HEAVY DUTY STORAGE GAS

The work-horse hot water system that keeps on working, in a wider range of water quality environments.

CASE STUDY

PRESTONS LODGE AGED CARE
SYDNEY, NSW

Challenge
Prestons Lodge is a 132-bed aged-care facility built in 2016 by Advantaged Care. With a daily hot water load for the facility of 9175 litres, the challenge was to provide energy efficient, budget-conscious options for the hot and warm water plant requirements.

Hot Water Solution
Approached during the design stage, Rheem provided an energy efficient solar and warm water proposal that included budget estimates, STC rebates and pay back periods.

The final installed solution included
3 x Heavy Duty Gas water heaters,
38 x NPT solar collectors and
14 x storage tanks along with
1 x 240L/min Guardian warm water and
2 x 250L/min ultraviolet disinfection

HEAVY DUTY STORAGE GAS

SUITED TO ALL APPLICATIONS IN ANY POTABLE WATER

GAS | IMPERVIOUS | FAST REPLACEMENT | EASY TO MAINTAIN | HEATS WATER UP TO 82°

HIGHLY RELIABLE AND IMPERVIOUS TO A WIDER RANGE OF WATER TYPES

A staple of the market for over 25 years, the storage cylinder is made from a special grade of steel, lined with a double coat of heavy duty vitreous enamel, and incorporates multiple anodes making it impervious to the widest variety of water chemistries.

GOLD-STANDARD REDUNDANCY AND EASY TO MAINTAIN

As each unit is stand alone, the failure of a single component doesn't render the entire system off line. Plus a simple design combines the burner and the tank without the need for pumps, making it more reliable and easy to maintain.

MULTIPLE INSTALLATION OPTIONS

There are three sizes in outdoor and indoor versions and indoor models can be flued individually or joined into a common flue.

ACCURATE AND RELIABLE TEMPERATURE MANAGEMENT

Electronic thermostat provides fine temperature control with digital setting display on the 265 and 275 and Hot Surface Ignition (HSI) removes the need for a pilot light, lowers operating costs and improves reliability because of a built-in 100% flame failure control.

REDUCES ENERGY USE

The flue damper on the 624275 indoor closes off the primary flue when the burner isn't operating, reducing maintenance rates by up to 60% when compared to AGA maximum allowance.

*Images shown may differ from actual product

MORE KEY FEATURES

- Sizes include 260 (51MJ), 265 (110MJ), 275 (200MJ)
- No electrical connection required for the smallest unit (260)
- BMS capability built in for 265 and 275 models

CYLINDER 5 YEAR WARRANTY

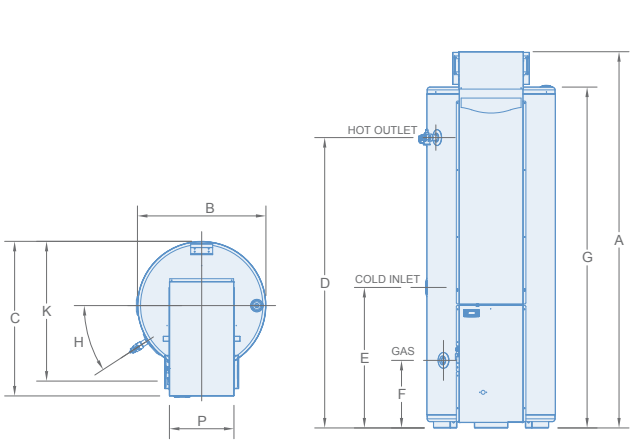
PARTS & LABOUR 1 YEAR WARRANTY

*Conditions Apply: For full terms and conditions please contact Rheem or visit www.rheem.com.au/rheem/help/Warranties

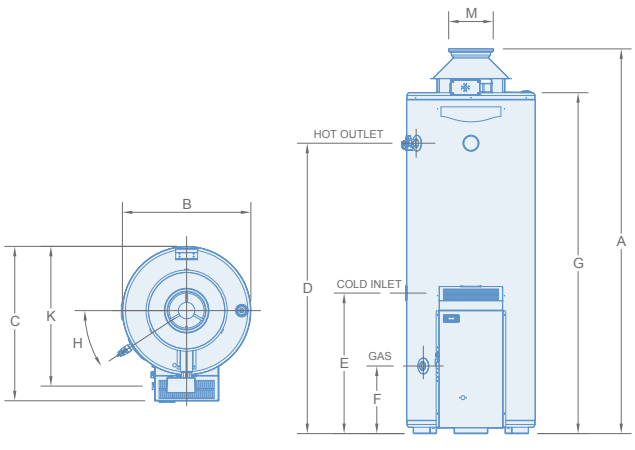
TECHNICAL DATA

DIMENSIONS AND TECHNICAL DATA TABLE			OUTDOOR MODELS			INDOOR MODELS		
Model			**630 260[2]**	**634 265**	**634 275**	**620 260**	**624 265**	**624 275**
Storage Capacity		litres	260	265	275	260	265	275
Dimensions								
	A	mm	1640	1840	1885	1660	1805	1910
	B	mm	590	610	645	590	610	645
	C	mm	680	745	780	670	745	780
	D	mm	1320	1461	1454	1320	1461	1454
	E	mm	330	711	704	330	711	704
	F	mm	295	340	341	297	340	341
	G	mm	1520	1661	1706	1520	1661	1706
	H	degrees	27	35	33	27	35	33
	K	mm	655	654	692	655	654	692
	M	mm	–	–	–	100	125	200
	P	mm	420	383	383	–	–	–
Weight – Empty		kg	110	144	174	101	137	167
Inlet/Outlet Connections (BSPF)			RP1¼	RP1¼	RP1¼	RP1¼	RP1¼	RP1¼
Gas Connection (BSPF)			RP½	RP¾	RP¾	RP½	RP¾	RP¾
T&PR Valve Connection (BSPF)			RP¾	RP¾	RP¾	RP¾	RP¾	RP¾
T&PR Valve Setting		kPa	1000	1000	1000	1000	1000	1000
Expansion Control Valve (ECV)[1] Setting		kPa	850	850	850	850	850	850
Max. Water Supply Pressure								
without ECV[1] fitted		kPa	800	800	800	800	800	800
with ECV[1] fitted		kPa	680	680	680	680	680	680
Max. Thermostat Setting		°C	65	82	82	65	82	82
Factory Thermostat Setting		°C	60	70	70	60	70	70
Min. Thermostat Setting		°C	off	60	60	off	60	60
Manifold – Min. Centre to Centre		mm	920	920	890	845	860	890
Electrical Connection			–	2m 10A Plug and Lead		–	2m 10A Plug and Lead	
Electrical Rating 240V 50Hz			–	150 Watts	250 Watts	–	150 Watts	150 Watts
				0.65 Amps	1.1 Amps		0.65 Amps	0.65 Amps
Maintenance Rate		MJ/day	30.7	42.7	50.7	33.9	53.3	26.1

[1] Expansion control valve not supplied with water heater.



Outdoor Models



Indoor Models

TECHNICAL DATA

PERFORMANCE DATA

Model	No. of Units in Parallel	Initial Storage Capacity	Thermal Input	Litres hot water at 50˚C rise over peak period (based on natural gas)					
		(Litres)	(MJ/h)	1 hour	2 hours	3 hours	4 hours	6 hours	8 hours
620 260 & 630 260[2]	1	260	51	380	570	760	950	1330	1700
	2	520	102	770	1140	1520	1900	2650	3410
	3	780	153	1150	1720	2280	2850	3980	5110
624 265 & 634 265	1	265	110	620	1030	1440	1850	2670	3490
	2	530	220	1240	2060	2880	3700	5340	6980
	3	795	330	1870	3100	4330	5560	8010	10470
624 275 & 634 275	1	275	200	970	1710	2460	3200	4690	6180
	2	550	400	1930	3420	4910	6400	9380	12370
	3	825	600	2900	5130	7370	9600	14080	18550
	4	1100	800	3860	6840	9820	12810	18770	24730
	5	1375	1000	4830	8550	12280	16010	23460	30910
	6	1650	1200	5790	10260	14740	19210	28150	37100
Model	**No. of Units in Parallel**	**Initial Storage Capacity**	**Thermal Input**	**Litres hot water at 65˚C rise over peak period (based on natural gas)**					
		(Litres)	(MJ/h)	1 hour	2 hours	3 hours	4 hours	6 hours	8 hours
624 265 & 634 265	1	265	110	530	840	1160	1470	2100	2730
	2	530	220	1050	1690	2320	2950	4210	5470
	3	795	330	1580	2530	3470	4420	6310	8200
624 275 & 634 275	1	275	200	790	1370	1940	2510	3660	4810
	2	550	400	1590	2730	3880	5030	7320	9610
	3	825	600	2380	4100	5820	7540	10980	14420
	4	1100	800	3170	5470	7760	10050	14640	19230
	5	1375	1000	3970	6830	9700	12570	18300	24030
	6	1650	1200	4760	8200	11640	15080	21960	28840

Note: Hot water figures rounded to the nearest 10 litres.

OPERATIONS AT TEMPERATURE ABOVE 80°C

Rheem Commercial gas models 624 265, 634 265, 624 275, 634 275 are designed to operate at temperatures up to 82°C for sanitising and other applications.

Where the water supplied by the water heater is required consistently at any temperature above 80°C, we strongly recommend you use a pumped recirculation system. (Please refer to the Equa-Flow® section.)

GAS PIPE SUPPLY

The gas supply piping should be sized in accordance with AS/NZS 5601.1. The gas supply pipe must be sized so that the minimum gas pressure is available at the inlet to each water heater when all appliances are operating at maximum gas consumption.

The minimum gas pressures are 1.13 kPa for natural and SNG, 2.75 kPa for propane and butane and 0.75 kPa for town gas and TLP.

TECHNICAL GAS PERFORMANCE DETAILS

Model		620 260 & 630 260[2]		624 265 & 634 265			624 275 & 634 275		
Gas Type		Nat/SNG	Propane	Nat/SNG	Propane	Butane/NZLPG	Nat/SNG	Propane	Butane/NZLPG
Thermal Input	MJ/h	51	51	110	100	95	200	190	160
Output	kW	11.0	11.0	23.8	21.7	20.6	43.3	41.2	34.7
Min. Gas Supply Pressure	kPa	1.13	2.75	1.13	2.75	2.75	1.13	2.75	2.75
Test Point Pressure	kPa	1.00	2.70	0.90	2.50	2.50	0.90	2.65	2.65
Max. Gas Supply Pressure	kPa	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Litres Recovery per hour at rise of	20°C	480	480	1030	940	890	1870	1780	1500
	30°C	320	320	690	630	600	1250	1190	1000
	40°C	240	240	520	470	450	940	890	750
	50°C	190	190	410	380	360	750	710	600
	60°C	160	160	350	320	300	630	600	500
	65°C	150	150	320	290	280	580	550	460
	70°C	140	140	300	270	260	540	510	430
	75°C	130	130	280	250	240	500	480	400

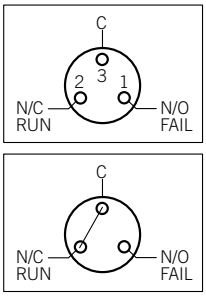
[2] 620260 and 630260 not available in Butane/NZLPG.

TECHNICAL HEAVY DUTY GAS BUILT-IN BMS DATA

The Rheem Heavy Duty Gas built-in BMS contacts (Voltage Free) is designed to interface between individual gas water heaters and the building management system to remotely provide facility managers with real time water heater status for 265 and 275 models. The connection point is located on the left hand side of the front cover, above the gas inlet.

FEATURES

- Provides a Run / Fail signal via voltage free N/O, N/C and Common contacts
- Has a contact rating of 10A @ 240V
- Requires field connection of the N/O, N/C and Common contacts
- Each water heater in a bank must be individually connected to the BMS system



Voltage Free Contact Rating:
Max 10A, 240V

VENTILATION AND FLUEING

VENTILATION FOR INDOOR GAS WATER HEATERS

In Australia and New Zealand, gas water heaters installed indoors (non room sealed) require to be ventilated in accordance with AS5601 or AS/NZS 5601.1 depending on the local regulations.

AS/NZS 5601.1 also has further requirements regarding compliance of mechanical ventilation.

Please consult the appropriate standard when designing plant room ventilation requirements.

NOTES

In plant rooms, wherever possible more than one wall should be used to provide ventilation. This allows a flow of air across the room and helps prevent excessive temperatures in the room.

POWER FLUEING / MECHANICAL VENTILATION

You can either install an individual Rheem gas model or a bank of multiple 624 265, 624 275 models with a power flue or mechanical air supply.

It's essential to prove the flue system operates correctly before the main burner is allowed to operate.

How is this achieved? A self proving relay interlocked with either a vane switch or pressure differential switch will prove both air flow and functionality of the control circuit before ignition of the main burner.

Please refer to AS/NZS 5601.1 for full details of what's required.

For multiple installations, the operating principle is the same as for a single water heater.

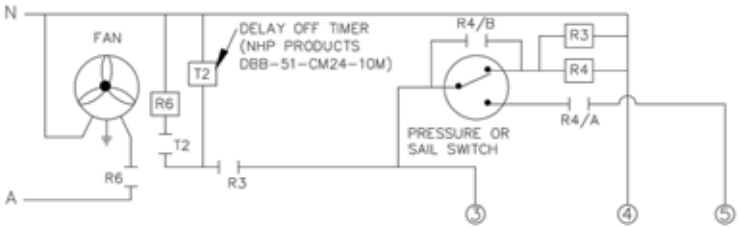
Any water heater can switch on the fan, and the burners can only come on when the sail switch is closed.

POWER FLUE EXTERNAL CONTROLS – INTERMITTENT OPERATION

For a single water heater installation, connect (1) and (2) directly to the water heater

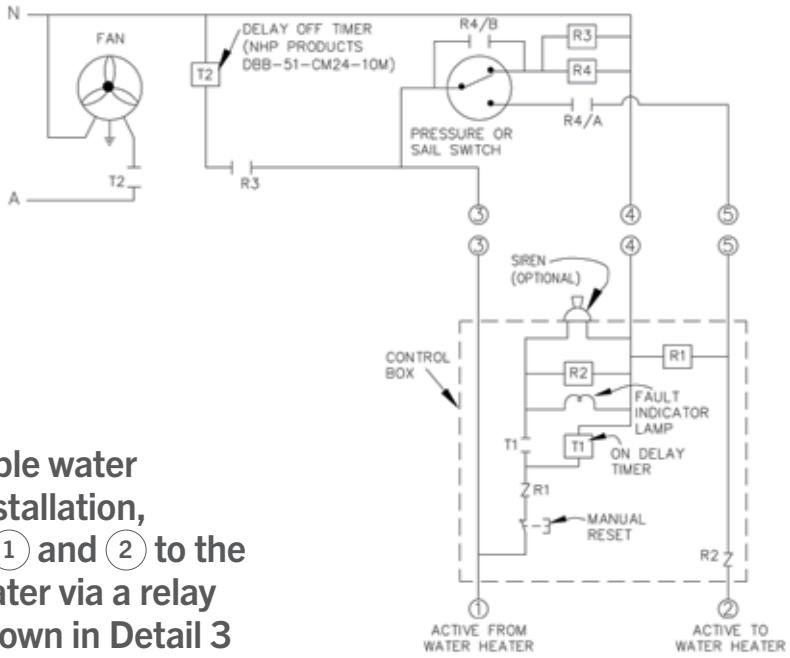
DETAIL 1

INTERMITTENT FAN OPERATION FAN LOAD EXCEEDING 5 AMPS



DETAIL 2

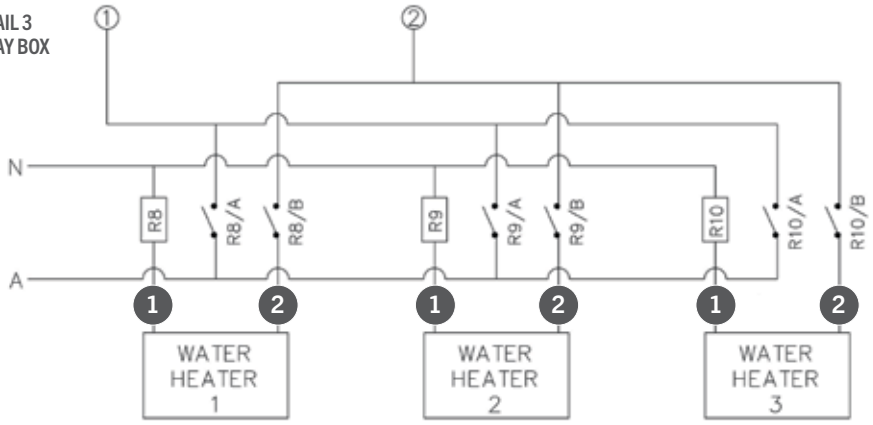
INTERMITTENT FAN OPERATION FAN LOAD NOT EXCEEDING 5 AMPS



For multiple water heater installation, connect (1) and (2) to the water heater via a relay box as shown in Detail 3

DETAIL 3

RELAY BOX



NOTES

1. Power source for the water heater, fan and control circuit must be from the same circuit.
2. R1 monitors return signal.
3. R2 monitors alarm signal.
4. T1 to be set for 20-30 seconds.
5. Meets requirements of Clause H2.2.5 of AS/NZS 5601.1 providing lockout in the event of flue product flow failure.
6. Where intermittent fan operation is utilised, it is necessary to run the fan for some time after combustion ceases to prevent flue spillage of combustion products. T2 to be set for 5 minutes.

DETAIL 4

POWER FLUE INTERLOCK TERMINALS LOCATED WITHIN THE 265, 275 FRONT COVER

Intermittent Power Flue Fan Control – Multiple Water Heater Rheem 624 Series.

TECHNICAL DATA

POWER FLUE AND REMOTE CONTROL

Rheem commercial models 624 265, 634 265, 624 275, 634 275 may be controlled by a remote device such as a time clock, BMS remote isolating switch, pressure switch or sail switch. Additionally, Rheem can assist with Power Flue design solutions for Rheem and Raypak® commercial gas water heaters. For further details please contact your local Rheem technical advisory service.

FLUEING: MINIMUM DISTANCES FOR OUTDOOR GAS WATER HEATERS

Rheem outdoor gas water heaters have a balanced flue and do not require the addition of secondary flueing. Minimum clearance requirements, as stated in AS/NZS 5601.1, apply to the location of outdoor balanced flue, room sealed or power flue terminals.

The Standard also states that where a balanced flue or room sealed terminal is installed under a covered area, then the covered area is to be open on at least two sides and the terminal is to be located to ensure a free flow of air across the terminal.

FLUEING: INDOOR GAS WATER HEATERS

Manifolded water heaters can either be flued individually or connected to a common flue. The design of the flue must comply with Appendix H of the Standard.

AS/NZS 5601.1 states the vertical rise directly out of the water heater must be the maximum possible height before any change in direction.

Also, the total length of the lateral (horizontal) section must be as short as possible, not exceeding 50% of the total flue height of the system.

The table and diagram below are extracted from the Flue Tables in AS/NZS 5601.1 and are meant as a quick guide only. Any variations should be referenced from AS/NZS 5601.1.

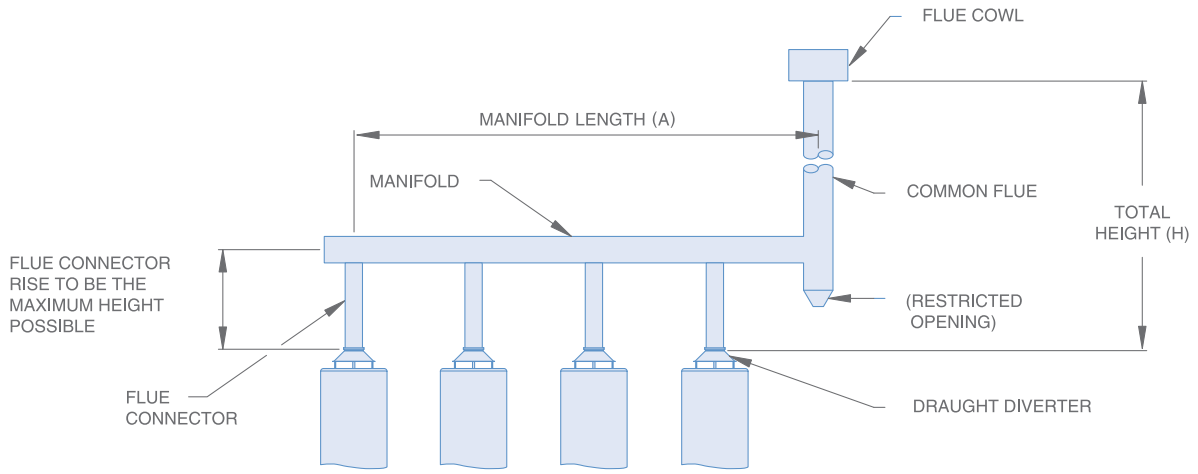
Appropriate authorities should be consulted before any work is commenced on flues other than single appliance flues.

Additionally Rheem requires the water heater be installed with the back of the unit against a wall or alternatively against a solid fireproof screen extending at least 500mm above, below and either side of the flue terminal.

Rheem indoor gas water heaters are designed for connection to a flue system in accordance with the requirements of AS/NZS 5601.1.

TECHNICAL DATA

Multiple Manifold Flue System



NOTES: The length of manifold "A" should not exceed 50% of total flue height "H".

FLUE SIZING FOR GAS WATER HEATERS

		1		2		4		6		8	
Model	Total Flue Height (H) (m)	Max. Lateral (m)	Flue Dia (mm)	Max. Manifold Length (A) (m)	Flue Dia (mm)	Max. Manifold Length (A) (m)	Flue Dia (mm)	Max. Manifold Length (A) (m)	Flue Dia (mm)	Max. Manifold Length (A) (m)	Flue Dia (mm)
620 260	2	1.0	100	1.0	150	–	–	–	–	–	–
51 MJ/h	3	1.5	100	1.5	125	–	–	–	–	–	–
	6	3.0	100	3.0	125	3.0	175	–	–	–	–
	12	6.0	100	6.0	100	6.0	150	6.0	175	–	–
	24	7.6	150	12.0	150	12.0	150	12.0	175	12.0	200
624 265	2	1.0	150	1.0	200	–	–	–	–	–	–
110 MJ/h	3	1.5	125	1.5	200	–	–	–	–	–	–
	6	3.0	125	3.0	175	3.0	250	–	–	–	–
	12	6.0	125	6.0	150	6.0	200	6.0	250	–	–
	24	7.6	150	12.0	150	12.0	200	12.0	250	12.0	300
624 275	2	1.0	175	1.0	300	–	–	–	–	–	–
200 MJ/h	3	1.5	175	1.5	250	–	–	–	–	–	–
	6	3.0	150	3.0	250	3.0	300	–	–	–	–
	12	6.0	150	6.0	200	6.0	300	6.0	350	–	–
	24	7.6	150	12.0	200	12.0	250	12.0	300	12.0	350

NOTES: The table is based on a natural draft system with an insulated type flue or a flue installed indoors
The table is extracted from the Flue Tables in AS/NZS 5601.1 and is meant as a quick guide only. Any variations should be referenced from AS/NZS 5601.1