Manifold Pack | Specification Guide

Rinnai

What is a Manifold Pack?

A Rinnai Manifold Pack consists of multiple Heavy Duty Continuous Flow Water Heaters plumbed together to offer higher flow rates than a single unit can provide.

The heaters are mounted on a robust frame and combined using copper piping that is perfectly plumbed and insulated to withstand the test of time. Each water heater has an intelligent PCB Controller to manage the hot water delivery with extreme accuracy, however when connected to our Intelligent Management System each water heater constantly makes precise calculations and communicates in unison to manage the hot water delivery and energy usage. Manifold Packs are designed and made in Australia (HD water heaters manufactured in Japan) and backed by Rinnai's global commitment to quality.

What are the key benefits?

- Accurate and constant outlet temperature, even when the flow varies
- Heavy Duty construction perfect for commercial applications
- No gas consumption when not in use saving you money
- No wasteful pilot lights
- Hot water supply never runs out
- Modular construction for ease of installation and transport
- External or internal units available
- Rinnai's unique Electronic Control System managing performance to prolong the life of your investment

What are suitable applications?

- Shower Blocks
- Sports clubs change rooms
- Cafes
- Restaurants and Pubs
- Caravan Parks
- Wash down and manufacturing process

Flow rate capacity

The maximum flow rate through a Manifold Pack is dependent on the outlet temperature and incoming water temperature. Each of our Heavy Duty Continuous Flow Water Heaters have varying capacities and thermal efficiencies to suit your requirements. Below is a table of capacities at various temperature rises.

Model	Flow @ 20°C rise L/min	Flow @ 25°C rise L/min	Flow @ 35°C rise L/min	Flow @ 45°C rise L/min	Flow @ 50°C rise L/min	Flow @ 60°C rise L/min	Flow @ 75°C rise L/min
HD210e	37.0	32.0	22.8	17.7	16.0	13.3	10.6
HD210i	37.0	32.0	22.8	17.7	16.0	13.3	10.6
HD250e	37.0	32.0	24.3	18.9	17.0	14.2	11.3
HD200e	32.0	26.0	18.7	14.6	13.1	10.9	8.7
HD200i	32.0	26.0	18.5	14.4	12.9	10.8	8.6

Heart of the system

Our Heavy Duty continuous flow range of water heaters are specifically designed for commercial use with inbuilt intelligence and durability to stand the test of time in the harshest of commercial environments. With various efficiency and flow rate options available Rinnai can provide the perfect solution based on your application, whether internally or externally mounted.

Generally, projects with very high energy costs would benefit from the use of our HD210 higher efficiency condensing technology as the increased capital expenditure is absorbed by the annual energy cost savings.

Heavy Duty Non Condensing (82-83% Thermal Efficiency)

HD200E
26 L/Min

HD200i
26 L/Min

HD250E
32 L/Min

Heavy Duty Condensing (97% Thermal Efficiency)

HD210E
32 L/Min

HD210i
32 L/Min

Intelligent Management System

A standard feature on all Rinnai Manifold Packs is a sophisticated Electronic Control System. Its fundamental function is to maintain a steady water temperature while using minimal energy, it does this by ensuring only the required number of heaters operate to match the desired flow rate.

To prolong the life of the system it is packed with other advanced features, such as sequencing the water heaters usage pattern so that one unit is not working constantly, inbuilt fault detection, BMS connectivity and temperature synchronisation to name but a few. Our Intelligent Management System is a totally integrated arrangement unique to Rinnai that performs various safety checks, performance operations, efficiency calculations and commands.

Demand Sequencing

Hot Water Demand

MP starts with minimal demand, activates a single heater and assigns a priority sequence.

Hot Water Demand

Demand increases and another heater is activated. The priority sequence immediately switches.

Hot Water Demand

Demand increases further and another heater is activated. The priority sequence immediately alternates and continues to do so every time the demand changes.

Hot Water Demand

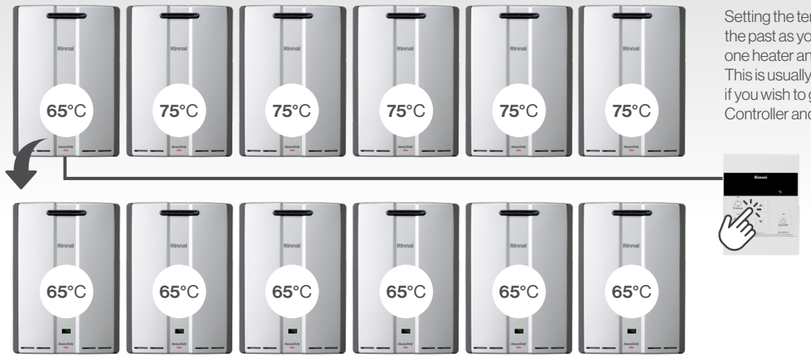
As demand decreases the heaters assigned with the lower priority will deactivate and the necessary number of heater(s) will remain active to maintain hot water delivery.

Added Feature

Hot Water Demand

Many commercial applications have a reticulation system that operates continuously. To enhance the life span of the water heaters further Rinnai's engineers built in a control feature to alternate the priority every 24 hours.

Temperature Synchronisation



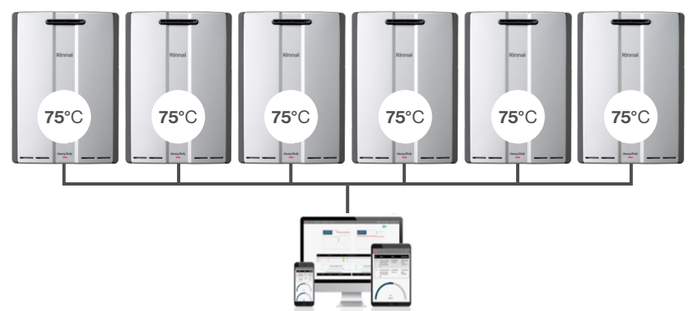
Setting the temperature on each water heater is a thing of the past as you can now set and forget the temperature on one heater and it is simultaneously communicated to all! This is usually done internally on the water heater, however if you wish to go one step further add a Rinnai Water Controller and you can do this at the touch of a button.

Fault and Error Management

In the unlikely occurrence of an error or fault with one of the water heaters the management system immediately identifies the error and re-prioritises the sequencing. Hot water demand is constantly maintained as another heater immediately energises while the indisposed unit is removed from the sequencing until the error is cleared.

The relevant heater is easily identified as it displays an error code on the status monitor.

Connectivity



Its always good practice to monitor and maintain critical systems within a building's infrastructure and a hot water plant is no exception. With the addition of a simple and cost effective card you can monitor the status of the hot water plant at your convenience.

Simple volt free contacts are used to capture operational status by highlighting errors as they occur. You can choose to connect the complete system to your maintenance screen or the individual heaters for added visibility and control.

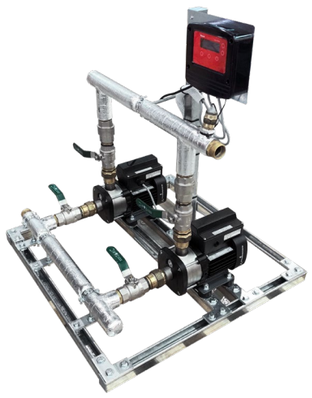
Solutions and Accessories

Rinnai can offer a customised solution with a high focus on your core deliverables.

The aesthetic appearance of developments is paramount. We can tailor solutions to suit your business, bespoke systems can be constructed to suit specific requirements including (but not limited to) lower frame size, precise wall mounting application or different size pipework. Rinnai's Commercial Hot Water Solutions match minimum height requirements, are modular and compact, and can be easily integrated into the building, with easy access for future serviceability. To compliment this, we have an extensive range of accessories.

Accessories

- Single Circulation Pumps for reticulation systems
- Dual Circulation Pumps for reticulation systems with intelligent controller packed with features
- Building Management System (BMS) integration
- Common flueing for internal installations
- Heat Exchange Systems offering flexibility in design of pressure zones or water quality management
- Remote Monitoring Systems to manage your hot water plants from anywhere at anytime
- Non modular packages with engineered frame and lifting points for easy hoisting and placement on site



Large Pumpset

Pump Plate

Heat Exchange Systems

Large MP Lifting engineered frame

Commonwealth Games Village | QLD

With 6,600 athletes and officials descending on the Gold Coast in 2018 for the commonwealth games accommodation was required. The Queensland government decided to develop 7 hectares of the 29 hectare parklands reserved for the athletes Village into 1170 apartments and 82 townhouses.

Of course 6,600 athletes are going to need a hot shower so this large undertaking required many individual systems tailored to meet the constraints of the various internal plant areas across the entire project.

Bunjil Place – VIC

Architecturally designed arts and entertainment building with outdoor open spaces. Located in Narre Warren in the Southern suburbs of Melbourne the design and architecture has won a series of design awards since its opening to the public. Bunjil Place is the first facility of its kind, bringing together creativity, entertainment and community in a way that is unparalleled in Australia.

Rinnai provided a large Manifold Pack delivering above 14,000 litres of hot water per hour. Customisation was critical to suit the plant requirements and minimise installation time.

Canon Foods | WA

Canon foods embarked on building a brand new state of the art facility from the ground up in Jandakot, Western Australia. It was developed with a focus on environmentally efficient practices, placing great value on sustainability and reducing their carbon footprint. An integral part of a food processing plant is a reliable supply of hot water to maintain strict cleanliness standards.

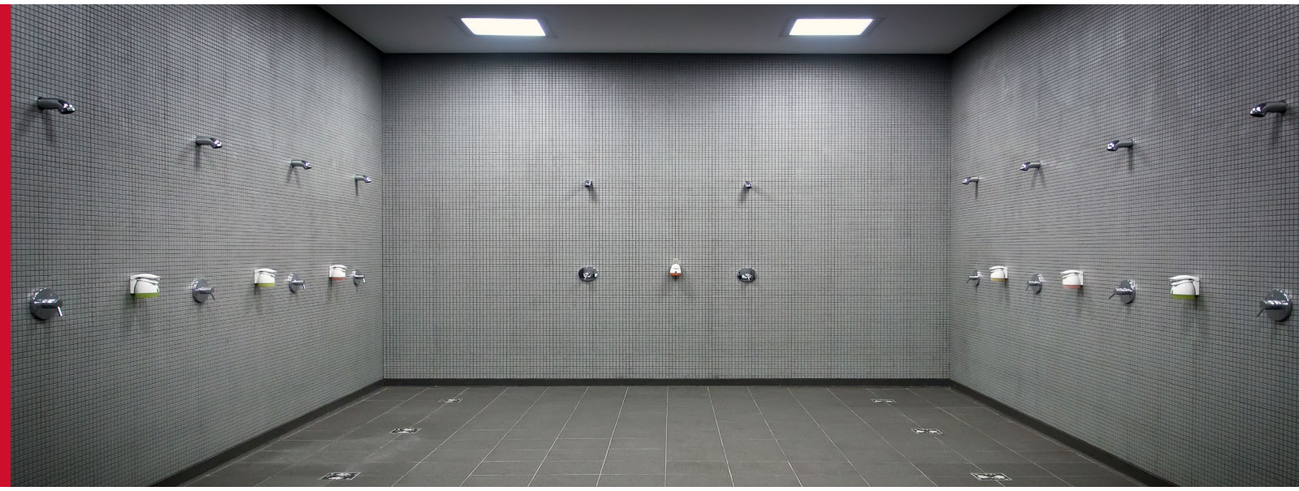
Rinnai provided a Manifold Pack using our high efficiency Condensing Water Heaters. An accurate temperature and consistent flow rate are critical for wash down applications for hygiene reasons. High Efficiency Condensing Water Heaters was the natural choice to minimise energy consumption and reduce their carbon footprint.

Selection

What information do I need?

The following information is required to select a Manifold Pack System:

- Temperature required at point of use (eg: 42°C for a shower or 65°C for a kitchen sink)
- Incoming water temperature
- 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)
- Available installation space for the system



A Manifold Pack is selected based on the number of fixtures operating at the same time. The flow rate is expressed in litres per minute.

Example:

An ablution block with 10 showers requires hot water at a delivery temperature of 42°C. Each shower delivers 9 l/min.

1. Calculate the required flow rate = 9 l/min x 10 showers = 90 l/min
2. Temperature rise = delivery temperature – incoming temperature = 42°C - 20°C = 22°C
3. Determine which HD heat source you wish to employ and refer to the tables below

Maximum flow rates (l/min) using HD250e water heaters

Region		Alpine					Inland					Coastal					Tropical				
Incoming water temperature (°C)		10°C					15°C					20°C					25°C				
Water delivery temperature(°C)		42	50	65	75	85	42	50	65	75	85	42	50	65	75	85	42	50	65	75	85
Temperature rise (°C)		32	40	55	65	75	27	35	50	60	70	22	30	45	55	65	17	25	40	50	60
Model	Gas rate																				
HD250	250	27	21	15	13	11	31	24	17	14	12	39	28	19	15	13	37	32	21	17	14
MP2 250E	500	53	42	31	26	23	63	49	34	28	24	77	57	38	31	26	74	64	42	34	28
MP3 250E	750	80	64	46	39	34	94	73	51	42	36	116	85	57	46	39	111	96	64	51	42
MP4 250E	1000	106	85	62	52	45	126	97	68	57	49	154	113	75	62	52	148	128	85	68	57
MP5 250E	1250	133	106	77	65	57	157	121	85	71	61	193	142	94	77	65	185	160	106	85	71
MP6 250E	1500	159	127	93	78	68	189	146	102	85	73	232	170	113	93	78	222	192	127	102	85
MP7 250E	1750	186	149	108	91	79	220	170	119	99	85	270	198	132	108	91	259	224	149	119	99
MP8 250E	2000	212	170	124	105	91	252	194	136	113	97	309	226	151	124	105	296	256	170	136	113
MP9 250E	2250	239	191	139	118	102	283	218	153	127	109	347	255	170	139	118	333	288	191	153	127
MP10 250E	2500	265	212	154	131	113	315	243	170	142	121	386	283	189	154	131	370	320	212	170	142
MP11 250E	2750	292	234	170	144	125	346	267	187	156	133	425	311	208	170	144	407	352	234	187	156
MP12 250E	3000	318	255	185	157	136	377	291	204	170	146	463	340	226	185	157	444	384	255	204	170

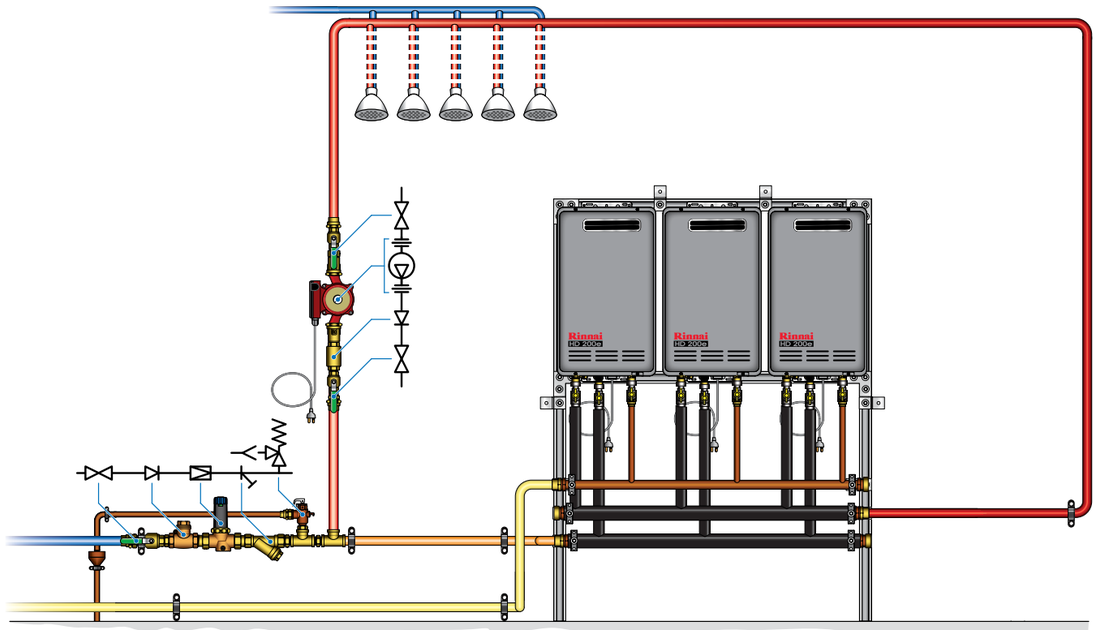
Maximum flow rates (l/min) using HD200e/i water heaters

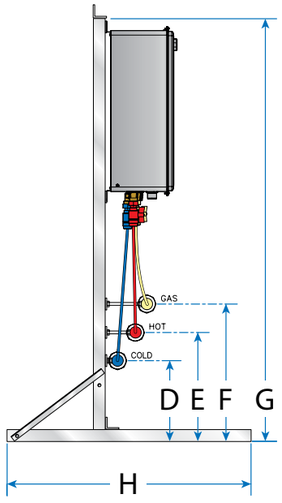
Region		Alpine					Inland					Coastal					Tropical				
Incoming water temperature (°C)		10°C					15°C					20°C					25°C				
Water delivery temperature(°C)		42	50	65	75	85	42	50	65	75	85	42	50	65	75	85	42	50	65	75	85
Temperature rise (°C)		32	40	55	65	75	27	35	50	60	70	22	30	45	55	65	17	25	40	50	60
Model	Gas rate																				
HD200	200	20	16	12	10	9	24	18	13	11	9	29	22	14	12	10	32	26	16	13	11
MP2 200	400	40	32	23	20	17	48	37	26	22	18	59	43	29	23	20	64	52	32	26	22
MP3 200	600	61	48	35	30	26	72	55	39	32	28	88	65	43	35	30	96	78	48	39	32
MP4 200	800	81	65	47	40	34	96	74	52	43	37	117	86	57	47	40	128	104	65	52	43
MP5 200	1000	101	81	59	50	43	120	92	65	54	46	147	108	72	59	50	160	130	81	65	54
MP6 200	1200	121	97	70	60	52	144	111	77	65	55	176	129	86	70	60	192	156	97	77	65
MP7 200	1400	141	113	82	70	60	167	129	90	75	65	205	151	100	82	70	224	182	113	90	75
MP8 200	1600	161	129	94	79	69	191	148	103	86	74	235	172	115	94	79	256	208	129	103	86
MP9 200	1800	182	145	106	89	77	215	166	116	97	83	264	194	129	106	89	288	234	145	116	97
MP10 200	2000	202	161	117	99	86	239	185	129	108	92	294	215	144	117	99	320	260	161	129	108
MP11 200	2200	222	178	129	109	95	263	203	142	118	101	323	237	158	129	109	352	286	178	142	118
MP12 200	2400	242	194	141	119	103	287	221	155	129	111	352	258	172	141	119	384	312	194	155	129

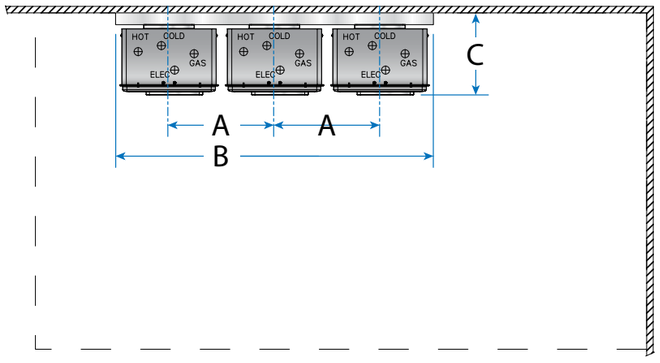
Maximum flow rates (l/min) using HD210e/i water heaters

Region		Alpine					Inland					Coastal					Tropical				
Incoming water temperature (°C)		10°C					15°C					20°C					25°C				
Water delivery temperature(°C)		42	50	65	75	85	42	50	65	75	85	42	50	65	75	85	42	50	65	75	85
Temperature rise (°C)		32	40	55	65	75	27	35	50	60	70	22	30	45	55	65	17	25	40	50	60
Model	Gas rate																				
HD210	210	25	20	15	12	11	30	23	16	13	11	36	27	18	15	12	37	32	20	16	13
MP2 210	420	50	40	29	25	21	59	46	32	27	23	73	53	35	29	25	74	64	40	32	27
MP3 210	630	75	60	44	37	32	89	68	48	40	34	109	80	53	44	37	111	96	60	48	40
MP4 210	840	100	80	58	49	43	118	91	64	53	46	145	106	71	58	49	148	128	80	64	53
MP5 210	1050	125	100	73	61	53	148	114	80	66	57	181	133	89	73	61	185	160	100	80	66
MP6 210	1260	150	120	87	74	64	177	137	96	80	68	218	160	106	87	74	222	192	120	96	80
MP7 210	1470	174	140	102	86	74	207	160	112	93	80	254	186	124	102	86	259	224	140	112	93
MP8 210	1680	199	160	116	98	85	236	182	128	106	91	290	213	142	116	98	296	256	160	128	106
MP9 210	1890	224	179	131	110	96	266	205	144	120	103	326	239	160	131	110	333	288	179	144	120
MP10 210	2100	249	199	145	123	106	295	228	160	133	114	363	266	177	145	123	370	320	199	160	133
MP11 210	2310	274	219	160	135	117	325	251	175	146	125	399	292	195	160	135	407	352	219	175	146
MP12 210	2520	299	239	174	147	128	354	273	191	160	137	435	319	213	174	147	444	384	239	191	160

Specifications







HD200 External/Internal Manifold Pack									
Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Weight**
MP2 200	375	750	280	340	440	540	1500	790	60 Kg
MP3 200	375	1125	280	340	440	540	1500	790	90 Kg
MP4 200	375	1500	280	340	440	540	1500	790	120 Kg
MP5 200	375	1875	280	340	440	540	1500	790	150 Kg
MP6 200	375	2250	280	340	440	540	1500	790	180 Kg
MP7 200	375	2625	280	340	440	540	1500	790	210 Kg
MP8 200	375	3000	280	340	440	540	1500	790	240 Kg
MP9 200	375	3375	280	340	440	540	1500	790	270 Kg
MP10 200	375	3750	280	340	440	540	1500	790	300 Kg
MP11 200	375	4125	280	340	440	540	1500	790	330 Kg
MP12 200	375	4500	280	340	440	540	1500	790	360 Kg

HD250 External Manifold Pack									
Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Weight**
MP2 250	500	1000	310	340	440	540	1500	790	80 Kg
MP3 250	500	1500	310	340	440	540	1500	790	120 Kg
MP4 250	500	2000	310	340	440	540	1500	790	160 Kg
MP5 250	500	2500	310	340	440	540	1500	790	200 Kg
MP6 250	500	3000	310	340	440	540	1500	790	240 Kg
MP7 250	500	3500	310	340	440	540	1500	790	280 Kg
MP8 250	500	4000	310	340	440	540	1500	790	320 Kg
MP9 250	500	4500	310	340	440	540	1500	790	360 Kg
MP10 250	500	5000	310	340	440	540	1500	790	400 Kg
MP11 250	500	5500	310	340	440	540	1500	790	440 Kg
MP12 250	500	6000	310	340	440	540	1500	790	480 Kg

HD210 External/Internal Manifold Pack									
Model	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Weight**
MP2 210	500	1000	310	340	440	540	1500	790	90 Kg
MP3 210	500	1500	310	340	440	540	1500	790	135 Kg
MP4 210	500	2000	310	340	440	540	1500	790	180 Kg
MP5 210	500	2500	310	340	440	540	1500	790	225 Kg
MP6 210	500	3000	310	340	440	540	1500	790	270 Kg
MP7 210	500	3500	310	340	440	540	1500	790	315 Kg
MP8 210	500	4000	310	340	440	540	1500	790	360 Kg
MP9 210	500	4500	310	340	440	540	1500	790	405 Kg
MP10 210	500	5000	310	340	440	540	1500	790	450 Kg
MP11 210	500	5500	310	340	440	540	1500	790	495 Kg
MP12 210	500	6000	310	340	440	540	1500	790	540 Kg

Order Information

Ordering a Manifold Pack could not be any simpler

For example a Manifold Pack with 3 x HD210E Heaters using Natural Gas would be **MP3210ECN**.

Manifold Pack	HD Quantity	Model / Internal / External	Control System	Gas type	Premium Skid
• MP (Manifold Pack)	• HD Quantity	• 200E (HD200 ext.) • 200i (HD200 int.) • 250E (HD250 ext.) • 210E (HD210 ext.) • 210i (HD210 int.)	• M (Mecs) • C (Cascade)	• N (NG) • L (LPG)	• Blank • SS (Premium Skid)

Note: Mecs control system is compatible with the HD200 and HD250 Non Condensing Water Heaters while the Cascade Control System is compatible with the HD210 High Efficiency Condensing Water Heaters.

Warranty info

Heavy Duty Continuous Flow		
Warranty	**Domestic Use**	**Commercial Use**
Heat Exchanger	12 Years	5 Years
Parts	5 Years	3 Years
Labour	5 Years	3 Years

Rinnai Australia Pty Ltd

ABN 74 005 138 769

100 Atlantic Drive,
Keysborough, Victoria 3173

For further information
call 1300 555 545 or visit
rinnai.com.au

TOTAL HOME COMFORT

HOT WATER HEATING COOLING

Rinnai