10-11	96	7	66	5	45	MP3C211	633
20	185	14	128	9-10	88	6-7	60	MP4C211	844
24-25	222	17-18	160	12	110	8	75	MP5C211	1055
28-29	259	21	192	14-15	132	10	90	MP6C211	1266

Note: Water heaters installed in Coastal locations in Summer can achieve tropical flow rates as ambient water temperature can be 20˚C or higher.

Demand Duo

Rinnai Demand Duo is a combination of between 1 and 6 gas Heavy Duty Continuous Flow Water Heaters that maintain the temperature in a heavily insulated stainless steel storage tank.
The storage tank allows a short period of high hot water flow rate, greater than the continuous flow rate of the heavy duty continuous flow water heater(s).

How to make a selection

The following information is required to select a Demand Duo system:

- Temperature rise required. Assumed to be 50°C (15 - 65°C)
- Volume of hot water used per event (i.e. people having a shower)
- Number of times this event occurs (i.e. 6 uses of each shower head per hour)
- Internal or external installation (i.e. whether a flue system is required)

Apartments No of eq mix of 1 & 2 bedrooms	Apartments No of 2 bedrooms	Apartments No of eq mix of 2 & 3 bedrooms	Hotel No of Beds, 1-3 Star rated	Hotel No of Beds 4-5 Star rated	Amenities No of 3 Star (AAA) showers	Demand Duo Model	Location	First Hour litres @ 50°C rise (15°-65°)	Recovery litres @ 50°C rise (15°-65°)	Tank size (litres)	Burners	Gas Rate MJ / hour
20	16	13	55	34	7	DD1 C211(E/I) 250(N/L)	Ext or Int	1205	955	250	1 x HDC211	211
21	17	14	58	36	8	DD1 C211 315	Ext or Int	1270	955	315	1 x HDC211	21
36	29	24	98	62	13	DD2 C211 250	Ext or Int	2160	1910	250	2 x HDC211	422
37	30	25	101	64	14	DD2 C211 315	Ext or Int	2225	1910	315	2 x HDC211	422
52	42	35	142	89	19	DD3 C211 250	Ext or Int	3115	2865	250	3 x HDC211	633
53	42	35	145	91	20	DD3 C211 315	Ext or Int	3180	2865	315	3 x HDC211	633
68	54	45	185	116	25	DD4 C211 250	Ext or Int	4070	3820	250	4 x HDC211	844
69	55	46	188	118	26	DD4 C211 315	Ext or Int	4135	382	315	4 x HDC211	844
84	67	56	228	144	31	DD5 C211 250	Ext or Int	5025	4775	250	5 x HDC211	1055
85	68	57	231	145	31	DD5 C211 315	Ext or Int	5090	4775	315	5 x HDC211	1055
100	80	66	272	171	37	DD6 C211 250	Ext or Int	5980	5730	250	6 x HDC211	1266
101	81	67	275	173	37	DD6 C211 315	Ext or Int	6045	5730	315	6 x HDC211	1266
106	85	71	289	182	39	2 x DD3 C211 315	Ext or Int	6360	5730	2 x 315	6 x HDC211	1266
138	110	92	376	236	51	2 x DD4 C211 315	Ext or Int	8270	7640	2 x 315	8 x HDC211	1688
170	136	113	463	291	63	2 x DD5 C211 315	Ext or Int	10180	9550	2 x 315	10 x HDC211	2110
202	161	134	550	345	75	2 x DD6 C211 315	Ext or Int	12090	11460	2 x 315	12 x HDC211	2532

First Hour Delivery = Tank volume + 955 litres per HDC211

First Hour Calculations: Apartments: 1 bedroom 45 litres, 2 bedroom 75 litres, 3 bedroom 105 litres
Amenities: 6 x 27 litres hot water per shower per hour
Hotel: 1-3 star 22 litres, 4-5 star 35 litres. Allows for showers, meals and laundry

Ordering Information

Manifold Packs

MP (Insert unit quantity)	**C211**	+	**E** (external) **or** **I** (internal)	+	**M** (MECS staging) **or** **Leave blank** (no staging)	+	**N** (NG) **or** **L** (LPG)

Example: **MP2 C211 E M N**

Why do they require a staging system?
Manifold packs are generally used on dead leg installations with the use of a staging system to maximise the life of the water heaters. MECS staging is designed to control the operation of the required number of water heaters to match the hot water demand. Flow and return systems can be installed but they must have the correct pipe and pump selection. Please consult with your Rinnai commercial representative for more information.

Demand Duo

DDF (Insert unit quantity)	**C211**	+	**E** (external) **or** **I** (internal)	+	**250** (250L tank) **or** **315** (315L tank)	+	**N** (NG) **or** **L** (LPG)

Example for a single heater system: **DD 1 C211 E 250 N**
Example for a multi heater system: **DDF 2 C211 E 250 N**

Optional Extras

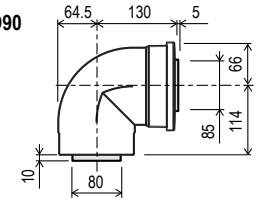
- Single Flow and Return Pumps
- Dual Flow and Return Pumps with the added option of duty and standby
- Building Maintenance System (BMS) integration via volt free contacts for fault identification
- Wall Mounting & Freestanding Frames
- Pre-wired electrical package meaning one GPO is only required for the bank of heaters
- Premium Stainless Steel Skid Mounted System c/w tank manifolds for multiple systems & GPO Package (as required per project)

Contact your Rinnai commercial representative for more details.

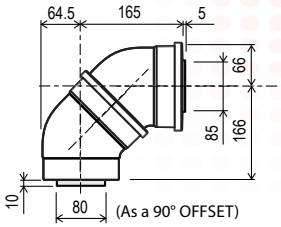
Internal Flueing

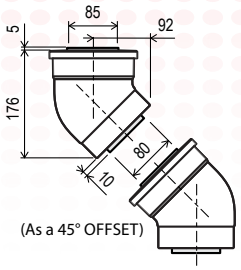
Internal Rinnai Heavy Duty Condensing Continuous Flow units require the use of a flue. The unique Rinnai co-axial flue used with the HDC211i has a corrosion resistant stainless steel inner with a durable PVC outer skin.

FFSSBEND90
Includes:
90° Bend

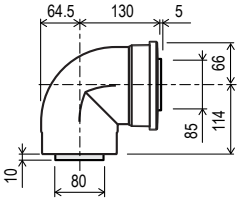


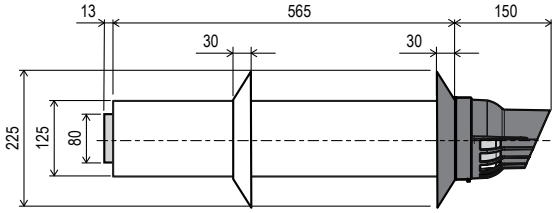
FFSSBEND45
Includes:
45° Bend (x2)



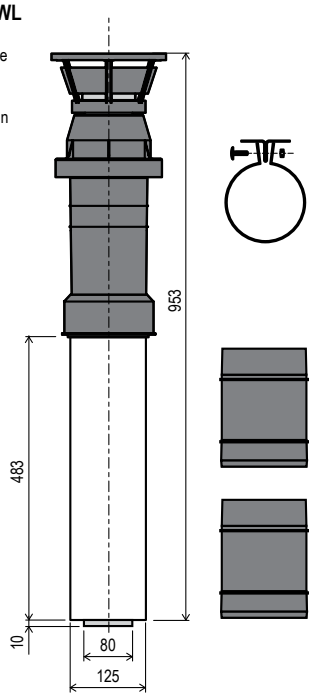


FFSSKIT
Includes:
Starter Bend (FFSSBEND90)
Horizontal Terminal Pipe
Internal Wall Seal (White)
External Wall Seal (Black)
Installation Instruction

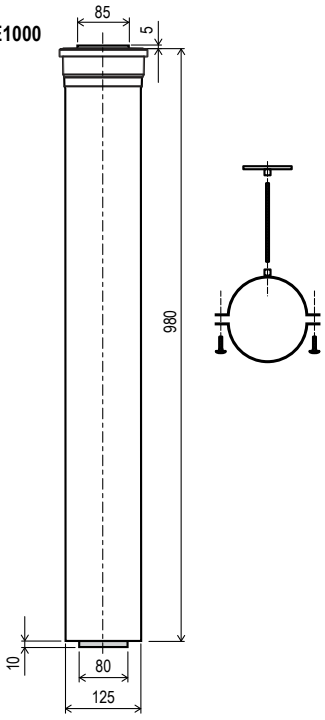




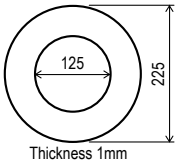
FFSSROOFCOWL
Includes:
Vertical Terminal Pipe
UV Protector (x2)
Wall bracket
Installation Instruction



FFSSPIPE1000
Includes:
Flue Pipe
Wall bracket



FFWSEAL
Includes:
Ceiling Ring



Important points:

- There is one flue per water heater installed
- The water heater is a room-sealed appliance with a balanced flue
- There is a maximum flue length of 9 metres with a maximum of 3 x 90 degree bends per heater
- The main flue lengths (FFSSPIPE1000) can be cut to length on site
- Rinnai proprietary coaxial flue components with a stainless steel inner must be used on HDC211i heaters

Contact your Rinnai commercial representative for more details.

Commercial Warranty

Heavy duty continuous flow unit	5 years (heat exchanger)
Stainless steel storage tanks	5 years
Components	1 year

For more information on warranty conditions and exclusions download our booklet from **www.rinnai.com.au**

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For further information visit
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