2015/2016

COMMERCIAL & INDUSTRIAL

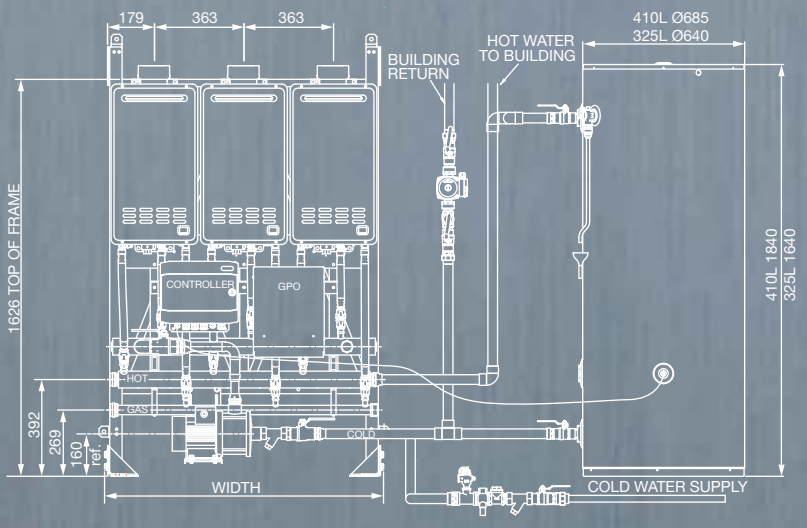
SOLAR & HEAT PUMP

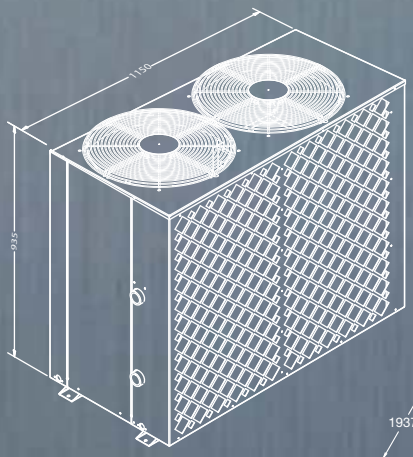
GAS STORAGE & CONTINUOUS FLOW

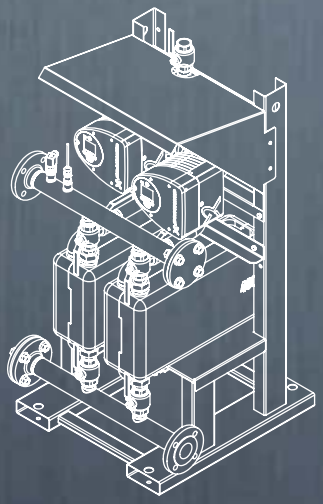
RAYPAK® HEATING & HOT WATER

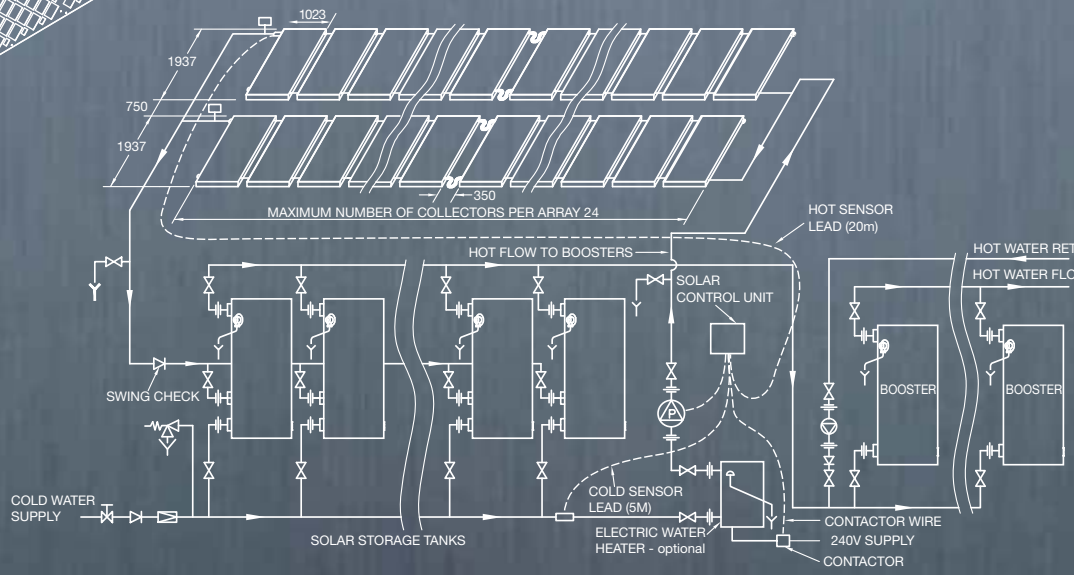
BOILING WATER & ELECTRIC

WARM WATER









UNDERSTANDING HOT WATER IS WHAT RHEEM DOES BEST

Rheem is the premier commercial water heater company in Australia. Our reputation is built on a **trust** we have developed with specifiers, installers and users in over 40 years of servicing the commercial water heating industry

Trust in our **locally based** Research and Development **excellence**

Trust in the **robustness** and **reliability** of our commercial products

Trust in the **professionalism** and **expertise** of our Technical Representatives

Trust that Rheem has a **solution** for almost every conceivable design requirement

And if something should go wrong, trust that Rheem will be there **to help**

Continual Improvement

We are proud of our heritage and confident for the future.

Rheem is continually developing new products to meet the ever increasing demands of industry be it to meet new environmental requirements, reducing footprint or finding new ways to heat water from waste heat. Rheem has the biggest range of water heaters available and the know how to put it all together.

Rheem is Everywhere

Our technical support from design stage through to installation and post commissioning is second to none and is supported by an unequalled network of experienced after sales service technicians.

Value

At a time when the world seems to be focussed on lowest cost, we have not lost sight of the value that comes from doing things well.

We trust we can be of value to you.

Certified Product™ Australian Standard AS/NZS 2712 Lic SMK 0757 Lic SMK 1048 Lic SMKP 21548 SAI Global

Certified System™ Quality ISO 9001

WaterMark™ AS 3498 Lic WMKA 00153 Lic WMKA 00177 Lic WMKA 00299 Lic WMKA 00500 Lic WMKA 21434 Lic WMKA 21549 Lic WMKA 21766 SAI Global

The Australian Gas Association

CONTENTS

Stylish and intelligent

Energy reduction

Efficiency, safety and style

GOOD DESIGN Award

LAZER® BOILING WATER

RHEEM. READY WHEN YOU ARE.

The Rheem range of boiling water units is designed to provide the best solution to our customers' needs, whether it's in the boardroom, office or commercial kitchen.

Lazer® Office

The Rheem Lazer Office offers simplicity with efficiency and in 2013 won an Australian International Design Award in the Commercial and Industrial category.

Rheem Lazer Office is available in 3 and 5 litre capacities — equating to 20 to 35 cups[1] of ready to use boiling water and 123 cups[1] recovery per hour. Available in powder coated white and easy clean brushed stainless steel.

Seven Day Timer

The built-in, seven day timer ensures there is boiling water ready to use when you need it. The sleep mode, when activated, automatically shuts down the Lazer Office if it hasn't been used for two hours. These features can reduce energy use by up to 40%[2] over a normal working week.

Warranty*

2 year parts and labour

5 years on tank.

Lazer® Eco

It's easy to use with a one-touch button to switch on "Eco Mode" which, when activated, automatically turns the Lazer Eco off after two hours, reducing power consumption.

The indicator light shows red when heating and green when in energy conservation "Eco Mode", so you can see what it's doing at a glance. "Eco Mode" can reduce energy use by up to 40%[2].

Easy to Clean

The white powder coat finish is easy to clean and the Lazer Eco comes in 3, 5, and 7.5 litre models delivering up to 50 cups[1] ready to use and up to 123 cups[1] of boiling water an hour.

Automatic safety devices safeguard the unit against boiling dry.

Warranty*

2 year on parts and labour
5 years for tank

Lazer® Commercial

The Rheem Lazer Commercial is a high capacity boiling water unit designed for the demands of a commercial kitchen, sports club, busy workplace and more. The Lazer Commercial range has capacities of 7.5, 10, 15, 25, and 40 litres that can deliver from 50–247 cups[1] of boiling water ready to use and 123–241 cups[1] per hour.

Energy Efficient, Smart Technology

The seven day timer ensures you have boiling water ready to use and turns the energy off when boiling water is not required. Sleep mode will turn off the system automatically when it has not been used for a set period of time. These features can reduce energy use by up to 40%[2] over a normal working week.

Extra Features

Automatic safety devices safeguard the unit against boiling dry. The high flow tap offers up to 35%[3] faster filling.

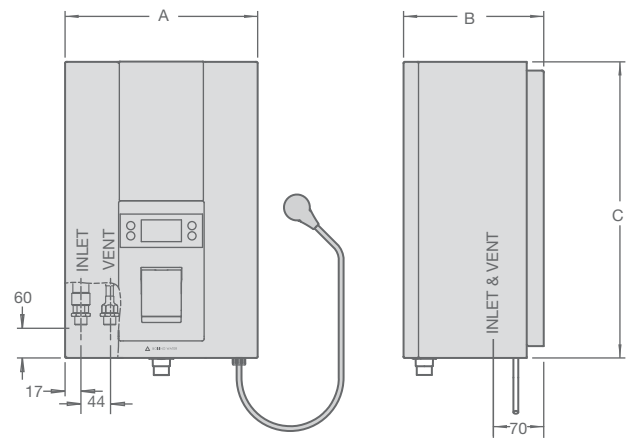
Warranty*

2 years on parts and labour
5 years on tank

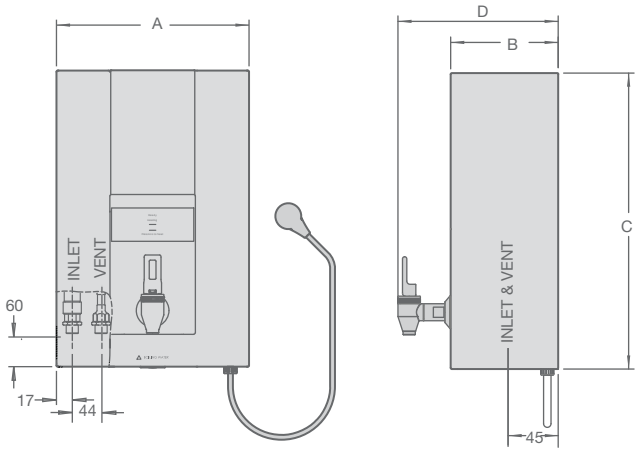
*** Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

LAZER BOILING WATER UNIT		LAZER OFFICE		LAZER ECO			LAZER COMMERCIAL				
WHITE POWDER COAT		70103W	70105W	70303W	70305W	70307W	70207W	70210W	70215W	70225W	70240W
STAINLESS STEEL		70103S	70105S				70207S	70210S	70215S	70225S	70240S
Capacity	Litres	3	5	3	5	7.5	7.5	10	15	25	40
Delivery – Initial	Litres	3.5	6	3.5	6	8.5	8.5	11	17	27	42
	Cups	20	35	20	35	50	50	65	100	159	247
Recovery	L/hr	17.5	21	17.5	21	21	21	21	21	33	41
	Cups/hr[1]	102	123	102	123	123	123	123	123	194	240
Approx Weight Empty	kg	6	8	6	8	9	9	10	15	17	19
Approx Weight Full	kg	10	15	10	15	19	19	22	34	47	67
Minimum Water Pressure	kPa	50	50	50	50	50	50	50	75	75	100
Maximum Water Pressure	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Input	kW	1.8	2.4	1.8	2.4	2.4	2.4	2.4	2.4	3.6	4.6
Electrical Connection		Supplied with 10 Amp 3 Pin Plug and Flex								Hard wired	
Plumbing Connections		½" BSPM									
Product Dimensions											
A width of unit	mm	283	334	283	334	334	334	334	334	334	490
B depth of unit excluding tap	mm	206	239	158	191	191	191	191	299	299	340
C height of unit	mm	435	465	435	465	515	515	615	515	720	615
D depth of unit including tap	mm	-	-	231	264	264	311	311	419	419	460

Lazer (701 Series)



Commercial (702 Series) and Eco (703 Series)



[1] Cup size is 170ml.
[2] Potential energy consumption savings values are approximate and provided for general reference purposes only. Actual heat loss reductions will vary depending on the system installed, regional temperatures, geographical location and other factors.
[3] Based on Rheem flow rate of up to 11 litres/min versus a competitors flow rate of up to 8 litres/min.

Low ambient operation options

Compact and flexible design

Ducted and non-ducted models

Rheem reliability

COMMERCIAL HEAT PUMP

HIGH EFFICIENCY HEAT PUMP WATER HEATING

Understanding hot water is what Rheem does best and this experience has led to the development of a truly commercial grade heat pump that delivers high thermal efficiency and hot water up to 65°C, something not all heat pumps can boast.

Built Tough

The Rheem Commercial Heat Pump delivers up to 65°C hot water with the use of R134a refrigerant. Fine tuning of the system performance in our world class psychrometric test facility has resulted in a Coefficient of Performance (COP) of 4.0, which increases efficiency and reduces energy consumption, whilst an increased recovery rate provides more hot water in a shorter time frame.

Building recirculation can be reheated through the heat pump, negating the need for auxiliary heaters to perform this function, further reducing building energy costs.

Easier Installation

1 1/4" threaded inlet and outlet fittings make connections easier and a high head pump improves installation flexibility and system reliability. The aluminium base tray has in-built fall which helps to remove condensate faster.

Quality Product

The Rheem Commercial Heat Pump is truly commercial grade with quality components used throughout such as a Copeland scroll compressor, EBM fans, SWEP heat exchanger and Danfoss control gear. The evaporator is dipped to provide extra protection in corrosive atmospheres.

Options

The Rheem Commercial Heat Pump is supplied with a stucco aluminium cabinet and vertical discharge fans as standard. A horizontal discharge fan option is available in both ducted and non-ducted versions.

Horizontal discharge models can be stacked two high to reduce plant footprint.

Ducted models are designed to discharge the cold air outside of the plant room. Maximum static pressure in the duct is 40Pa.

A duct 565mm wide x 800mm high with minimum resistance at the duct outlet is recommended.

Warranty*

- 2 year parts and labour on sealed system
- 1 year parts and labour on remainder

*** Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

All Weather Performance

Automatic defrost is now a standard feature on every Rheem Commercial Heat Pump. This feature allows the heat pump to continue performing in low ambient temperature conditions by diverting a portion of the hot refrigerant to the evaporator coil to melt any ice which may form.

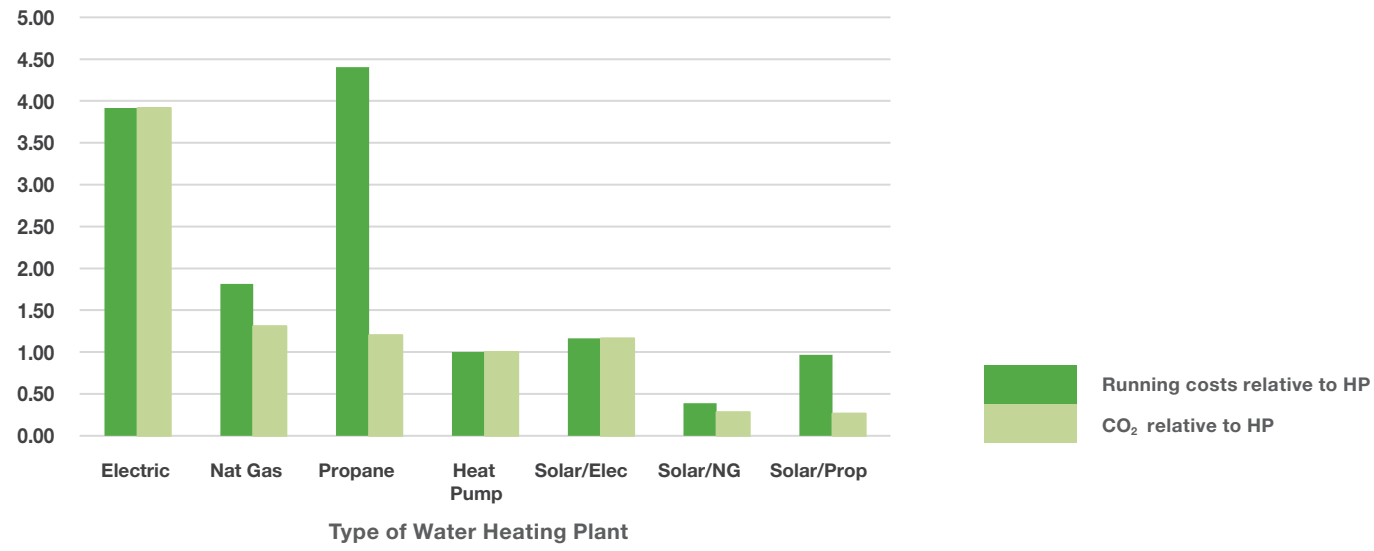
Installation

Non-ducted models can be installed outdoors or indoors as long as there is sufficient ventilation to ensure an adequate turn over of fresh air. Ducted units are recommended for indoor installations when cold exhaust air cannot be readily replenished with fresh air.

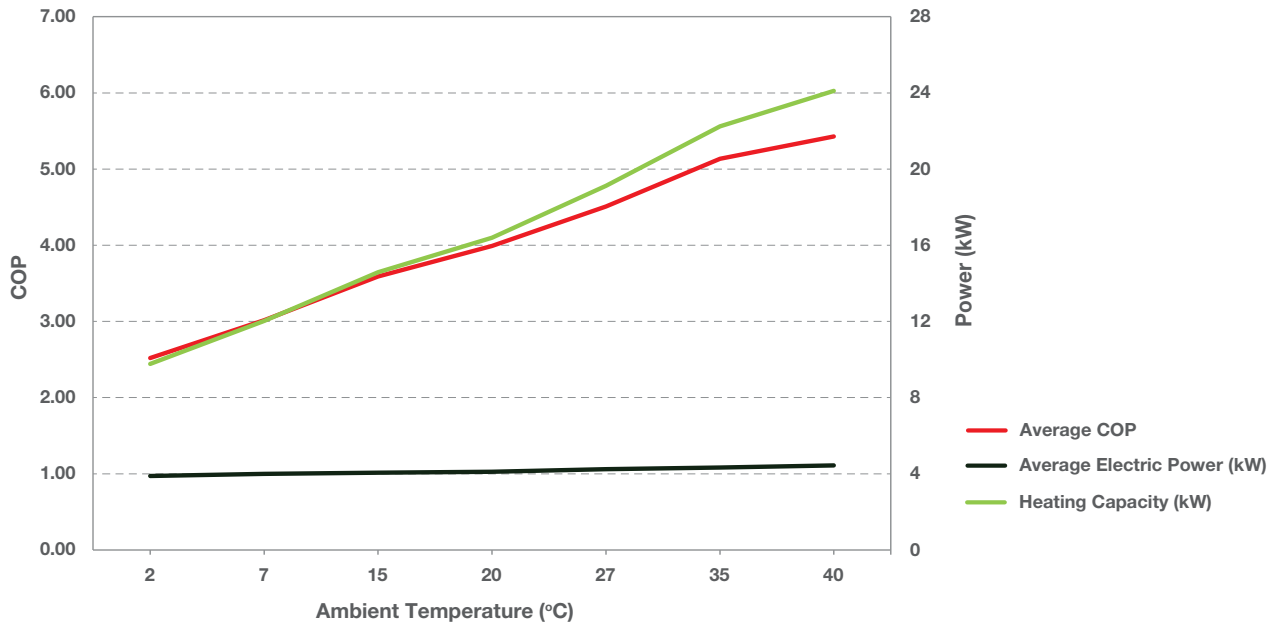
Rheem Back-Up

Like all Rheem commercial water heaters, the Commercial Heat Pump is supported by a nationwide service team and local technical support, to ensure correct sizing, specification and installation.

Relative Running Cost and CO_2 Emissions[5]



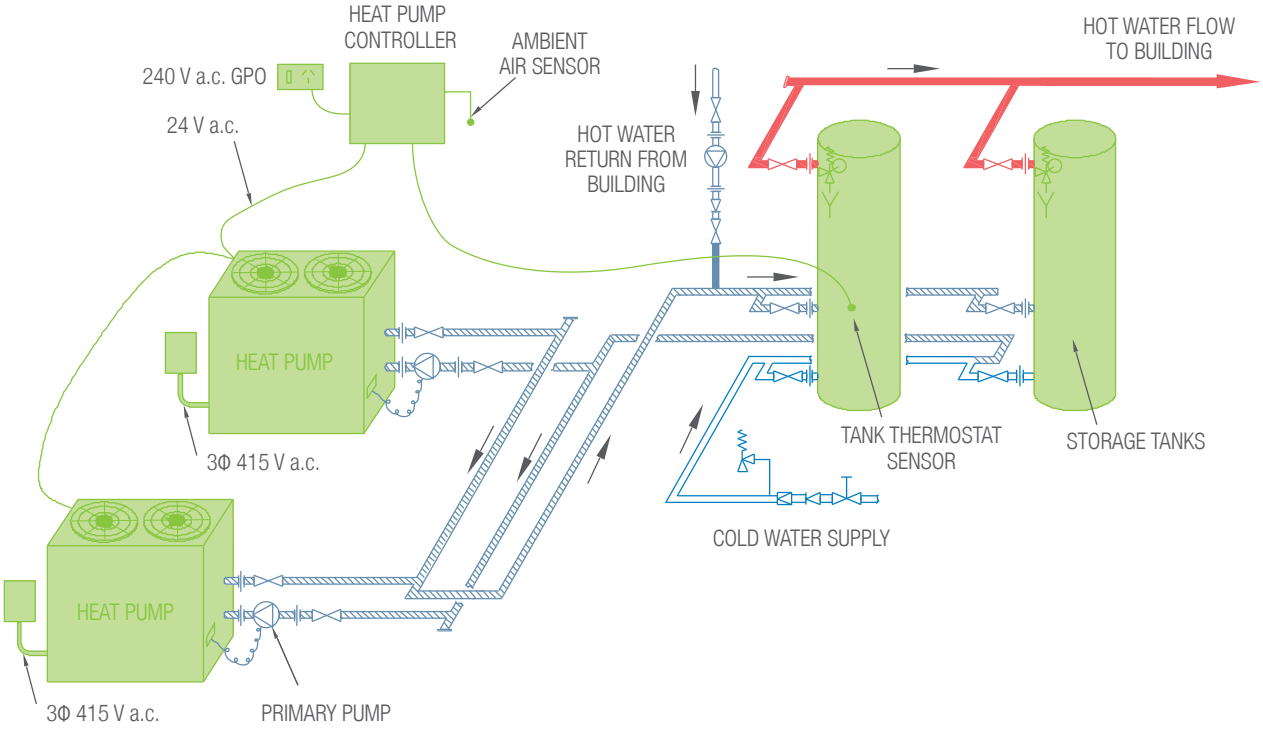
Input, Output and COP vs Ambient Temperature



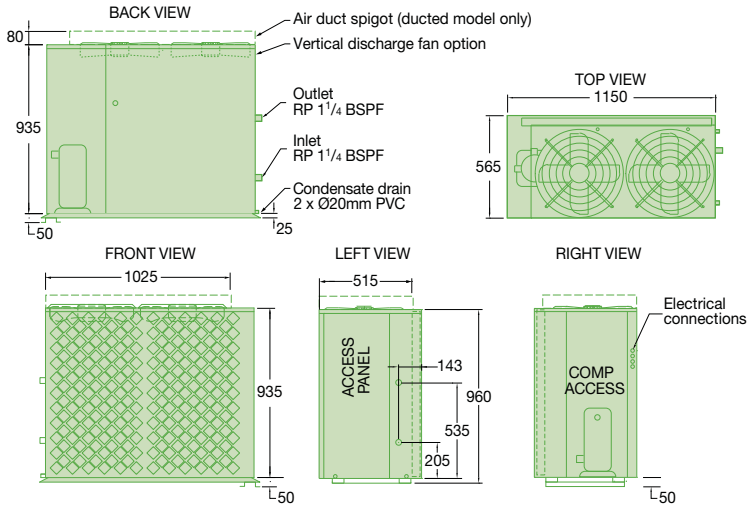
COMMERCIAL HEAT PUMP

Rheem Commercial Heat Pumps provide hot water to Southern Ocean Lodge — Kangaroo Island, SA

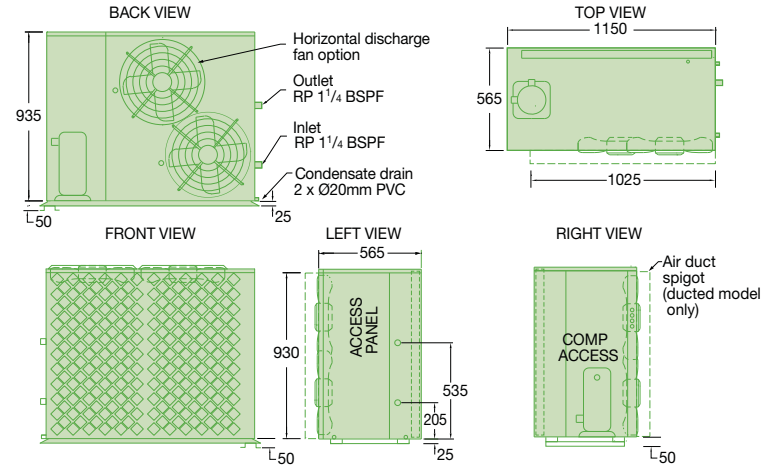
TYPICAL INSTALLATION



VERTICAL DISCHARGE FAN MODELS



HORIZONTAL DISCHARGE FAN MODELS



HEAT PUMP PIPE SIZING CHART

Number of Heat Pumps in Parallel	1	2	3	4	5	6
Primary Pump	Grundfos CM 3-2					
Branch Size	32	32	32	32	32	32
Header Size	32	50	65	65	80	80

Note: Header pipe sizing is based on a total length of 20m of primary flow and return piping and 20 bends, excluding equa-flow manifolds on storage tanks and heat pumps @ 1.6m/sec velocity. One pump per Heat Pump.

ACCESSORIES

Storage Tank 410L	610430	Primary Pump	CM 3-2
Storage Tank 1,000L	RT1000N9ALU-T	Controller	052140

PRODUCT DATA

		Ducted Exhaust	Non Ducted Exhaust
Vertical Discharge		**952 022**	**953 022**
Heating Capacity[4]	kW	16.4	16.4
Power Input[4]	kW	4.1	4.1
Coefficient of Performance[4]		4.0	4.0
Recovery @ 50°C Rise[4]	L/hr	282	282
Operating Range (ambient)	°C	0 – 40	0 – 40
Outlet Temperature	°C	65	65
Refrigerant		R134a	R134a
Water Pressure Relief Valve Setting	kPa	1,000	1,000
Water Expansion Control Valve Setting[6]	kPa	850	850
Maximum Water Supply Pressure			
Without ECV[6]	kPa	800	800
With ECV[6]	kPa	650	650
Electrical Connection		3 Phase / 415V / 50Hz	
Max Current per Phase (running)	Amps	14.9 / 11.2 / 11.2	
Minimum Circuit Size (per phase)	Amps	20	20
Air Flow	L/s	1,600	1,600
Maximum Static Pressure	Pa	40	-
Minimum Ventilation per inlet and outlet	m^2	1	1
Minimum room volume for indoor installation	m^3	7.5	7.5
Sound Pressure Level @ 1m	dBA	70	61
Approx Weight Empty	kg	130	130
Approx Weight Full	kg	135	135
Storage per Heat Pump	L	400 to 4,000	
Dimensions			
Length	mm	1,150	1,150
Depth (Discharge Vert/Horiz)	mm	565/640	565/585
Height	mm	1045	980
Clearances			
Front	mm	600	600
Back (vertical discharge models)	mm	50	50
Back (horizontal discharge option)	mm	1,200	1,200
Sides	mm	600	600
Top (vertical discharge models)	mm	800	1,200
Top (horizontal discharge option)	mm	50	50

RECOVERY

	Ambient Temperature °C								
	0	5	10	15	**20**	25	30	35	40
Output (kW)	9.0	11.1	13	14.6	**16.4**	18.3	20.3	22.2	24.1
Recovery – Litres per hour @									
20°C rise	387	478	558	627	705	789	872	956	1036
30°C rise	258	319	372	418	470	526	582	638	691
35°C rise	221	273	319	358	403	451	499	546	592
40°C rise	194	239	279	313	353	394	436	478	518
45°C rise	172	213	248	279	313	351	388	425	461
50°C rise	155	191	223	251	**282**	316	349	383	415
55°C rise	141	174	203	228	256	287	317	348	377

[4] 20°C / 65%RH.

[5] Comparison will vary depending upon your location, configuration of system installed, type of water heater being replaced, hot water consumption and fuel tariff. Maximum financial savings can be achieved only when the tariff for the electric water heater replaced was 24 hour continuous.

CO_2 emissions for fuel types is based on AGO published information. Materials and data are subject to change without notice due to ongoing product improvements. Data correct as at July 2015.

[6] ECV not supplied with the water heater.

Worldwide experience

Biggest range of options

Total package solutions

52 Commercial Solar NPT200 collectors provide hot water to Urbanest Student Accommodation Cleveland Street, Redfern NSW

COMMERCIAL SOLAR SOLUTIONS

THE RANGE

Rheem has been at the forefront of solar water heating design and manufacture for decades. This experience provides peace of mind when selecting large scale solar thermal systems.

Rheem has the largest range available to suit all design requirements and most correctly designed Rheem Commercial Solar systems are eligible to generate Small-scale Technology Certificates (STCs).

Rheem 610430 410L Storage tanks

Loline Direct Solar

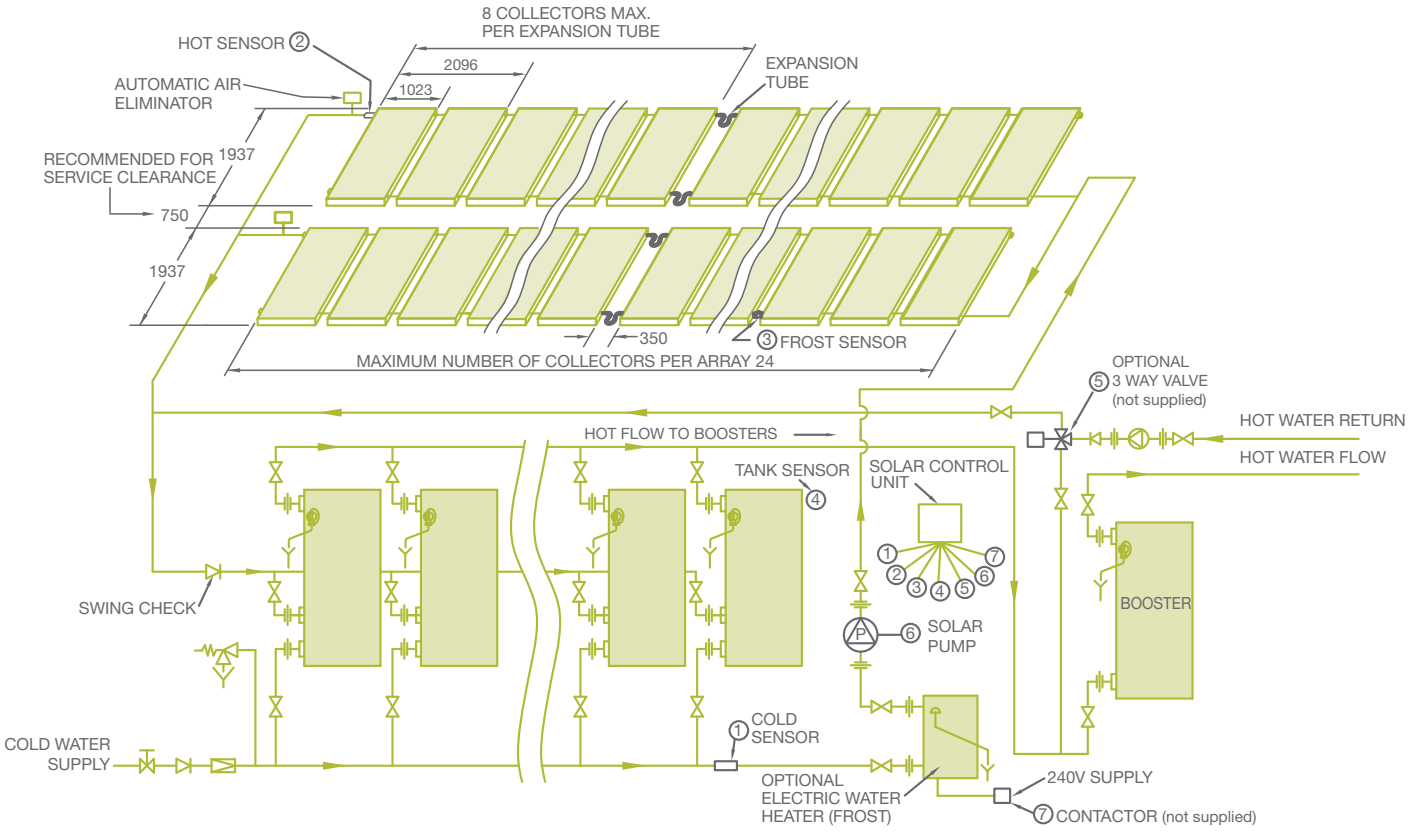
- Modular design provides flexibility
- NPT200 collector provides good performance in all locations
- 325 up to 5,000 litre storage modules
- Provides partial protection against freeze

HS Series

- Split solar system employing drain back technology
- BT collector provides high efficiency
- 1,000 to 5,000 litre capacity
- In-tank or in-series boost
- Fully frost protected

Premier Hiline®

- Close coupled collectors and stainless steel 300 litre tank
- S200 collector provides good performance in all locations
- Fully frost protected
- Better suited to poor water quality areas



LOLINE

Flexibility

Rheem Loline® provides flexibility in design. Storage tanks can be mounted at the same level or below the collectors to suit site requirements and tank/collector ratios can be closely matched to maximise system efficiency. Use Equa-Flow® manifolding to connect as many tanks as required in a variety of configurations.

Storage Modules

Select from 325 litre and 410 litre vitreous enamel storage tanks or 1000 to 5000 litre stainless steel storage tanks where less footprint is required. Rheem commercial storage tanks are designed for heavy duty applications and are supplied with high temperature enamel and 50mm fittings as standard.

Freeze Protection

Freeze protection is provided by sensors which activate the solar circulator before freezing occurs in the collectors. Rheem Loline® is warranted against freeze damage in areas below 400m altitude. An optional electric water heater can be incorporated in the design to assist in freeze protection.

Note

For tank technical data refer to page 46.

Building Management System (BMS)

The solar controller can be connected to a BMS system to indicate normal operation or fault mode. Normal operation includes both run mode and standby mode.

Faults can include sensor failure, pump failure or power outage.

The BMS output is a 3 wire voltage free contact signal rated at 1A @ 240V.

NPT200 COLLECTOR TECHNICAL DATA		
Overall Dimensions H x W x D	mm	1941 x 1023 x 80
Aperture Area	m^2	1.86
Weight (empty /full)	kg	36/37
Fluid Capacity	Litres	1.5
Number of Risers		7
Absorber Material		Black Polyester Aluminium
Insulation		Polyester
Glazing		Tempered
Tray Material		Zincalume®

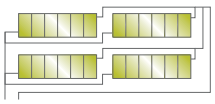
COMMERCIAL SOLAR SOLUTIONS

COMMERCIAL SOLAR PIPE SIZE / PUMP SELECTION / SPEED SETTING – RHEEM LOLINE

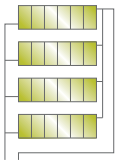
Total Number Collectors	Combined Tank & Array Piping Length (m)[7]	Total Length (flow and return) Between Storage Tanks and Collector Array (m)[8]											
		10	20	30	40	50	60	70	80	90	100	150	200
15	30	DN20/20-60/1		DN20/20-60/2						DN20/20-60/3		DN20/32-80/2	DN20/32-80/3
		DN25/20-60/1											DN25/20-60/2
30	53+	DN25/20-45							–	–	–	–	–
		DN25/20-60/2		DN25/20-60/3								DN25/32-80/2	DN32/20-60/2
	53++	DN25/20-45							–	–	–	–	–
		DN25/20-60/2		DN25/20-60/3								DN25/32-80/2	DN32/20-60/2
45	63+	–	DN25/32-80/3				–	–	–	–	–	–	–
			DN32/20-45									DN32/20-60/3	
	90++	–	DN32/20-45						DN32/20-60/3				DN32/32-80/3
60	79+	–	DN32/32-80/3									–	–
			DN40/20-45									DN40/20-60/3	DN40/32-80/3
	120++	–	DN32/32-80/3					–	–	–	–	–	–
			DN40/20-45									DN40/20-60/3	DN40/32-80/3
75	92+	–	–		DN40/32-80/3								
				DN50/20-45									
	111++	–	–	DN40/32-80/3									
				DN50/20-45									
90	105+	–	–	DN40/32-80/3								–	–
				DN50/20-60/3								DN50/32-80/2	DN50/32-80/2
	159++	–	–	DN40/32-80/3		–	–	–	–	–	–	–	–
				DN50/20-60/3								DN50/32-80/2	DN50/32-80/3
105	118+	–	–	–	DN50/32-80/3								
	160++	–	–	–	DN50/32-80/3								
120	131+	–	–	–	DN50/32-80/3								
	215++	–	–	–	DN50/32-80/3								

[7] Total length of pipe inter-connecting tanks and collector arrays.
[8] Lineal length.

Notes:
- Pump selections are Grundfos. 20-60 = UPS20-60N, 20-45 = UP20-45N, 32-80 = UPS32-80N
- UPS20-60N set to speed 3 can be substituted for a UP20-45N, but not the reverse
- If actual number of panels falls between an array size, use the next biggest array
- If actual pipe length between tanks and collectors falls between the lengths shown, use the next longest length



++Side by Side Array



+Parallel Array

SOLAR RADIATION DATA

Location	Latitude	Solar Radiation (MJ/m²/day)	Best Solar Month	Zone	Collector to Tank Ratio – NPT200					
					610 340		610 430		per/1000 litres (1000-5000L)	
					Min	Max	Min	Max	Min	Max
Darwin	12°	24.7	August	1	2.0	3.0	2.5	4.0	6	9.5
Cairns/ Townsville	17° 19°	24.0	September	1	2.3	3.5	2.8	4.0	6	9.5
Brisbane	27°	23.2	January	3	2.0	3.0	2.5	4.0	7	11
Perth	32°	28.9	January	3	2.0	3.0	2.3	3.5	6	9
Sydney	34°	23.5	December	3	2.2	3.5	2.7	4.0	7	10.5
Adelaide	35°	28.2	January	3	2.0	3.0	2.4	3.5	6	9
Canberra	35°	27.0	January	3	2.0	3.0	2.5	4.0	6	9.5
Melbourne	38°	24.4	January	4	2.0	3.1	2.5	4.0	6.3	10
Hobart	42°	23.6	January	4	2.4	3.5	3.0	4.5	7.5	11

Warranty*

- 5 year on the collector
- Loline 5 year on vitreous enamel cylinder, 8 year on stainless steel cylinder.
- Premier Hiline 3 year on cylinder
- 1 year parts and labour on remainder

*** Conditions apply:** For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

HS SERIES

The HS Series is a solar water heating package intended for use in commercial or industrial applications. It can be integrated into an existing installation to provide solar pre-heating for energy cost reduction, used in the replacement of existing equipment, or used in new installations.

The HS Series provides superior benefits to conventional solar water heaters including ultimate frost and over-temperature protection by way of its unique drain back function.

How does it work?

The system combines a number of efficient BT Commercial Solar Collectors with a centralised Heat Store to extract the sun's free energy and hold it ready for use. Closed circuit fluid is transferred between the heat store and collectors via a Solar Pump Skid with duty/standby cast iron pumps.

The storage tank has a fully welded steel cylinder and uses an inhibitor to prevent corrosion. The storage tank maintains a low pressure, closed circuit fluid that is used to store and transfer heat. The fluid is not consumed.

A highly efficient heat exchanger in the Delivery Skid then transfers the stored energy to the potable water supply to meet the hot water requirements on demand.

Boosting may be required and can be achieved in a number of ways to ensure sufficient hot water is available at all times.

Note:

- To enable correct Drain Back function the base of the solar collectors must be located at least 1 metre above the top of the storage vessel
- The maximum height from the base of the storage vessel to the top of the collectors should not exceed 40 metres.

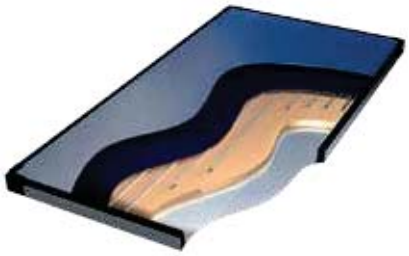
See tanks (page 46) and delivery skid (page 43) for further information.

Typical Installation Commercial Solar Heat Store

BT Collector

The BT collector is Rheem's premium solar collector, comprising 13 riser tubes laser welded to a copper absorber panel to maximise heat transfer. The absorber is coated with a sputtered selective surface which enhances absorption and minimises emission. Glass wool insulation further enhances heat retention.

The collector is mounted in an aluminium tray for superior weather protection and tempered glass improves transmission efficiency.



BT COLLECTOR TECHNICAL DATA		
Overall Dimensions H x W x D	mm	1941 x 1023 x 80
Aperture Area	m²	1.86
Weight (empty /full)	kg	31/33
Fluid Capacity	Litres	2.1
Number of Risers		13
Absorber Material		Sputtered Copper
Insulation		Glass Wool
Glazing		Satin-Matt
Tray Material		Aluminium

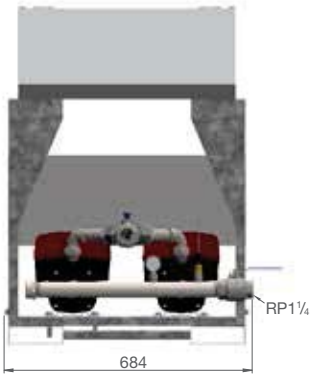
BT collectors at Rheem Testing Facility – Rydalmere – Australia

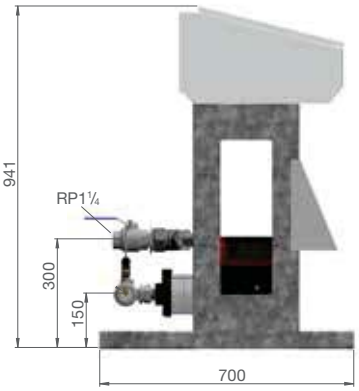
Solar Pump Skid

The HS Series system uses a fully integrated duty/standby pump skid and controller to operate and regulate the solar pump speed and drain back function.

The main function of the controller is to measure the temperature in the buffer storage tank and collector array to determine when to operate the solar pump.

The solar controller can also be used to operate other functions such as solar secondary recirculation or boost.





TOTAL HEIGHT FROM BASE OF STORAGE TANK TO TOP OF COLLECTOR (METRES)

Number Collectors	Total Height from Base of Storage Tank to Top of Collector (metres)						
	10	15	20	25	30	35	40
8	DN20/RP013						
12	DN20/RP013						
16	DN20/RP013						
20	DN20/RP013				DN20/RP015		
24	DN20/RP013			DN25/RP013		DN20/RP015	
28	DN25/RP013				DN25/RP015		
32	DN20/RP013	DN25/RP013				DN25/RP015	
36	DN25/RP013				DN25/RP015		
40	DN25/RP013			DN25/RP015			
45	DN25/RP013			DN25/RP015			
50	DN25/RP013			DN25/RP015			
60	DN25/RP033				DN25/RP035		
70	DN32/RP033				DN32/RP035		
80	DN32/RP033			DN32/RP035			
90	DN32/RP033			DN32/RP035			
100	DN40/RP033			DN40/RP035			
125	DN40/RP035						
150	DN40/RP035						DN50/RP035
175	DN50/RP035						
200	DN50/RP035						

SOLAR SKID TECHNICAL DATA

Weight	80kg
Electrical supply	230-240V 50/60Hz Hard Wired
Min Cirucit size	16 Amps

Solar Secondary Return

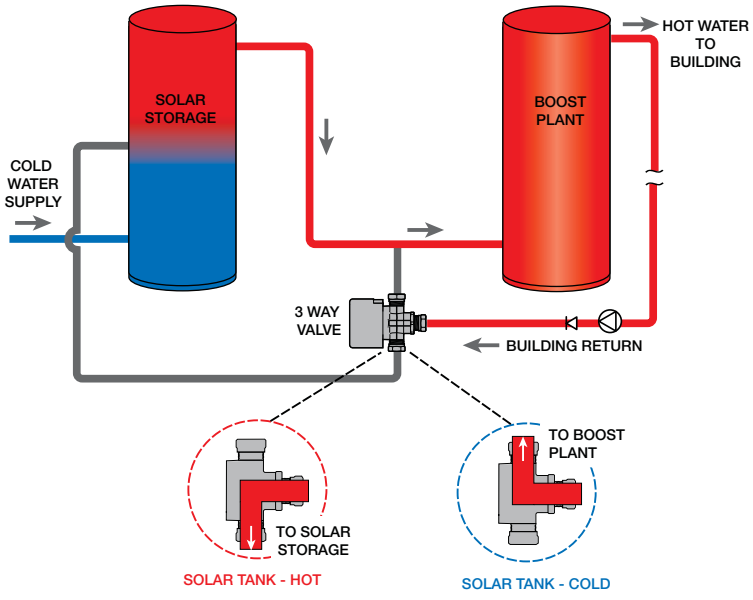
Rheem Commercial Solar provides more user functionality than ever before. The available energy in the storage tank can be monitored to maximise solar energy use. When sufficient energy is available, building secondary return water is diverted through the solar storage tanks.

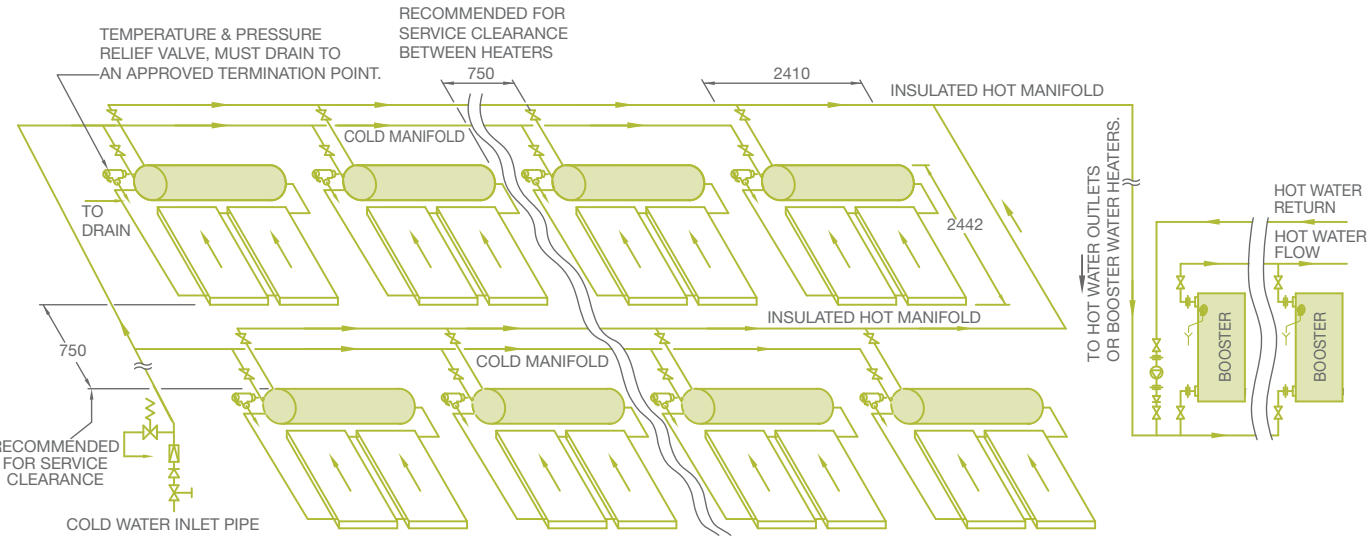
Solar Tank – Hot

When there is sufficient energy in the solar storage tank, the 3 way valve diverts building return water to the solar storage. This passes through the in-line boost plant without further heating to maintain ring main temperature.

Solar Tank – Cold

When insufficient energy is detected in the solar storage tank, the building return water is diverted through the in-line boost plant to maintain ring main temperature.





PREMIER HILINE®

Simplicity In Design

Rheem Premier Hiline® uses natural thermosiphon principles to efficiently transfer the energy from the collectors into the stainless steel storage tank. There is no need for circulators and primary flow and return lines. And the close coupled tank and collector saves plant room foot print. A closed circuit transfers the energy via an internal heat exchanger into potable water stored in the tank.

Storage Tank

Premier Hiline® is supplied with a 300 litre stainless steel storage tank. This reduces the tank weight which reduces the structural load on the roof members. Choose to boost in tank with an electric heating unit or in series with specified Rheem commercial water heaters.

Freeze Protection

The system utilises propylene glycol as the heat transfer fluid which provides freeze protection to as low as -28°C.

S200 COLLECTOR TECHNICAL DATA		
Overall Dimensions H x W x D	mm	1941 x 1023 x 80
Aperture Area	m^2	1.86
Collector Weight (empty /full)	kg	48/52
Storage Tank Weight (empty /full)	kg	79/379
Fluid Capacity	Litres	3.8
Number of Risers		33
Absorber Material		Black Polyester Steel
Insulation		Polyester
Glazing		Tempered
Tray Material		Zincalume®

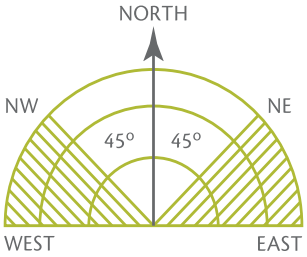
COMMERCIAL SOLAR INSTALLATION TIPS

Correct design and installation is critical to achieving maximum performance from your commercial solar system. The following is a guide to aid in good design:

- Collectors should ideally face due north (in the southern hemisphere), however a system installed with the collectors facing as far as north-east and north-west will experience approximately 5% drop in operating efficiency
- Collectors should be inclined at approximately the latitude angle, however 15° either way is acceptable, but not less than 10° from the horizontal. For flat roof installations, Rheem can supply variable pitch frames suitable for either 1 or 2 collectors with pre-set pitch angles of 15, 20 and 25°
- Metallic flow and return lines only MUST be used between the solar storage tanks and the collectors
- The pipe must be well insulated and sheathed if externally mounted. AS/NZS 3500.4 has guidelines specific to the zone
- See the relevant Pipe Size and Pump Selection Table for the correct specification of pipe size, pump selection and speed setting

Collector Positioning

Recommended Aspect N.E. to N.W.



Reduced capital and maintenance costs

Warm water and hot water

Solar pre-heat capability

GUARDIAN WARM WATER

Rheem Guardian® Warm Water — Maximum Safety, Maximum Flow, Maximum Protection

Rheem Guardian is a simple and highly flexible solution for providing controlled warm water for special needs applications.

Special Features

- Primary heating plant can also be used to supply hot water for use in kitchens and laundries
- Suitable for indoor and outdoor installations
- Reduces capital and maintenance costs

Flexibility and Capital Savings

Rheem can provide impressive capital savings with the installation of a Rheem Guardian Warm Water System. With the ability to supplement existing plant, Rheem can supply all the benefits of warm water without the expense of installing a new plant.

And as the system can be coupled with Rheem commercial solar heating plant, Rheem can ensure you take advantage of the generous Government rebates and incentives reducing capital outlay whilst enhancing running cost savings.

Rheem also provide you with flexibility with the Guardian System. Suitable for installation indoors or outdoors, the system can be coupled with any Rheem or Raypak water heating plant, be it gas, electric, solar or heat pump. The primary heating plant can also be used to supply hot water for use in kitchens and laundries, negating the need for a separate hot water plant.

Simplicity in Design, Installation and Maintenance

The hallmark of Rheem design is simplicity and flexibility. This has been achieved with Rheem Guardian providing accurate thermostatic control in a small and compact unit.

Rheem Guardian employs Rada 320 thermostatic mixing valve technology and is supplied pre-assembled in a neat tamperproof enclosure. This provides quick and easy installation and requires no electrical connection, which improves reliability.

The Rheem system is supplied with UV disinfection as standard.

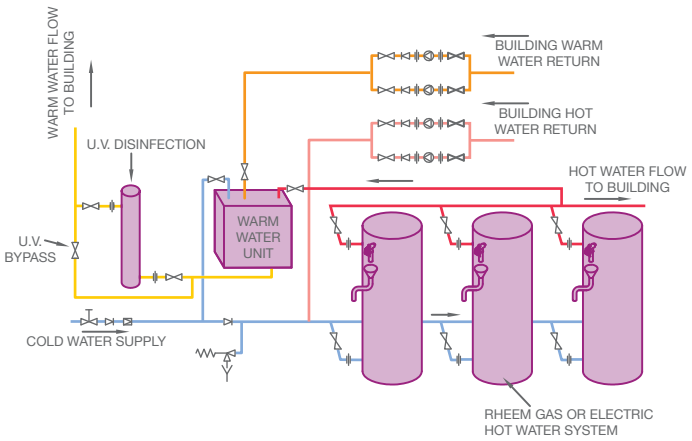
We recommend compliance with the most stringent commissioning and maintenance regime in accordance with AS3666 and local regulations to safeguard against Legionella.

Rheem Guardian ensures continuing operation during periods of maintenance (160L and 240L models), and because of an ingenious thermostatic cartridge design, maintenance is made easy.

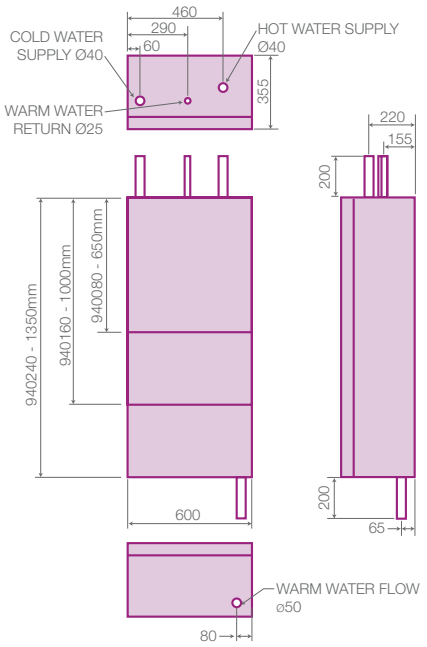
Rheem Guardian is backed by a 2 Year Cartridge Warranty*, Rheem's expert Technical Advisory Service and nation-wide After Sales Network.

940 160 model illustrated

Typical installation — Rheem Warm & Hot Water



Warm Water Roughing in Dimensions



TECHNICAL DATA TABLE

WARM WATER

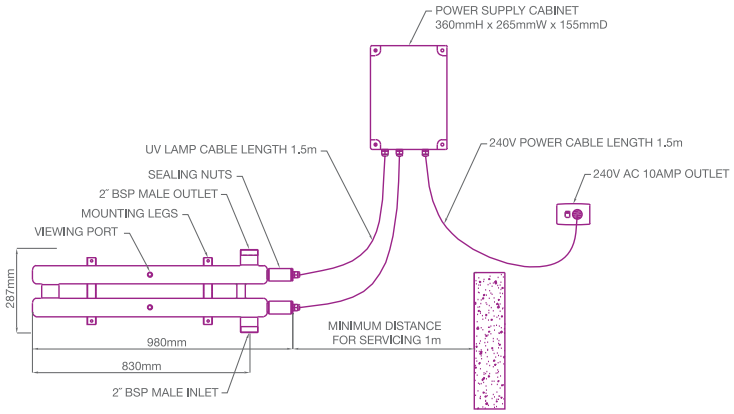
Model		940 080	940 160	940 240
Nominated Flow Rate[11]	L/min	80	160	240
Max. Water Supply Pressure – Static/Dynamic	kPa	1000/800	1000/800	1000/800
Min. Water Supply Pressure	kPa	500	500	500
Thermostatic Control Range	°C	25 – 60	25 – 60	25 – 60
Max. Hot Water Supply Temp (Temporary)	°C	85	85	85
Max. Outlet Temperature (Sanitising)[10]	°C	85	85	85
Min. Temp Differential Between				
Cold Supply and Outlet (Flow Conditions)	°C	15	15	15
Hot Supply and Outlet (Flow Conditions)	°C	15	15	15
Recommended Minimum Recirculation Flow Rate[9]	L/min	8	16	24
Recommended Minimum Temperature Loss in Recirculation Circuit	°C	2	2	2
Weight – Empty	kg	38	56	73
Indoor/Outdoor		yes	yes	yes

ULTRA VIOLET DISINFECTION

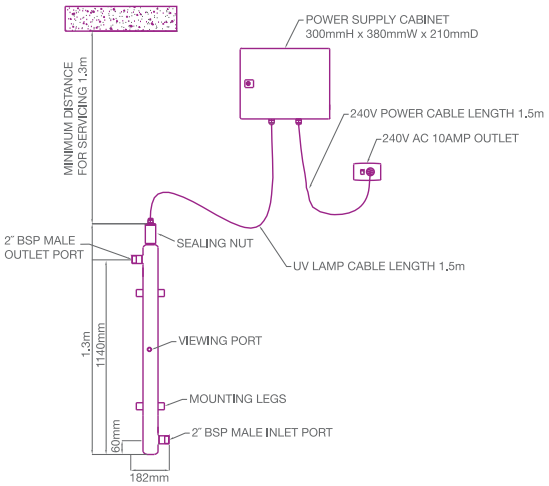
Model		940 001	940 002	940 002
Nominated Maximum Flow Rate	L/min	83	250	250
Weight – Empty	kg	15	15	15
Electrical rating 240v 50Hz	Watts	216	480	480
	Amps	0.9	2.0	2.0
Viewing Window		yes	yes	yes
Audible Lamp Fail Alarm		yes	yes	yes
Volt Free Contacts for Remote Alarm		yes	yes	yes
Hours Run Meter		yes	yes	yes
Indoor/Outdoor		yes	yes	yes

[9] At mid blend and equal dynamic supply pressures.
[10] It is recommended the ultra violet disinfection system lamps be de-energised if the outlet temperature exceeds 50°C.
Warranty* – 2 year commercial cartridge warranty.
***Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

Roughing in dimensions of 940 001 UV Disinfection



Roughing in dimensions of 940 002 UV Disinfection



BMS Capability

Flue damper saves energy

Electronic controls

HEAVY DUTY STORAGE GAS

Dependability

The Rheem heavy duty gas range is the work horse of the industry having proved itself over many years of performance in all types of applications.

Our water heaters have a range of individual features, and they're available in indoor and outdoor models.

Rheem's Equa-Flow® system means there's enough flexibility to suit most water heating applications.

Controls are easy to set or adjust, and include several key performance and safety features.

Quality

High quality is one reason for Rheem's reputation with the experts.

Take the Rheem storage cylinder: it's made from a special grade of steel and lined with a double coat of vitreous enamel which is better suited to a wider variety of water conditions. And multiple anodes provide greater protection.

It's where reliability starts.

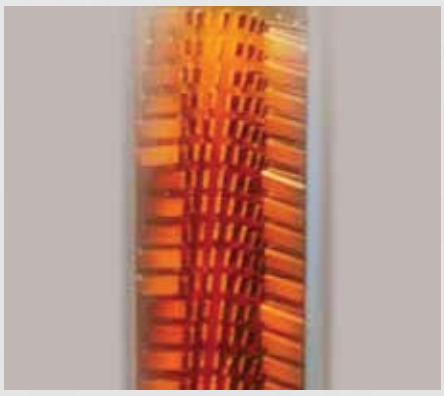
Special features

- Hot Surface Ignition (HSI), which removes the need for a pilot light, lowers operating costs and makes Rheem more reliable. There's also a 100% flame failure control built in
- Multi-Fin flue tube technology for ultra high performance, providing greater thermal input and better thermal efficiency in less space
- Flue damper (on the 621 275) to close off the primary flue when the burner is not operating, reducing maintenance rates by up to 60% when compared to AGA maximum allowance
- Electronic thermostat providing fine temperature control with digital setting display
- Room-sealed flueing option eliminates the need for fan assistance or mechanical ventilation and power flue terminal connections simplify wiring
- A bank of 8 x 621 275 or 631 275 Rheem commercial gas water heaters can deliver 7720 litres of hot water in the first hour
- A multiple manifold installation may be used when more than 8 water heaters or storage tanks are required
- Rheem commercial water heaters can be controlled by a remote device, such as a time clock or a remote isolating switch

Warranty*

- 5 year on the cylinder
- 1 year parts and labour on remainder

* **Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

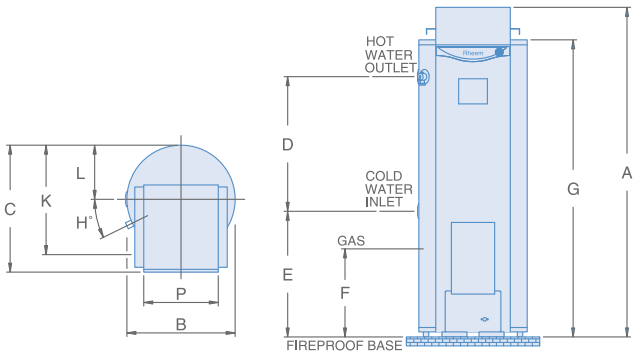


Rheem Multi-fin flue.

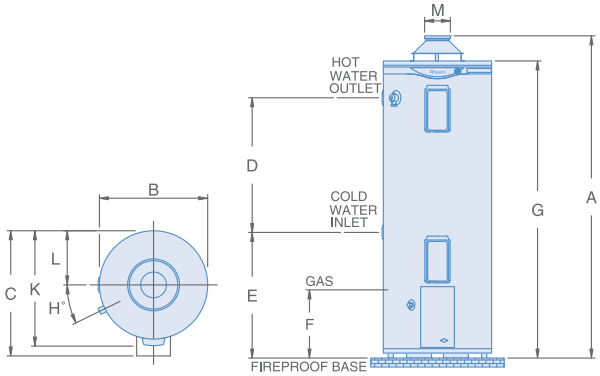
DIMENSIONS AND TECHNICAL DATA TABLE			OUTDOOR MODELS			INDOOR MODELS		
Model			**630 260[12]**	**631 265**	**631 275**	**620 260**	**621 265**	**621 275**
Storage Capacity		litres	260	265	275	260	265	275
Dimensions								
	A	mm	1640	1835	1865	1660	1795	1895
	B	mm	590	610	640	590	610	640
	C	mm	680	710	780	670	750	780
	D	mm	990	750	760	990	750	760
	E	mm	330	700	700	330	700	700
	F	mm	295	380	340	297	380	340
	G	mm	1520	1655	1695	1520	1655	1695
	H	degrees	27	36	36	27	36	36
	K	mm	655	660	722	655	660	722
	L	mm	295	302	320	295	302	320
	M	mm	–	–	–	100	125	200
	P	mm	420	420	320	–	–	–
Weight – Empty		kg	106	132	197	98	129	187
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)[11] Setting		kPa	850	850	850	850	850	850
Max. Water Supply Pressure								
without ECV[11] fitted		kPa	800	800	800	800	800	800
with ECV[11] 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

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

Outdoor Models



Indoor Models



HEAVY DUTY STORAGE GAS

PERFORMANCE DATA

Model	No. of Units in Parallel	Initial Storage Capacity (Litres)	Thermal Input (MJ/h)	Litres hot water at 50˚C rise over peak period (based on natural gas) 1 hour	2 hours	3 hours	4 hours	6 hours	8 hours
620 260 & 630 260[12]	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
621 265 & 631 265	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
621 275 & 631 275	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 (Litres)	Thermal Input (MJ/h)	Litres hot water at 65˚C rise over peak period (based on natural gas) 1 hour	2 hours	3 hours	4 hours	6 hours	8 hours
621 265 & 631 265	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
621 275 & 631 275	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 temperatures above 80°C

Rheem commercial gas models 621 265, 631 265, 621 275, 631 275 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[12]		621 265 & 631 265			621 275 & 631 275		
Gas Type		Nat/SNG	Propane	Nat/SNG	Propane	Butane	Nat/SNG	Propane	Butane
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	0.85	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

[12] 630260 not available in butane

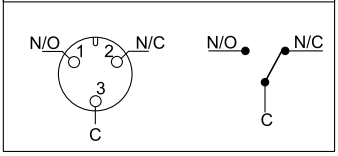
Note: Recovery figures rounded to the nearest 10 litres.

HEAVY DUTY GAS BMS INTERFACE MODULE

The Rheem Heavy Duty Gas BMS interface module 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.

- On board LED status
- Suitable for new installations or retrofit to existing heaters
- Dimensions (mm): 231(h) x 112 (w) x 78 (d)
- **Order Code: 299239**

INDICATOR CODE	
GREEN	Normal Operation (Relay Energised)
RED OR NO INDICATION	Attention Required (Relay de-energised)
Voltage Free Contact Load: Max 1A, 48V	



Features

- The module mounts to the outside of the water heater and is provided with Common, N/O and N/C contacts for field connection by on site trades
- Suits models 621265, 621275, 631265, 631275
- Provides Run/Fail signal via voltage free contacts (common, N/O, N/C)
- Contact rating 1A @ 48V
- Uses water heater's own power supply
- Suitable for indoor and outdoor installation – IP34

Solve several problems with room sealed flueing

The Rheem model 631 275 can be installed inside a plant room as part of a room sealed installation, using the Rheem Room Sealed Balanced Flue kit, P/No 299135.

This is the ideal solution for a difficult installation, because it solves several problems.

Ventilation into the plant room is not required and there is no need for fan assistance when discharging flue products horizontally.

Nor is there a need to run a flue to a satisfactory vertical discharge point (usually at the top of the building).

The Room Sealed Kit is designed to enable flue products to be discharged up to 3 metres total flue discharge length from the water heater. It can incorporate up to 3 x 90° bends.

Interconnecting nominal 150mm inlet air and flue ducting should be supplied by the installing plumber.

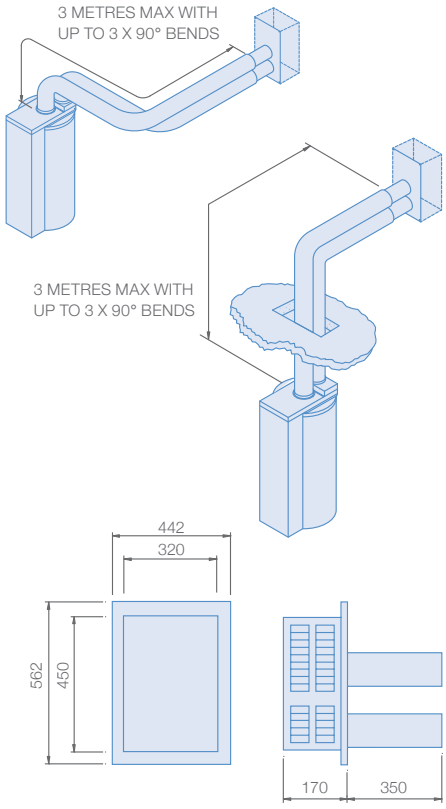
The kit includes transition pieces, which are designed to accept twin skin flue tubes.

The Room Sealed Balanced Flue kit can be fully installed from within the plant room.

It's suitable for walls up to a maximum thickness of 300mm, and it reuses the balanced flue from the water heater by relocating it on the external wall of the plant room.

A minimum plant room height of 2400mm is required, and the minimum clearances required for balanced flue terminals (as stated in AS/NZS 5601.1) must be observed.

This includes a minimum of 500mm between balanced flue terminals for this model.



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

1. Although a room sealed water heater installation draws the air required for combustion from outside, ventilation may be necessary to prevent a rise in the ambient temperature in the room.
2. 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.
3. In rooms other than plant rooms, ventilation is required if the total thermal input of the water heaters exceeds 3 MJ/h per cubic metre of room volume.

Power flueing / Mechanical ventilation

You can either install an individual Rheem gas model or a bank of multiple 621 265, 621 275 models with a power flue or mechanical air supply.

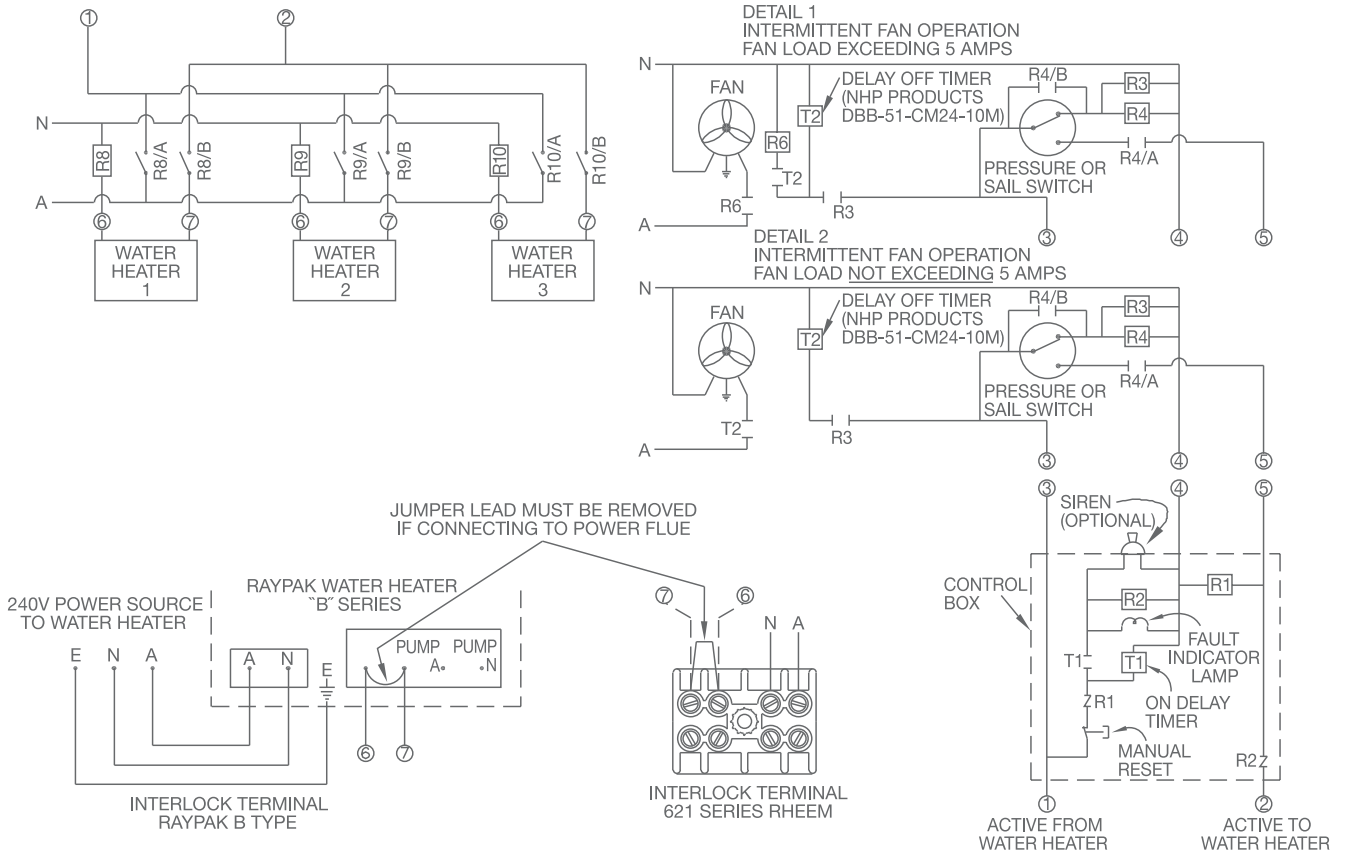
It's essential to prove the flue system operates correctly before the main burner is allowed to operate.

How is this achieved? A self proving relay interconnected 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.



Intermittent PowerFlue Fan Control – Multiple Water Heater Rheem 621 Series & Raypak Type B Series.

Power Flue and Remote control

Rheem commercial models 621 265, 631 265, 621 275, 631 275 may be controlled by a remote device such as a time clock, 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.

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.

Flueing: indoor gas water heaters

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

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.

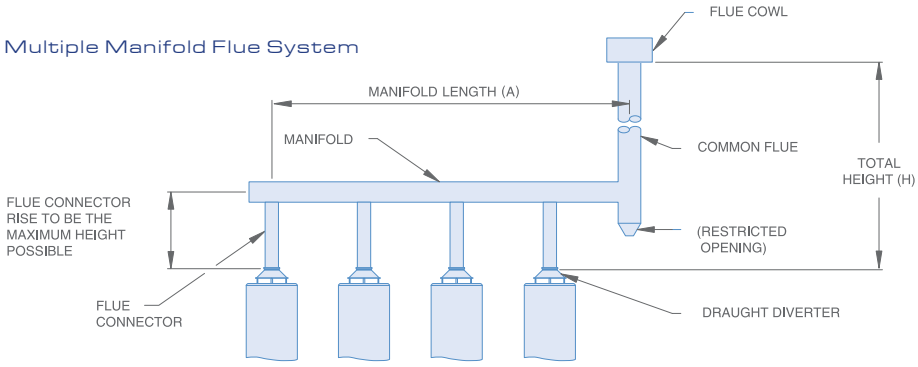
AS/NZS 5601.1 states the vertical rise directly out of the water heater must be the maximum possible height before any change in direction.

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.

Multiple Manifold Flue System



NOTE: 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	125	–	–	–	–	–	–
51 MJ/h	3	1.5	100	1.5	125	–	–	–	–	–	–
	6	3.0	100	3.0	125	3.0	150	–	–	–	–
	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	150	12.0	175
621 265	2	1.0	150	1.0	200	–	–	–	–	–	–
110 MJ/h	3	1.5	125	1.5	175	–	–	–	–	–	–
	6	3.0	125	3.0	150	3.0	200	–	–	–	–
	12	6.0	125	6.0	150	6.0	200	6.0	250	–	–
	24	7.6	150	12.0	150	12.0	175	12.0	250	12.0	250
621 275	2	1.0	175	1.0	250	–	–	–	–	–	–
200 MJ/h	3	1.5	175	1.5	250	–	–	–	–	–	–
	6	3.0	150	3.0	200	3.0	300	–	–	–	–
	12	6.0	150	6.0	200	6.0	250	6.0	300	–	–
	24	7.6	150	12.0	175	12.0	250	12.0	300	12.0	300

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

All copper & bronze construction

On/Off & modulating models

High temperature applications

RAYPAK® HOT WATER & HEATING

Raypak® is a compact, efficient heating design which is the ideal way to heat large quantities of water for both hot water and hydronic applications.

The use of direct fired pure copper finned heat exchangers has been well proven over time.

And in the past fifty years, the Raypak® range has developed the high input water heater even further.

Efficiency

- Efficient all copper heat exchanger provides an outstanding 82% thermal efficiency
- Hot Surface Ignition (HSI) or spark ignition reduces operating costs
- Economaster pump control saves energy

Robust Design

- Raypak® copper tube gas water heaters are high quality, versatile and robust
- Lightweight ceramic fibre refractory panels have an ingenious design which reduces heat loss
- All copper and bronze construction resists combined effects of corrosion and high temperature

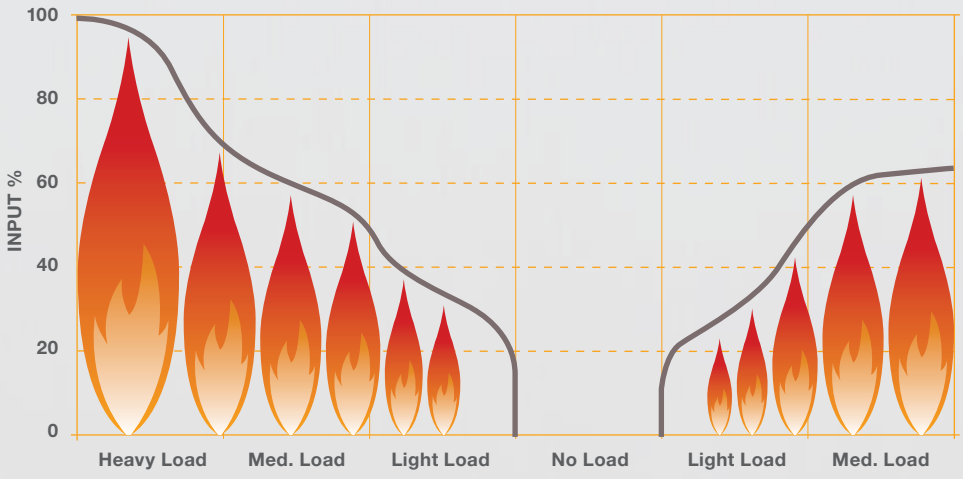
Simplicity and Reliability

- High recovery with low storage, supplies large amounts of hot water with low running costs
- Slide out burner tray for easy servicing
- Covered by unequalled service network and technical advisors

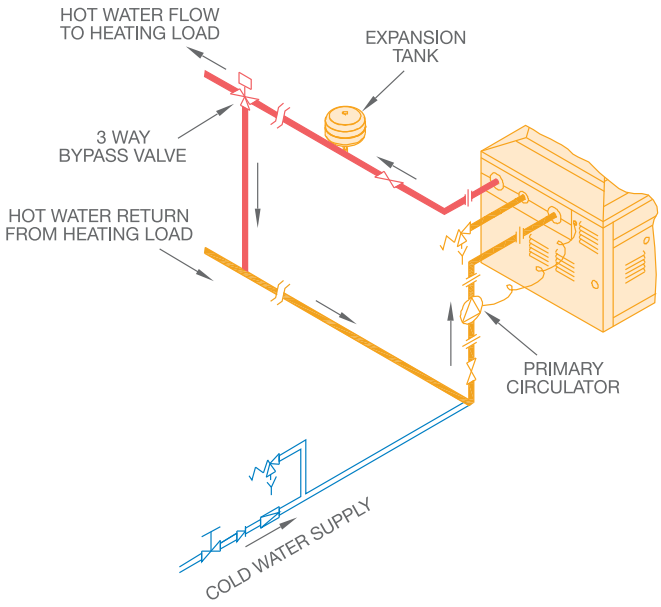
Versatile Applications

- Compact design suitable for low ceiling heights
- On/Off models provide heating for commercial hot water systems
- Modulating models are suitable for mechanical heating
- High (up to 90°C) and low temperature heating capable

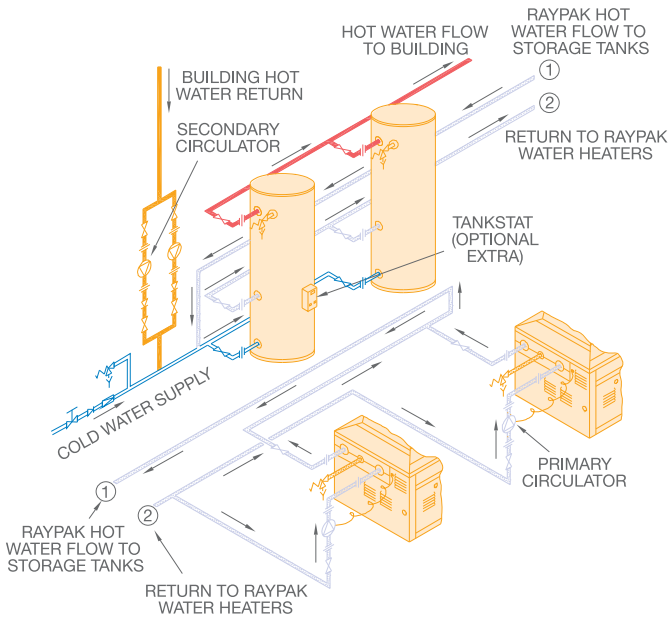
Raypak Modulation



Single Mechanical Heating System



Double Domestic Hot Water System



Options

- Left hand (normal) or right hand configurations
- Temperature and pressure gauges
- For difficult to reach locations, Raypak® can be supplied in knock down form for on site assembly (POA)
- Relay run and fault status for connection to BMS (standard on Type B models)
- Water flow switch (standard on Type B models)

Special features

- Slide out heat exchanger for easy servicing
- All Raypak® models except the 200 model are available with On/Off burners and all are available with modulating burners
- Additional storage tanks offer mains pressure performance
- Fast automatic response to temperature changes is provided by the optional outdoor Ambient Air Sensor controller
- Models from 538 up to 4224 can be connected to a building management system for monitoring
- Raypak models are an ideal heat source where system water temperatures of below 35°C are required
- The On/Off type water heaters can operate as low as 41°C without any condensation or sooting
- 538 to 4224 models not available in propane

Warranty*

- 5 years heat exchanger
- 1 year parts and labour

* **Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

RAYPAK PIPE SIZE AND PUMP SELECTION CHART

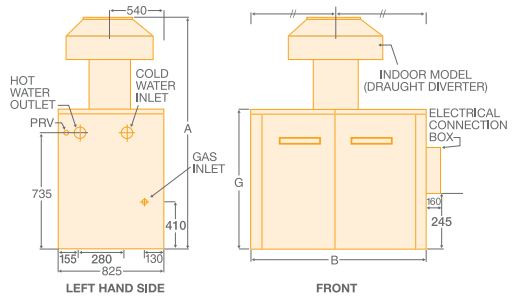
Model	Pump	Branch Size	Minimum Manifold Header Size Required (mm)			
	UPS Series		1 Unit	2 Units	3 Units	4 Units
280	32-80N	32mm	32/3	50/3	65/3	65/3
350	32-80N	40mm	40/3	50/3	65/3	80/3
430	32-80N	40mm	40/3	65/3	65/3	80/3
538	32-80N	50mm	50/3	65/3	80/3	100/3
658	32-80N	50mm	50/3	80/3	100/3	100/3
768	40-60/2B	50mm	50/3	80/3	100/3	100/3
868	40-60/2B	65mm	65/2	100/2	100/2	125/2
972 / 992	40-60/2B	65mm	65/3	100/3	100/3	125/3
1142 / 1182	50-120B	65mm	65/1	100/1	125/1	125/1
1242 / 1292	50-120B	65mm	65/2	100/2	125/2	125/2
1362 / 1412	50-120B	80mm	80/2	100/2	125/2	150/2
1662 / 1722	80-120B	80mm	80/2	125/2	125/2	150/2
1852 / 1922	80-120B	100mm	100/3	125/3	150/3	150/3
2004 / 2214	80-120B	100mm	100/1	125/1	150/1	-
2404	80-120B	100mm	100/1	125/1	150/1	-
2634	80-120B	100mm	100/2	125/2	-	-
2804 / 3164	80-120B	100mm	100/3	150/3	-	-
3304	80-120B	100mm	100/3	150/3	-	-
3694	80-120B	125mm	125/3	150/3	-	-
3804 / 4224	80-120B	125mm	125/3	-	-	-

Note: TP series circulator is recommended for hard water areas in lieu of UPS series circulator

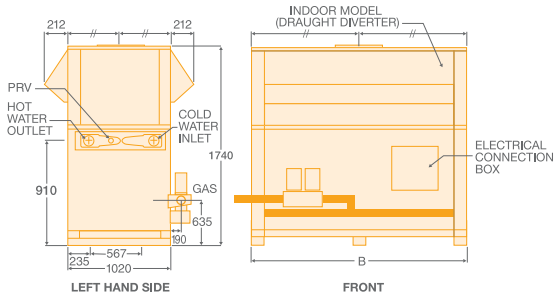
Manifold header sizes are minimum requirements for water heater performance

Pipe and pump sizing is for DHW only system. Header pipe sizing is based on a total length of 20m of primary flow and return piping and 20 bends, excluding equa-flow manifolds on storage tanks and heat pumps @ 1.2m/sec velocity.

Models 992, 1182, 1292, 1412, 1722, 1922 (Indoor)



Models 2214, 2634, 3164, 3694, 4224 (Indoor)

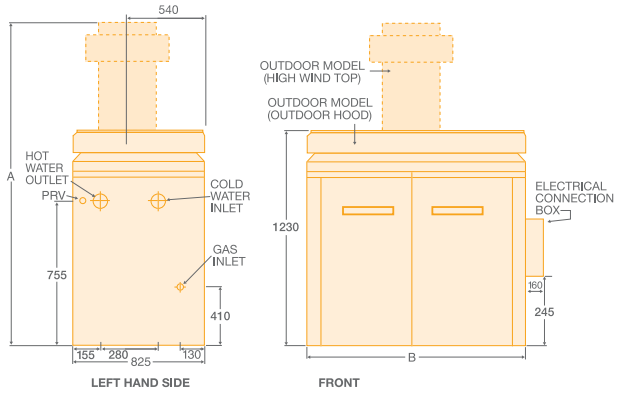


DIMENSIONS AND TECHNICAL DATA TABLE – INDOOR MODELS

Model		992	1182	1292	1412	1722	1922	2214	2634	3164	3694	4224
Natural – Input	MJ/h	999	1,186	1,289	1,412	1,719	1,926	2,215	2,636	3,165	3,692	4,224
– Output	kW	225	265	285	315	380	430	505	600	720	840	960
Dimensions												
A	mm	1,810	1,915	1,915	1,990	2,060	2,130	–	–	–	–	–
B	mm	1,330	1,510	1,615	1,740	2,070	2,270	1,550	1,780	2,060	2,350	2,640
G	mm	860	860	860	860	930	930	–	–	–	–	–
Flue Connection	mm	355	405	405	455	455	505	610	660	710	760	815
Weight	kg	310	330	360	390	440	460	625	700	780	860	940
Inlet/Outlet Connections		RC2½	RC2½	RC2½	RC2½	RC2½	RC2½	RC3	RC3	RC3	RC3	RC3
Gas Connection												
Natural – On / Off Models		R1½	R1½	R1½	R1½	R2	R2	R2	R2½	R2½	R3	R3
Natural – Modulating Models		R1½	R1½	R1½	R1½	R2	R2	R2	R2½	R2½	R3	R3
Relief Valve Connection												
On/Off Models		RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	R1¾	RC1	RC1	RC1
Modulating Models		RC¾	RC¾	RC¾	RC¾	RC1	RC1	RC1¼	RC1¼	RC1½	RC1½	RC1½
Electrical Rating 240V 50Hz	Watts	100	100	100	100	100	100	100	100	100	100	100
	Amps	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Min. Buffer Tank Capacity	Litres	410	650	650	650	650	820	975	975	975	1,230	1,300
Max. Storage Capacity	Litres	11,000	13,000	14,500	16,000	19,500	22,000	27,000	31,000	37,000	43,500	49,500
Natural Gas												
Litres Recovery Per Hour @	30°C rise	6,450	7,597	8,170	9,030	10,893	12,327	14,477	17,200	20,640	24,080	27,520
	40°C rise	4,838	5,698	6,128	6,773	8,170	9,245	10,858	12,900	15,480	18,060	20,640
	50°C rise	3,870	4,558	4,902	5,418	6,536	7,396	8,686	10,320	12,384	14,448	16,512
	60°C rise	3,225	3,798	4,085	4,515	5,447	6,163	7,238	8,600	10,320	12,040	13,760
	65°C rise	2,977	3,506	3,771	4,168	5,028	5,689	6,682	7,939	9,526	11,114	12,702
	70°C rise	2,764	3,256	3,501	3,870	4,669	5,283	6,204	7,372	8,846	10,320	11,794
	75°C rise	2,580	3,039	3,268	3,612	4,357	4,931	5,791	6,880	8,256	9,632	11,008
	80°C rise	2,419	2,849	3,064	3,386	4,085	4,623	5,429	6,450	7,740	9,030	10,320
	85°C rise	2,276	2,681	2,884	3,187	3,845	4,351	5,109	6,071	7,285	8,499	9,713
Flow Rate and Pressure Drop												
Max. Flow Rate												
Modulating (10°C rise)*	L/s	5.38	6.31	6.31	6.31	6.31	6.31	12.06	12.62	12.62	12.62	12.62
Pressure Drop	kPa	29	44	46	49	55	58	48	49	50	54	57
Max. Flow Rate												
On/Off (15°C rise)*	L/s	3.58	4.22	4.54	5.02	6.05	6.31	8.04	9.56	11.47	12.62	12.62
Pressure Drop	kPa	12	18	24	30	51	58	20	28	38	54	57
Min. Flow Rate												
(20°C rise)*	L/s	2.69	3.17	3.40	3.76	4.54	5.14	6.03	7.17	8.60	10.03	11.47
Pressure Drop	kPa	7	11	14	18	30	39	12	17	23	30	42

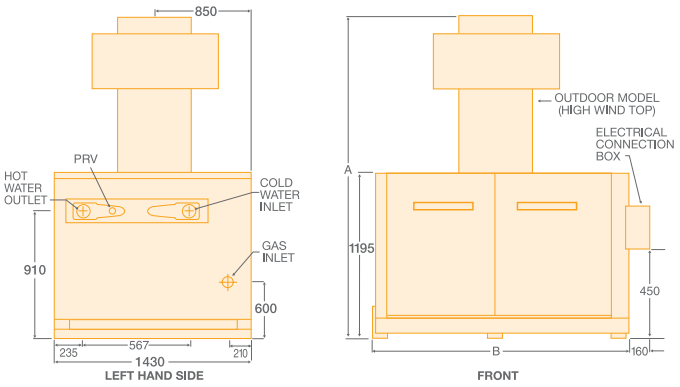
* Guide only.

Models 972, 1142, 1242, 1362, 1662, 1852 (Outdoor)



Models 2004, 2404, 2804*, 3304*, 3804* (Outdoor)

* Two high wind tops per model



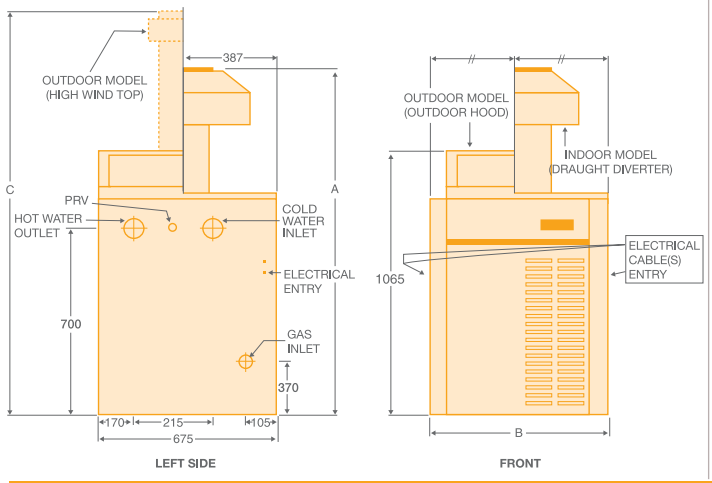
*Two high wind tops per model

DIMENSIONS AND TECHNICAL DATA TABLE – OUTDOOR MODELS

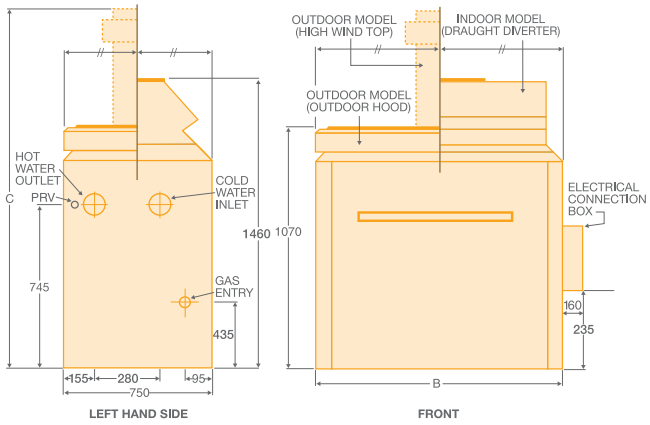
Model		972	1142	1242	1362	1662	1852	2004	2404	2804	3304	3804
Natural – Input	MJ/h	976	1,142	1,242	1,357	1,657	1,854	2,004	2,404	2,804	3,304	3,804
– Output	kW	220	255	275	300	370	410	445	530	625	740	845
Dimensions												
A	mm	2,500	2,395	2,395	2,570	2,640	2,920	3,165	3,210	3,185	2,965	3,165
B	mm	1,330	1,510	1,615	1,740	2,070	2,270	1,550	1,780	2,060	2,350	2,635
Weight	kg	360	385	410	440	510	520	650	730	810	890	970
Inlet/Outlet Connections		RC2½	RC2½	RC2½	RC2½	RC2½	RC2½	RC3	RC3	RC3	RC3	RC3
Gas Connection												
Natural – On / Off Models		R1½	R1½	R1½	R1½	R2	R2	R2	RC2½	RC2½	RC2½	R3
Natural – Modulating Models		R1½	R1½	R1½	R1½	R2	R2	R2	RC2½	RC2½	R3	R3
Relief Valve Connection												
On/Off models		RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC1	RC1	RC1
Modulating models		RC¾	RC¾	RC¾	RC¾	RC1	RC1	RC1¼	RC1¼	RC1½	RC1½	RC1½
Electrical Rating 240V 50Hz	Watts	100	100	100	100	100	100	100	100	100	100	100
	Amps	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Min. Buffer Tank Capacity	Litres	410	650	650	650	650	820	975	975	975	1,230	1,230
Max. Storage Capacity	Litres	11,000	13,000	14,000	15,500	19,000	21,000	23,000	27,000	32,000	39,000	43,000
Natural Gas												
Litres Recovery Per Hour @	30°C rise	6,307	7,310	7,883	8,600	10,607	11,753	12,757	15,194	17,917	21,214	24,224
	40°C rise	4,730	5,483	5,913	6,450	7,955	8,815	9,568	11,395	13,438	15,910	18,168
	50°C rise	3,784	4,386	4,730	5,160	6,364	7,052	7,654	9,116	10,750	12,728	14,534
	60°C rise	3,153	3,655	3,942	4,300	5,303	5,877	6,378	7,597	8,958	10,607	12,112
	65°C rise	2,911	3,374	3,639	3,969	4,895	5,425	5,888	7,012	8,269	9,791	11,180
	70°C rise	2,703	3,133	3,379	3,686	4,546	5,037	5,467	6,512	7,679	9,092	10,382
	75°C rise	2,523	2,924	3,153	3,440	4,243	4,701	5,103	6,077	7,167	8,485	9,689
	80°C rise	2,365	2,741	2,956	3,225	3,978	4,408	4,784	5,698	6,719	7,955	9,084
	85°C rise	2,226	2,580	2,782	3,035	3,744	4,148	4,502	5,362	6,324	7,487	8,550
Flow Rate and Pressure Drop												
Max. Flow Rate												
Modulating (10°C Rise)*	L/s	5.26	6.09	6.31	6.31	6.31	6.31	10.63	12.62	12.62	12.62	12.62
Pressure Drop	kPa	27	43	46	49	55	58	45	49	53	57	60
Max. Flow Rate												
On/Off (15°C Rise)*	L/s	3.50	4.06	4.38	4.78	5.89	6.31	7.09	8.44	9.95	11.79	12.62
Pressure Drop	kPa	12	18	23	30	49	58	18	28	35	53	57
Min. Flow Rate												
(20°C rise)*	L/s	2.63	3.05	3.28	3.58	4.42	4.90	5.32	6.33	7.47	8.84	10.09
Pressure Drop	kPa	7	10	12	16	27	21	12	17	21	30	42

* Guide only.

Models 200, 280, 350, 430 (Indoor/Outdoor)



Models 538, 658, 768 & 868 (Indoor/Outdoor)



DIMENSIONS AND TECHNICAL DATA TABLE – INDOOR/OUTDOOR MODELS

Model		200	280	350	430	538	658	768	868
Natural – Input	MJ/h	196	278	343	420	539	661	765	870
– Output	kW	44	62	76	94	120	150	170	195
Propane – Input	MJ/h	185	261	323	396	–	–	–	–
– Output	kW	41	58	72	88	–	–	–	–
Dimensions									
A	mm	1,625	1,715	1,715	1,805	–	–	–	–
B	mm	465	570	655	745	830	955	1,055	1,160
C	mm	1,955	2,240	2,035	2,145	2,130	2,255	2,255	2,355
Flue Connection	mm	175	205	225	255	255	305	305	355
Weight	kg	91	93	103	107	195	200	250	260
Inlet/Outlet Connections		RC1½	RC1½	RC1½	RC1½	RC2½	RC2½	RC2½	RC2½
Gas Connection									
Natural – On / Off Models		NA	RP¾	RP¾	RP¾	R1	R1½	R1½	R1½
Natural – Modulating Models		RP1	RP1	RP1	RP1	R1	R1	R1½	R1½
Propane – On / Off Models		NA	RP¾	RP¾	RP¾	–	–	–	–
Propane – Modulating Models		RP¾	RP¾	RP¾	RP¾	–	–	–	–
Relief Valve Connection									
On/Off models		NA	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾
Modulating models		RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾	RC¾
Electrical Rating 240V 50Hz	Watts	50	50	50	50	50	50	50	50
	Amps	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Min. Buffer Tank Capacity	Litres	325	325	325	325	325	325	325	325
Max. Storage Capacity	Litres	2,000	3,000	4,000	4,800	6,000	7,500	8,500	10,000
Natural Gas									
Litres Recovery Per Hour @	30°C rise	1,250	1,769	2,187	2,683	3,440	4,300	4,873	5,590
	40°C rise	937	1,327	1,640	2,012	2,580	3,225	3,655	4,193
	50°C rise	750	1,061	1,312	1,610	2,064	2,580	2,924	3,354
	60°C rise	625	884	1,094	1,342	1,720	2,150	2,437	2,795
	65°C rise	577	816	1,010	1,238	1,588	1,985	2,249	2,580
	70°C rise	536	758	937	1,150	1,474	1,843	2,089	2,396
	75°C rise	500	708	875	1,073	1,376	1,720	1,949	2,236
	80°C rise	469	663	820	1,006	1,290	1,613	1,828	2,096
	85°C rise	441	624	772	947	1,214	1,518	1,720	1,973
Flow Rate and Pressure Drop									
Max. Flow Rate									
Modulating (10°C Rise)*	L/s	1.04	1.47	1.82	2.24	2.87	3.58	4.06	4.66
Pressure Drop	kPa	3	8	13	17	6	10	14	22
Max. Flow Rate									
On/Off (15°C Rise)*	L/s	0.69	0.98	1.22	1.49	1.91	2.39	2.71	3.11
Pressure Drop	kPa	3	4	6	8	3	4	6	8
Min. Flow Rate									
(20°C rise)*	L/s	0.52	0.74	0.91	1.12	1.43	1.79	2.03	2.33
Pressure Drop	kPa	3	3	3	4	3	3	4	5

* Guide only.

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

ACCESSORIES FOR RAYPAK COMMERCIAL GAS WATER HEATERS

Accessories	Standard	Optional
Pump Run on Timer	All modulating	All On/Off
Tankstat	–	200 to 4224
Hot Surface Ignition (HSI)	200 to 430	–
Electronic Ignition	538 to 4224	–
Water Flow Switch	538 to 4224	–
Relay Run and Fault Status	538 to 4224	–
High Wind Top (outdoor installations only)	538 to 3804	200 to 1852
Left Hand Water and Gas Connections	200 to 4224	–
Right Hand Water Connections	–	200 to 430
Right Hand Water and Gas Connections	–	538 to 4224

GAS PRESSURE			200-430	538-4224
Natural	Minimum	kPa	1.13	1.13
	Test Point	kPa	0.77	0.92
	Maximum	kPa	3.50	4.00
Propane	Minimum	kPa	2.75	-
	Test Point	kPa	2.75	-
	Maximum	kPa	3.50	-

THERMOSTAT SETTINGS			
Modulating	Maximum	°C	95
	Factory set	°C	78
	Minimum	°C	44
On/Off	Maximum	°C	80
	Factory set	°C	50
	Minimum	°C	44

MINIMUM SUPPLY PRESSURE

System design and pump selection is critical when water heaters are connected to a low pressure water supply. Refer to the table below for minimum pressure requirements for Grundfos UPS series pumps. Minimum pressure requirements for TP series pumps depend on system characteristics and need to be calculated. Contact your pump supplier for details.

Pump	Model	Minimum Inlet Pressure Required (m) at Operating Temperature				
		75°C	80°C	85°C	90°C	95°C
UPS32-80N	280, 350, 430, 538, 658	0.5	0.5	0.5	3.0	5.0
UPS40-60/2B	768, 868, 972, 992	1.5	2.5	3.5	4.5	7.0
UPS50-120B	1142, 1182, 1242, 1292, 1362, 1412	4.0	5.0	6.0	7.0	9.0
UPS80-120B	1662, 1722, 1852, 1922, 2004, 2214, 2404, 2634, 2804, 3164, 3304, 3694, 3804, 4224	16.0	17.0	18.0	19.0	20.5

[13]CLEARANCES COMBUSTIBLES (mm)

Model	Back	Front	Left	Right	Ceiling
200 to 430	500	750	600	500	1,200
538 to 1922	600	750	600	600	1,200
2004 to 4224	600	1,200	600	600	1,200

[13]CLEARANCES NON COMBUSTIBLES (mm)

Model	Back	Front	Left	Right	Ceiling
200 to 430	150	750	600	150	1,200
538 to 1922	150	750	600	600	1,200
2004 to 4224	300	1,200	600	600	1,200

WATER SUPPLY AND RELIEF VALVE SETTINGS

Burner Type		On/Off	Modulating	
Models		All	200–430	538–4224
Relief Valve Setting				
Potable Hot Water	kPa	850 (700)†	850 (700)† [15]	850 (700)† [15]
Mechanical Heating	kPa	–	310	415
Expansion Control Valve (ECV[14]) Setting				
Potable Hot Water	kPa	700 (550)†	700 (550)† [15]	700 (550)† [15]
Mechanical Heating	kPa	–	–	–
Maximum Supply Pressure without ECV[14] fitted				
Potable Hot Water	kPa	680 (550)†	680 (550)† [15]	680 (550)† [15]
Mechanical Heating	kPa	–	240	330
with ECV[14] fitted				
Potable Hot Water	kPa	550 (450)†	550 (450)† [15]	550 (450)† [15]
Mechanical Heating	kPa	–	–	–

RAYPAK MODEL NUMBERS

The following information should be supplied when ordering Raypak water heaters

B	0430	N	C	O	/	ID
Water	Approx	N = Natural Gas	Copper Heat	O = On/Off		ID = Indoor
Heater	Thermal Input*	P = Propane	Exchanger	M = Modulating		HWT = High Wind Top

[13] Excludes flue terminal clearances. Refer to AS/NZS 5601.1.
[14] Expansion Control Valve is not supplied with the water heater.
[15] An 850kPa relief valve can be fitted to modulating water heaters used in potable hot water applications.
† Figures in brackets are to be used if a Wilson stainless steel storage tank is utilised in the system

Note: *last digit designates series type.

Internal & external models available

Horizontal or vertical flue discharge

Pre-engineered solutions

Rheem Tankpak Series 2 installed at
Hydro Majestic Hotel - Blue Mountains, NSW

COMMERCIAL CONTINUOUS FLOW
incl. COMMPAK®, MULTIPAK® & TANKPAK®

THE RANGE

Our Commercial Continuous Flow Water Heater (CFWH) range meets all the demands expected of Rheem products – from luxury homes to the largest commercial hot water application imaginable.

Tankpak Series 2®

- 84% thermal efficiency heat source
- Vitreous enamel storage tank up to 82°C operation
- Large flow 50mm storage tank fittings
- Digital temperature display
- Internal and external models available
- Pre-assembled CFWH banks

Multipak®

- Plug and Play – simply connects to the plumbing services
- Staged delivery on demand
- 50°C and up to 82°C models
- Left or right hand plumbing

Commpak®

- Engineered and pre-assembled for ease of installation
- Compact floor mount design
- Mains pressure performance without the use of tanks
- Suitable for small to medium sized applications

Commpak Plus®

- Engineered to meet customer requirements
- Dual pumps provide back up and redundancy
- Staged system operation
- Suitable for large applications

Individual Continuous Flow

- Q-factor® provides constant temperature at the outlet rapidly
- Unique Flame Safe® technology detects heat exchanger faults and shuts the system down
- Frost protection is supplied standard
- Suitable for sanitising applications when set at 82°C.
- EZ Link® two units together with a Deluxe Kitchen Temperature Controller for greater capacity. Max 60°C
- The range includes external models and internal models with Rheem supplied flue kits. Models are available for use on either natural or propane gas

EXTERNAL MODEL

INTERNAL MODEL

COMMERCIAL CONTINUOUS FLOW WATER HEATING

The Rheem Commercial CFWH range has been developed to provide an engineered solution for commercial hot water applications. Starting with systems as small as two Commercial Continuous Flow units through to systems as large as you can imagine.

All systems are pre-assembled on an engineered frame, which can be wall or floor mounted model dependent.
A range of options are available with all systems.

Installation

Models designed to deliver temperatures in excess of 60°C can be used as an in line booster to solar pre-heat plant and can be used in conjunction with Rheem Guardian® to provide tempered or warm water.

The entire range can be specified for installation outdoors or indoors with Rheem supplied coaxial flue kits with high grade stainless steel inner and aluminised steel outer. Both internal and external Commercial Continuous Flow units are certified for installation with zero clearance between water heaters.

Warranty*

- 5 years heat exchanger with a thermostat setting not exceeding 75°C
- 12 months parts and labour.
  12 months heat exchanger warranty when used with a thermostat setting exceeding 75°C

* **Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

CFWH TECHNICAL DATA

RHEEM COMMERCIAL CONTINUOUS FLOW		EXTERNAL MODEL	INTERNAL MODEL
Model		**872627**	**862627**
Delivery Temperature		up to 82°C	up to 82°C
Input	MJ/h	205	205
Output	kW	47.5	47.5
Efficiency	%	84	84
Gas Energy Rating	Stars	6	6
Flow Rate @ 25°C Rise	L/min	27	27
Minimum Flow Rate	L/min	2	2
Dimensions			
Height	mm	600	650
Width	mm	350	350
Depth	mm	225	250
Frost Protection		yes	yes
Approximate Weight	kg	23	23
Inlet/Outlet Connections	BSPM	R¾/20	R¾/20
Gas Connection	BSPM	R¾/20	R¾/20
Water Supply Pressure			
Maximum	kPa	1000	1000
Minimum	kPa	140	140
Gas Supply Pressure Range			
Natural Gas	kPa	1.13 – 3.5	1.13 – 3.5
Propane	kPa	2.75 – 3.5	2.75 – 3.5
Temperature Settings	°C	38, 40, 42, 43, 45, 50, 55, 60, 65, 70, 75, 82	38, 40, 42, 43, 45, 50, 55, 60, 65, 70, 75, 82
Factory Set Temperature	°C	60	60
Co-Axial Flue Specification			
Inner – Material/Diameter	mm	NA	316SS/75
Outer – Material/Diameter	mm	NA	Aluminised Steel/125
Maximum Flue Run		NA	13.5m and no bends[16]
Accessories			
Pipe Cover		299830	NA
Recess Box		299831	NA
Security Bracket		299868	299868
Security Cage		299867	NA
EZ Link® Kit Max 60°C (Deluxe Kitchen Controller not included)		290141	290141
Deluxe Temperature Controllers (Max 60°C)			
Kitchen		299858	299858
Bathroom 1		299859	299859
Bathroom 2		299860	299860

[16] Reduce the maximum length by 1.5m for every 90° bend and by 0.75m for every 45° bend. The flue system is suitable for vertical and horizontal termination when used with the appropriate terminal.

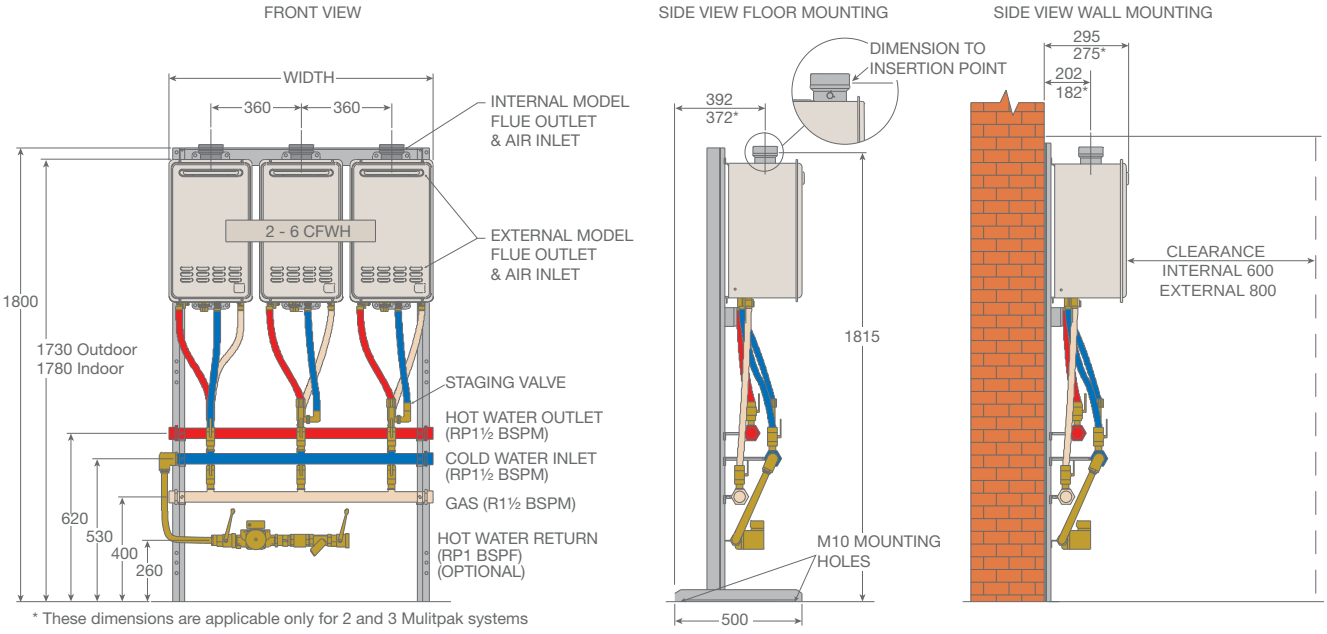
MULTIPAK®

The range starts with Multipak, which is a staged ignition system available in models comprising two to six Commercial Continuous Flow units. Typically used where large demands are required intermittently, such as in sports clubs. In 60°C temperature mode, Multipak is suitable for use in dead leg and recirculation systems. 50°C limited models are suitable for dead leg applications only[17].

Multipak®

Features Include:

- Engineered and pre-assembled for ease of installation
- Natural gas and propane models
- Left or right hand plumbing
- High efficiency continuous flow
- Optional secondary hot water circulator (timer required not supplied)[18]



* These dimensions are applicable only for 2 and 3 Mulitpak systems

MULTIPAK MODEL	INTERNAL EXTERNAL	MPI 02 MPE 02	MPI 03 MPE 03	MPI 04 MPE 04	MPI 05 MPE 05	MPI 06 MPE 06
Input	MJ/h	410	615	820	1,025	1,230
Recovery Rate at 50°C rise	L/hr	1,645	2,470	3,290	4,115	4,935
Maximum Flow Rate at 50°C rise	L/min	27	41	54	68	81
Minimum Flow Rate	L/min	2.0	2.0	2.0	2.0	2.0
Approx Weight	kg	95	120	185	210	235
Wall Mount		standard	standard	standard	standard	standard
Free Standing Frame (FSF)		optional	optional	optional	optional	optional
Electrical Supply (240V/50Hz)	Amps	1.50	2.25	3.0	3.75	4.5
Electrical Connection		1.8m 10A Plug and Lead per CFWH				
Dimensions						
Width	mm	820	1180	1540	1900	2260
Depth (Wall Mount / Free Standing Frame)	mm	360/500	360/500	360/500	360/500	360/500
Frost Protection		Yes	Yes	Yes	Yes	Yes
Accessories - Secondary circulator[18]	part number	299658	299658	299658	299658	299658

[17] 50°C limited systems are suitable for dead leg applications only. Further tempering may be required. Consult AS3500.4 for details.
[18] Secondary hot water circulator option not available on systems set to deliver 50°C

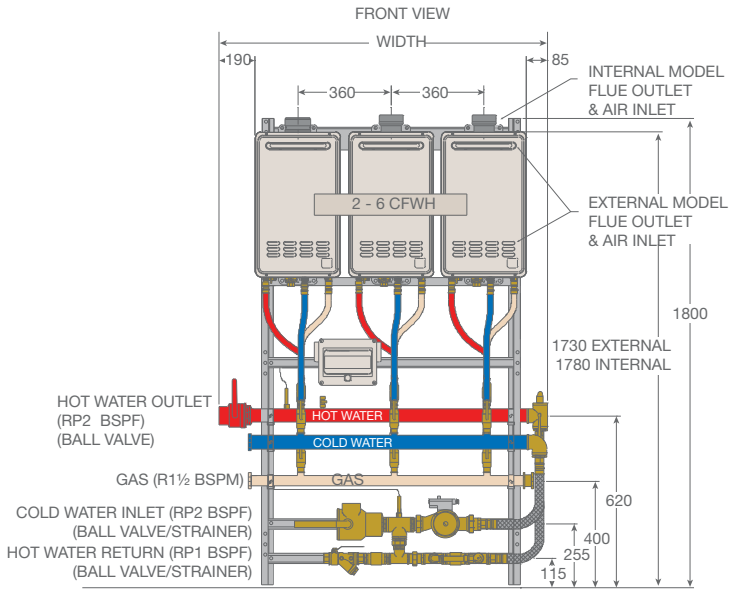
COMMPAK®

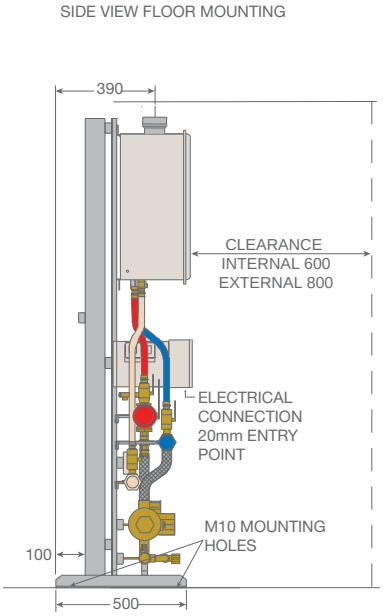
Featuring mass-flow technology Commpak combines sophisticated electronics and pump technology to equalise hot and cold water pressures. A differential set point combined with the thermal mass in the system piping replicates storage. The result is mains pressure performance without the need for storage tanks, reducing overall plant footprint and increasing plant efficiency. Commpak is suitable for small to medium commercial applications utilising up to six Commercial Continuous Flow units.

Commpak®

Features Include:

- Engineered and pre-assembled for ease of installation
- Natural gas only
- Suitable for use in dead leg and recirculation systems.
- Mains pressure performance
- Optional Duty/Standby pumps





COMMPAK MODEL	INTERNAL EXTERNAL	CPI 02 CPE 02	CPI 03 CPE 03	CPI 04 CPE 04	CPI 05 CPE 05	CPI 06 CPE 06
Input	MJ/h	410	615	820	1,025	1,230
Recovery Rate at 50°C rise	L/hr	1,645	2,470	3,290	4,115	4,935
Peak Flow Rate at 50°C rise	L/min	27	41	54	68	81
Approx Weight	kg	120	150	220	245	270
Free Standing Frame (FSF)		standard	standard	standard	standard	standard
Electrical Supply (240V/50Hz)	Amps [19]	3.62	4.62	5.62	6.62	7.92
Electrical Connection		Hard Wired	Hard Wired	Hard Wired	Hard Wired	Hard Wired
Dimensions						
Width	mm	1330	1330	1690	2050	2410
Depth (Free Standing Frame)	mm	500	500	500	500	500
Frost Protection		Yes	Yes	Yes	Yes	Yes
Accessories - Duty/Standby pump	part number	299659	299659	299659	299659	299659

[19] Single pump. Add 1.62 Amps for Duty/Standby pump option.

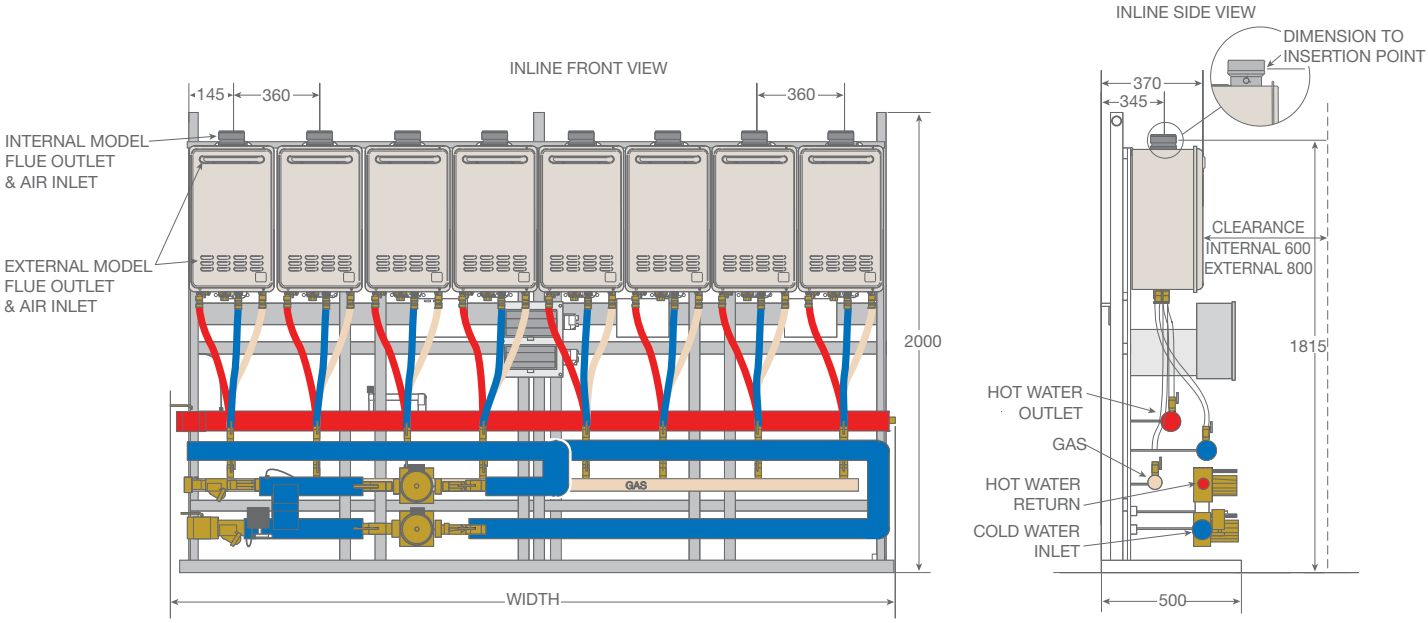
COMMPAK PLUS®

Where large demands are required, Commpak Plus is the ideal choice. Starting with systems greater than six Commercial Continuous Flow units, Commpak Plus is engineered to meet customer requirements.

In-line or back to back arrangements are available to meet plant room space availability. Dual pump systems are provided which allows staging of the system as well as providing redundancy.

Commpak Plus has BMS/BAS connectivity and systems are available in temperature delivery from 60ºC to 80ºC.

Inline 7 -12 Commpak Plus®



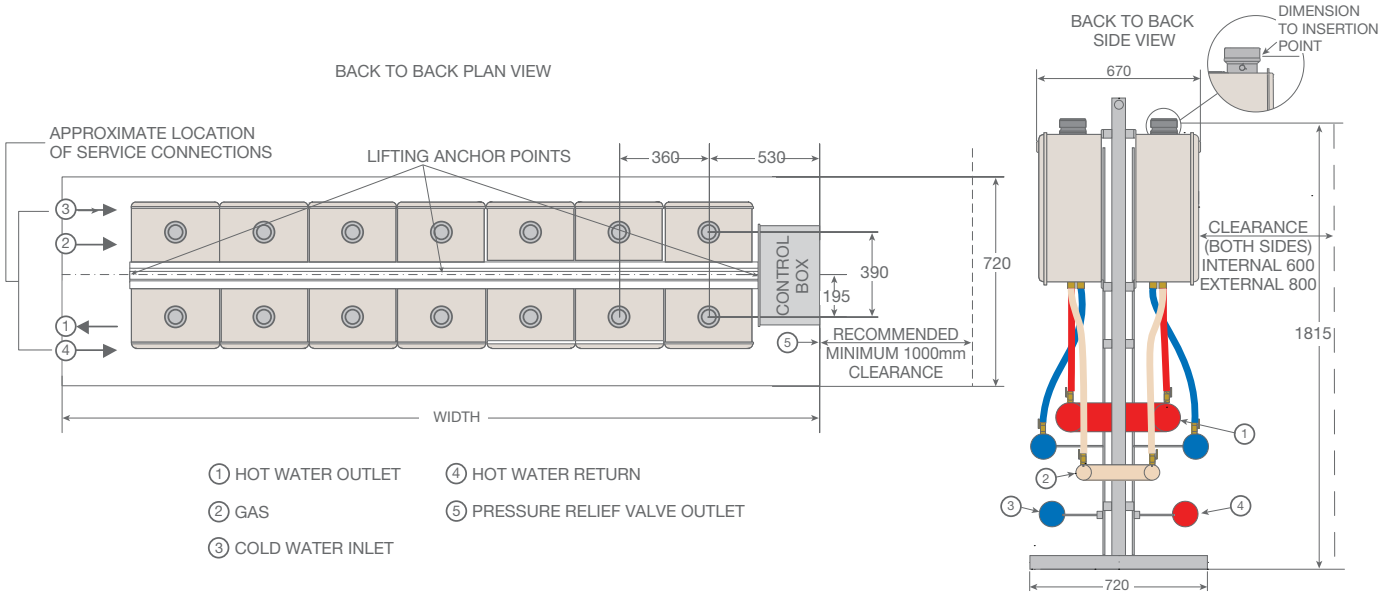
COMMPAK PLUS MODEL	INTERNAL EXTERNAL	CPI 07 CPE 07	CPI 08 CPE 08	CPI 09 CPE 09	CPI 10 CPE 10	CPI 11 CPE 11	CPI 12 CPE 12	CPI 14 CPE 14	CPI 16 CPE 16	CPI 18 CPE 18
Input	MJ/h	1435	1640	1845	2050	2255	2460	2870	3280	3690
Recovery Rate at 50°C rise	L/hr	5761	6584	7407	8230	9053	9876	11522	13168	14814
Maximum Flow Rate at 50°C rise	L/min	96.0	109.6	123.3	137.0	150.7	164.4	191.8	219.2	246.6
Approx Weight	kg	350	380	410	440	470	500	570	640	710
Cold Water/Hot Water										
7-12: Threaded Connection	BSPF	RP2	RP2	RP2	RP2	RP2	RP2	-	-	-
14-36: Table E Flanged End	mm	-	-	-	-	-	-	65	65	65
Return	BSPF	RP1	RP1	RP1	RP1	RP1	RP1	RP1¼	RP1¼	RP1¼
Gas	BSPM	R2	R2	R2	R2	R2	R2	R2	R2	R2½
Electrical Supply (240V/50Hz)	Amps	10.24	11.24	12.24	13.24	14.24	15.24	-	-	-
Electrical Supply (415V/3 phase/50Hz)	Amps	-	-	-	-	-	-	11.0	11.0	11.0
Dimensions										
Width - inline	mm	2670	3030	3390	3750	4110	4470	-	-	-
Width - back to back	mm	1980	1980	2340	2340	2700	2700	3310	3670	4030
Frost Protection		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relief Valve Setting	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water Supply Pressure										
Minimum/Maximum	kPa	140/800	140/800	140/800	140/800	140/800	140/800	140/800	140/800	140/800

COMMPAK PLUS®

Features Include:

- Engineered and pre-assembled for ease of installation
- Left or right hand plumbing
- High efficiency continuous flow
- Loss of prime protection
- Natural gas only

Back to back 7 - 36 Commpak Plus®



COMMPAK PLUS MODEL	INTERNAL EXTERNAL	CPI 20 CPE20	CPI 22 CPE 22	CPI 24 CPE 24	CPI 26 CPE 26	CPI 28 CPE 28	CPI 30 CPE 30	CPI 32 CPE 32	CPI 34 CPE 34	CPI 36 CPE 36
Input	MJ/h	4100	4510	4920	5330	5740	6150	6560	6970	7380
Recovery Rate at 50°C rise	L/hr	16460	18106	19752	21398	23044	24690	26336	27982	29628
Maximum Flow Rate at 50°C rise	L/min	274.0	301.4	328.8	356.2	383.6	411.0	438.4	465.8	493.2
Approx Weight	kg	780	850	920	990	1060	1130	1200	1270	1340
Cold Water/Hot Water										
7-12: Threaded Connection	BSPF	-	-	-	-	-	-	-	-	-
14-36: Table E Flanged End	mm	65	80	80	80	80	100	100	100	100
Return	BSPF	RP2¼	RP1½	RP1½	RP1½	RP1½	RP2	RP2	RP2	RP2
Gas	BSPM	R2½	R2½	R2½	R2½	R2½	R2½	R2½	R3	R3
Electrical Supply (240V/50Hz)	Amps	-	-	-	-	-	-	-	-	-
Electrical Supply (415V/3 phase/50Hz)	Amps	13.0	14.0	14.0	14.0	15.0	17.0	17.0	17.0	17.0
Dimensions										
Width - inline	mm	-	-	-	-	-	-	-	-	-
Width - back to back	mm	4390	4750	5110	5470	5830	6190	6550	6910	7270
Frost Protection		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relief Valve Setting	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000
Water Supply Pressure										
Minimum/Maximum	kPa	140/800	140/800	140/800	140/800	140/800	140/800	140/800	140/800	140/800

Tankpak Series 2®

The Rheem Tankpak Series 2 combines the benefits of mains pressure and continuous flow water heating. Manifolded banks of Continuous Flow Water Heaters (CFWH) meet the peak demand period requirements whilst the storage tank provides buffer for peak simultaneous demands.

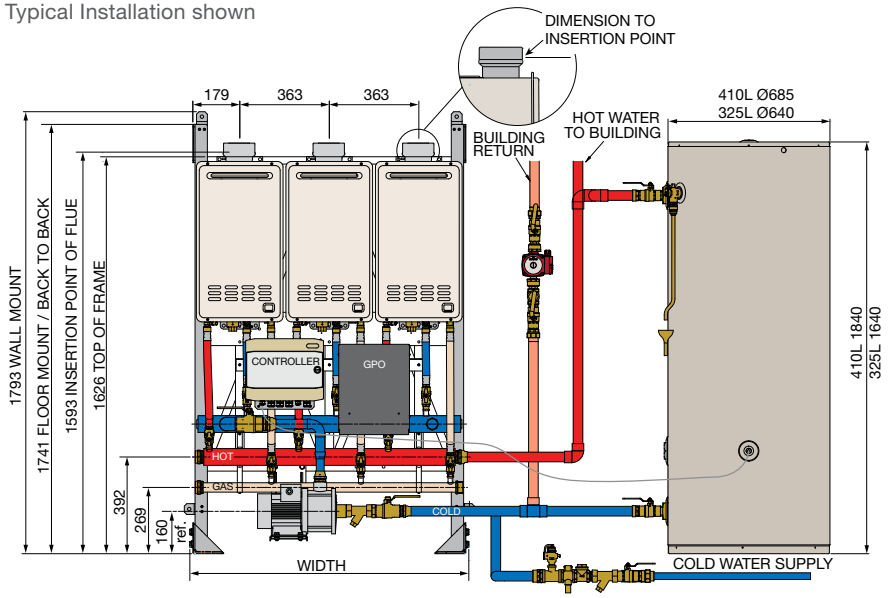
Range

Rheem Tankpak Series 2 is available from 1[20] to 18 Continuous Flow Water Heaters (CFWH) with 1 to 3 storage tanks depending on system size. Systems are available in a variety of mounting configurations, model dependant, including wall, floor or back to back (refer technical data for details). Rheem Tankpak Series 2 is supplied with the controller and pump factory assembled[20]. The Deluxe version also includes in line strainer and water heater power sockets. Systems with 1[20] to 7 CFWH are supplied with plug and lead. Larger systems require a single hard wired connection by an electrician.

Plumbing is supplied right handed but can be field altered for left hand to suit installation requirements.

WALL MOUNT (W) / FLOOR MOUNT (F) / BACK TO BACK (B)
FRONT VIEW

Typical Installation shown



TANKPAK MODEL	INTERNAL EXTERNAL	TPI 01 TPE 01	TPI 02 TPE 02	TPI 03 TPE 03	TPI 04 TPE 04	TPI 05 TPE 05	TPI 06 TPE 06	TPI 07 TPE 07
Thermal Input	MJ/h	205	410	615	820	1025	1230	1435
Recovery Rate at 50°C rise	L/hr	825	1645	2470	3290	4115	4935	5760
Mounting options		W	W/F	W/F	W/F/B	W/F/B	W/F/B	W/F/B
Storage Tanks		1 x 610340	1 x 610340	1 x 610340	1 x 610340	-	-	-
		1 x 610430	1 x 610430	1 x 610430	1 x 610430	1 x 610430	1 x 610430	1 x 610430
1st Hour Capacity (340L)	Litres	1150	1970	2795	3615	-	-	-
1st Hour Capacity (430L)	Litres	1230	2055	2880	370	4525	5345	6170
Electrical Supply (240V/50Hz)	Amps	0.75	4.0	4.8	5.5	7.0	7.8	8.6
Electrical Connection		1.8m 10A Plug and Lead per CFWH						
PHWF & PHWR Pipe Size	mm	25	40	40	40	40	40	50
Natural Gas Pipe Size	mm	20	40	40	40	40	40	50
Propane Gas Pipe Size	mm	20	40	40	40	40	40	40
Width (Inline)	mm	360	1132	1132	1495	2239	2239	2965
Width (Back to Back)					1132	1132	1132	1495
Weight Empty (W/B)[21]	kg	150	176	216/206	298/237	330/268	387/311	423/347

[20] Tankpak models with 1 x CFWH are supplied with CFWH, pump & controller separately. The CFWH must be mounted on a vertical wall.
[21] Weight includes CFWH unit, storage tank, pump, frame and preassembled manifolds.

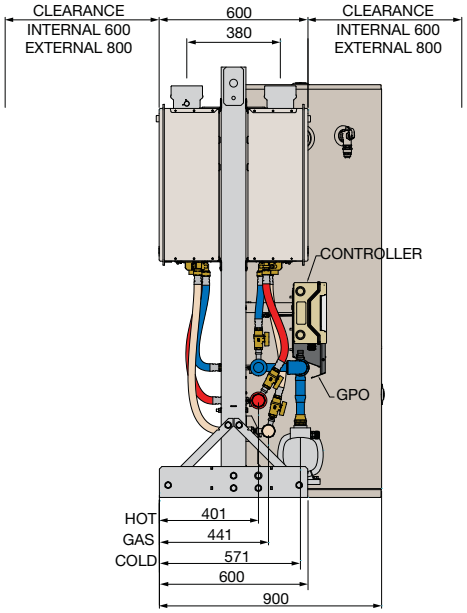
Features Include:

- 84% thermal efficiency 6.0 Star heat source
- Heavy duty storage tank up to 82°C operation
- Large flow 50mm storage tank fittings
- Fully hot dip galvanised frame
- Natural gas and propane models

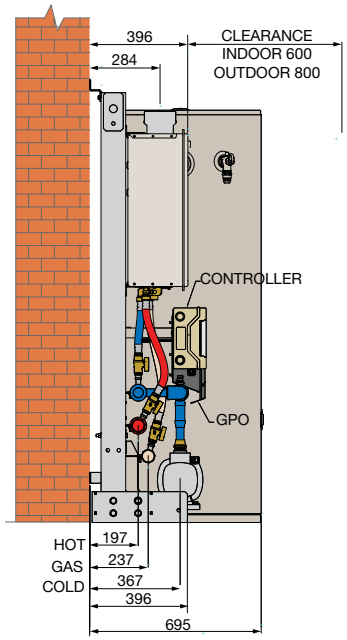
Benefits Include:

- Improved installation time and confidence
- High recovery
- Mains pressure performance
- Reduced footprint
- Redundancy backup

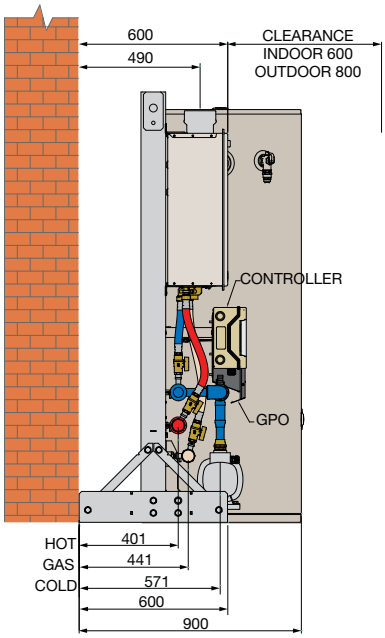
BACK TO BACK (B)



WALL MOUNT (W)



FLOOR MOUNT (F)



TANKPAK MODEL	INTERNAL EXTERNAL	TPI 08 TPE 08	TPI 09 TPE 09	TPI 10 TPE 10	TPI 12 TPE 12	TPI 14 TPE 14	TPI 16 TPE 16	TPI 18 TPE 18
Thermal Input	MJ/h	1640	1845	2050	2460	2870	3280	3690
Recovery Rate at 50°C rise	L/hr	6580	7405	8225	9875	11520	13165	14810
Mounting options		W/F/B	W/F/B	B	B	B	B	B
Storage Tanks		-	-	-	-	-	-	-
		2 x 610430	2 x 610430	2 x 610430	2 x 610430	3 x 610430	3 x 610430	3 x 610430
1st Hour Capacity (340L)	Litres	-	-	-	-	-	-	-
1st Hour Capacity (430L)		7400	8225	8850	1130	1930	2735	3540
Electrical Supply (240V/50Hz)	Amps	10.6	11.4	12.2	14.8	15.5	16.9	18.5
Electrical Connection		240V 50Hz Single hard wired connection						
PHWF & PHWR Pipe Size	mm	50	50	50	50	65	65	80
Natural Gas Pipe Size	mm	50	65	65	65	65	80	80
Width (Inline)	mm	2965	3346	-	-	-	-	-
Width (Back to Back)		1495	2239	2239	2239	2965	2965	3346
Weight Empty (W/B)[21]	kg	423/347	497/429	459	527	611	672	776

Product code example	No. of units	Gas Type	Mounting option	Option	No. of Tanks and model
TPE (external) + or TPI (internal)	10 +	N (Natural gas) + or P (propane)	B (Back to Back) + or W (Wall Mount) or F (Floor Mount)	D (Deluxe) + or S (Standard)	/2 + 430

Order code result: TPE10NBD/2430

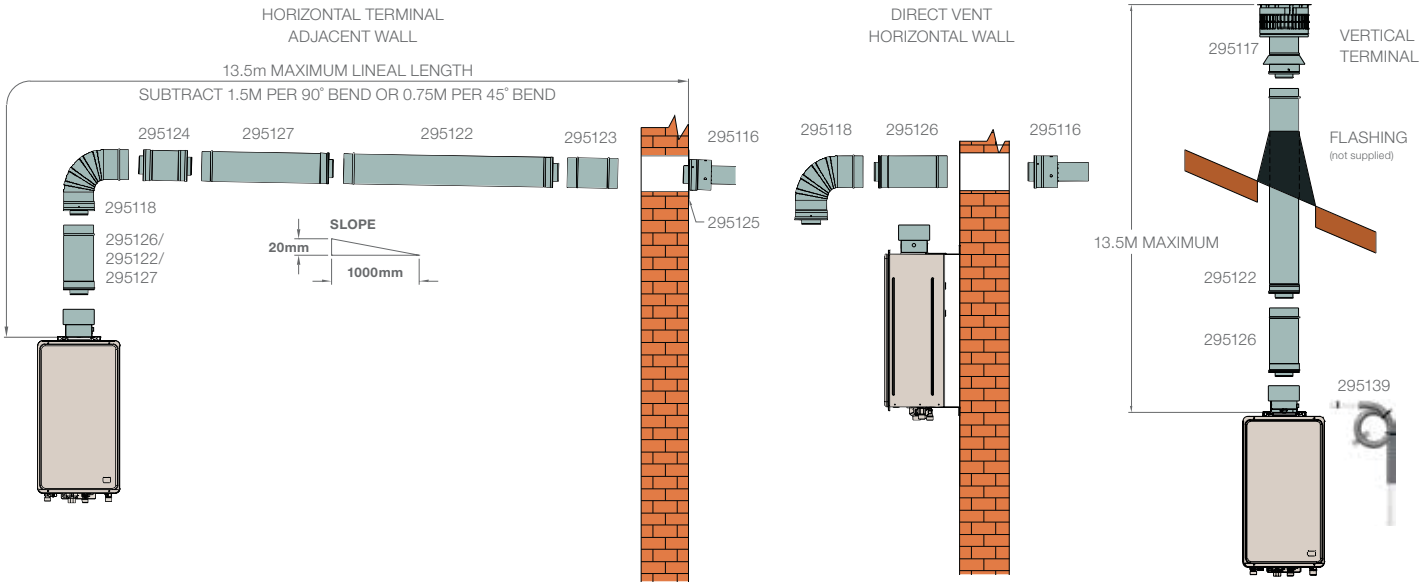
TANKPAK QUICK SIZING GUIDE

Apartments 1 hr peak				Hotel Rooms 1 hr peak	Amenities 30 min peak	Nursing home 2 hr peak	Tankpak Series 2 Model	Recovery @ 50°C Rise (L/hr)	Storage Tank Capacity (L)	First Hour Capacity (L)	Thermal Input (MJ/h)
Studio[22]	1 & 2 bedroom[22]	2 bedroom[22]	2 & 3 bedroom[22]	1-3 Star[23]	No. of showers[24]	No. of beds[25]					
49	21	16	14	24	32	30	TP01/1430	825	410	1235	205
82	35	27	24	41	49	54	TP02/1430	1645	410	2055	410
115	50	38	34	57	65	79	TP03/1430	2470	410	2880	615
148	64	49	44	74	82	103	TP04/1430	3290	410	3700	820
181	78	60	54	90	98	128	TP05/1430	4115	410	4525	1025
213	92	71	64	106	115	152	TP06/1430	4935	410	5348	1230
246	107	82	74	123	131	176	TP07/1430	5760	410	6170	1435
296	128	98	89	148	164	207	TP08/2430	6580	820	7400	1640
329	143	109	99	164	180	231	TP09/2430	7405	820	8225	1845
361	157	120	109	180	197	255	TP10/2430	8225	820	9045	2050
427	186	142	129	213	230	304	TP12/2430	9875	820	10695	2460
510	221	170	154	255	279	359	TP14/3430	11520	1230	12750	2870
575	250	191	174	287	312	408	TP16/3430	13165	1230	14395	3280
641	278	213	194	320	345	457	TP18/3430	14810	1230	16040	3690

[22] Allowance - Studio 25L, 1 bedroom 40L, 2 bedroom 75L, 3 bedroom 90L. Calculated on even ratio of apartment mix
[23] Allowance - 2 people per room, 25L per person
[24] Allowance - 25L per shower
[25] Allowance - 37.5L per bed for showering, bed pans, cleaning, 6L per bed for meals, 24L per bed for laundry

INDOOR INSTALLATION

RHEEM CONTINUOUS FLOW FLUE SYSTEM



How to Size

Use the following as a guide to selecting the flue components required. The overall dimension of each flue piece is shown in the drawings. Allow approximately 35mm for insertion of each flue piece.

Determine the lineal distance and number of 45° and/or 90° bends between the top of the water heater and flue terminal. Note, the bottom edge of a vertical flue terminal must be 500mm away from the nearest structure in accordance with AS/NZS 5601.1.

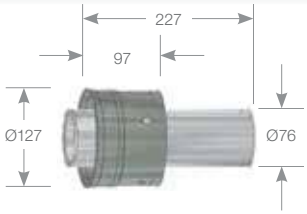
Flashing is required to be installed where a vertical flue section penetrates the roof line (not supplied).

Where a condensate drain section is installed, the hose must be connected and drained to the sewer waste or outside. A condensate trap must be installed and filled with water to prevent spillage of products of combustion.

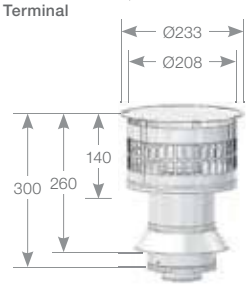
Separate ventilation for combustion is not required as the air for combustion is supplied in the flue outer. The flue system is certified to be installed with zero clearances between the water heaters and combustible materials. Flue termination must comply with the requirements of AS/NZS 5601.1.

Flue penetrations through walls and ceilings must be sealed in accordance with local fire regulations

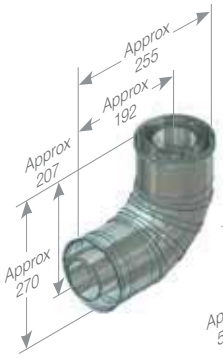
COMMERCIAL CONTINUOUS FLOW FLUE COMPONENTS

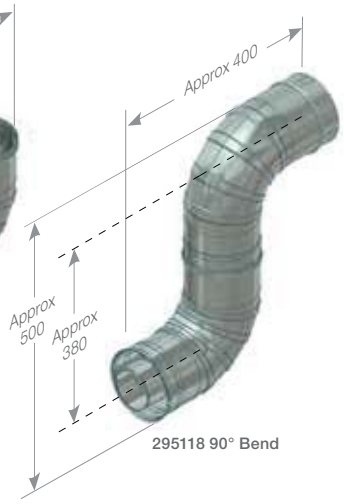


295116 Horizontal Terminal

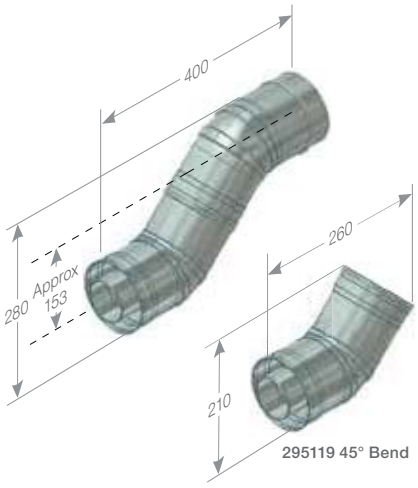


295117 Vertical Terminal





295118 90° Bend



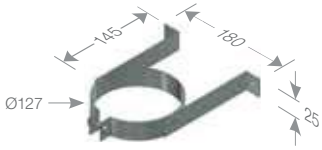
295119 45° Bend

(ASSEMBLY FOR ILLUSTRATION PURPOSES ONLY)

295122 – Straight Length 900mm

295123 FF Adapter

295125 Trim Ring



295129 – Bracket

295124 MM Adapter

295126 Straight Length 300mm

295127 – Adjustable Straight 560 – 890mm

295139 Condensate Trap

Use the following table as a guide to selecting Rheem Continuous Flow flue components:

P/NO	DESCRIPTION	WHERE USED
295116	Horizontal Terminal	Required where flue terminates horizontally
295117	Vertical Terminal	Required where flue terminates vertically
295118	90° Bend	Maximum of 3 per installation
295119	45° Bend	Maximum of 6 per installation (with no 90° bends)
295122	Straight Length 900mm	Long straight sections
295123	Female Female Adapter	Required to reverse flue pipe direction to allow condensate to drain away correctly from water heater in long horizontal sections of horizontally terminating flues
295124	Male Male Adapter	Required to reverse flue pipe direction to allow condensate to drain away correctly from water heater in long horizontal sections of horizontally terminating flues
295125	Trim Ring (optional)	Conceal internal and/or external hole in wall for horizontally terminating flues
295126	Straight Length 300mm	Short straight sections
295127	Adjustable Length 560 – 890mm	Allows to trim flue to exact length required
295129	Bracket	Support flue at intervals not exceeding 2m and after any bend
295139	Condensate Trap	Required with every condensate drain. Can be connected to a common waste

The maximum flue length with no bends is 13.5m. Reduce the maximum length by 1.5m for every 90° bend and reduce the maximum length by 0.75m for every 45° bend.

Rheem INTERNAL CFWH must only be installed using certified Rheem coaxial flue components. Do not use any other type of flue system. Carefully follow the installation instructions.

Full flow 32mm fittings

Up to 36kW input

Heavy duty design

HEAVY DUTY ELECTRIC

Dependability

Rheem's range of commercial electric water heaters starts at just 50 litre capacity and increases to a generous 315 litre capacity.

The Rheem Equa-Flow® system means there's enough flexibility to suit most water heating applications.

Controls are easy to set or adjust, and include several key performance and safety features.

Quality

High quality is one reason for Rheem's reputation with the experts.

Take the Rheem storage cylinder: it's made from a special grade of steel and lined with a double coat of vitreous enamel which is better suited to a wider variety of water conditions and larger anodes provide greater protection.

Its where reliability starts.

Special features

- True multipoint operation through large 32mm connections with no exchange coils to restrict pressure or flow
- Use with low pressure systems is possible if required
- Up to six heating elements in cylinder
- Trade adjustable thermostats suitable for sanitizing.
- Over temperature energy cut-off device cuts off supply if thermostat ceases to function
- A bank of 8 x 616 315 Rheem commercial electric water heaters can deliver up to 7,480 litres of hot water in the first hour
- Suitable for either indoor or outdoor installation

TECHNICAL ELECTRIC PERFORMANCE DETAILS

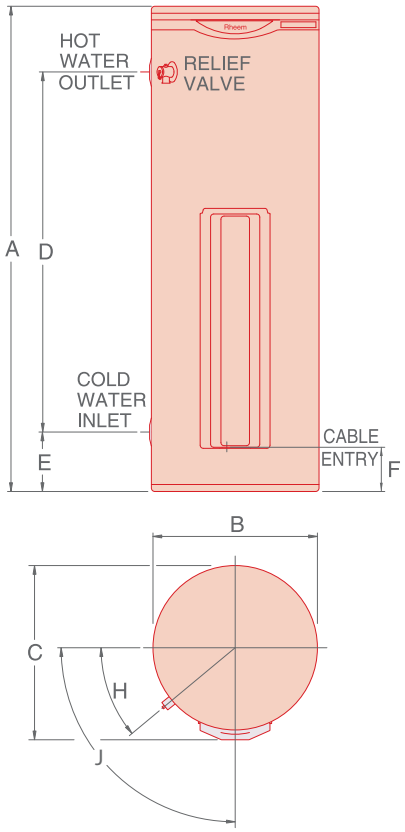
Heating Elements		3 x 3.6 kW	3 x 4.8 kW	3 x 6.0 kW	6 x 3.6 kW	6 x 4.8 kW	6 x 6.0 kW
Total Input	kW	10.8	14.4	18.0	21.6	28.8	36.0
Current (per phase)	Amps	15	20	25	30	40	50
Litres Recovery Per Hour at Rise of	20°C	460	620	770	930	1240	1550
	30°C	310	410	520	620	830	1030
	40°C	230	310	390	460	620	770
	50°C	190	250	310	370	500	620
	60°C	150	210	260	310	410	520
	65°C	140	190	240	290	380	480
	70°C	130	180	220	270	350	440
	75°C	120	170	210	250	330	410

Note: Figures rounded to the nearest 10 litres.

HEAVY DUTY ELECTRIC

DIMENSIONS AND TECHNICAL DATA TABLE INDOOR/OUTDOOR MODELS					
Model			**613 050**	**613 315**	**616 315**
Storage Capacity		Litres	60	325	325
Delivery Rating		Litres	50	315	315
Dimensions	A	mm	675	1640	1640
	B	mm	435	640	640
	C	mm	475	680	680
	D	mm	405	1294	1294
	E	mm	93	128	128
	F	mm	83	130	130
	H	Degrees	30°	32°	32°
	J	Degrees	90°	90°	90°
Weight – Empty		kg	34	93	95
Inlet/Outlet Connections (BSPF)			RP1¼	RP1¼	RP1¼
T&PR Valve Connection (BSPF)			RP¾	RP¾	RP¾
T&PR Valve Setting		kPa	1000	1000	1000
Expansion Control Valve (ECV)[26] Setting		kPa	850	850	850
Max. Water Supply Pressure					
without ECV[26] fitted		kPa	800	800	800
with ECV[26] fitted		kPa	680	680	680
Factory Thermostat Setting		°C	70	70	70
Min. Thermostat Setting		°C	60	60	60
Manifold – Min. Centre to Centre		mm	685	890	890
Electrical Connection					
240V			single phase	single phase	
415V			three phase	three phase	three phase
Heating Elements		kW	3 x 3.6	3 x 3.6	6 x 3.6
		or	3 x 4.8	3 x 4.8	6 x 4.8
		or	–	3 x 6.0	6 x 6.0

[26] Expansion control valve not supplied with the water heater.



APPROXIMATE DAILY ENERGY CONSUMPTION				
Daily Hot Water Usage @ 50°C Temp Rise (Litres)	**Energy Content of Hot Water (kWh)**	**RHEEM COMMERCIAL ELECTRIC WATER HEATERS Approximate Energy Used Per Day (kWh)**		
		613 050	**613 315**	**616 315**
0	0.0	2.1	3.1	3.3
50	2.9	5.0	6.0	6.2
100	5.8	7.9	8.9	9.1
150	8.7	10.8	11.8	12.0
200	11.6	13.7	14.7	14.9
250	14.5	16.6	17.6	17.8
300	17.4	19.5	20.5	20.7
350	20.3	22.4	23.4	23.6
400	23.3	25.4	26.4	26.6
450	26.2	28.3	29.3	29.5
500	29.1	31.2	32.2	32.4
600	34.9	37.0	38.0	38.2
700	40.7	42.8	43.8	44.0
800	46.5	48.6	49.6	49.8
900	52.3	54.4	55.4	55.6
1000	58.1	60.2	61.2	61.4
1250	72.7	74.8	75.8	76.0
1500	87.2	89.3	90.3	90.5
1750	101.7	103.8	104.8	105.0
2000	116.3	118.4	119.4	119.6
2500	145.3	–	148.4	148.6
3000	174.4	–	–	177.7
3500	203.5	–	–	206.8
4000	232.6	–	–	235.9
5000	290.7	–	–	294.0

Electrical connection

Rheem commercial electric water heaters can be wired using a single phase 240 Volts AC or 3 phase 415 Volts AC “star connected” supply, one phase per element for 3 element models or one phase per two elements for the 6 element models.

Warranty*

- 5 year on the cylinder
- 1 year parts and labour on remainder

*** Conditions apply**: For full terms and conditions please contact Rheem or see Owner’s Guide and Installation Instructions, available at www.rheem.com.au

PERFORMANCE DATA

Model	No. of Units in Parallel	Initial Delivery (Litres)	Heating Elements (kW)	Total Kilowatts	Available Litres of Hot Water at 50°C Temperature Rise Over Peak Period					
					1 Hour	2 Hours	3 Hours	4 Hours	6 Hours	8 Hours
613 050	1	50	3 x 3.6	10.8	240	420	610	790	1160	1540
			3 x 4.8	14.4	300	550	790	1040	1540	2030
613 315	1	315	3 x 3.6	10.8	500	690	870	1060	1430	1800
			3 x 4.8	14.4	560	810	1060	1310	1800	2300
			3 x 6.0	18.0	620	930	1240	1550	2170	2790
	2	630	3 x 3.6	21.6	1000	1370	1740	2120	2860	3600
			3 x 4.8	28.8	1130	1620	2120	2610	3600	4590
			3 x 6.0	36.0	1250	1870	2490	3110	4350	5580
	3	945	3 x 3.6	32.4	1500	2060	2620	3170	4290	5400
			3 x 4.8	43.2	1690	2430	3170	3920	5400	6890
			3 x 6.0	54.0	1870	2800	3730	4660	6520	8380
616 315	1	315	6 x 3.6	21.6	690	1060	1430	1800	2540	3290
			6 x 4.8	28.8	810	1310	1800	2300	3290	4280
			6 x 6.0	36.0	930	1550	2170	2790	4030	5270
	2	630	6 x 3.6	43.2	1370	2120	2860	3600	5090	6570
			6 x 4.8	57.6	1620	2610	3600	4590	6570	8560
			6 x 6.0	72.0	1870	3110	4350	5580	8060	10540
	3	945	6 x 3.6	64.8	2060	3170	4290	5400	7630	9860
			6 x 4.8	86.4	2430	3920	5400	6890	9860	12830
			6 x 6.0	108.0	2800	4660	6520	8380	12090	15810
	4	1260	6 x 3.6	86.4	2750	4230	5720	7200	10180	13150
			6 x 4.8	115.2	3240	5220	7200	9190	13150	17110
			6 x 6.0	144.0	3740	6210	8690	11170	16120	21070
	5	1575	6 x 3.6	108.0	3430	5290	7150	9010	12720	16440
			6 x 4.8	144.0	4050	6530	9010	11480	16440	21390
			6 x 6.0	180.0	4670	7770	10860	13960	20150	26340
	6	1890	6 x 3.6	129.6	4120	6350	8580	10810	15260	19720
			6 x 4.8	172.8	4860	7830	10810	13780	19720	25670
			6 x 6.0	216.0	5610	9320	13040	16750	24180	31610

Model	No. of Units in Parallel	Initial Delivery (Litres)	Heating Elements (kW)	Total Kilowatts	Available Litres of Hot Water at 65°C Temperature Rise Over Peak Period					
					1 Hour	2 Hours	3 Hours	4 Hours	6 Hours	8 Hours
613 050	1	50	3 x 3.6	10.8	190	340	480	620	910	1190
			3 x 4.8	14.4	240	430	620	810	1190	1570
613 315	1	315	3 x 3.6	10.8	460	600	740	890	1170	1460
			3 x 4.8	14.4	510	700	890	1080	1460	1840
			3 x 6.0	18.0	550	790	1030	1270	1740	2220
	2	630	3 x 3.6	21.6	920	1200	1490	1770	2340	2920
			3 x 4.8	28.8	1010	1390	1770	2150	2920	3680
			3 x 6.0	36.0	1110	1580	2060	2540	3490	4440
	3	945	3 x 3.6	32.4	1370	1800	2230	2660	3520	4370
			3 x 4.8	43.2	1520	2090	2660	3230	4370	5520
			3 x 6.0	54.0	1660	2370	3090	3800	5230	6660
616 315	1	315	6 x 3.6	21.6	600	890	1170	1460	2030	2600
			6 x 4.8	28.8	700	1080	1460	1840	2600	3360
			6 x 6.0	36.0	790	1270	1740	2220	3170	4130
	2	630	6 x 3.6	43.2	1200	1770	2340	2920	4060	5200
			6 x 4.8	57.6	1390	2150	2920	3680	5200	6730
			6 x 6.0	72.0	1580	2540	3490	4440	6350	8250
	3	945	6 x 3.6	64.8	1800	2660	3520	4370	6090	7800
			6 x 4.8	86.4	2090	3230	4370	5520	7800	10090
			6 x 6.0	108.0	2370	3800	5230	6660	9520	12380

Note: Figures rounded to the nearest 10 litres.

WaterMark Certified Heat Exchanger

316 Stainless Steel

Water to Water Applications

RHEEM HEAT EXCHANGER TECHNOLOGY

The Rheem Brazed Plate Heat Exchanger (BPHE) can be used wherever waste heat from water sourced processes can be recovered and used to heat potable hot water. Typical applications include Co-gen and Tri-gen plants, process heating indirect solar or as a separator in circuits employing PP-R piping.

Rheem Crossflow™

- WaterMark certified Heat Exchanger
- Instantaneous delivery
- Accurate temperature control
- Pre-engineered
- Suitable for water to water only applications

Rheem Crossflow is used to instantaneously transfer the heat from the primary circuit to the secondary or domestic hot water circuit without the need for further storage.

It contains two 316L stainless steel single wall brazed plate-type heat exchangers, and a temperature controlled variable speed circulator for the primary fluid circuit to regulate the rate of energy transfer to the potable water.

Standard models have a single pump, whilst Deluxe models are equipped with a dual head pump for duty/standby redundancy.

The heat exchangers are insulated to maximise efficiency and exhibit extremely low pressure loss.

The system is factory assembled on a hot dip galvanised frame and all fittings and pipe work are 316L stainless steel.

The Rheem Crossflow controls allow heat input up to 90°C to be supplied on the primary side and accurate, reduced temperature to be delivered on the potable side.

Each heat exchanger can be separately isolated and removed for individual maintenance, thus providing redundancy capability.

Rheem Heat Exchanger

- WaterMark certified heat exchanger
- 316L stainless steel construction
- Single wall brazed plate heat exchanger
- Low pressure loss
- Suitable for water to water only applications

The Rheem Heat Exchanger transfers energy from heating sources over a period of time into Rheem storage tanks to meet peak demand period requirements.

Accessories

Pump C Controller P/No 6060262-4

Rheem 610340 and 610430 vitreous enamel storage tanks or Rheem 1000 to 5000L stainless steel tanks.

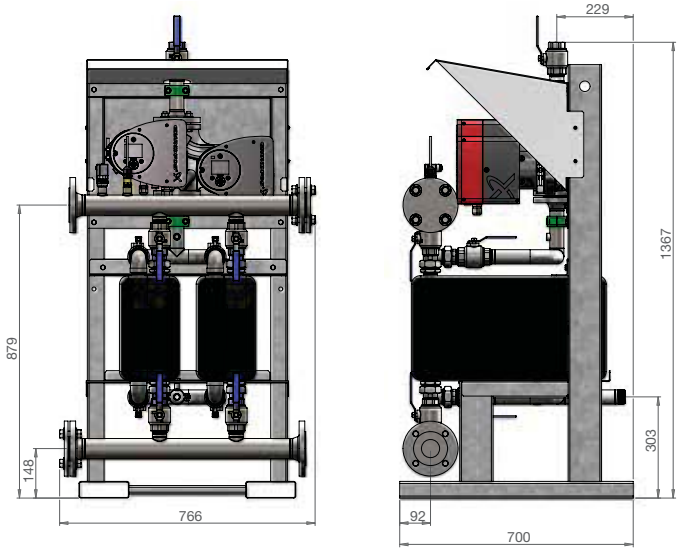
Heat Exchanger Warranty

- 1 year parts and labour

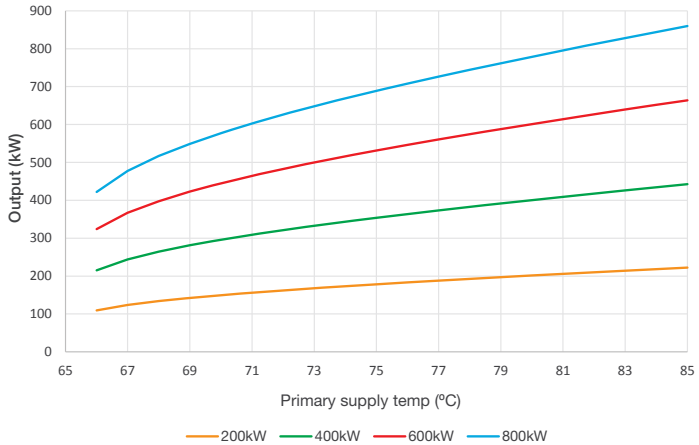
For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au/warranty

CROSS FLOW DIMENSIONS AND TECHNICAL DATA TABLE - RHEEM CROSSFLOW						
Model			**RD200**	**RD400**	**RD600**	**RD800**
Nominal Capacity		kW	200	400	600	800
Parameters for Nominal Capacity Rating	Primary Side (non-potable)					
	Inlet Temp	^{0}C	80	80	80	80
	Flow Rate	L/min	48	114	144	186
	Pressure Drop	kPa	24	47	36	36
	Secondary Side (potable)					
	Inlet/Outlet Temp	^{0}C	15/65	15/65	15/65	15/65
	Flow Rate	L/min	57	115	172	223
	Pressure Drop	kPa	37	47	51	48
Dimensions	H x W x D	mm	1364 x 761 x 700			
Weight		kg	130	138	147	156
Pipe Connections Primary Circuit	BSPF		RP1¼			
Pipe Connections Secondary Circuit			50mm Flange Type E			
Max Operating Pressure Primary Circuit	kPa		1400[27]			
Max Operating Pressure Secondary Circuit	kPa		1400[27]			
Electrical Supply			230-240V 50/60Hz Hard Wired By Electrician			
Min Circuit Size	Amps		10			

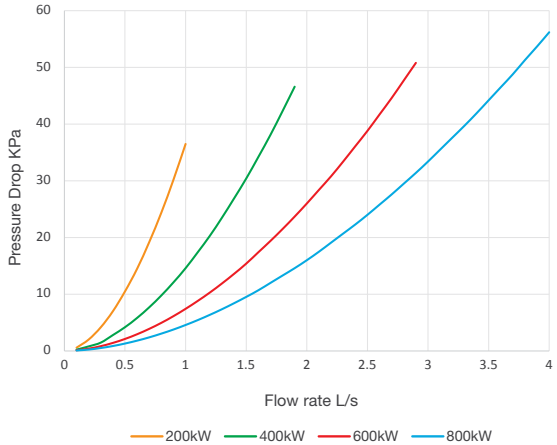
[27] The maximum working pressure of each side of the system will be governed by the lowest operating appliance connected to it. The potable side (secondary side) water pressure must be higher than the non potable side (primary side) pressure.



Rheem Crossflow Maximum Output
(T_{in}15°C-T_{out}65°C) vs Primary supply temp



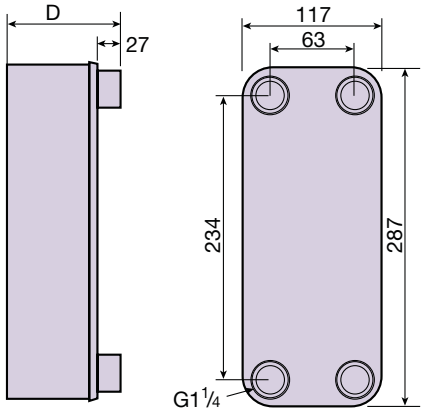
Rheem Crossflow
Secondary Side Pressure Drop vs Flow Rate



RHEEM HEAT EXCHANGER

HEAT EXCHANGER DIMENSIONS AND TECHNICAL DATA TABLE - RHEEM HEAT EXCHANGER							
Part Number			0191750	0191751	0191752	0191753	0191754
Nominal Rating		kW	50	100	150	200	250
Parameters for Nominal Rating	Non Potable Side						
	Inlet/Outlet Temp	°C	80/60	80/60	80/60	80/60	80/60
	Flow Rate	L/sec	0.61	1.22	1.83	2.44	3.05
	Pressure Drop	kPa	2.65	3.74	5.00	6.98	9.83
	Potable Side						
	Inlet/Outlet Temp	°C	45/65	45/65	45/65	45/65	45/65
	Flow Rate	L/sec	0.61	1.21	1.82	2.43	3.03
	Pressure Drop	kPa	2.39	3.59	4.91	6.91	9.79
Dimensions	Depth (D)	mm	104	160	221	277	333
Connections		Male	G1/14	G1/14	G1/14	G1/14	G1/14
Weight		kg	6	9	12	15	18
Operating Pressure		kPa	3000[28]				
Electrical Supply (Temperature Controller)			230-240V 50/60Hz Hard Wired By Electrician				

[28] The maximum working pressure of each side of the system will be governed by the lowest operating appliance connected to it. The potable side (secondary side) water pressure must be higher than the non potable side (primary side) pressure.



POTABLE SIDE PUMP AND PIPE SIZING					
Heat Exchanger Model	Qty In Parallel	Output (Kw)	Design Flow Rate	Minimum Potable Primary F & R Pipe Size (Mm)	Pump Model / Speed Setting
0191750	1	50	0.61	32	UPS20-60N / 3
0191750	2	100	1.22	40	UPS32-80N / 3
0191750	3	150	1.83	50	UPS32-80N / 3
0191751	1	100	1.21	40	UPS32-80N / 3
0191751	2	200	2.42	50	UPS40-60/2FB / 2
0191751	3	300	3.63	65	UPS40-60/2FB / 3
0191752	1	150	1.82	50	UPS32-80N / 3
0191752	2	300	3.64	65	UPS40-60/2FB / 3
0191752	3	450	5.46	80	UPS50-120FB / 2
0191753	1	200	2.43	50	UPS40-60/2FB / 3
0191753	2	400	4.86	80	UPS50-120FB / 1
0191753	3	600	7.29	100	UPS50-120FB / 3
0191754	1	250	3.03	65	UPS40-60/2FB / 3
0191754	2	500	6.06	80	UPS50-120FB / 3
0191754	3	750	9.09	100	UPS80-120FB / 1

WaterMark™
AS 3498
Lic WMKA 23131
SAI Global

NOTE: Pipe sizing, pump selection and installation of the NON-POTABLE circuit is not covered by Rheem. Pipe and pump sizing is for potable water side only between the heat exchanger and storage tank/s and is based on 25m TOTAL pipe run and 20 x 90° bends. If the piping is beyond this scope, please contact Rheem for assistance.

Full flow 50mm fittings

Vitreous enamel, carbon and stainless steel

325 to 5000L capacity

STORAGE TANKS

Rheem commercial storage tank 610 Series

The Rheem 610 series commercial storage tanks offer the perfect combination of performance and flexibility.

Maintenance redundancy and ease of fitment and replacement are key features of Rheem storage tanks.

They connect to the mains pressure water supply with 50mm water connections for maximum flow and are suitable for use in combination with a Raypak water heater or CFWH as a buffer tank, for solar preheat and heat pump storage or as additional storage for a Rheem gas or electric hot water system.

The storage tanks can be installed utilising the Rheem Equa-Flow® principle, in a bank of up to ten units to provide up to 4,100 litres of storage or in multiple banks if more storage is required.

Rheem commercial storage tank RT Series

The RT series storage tank is available in a fully welded carbon steel cylinder for indirect applications, or 316L stainless steel for direct water applications.

The storage tank is available in nominal 1000, 2000, 3000, 4000, 5000L capacities. Multiple tanks of the same capacity can be manifolded in parallel to store larger volumes of fluid.

The storage tank is supplied with two flanges to allow the fitment of auxiliary heating such as heat exchange coils (not supplied) or an electric heating unit bundle.

Carbon steel tanks are suitable for operation up to 500kPa, whilst stainless steel tanks are suitable for up to 850kPa operation.

The 1000L tank has a diameter of just 800mm without insulation, making it an ideal choice for easy replacement requirements.

Further, the tank is supplied with a variety of fittings to allow multiple configurations to be connected such as boosting by auxiliary heat pump or gas water heaters, solar or waste heat.

The tanks are insulated with 100mm of Ecofibertech™ insulation, with a bonded aluminium cladding suitable for outdoor installation. The insulation is supplied separately, requiring onsite assembly.

Ecofibertech™ is:

- Rot proof
- Resistant to mould, bacteria, rodents
- Hypoallergenic
- Water-repellent
- 100% recyclable
- Light weight
- Self supporting
- Fireproof

Warranty*

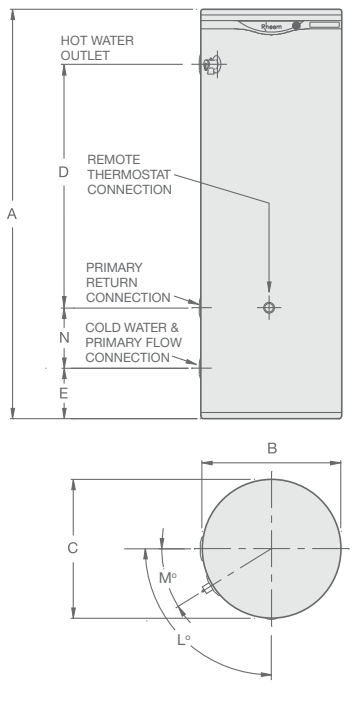
610 Series: 5 years on cylinder, 1 year on parts and labour

SS Series: 8 years on cylinder, 1 year parts and labour

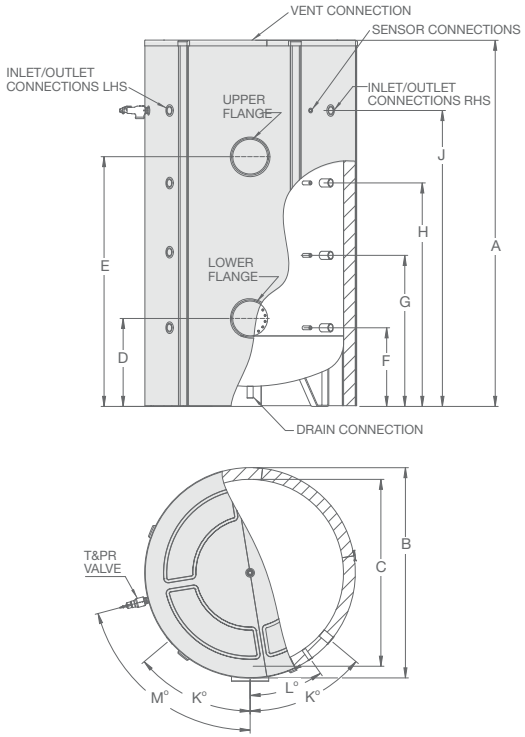
* **Conditions apply**: For full terms and conditions please contact Rheem or see Owner's Guide and Installation Instructions, available at www.rheem.com.au

DIMENSIONS AND TECHNICAL DATA TABLE									
Model number			**610 340**	**610 430**	**RT1000**	**RT2000**	**RT3000**	**RT4000**	**RT5000**
			vitreous enamel		stainless steel / carbon steel				
Storage capacity		Litres	325	410	920	2055	2960	3820	5180
Dimensions	A	mm	1640	1840	2200	2565	2845	2918	3128
	B	mm	640	685	1000	1300	1450	1600	1800
	C	mm	640	685	800	1100	1250	1400	1600
	D	mm	1008	1210	510	555	600	628	747
	E	mm	115	108	1435	1735	1945	1963	2132
	F	mm	-	-	417	462	505	533	667
	G	mm	-	-	879	1024	1135	1163	1287
	H	mm	-	-	1341	1586	1765	1793	1907
	J	mm	290	273	1803	2148	2395	2423	2527
	K	degrees	-	-	50	50	50	50	50
	L	degrees	90°	84°	35	35	35	35	35
	M	degrees	32°	30°	75	75	75	75	75
Weight Empty		kg	96	117	136/115	245/245	330/334	455/455	660/535
Inlet/Outlet Connections (BSPF)			RP2	RP2	RP2	RP2	RP2	RP2	RP2
T&PR Valve Connection (BSPF)			RP¾	RP¾	RP1¼	RP1¼	RP1¼	RP1¼	RP1¼
Vent Connection (BSPF)			-	-	RP1½	RP2	RP2	RP2	RP2
Drain Connection (BSPF)			-	-	RP1¼	RP1¼	RP1¼	RP1¼	RP1¼
Remote Thermostat Connection (1 x thermowell supplied)			RP½	RP½	RP½	RP½	RP½	RP½	RP½
T&PR Valve Setting (vitreous enamel & SS/carbon steel)		kPa	1000	1000	850/500	850/500	850/500	850/500	850/500
Expansion Control Valve (ECV)[29] Setting (vitreous enamel & SS/carbon steel)		kPa	850	850	700/NA	700/NA	700/NA	700/NA	700/NA
Maximum Water Supply Pressure									
without ECV[29] fitted (vitreous enamel & SS/carbon steel)		kPa	800	800	680/400	680/400	680/400	680/400	680/400
with ECV[29] fitted (vitreous enamel & SS/carbon steel)		kPa	680	680	550/NA	550/NA	550/NA	550/NA	550/NA
Maximum Stored Water Temperature		°C	82	82	90	90	90	90	90
Manifold – Min. Centre to Centre (piping one side)		mm	890	935	1350	1550	1700	1850	2050
Manifold – Min. Centre to Centre (piping both sides)		mm	-	-	1500	1700	1850	2000	2200

[29] Expansion control valve not supplied with the water heater.



610 Series



RT Series

Rheem Equa-Flow®

Flexibility and redundancy

325 — 5000 litre capacity

RHEEM EQUA-FLOW® MANIFOLDING

Equa-Flow® manifolding: big on water, big on efficiency

If you need large volumes of hot water handled as efficiently as possible, you need to learn about Rheem Equa-Flow®.

With Rheem Equa-Flow® system, multiple water heaters or storage tanks of the same model can be manifolded to operate as one system.

This means both increased storage and increased output, with each water heater contributing an equal share of the work.

And it's very simple to add more water heaters to the bank, provided the plumbing is altered to keep the cold water inlet to the bank on the end opposite to the hot water outlet.

Notes

1. In all installations, sufficient space must be left to enable servicing or removal of any water heater. Refer to the product tables for minimum centre to centre distances.
2. The maximum number of water heaters in any bank should be 8 for gas and electric models and 10 for storage tanks. However, several banks can be installed.
3. The hot water line from the manifold must leave from the opposite end to which the cold water line enters the manifold.
4. The hot water header, cold water header and cold water inlet pipe should be a minimum of DN32 pipe and be at least the next nominal diameter above the size of pipe required for the hot water outlet pipe to the system.
5. The hot water outlet pipe should be sized according to the requirements of the particular installation.
6. A non-return valve, isolation valve and if required a pressure limiting valve and expansion control valve must be installed on the main cold water supply only, as shown in the diagram.
7. A full flow gate valve or ball valve must be installed on the branches to each water heater.
8. Cold water supply branches to each water heater must be identical. Hot water outlet branches from each water heater must be identical.
9. Non-return valves, pressure limiting valves or loose jumper valves must not be installed in the branch assemblies to each water heater, since preferential flow through one water heater will result.
10. Prefabricated Rheem Equa-Flow® hot and cold water manifolds kits to suit heavy duty gas and electric are available in the following sizes:
    Small – DN32 copper header pipes
    – DN20 branch assemblies
    Large – DN40 copper header pipes
    – DN25 branch assemblies.

The header pipes supplied in the Rheem Equa-Flow® manifold kits are sized to provide the required 500mm clearance between adjacent balanced flue terminals on outdoor gas models.

For electric or indoor gas water heaters, the header pipes may be shortened.

Circulated flow and return systems

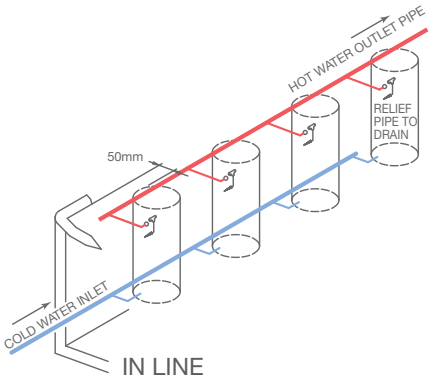
The return line from the recirculation system should be connected to the common cold supply to the water heaters, after the main non-return valve and pressure limiting valve and before the first cold branch.

The circulator should be isolated by a gate valve on either side and a non-return valve installed after the circulator.

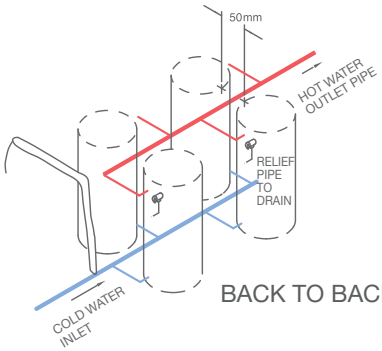
Minimum distance requirements

When you design and install a water heater system using the Rheem Equa-Flow® manifold system, it's important to observe the minimum distance requirements between water heaters and from obstructions.

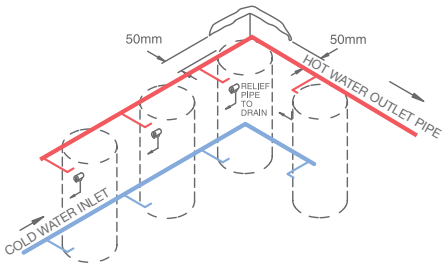
This allows for correct operation of the water heaters and access for servicing and maintenance.



IN LINE



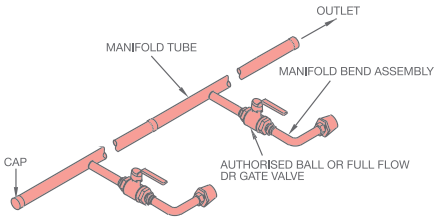
BACK TO BACK



ANGLE

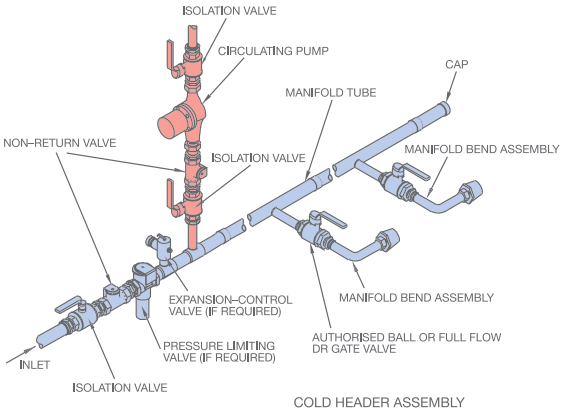
Manifold arrangement

hot header assembly



HOT HEADER ASSEMBLY

cold header assembly

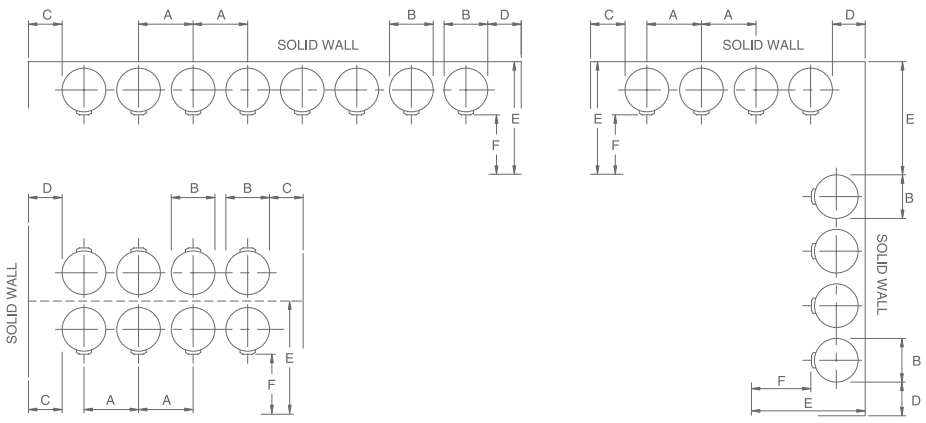


COLD HEADER ASSEMBLY

INSTALLATION LAYOUT MINIMUM DIMENSIONS

Model	A	B	C	D	E[30]	F[30]
Electric						
613 050	685	435	250	100	1465	900
613 315	890	640	250	100	1680	900
616 315	890	640	250	100	1680	900
Storage						
610 340	890	640	250	100	1640	900
610 430	935	685	250	100	1685	900
Gas Indoor						
620 260	845	595	250	100	1670	900
621 265	860	610	250	100	1750	900
621 275	890	640	250	100	1780	900
Gas Outdoor						
630 260	920	595	420	420	1670	900
631 265	920	610	410	410	1710	900
631 275	890	640	350	350	1780	900

[30] A distance of 900mm is required for access, servicing and removal of the water heater.



BACK TO BACK MANIFOLD

PUMP ACCESSORIES

Redi-Set Dual Pump sets provide redundancy back up to St. Mary's Villa — Concord, NSW

Redi-Set Dual Pump Sets

Redi-set dual pump sets provide redundancy back up and are an ideal means of reducing energy consumption by timing the operation of the pumps when required.

The systems incorporate Grundfos UPS 20-60N or UPS 32-80N stainless steel pump and brass manifolds. The complete system is mounted on a galvanized base frame with two holes on each side for easy mounting. The system includes non return valves and shut off valves integrated into a manifold arrangement to allow removal of one pump whilst the other is in operation.

An isolation valve should be installed in the suction and discharge lines for easy maintenance and removal (not supplied). Control panels are grey powder coated metal and are supplied with an electrical test certificate and wiring diagram inserted on the inside of the control panel door.

Standard Model

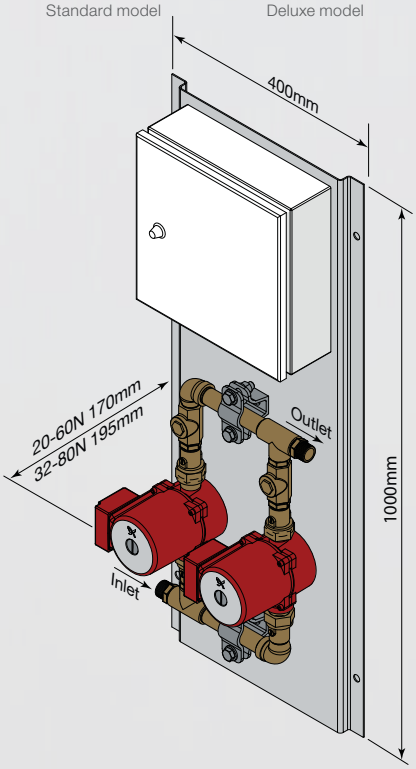
The Standard model has one switch- Pump 1/Auto/Pump 2 – mounted on the front panel with auto pump change over every twelve hours. The panel is key lockable.

Deluxe Model

The deluxe model incorporates separate Pump 1 and Pump 2 Auto / Off /Manual switches and red fault / green run indicator lights on the front panel.

This model incorporates auto pump duty change over on a time clock basis every twelve hours and run/alarm outputs for BMS connection.

Standard model Deluxe model



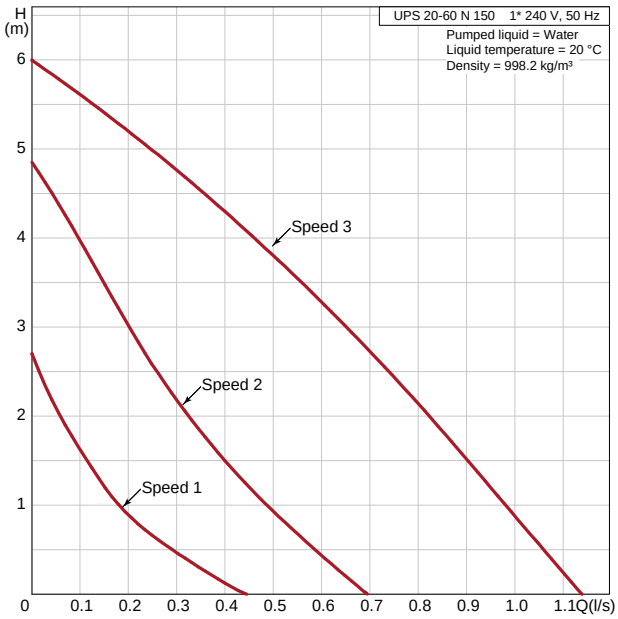
DIMENSIONS AND TECHNICAL DATA TABLE			
Circulator Type		**UPS 20-60N**	**UPS 32-80N**
Model number: Standard		**890665**	**890667**
Deluxe		**890666**	**890668**
Liquid Temperature range	°C	2-110	2-110
Max. ambient temperature	°C	40	40
Max. operating pressure	kPa	1000	1000
Pipe connection	BSPM	R¾	R1¼
Net weight	kg	24	25
Materials			
Pump housing		stainless steel	stainless steel
Impeller		composite, PES/PP	composite, PES/PP
Electrical rating 240V/50Hz			
Power/current speed 1	Watts	35	135
	Amps	0.15	0.6
Power/current speed 2	Watts	60	200
	Amps	0.25	0.9
Power/current speed 3	Watts	90	220
	Amps	0.37	0.98

Pump covers are required for outdoor installation (not supplied)
Warranty: 12 months parts and labour.

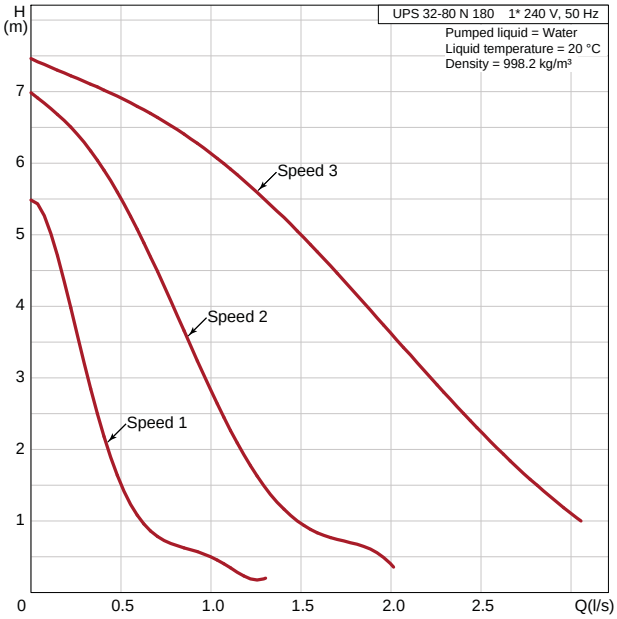
PUMP ACCESSORIES

PUMP CURVE DATA

UPS 20-60N



UPS 32-80N



SOLAR FRAMES

Variable Pitch Stand

Rheem solar collectors can be mounted on flat or near flat roofs using Variable Pitch Stands. The frames are hot dip galvanized inside and out and extruded aluminium collector rails and clamps offer corrosion protection. The angle of inclination can be set to 15, 20 or 25° to best suit latitude and site requirements.

With Pitch Frame

Rheem solar collectors are suitable for mounting on pitched roofs using Rheem roofing kits. Standard kits are used in most applications.

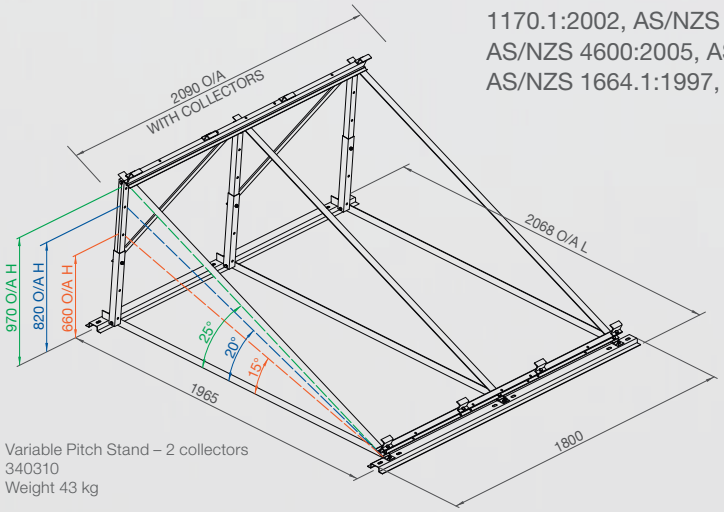
For cyclone regions C&D “With Pitch” kits are available if required. These are certified for use in terrain category 2 up to a height of 10 metres.

Rheem collector frames are designed in accordance with the relevant sections of AS/NZS 1170.0:2002, AS/NZS 1170.1:2002, AS/NZS 1170.2:2002, AS/NZS 4600:2005, AS4100-1998, AS/NZS 1664.1:1997, AS 1720.1-1997.

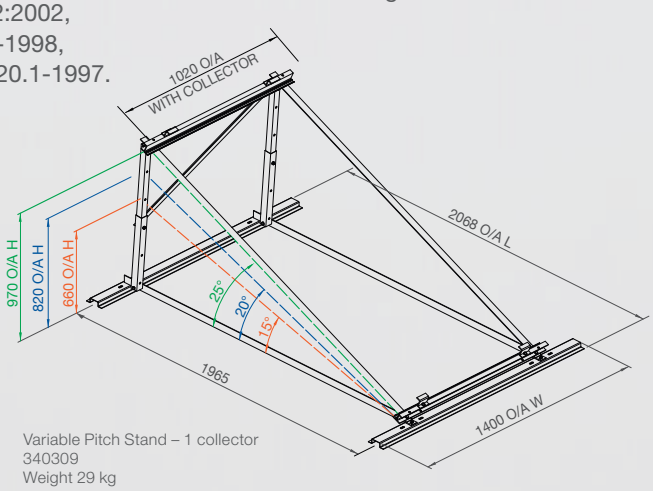
Design standards and requirements

It is the responsibility of the designer to determine the actual wind load acting on the solar frame and collector assembly for the installation site and satisfy themselves as to the suitability of the frame and collector assembly.

Fixing of frames to building members must be designed by a structural engineer to satisfy the design wind loads for the building.



Variable Pitch Stand – 2 collectors
340310
Weight 43 kg



Variable Pitch Stand – 1 collector
340309
Weight 29 kg

SIZING GUIDE

Selection guide

To decide what size of water heater to install, follow the simple steps below:

1. First determine the peak demand period. (This may be spread over one or more hours. Refer to sizing guide.)
2. Next calculate the hot water requirements over the peak period. (Refer to sizing guide.)
3. Then select the water heaters that will satisfy the peak demand requirements. (One, two, three or more water heaters can be connected in parallel. Refer to performance chart.) N.B: cold water temperature is needed to determine the appropriate temperature rise.
4. Ensure adequate space is available in the building for the installation. This is of extreme importance, particularly where a number of water heaters are connected in parallel. In allocating space for the installation, consideration should be given to the possible expansion of the system should the hot water demand increase. (See nominal dimensions table.)
5. Consider the advantages of using water heaters designed for outdoor installation ie. no secondary flue required; saving of internal space etc.
6. For an efficient mains pressure commercial or industrial installation, it is essential that the correct pipe sizes be installed.

Note: This sizing guide should be taken as an average only and individual assessment may be necessary.

Caution: In applications where it is known the peak hot water demand will be over a very short period (some showering periods in industry may be no longer than 30 minutes) then the storage and recovery rate of the water heater/s should be calculated for that time period only.

Note: Where hot water is being provided for dishwashing and glasswashing machines etc., it is advisable to check the hot water consumption of a unit with the manufacturer before specifying the water heater.

Rheem technical advisory service

This free Rheem service is available throughout Australia. A call to one of our water heating specialists will help you save your valuable time and effort. We also have a sizing tool available on our web site. For your next installation, commercial, industrial or home units, or for the unusual application where water must be supplied at a specific temperature, Rheem can show you several ways of maximising available space with the benefits of high performance and economical running costs.

Let Rheem solve your next hot water problem. Phone your local Rheem technical advisory service on **132 552**

SIZING GUIDE

Application	Suggested peak period	Hot water requirements, at 60°C supply temperature (unless indicated)
Snack bars take-away food	1 to 2 hours 12 to 1pm or 12 to 2pm	Allow 3.1 litres for each meal. This covers cooking and washing, e.g. 200 meals over 2 hours = 620 litres. Note: water required at 82°C to meet regulations
Canteens, cafes, restaurants, hotel kitchens	1 to 2 hours 12 to 1pm or 12 to 2pm	Allow 5.5 litres for each 3 course meal. This covers cooking and washing. e.g. 200 meals over 2 hours = 1100 litres. Note: water required at 82°C to meet regulations
Holiday flats, hotels, motels, guest houses	1 hour 7.30am to 8.30am	Allow 20 to 25 litres per head over the peak hour, e.g. 40 guests = 1000 litres over 1 hour, for 4 and 5 star accommodation allow 30-45 litres per head
Apartments	1 hour 7:00am to 8:00am	Allow for each type of apartment in the building, e.g. studio = 25 litres, 1 bedroom apartment = 40 litres, two bedroom = 75 litres; three bedroom = 90 litres, four bedroom = 110 litres and a penthouse = 150 litres
Caravan parks camping areas	spread over 2 hours	Allow 20 litres per person. Average 4 persons per van, e.g. 30 vans = 120 people = 2400 litres, over 2 hours. Consider also no. of shower units available, allow maximum of 6 showers per hour per shower rose. In parks used mainly for long term holiday or residential purposes, the peak period may extend over a much longer time. The actual usage pattern should be ascertained
Hairdressing salons	3 to 4 hours	Each installation to be individually evaluated but as a guide allow 10 litres per customer. Fashion salons may use much more
Squash courts	spread over 4 hours	Allow 20 litres per player. Average 16 players per court over 4 hours e.g. 4 courts = 20 x 4 x 16 = 1280 litres over 4 hours
Office amenities	spread over 8 hours	Allow 3 to 4 litres per person per day. Shower seldom used. Peak usage allow 1.5 litres per person over 1 hour
Factory change rooms (light industry)	1 hour 4pm to 5pm	Average of 30% use showers. Allow 20 litres per head. Average of 70% use hand basins. Allow 3 litres per head. (This is equivalent to 8 to 9 litres per person)
Factory change rooms (heavy or dirty industry)	1 hour 4pm to 5pm	Allow 30 litres per head. Note: in some industries such as mining 50 litres per head may be necessary
Glass washing machines	usually over 2 hours	Determine quantity of glasses to be washed over peak period. Allow 3 glasses per litre of beer sold. Most machines require 7 litres of hot water per wash of 25 glasses and can handle one wash per minute. e.g.1000 litres of beer over 2 hours 1000 x 3 x 7 litres ÷ 25 = 840 litres of hot water. Note: 1. Water required at 82°C to meet regulations. 2. Where beer consumption known in gallons multiply by 4.55 to convert to litres
Coin operated laundries	spread over 8 hours	Allow 70 litres per machine per hour, e.g. 6 machines 70 x 6 x 8 = 3360 litres over 8 hours. Large commercial laundries allow 10 litres per kg dry washing

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475 Rosebank Road, Avondale, Auckland 1026 | GST 80-960-239

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