

# COMMERCIAL HEAT PUMP

Heat water using free energy from the air using our Air to Water models, or, heat water using waste heat from a chiller using our Water to Water models.

## CASE STUDY

### AUSTRALIAN UNITY

PARRAMATTA, NSW

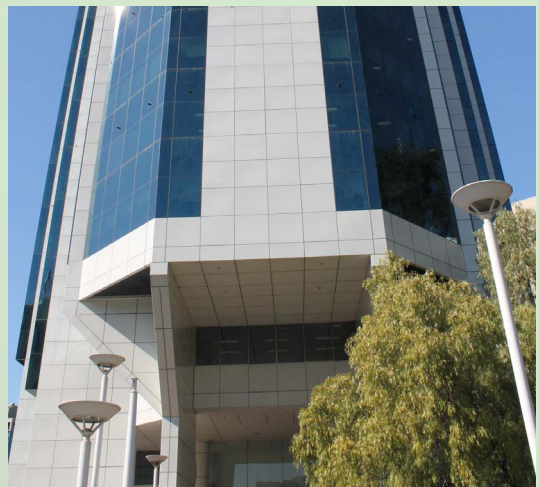
A modern office building comprising 14 levels of office space in Parramatta needed an End of Trip Facility.

#### Hot Water Requirements

With the consultant's project requirements calling for a high-efficiency hot water plant capable of accommodating 10 showers and a 2000 litre load requirement over a two-hour peak, Rheem Commercial sized and proposed a ducted commercial air to water heat pump. Configured to vent cool discharge air into the car park entrance via a sheet metal duct, the system's flexibility was also a major advantage when it came to accommodating the limited space available for the hot water plant.

#### Solution

In order to provide hot water boost in situations where higher than expected peak loads or low overnight temperatures preclude heat pump hot water recovery, a 15kW heating element was installed in the top third of the 2000 litre Rheem Stainless Steel storage tank.



COMES ON STEADY, HOT AND STRONG

INSTALL A



# RHEEM COMMERCIAL HEAT PUMP

**As the largest supplier of commercial water heaters in Australia, Rheem Commercial is now introducing two groups of heat pumps with two different technologies by collecting free heat energy from air and waste heat from the building chilling circuit.**

Rheem can now boast of an expanded, true commercial grade, high thermal efficiency, WaterMark certified heat pump range – in both air to water and water to water technologies.

These high efficiency models offer:

- Reduced running costs and CO<sub>2</sub> emissions for building owners
- High quality components for durability
- Suitability to most of the Australian climate
- Rheem iQ control provides on board diagnostics, system configuration and optional BMS connectivity
- And two model sizes in each range that broaden your redundancy and shrink your plant footprint

Manufactured by Rheem in Australia, the Commercial Heat Pump range is supported by a nationwide in-house Service team, with local technical support.





# AIR TO WATER HEAT PUMP

FOR WHERE ENERGY  
EFFICIENCY IS ESSENTIAL



HOT WATER  
TO

65°C

SAVE  
UP TO 75%  
ENERGY

FLEXIBLE  
USES CAR PARK AIR



**65°C hot water in  
a super-efficient,  
super-compact  
package.**



## Highly efficient

Up to 25% of the operating cost of an electric water heater. Delivers hot water up to 65°C, with a system Coefficient of Performance (COP) of up to 4.0<sup>1</sup>. This makes it substantially cheaper to run than electric, natural gas or propane. Highly efficient option for fuel redundancy. Heat pumps can also be used as a preheat to other boost fuel types.

## Green points

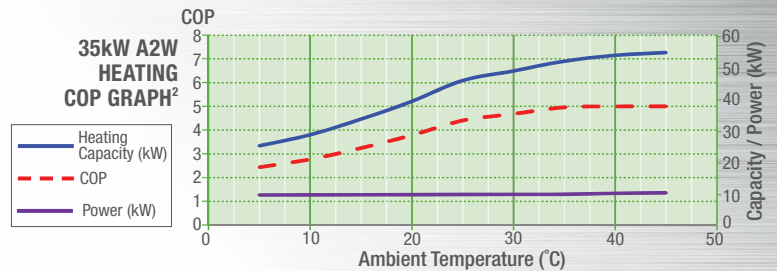
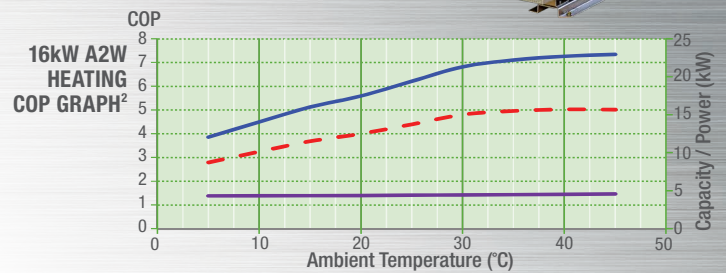
Adds to the green points from end-of-trip facilities. The heat pump is designed to draw its air from and discharge within basement car parks without flueing, unlike gas systems.

## Multiple installation options

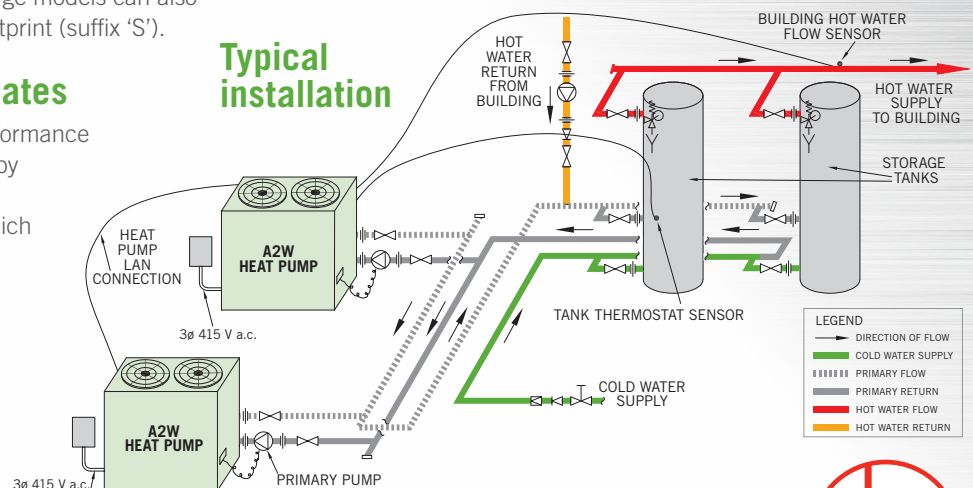
Designed for both vertical or horizontal discharge options, with a discharge fan option available in both ducted and non-ducted versions. Horizontal discharge models can also be stacked two high to reduce plant footprint (suffix 'S').

## Suits most Australian climates

Automatic defrost allows continued performance in low ambient temperature conditions by diverting a portion of the hot refrigerant to the evaporator coil to melt any ice which may form. In addition, the evaporator is dipped to provide extra protection in corrosive atmospheres, and the unit has been tested in ambient conditions as high as 40°C.



## Typical installation



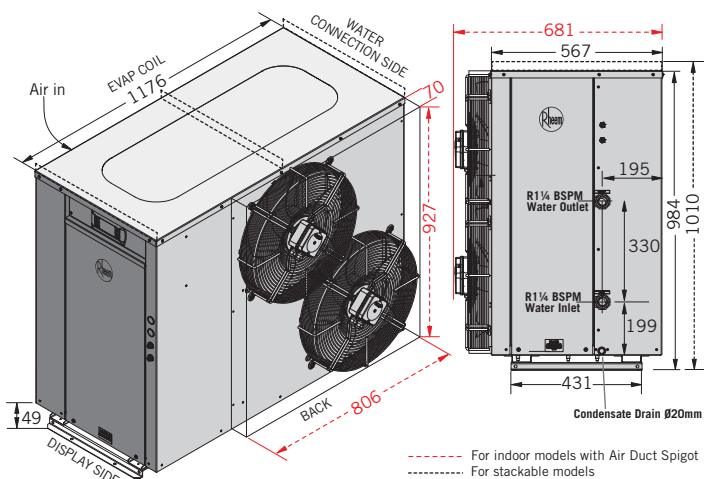
INSTALL A



# AIR TO WATER 16kW MODEL TECHNICAL DATA

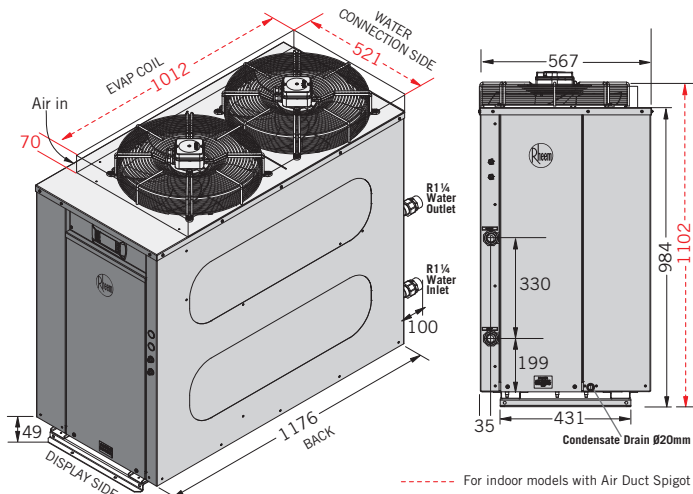
## 16kW AIR TO WATER – ALL HORIZONTAL DISCHARGE MODELS

953016H0 – Non Ducted    953016HS – Non Ducted stackable  
952016H0 – Ducted        952016HS – Ducted stackable



## 16kW AIR TO WATER – ALL VERTICAL DISCHARGE MODELS

95301600 – Non Ducted    95201600 – Ducted



### RECOVERY

Ambient Temperature °C	5	10	15	20	25	30	35	40
Output kW	11.5	13	15.3	17.5	21.8	22.5	23.3	24
Recovery – Litres per hour								
20°C rise	495	560	659	754	939	969	1003	1033
30°C rise	330	373	439	502	626	646	669	689
35°C rise	283	320	376	431	536	554	573	591
40°C rise	248	280	329	377	469	484	502	517
45°C rise	220	249	293	335	417	431	446	459
50°C rise	198	224	264	301	376	388	401	413
55°C rise	180	204	240	274	341	352	365	376

### PRODUCT DATA

		Ducted Exhaust	Non Ducted Exhaust
Heating Capacity <sup>1</sup>	kW	17.46	17.46
Power Input <sup>1</sup>	kW	4.01	4.01
COP <sup>1</sup>		4.0	4.0
Recovery @ 50°C Rise <sup>1</sup>	L/hr	301	
Operating Range (ambient)	°C	5-45	
Outlet Temperature	°C	65	
Refrigerant		R134a	
TPR Valve Setting (VE/SS)	kPa	1000/850	
ECV Setting (VE/SS) <sup>3</sup>	kPa	850 /700	
<b>Maximum Water Pressure Supply</b>			
Without ECV (VE/SS) <sup>3</sup>	kPa	800/680	
With ECV (VE/SS) <sup>3</sup>	kPa	650/550	
Electrical Connection		3Phase/415V/50Hz	
Max Current per Phase (running)	Amps	14.64	12.82
Minimum Circuit Size (per phase)	Amps	20	
Air Flow (at maximum static pressure)	L/s	1600	
Maximum Static Pressure	Pa	80	20
Minimum Ventilation per inlet and outlet	m <sup>2</sup>	1	
Minimum room volume for indoor installation <sup>4</sup>	m <sup>3</sup>	7.5	
Sound Pressure Level	dBA	59@3m	
Approx Weight Empty	kg	120	
Approx Weight Full	kg	125	
Storage per Heat Pump	L	400-4,000	
<b>Clearances</b>			
Evap Coil Side	mm	500	
Back (vertical discharge models)	mm	Nil	
Back (horizontal discharge models)	mm	1200	
Display Side	mm	850	
Water Connections Side	mm	500	
Top (vertical discharge models)	mm	1200	
Top (horizontal discharge option)	mm	Clearance above unit required for service personnel to stand	

### HEAT PUMP SIZING CHART

Number of Heat Pumps in Parallel	1	2	3	4
Primary Pump	Grundfos CM 3-2			
Branch Size	40			
Header Size	40	50	65	80

Note: Header pipe sizing is based on a total length of 40m of primary flow and return piping and 20 bends, excluding equal-flow manifolds on storage tanks and heat pumps @ 1.2m/sec velocity. One pump per Heat Pump.

### ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE)	CM 3-2	17520 BACnet TCP/IP	17495
1000L to 5000L (SS)		17521 BACnet MS/TP	
		17522 Modbus RS485	

<sup>1</sup> 20°C ambient/60%RH. 39°C water in / 45°C water out.

<sup>2</sup> Non ducted models.

<sup>3</sup> ECV not supplied with water heater

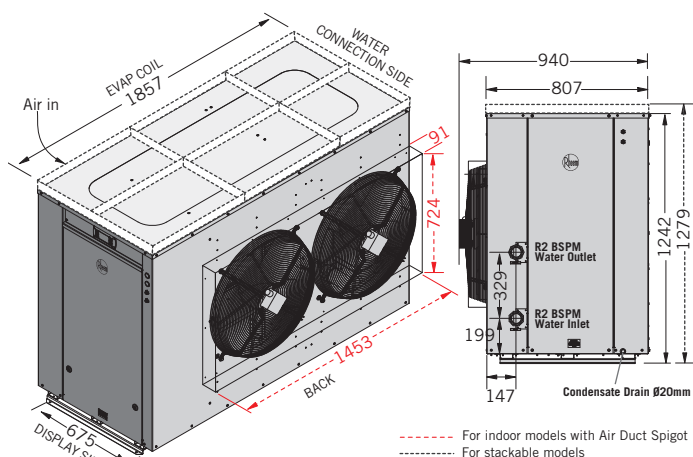
<sup>4</sup> To comply with AS1677.2, the minimum room size permissible is 7.5m<sup>3</sup> for 16kW and 17.73m<sup>3</sup> for 35kW per heat pump for indoor installation. A larger room size is recommended for efficient heat pump operation.

COMES ON STEADY, HOT AND STRONG

# AIR TO WATER 35kW MODEL TECHNICAL DATA

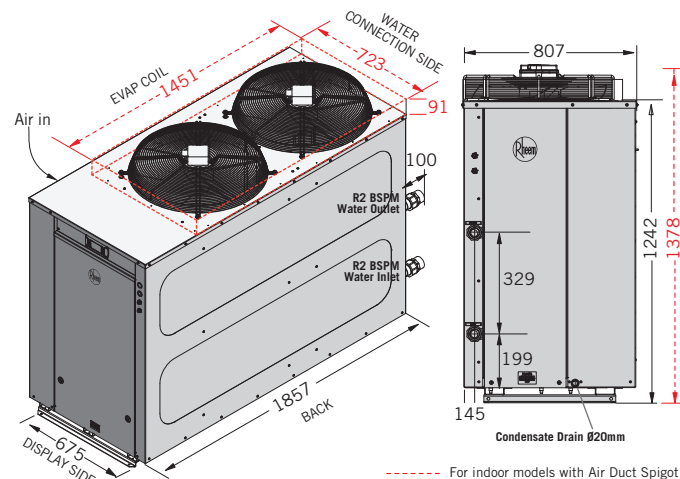
## 35kW AIR TO WATER – ALL HORIZONTAL DISCHARGE MODELS

953035H0 – Non Ducted      953035HS – Non Ducted stackable  
952035H0 – Ducted      952035HS – Ducted stackable



## 35kW AIR TO WATER – ALL VERTICAL DISCHARGE MODELS

95303500 – Non Ducted      95203500 – Ducted



### RECOVERY

Ambient Temperature °C	5	10	15	20	25	30	35	40
Output kW	25.2	27	33	39.6	44.6	46	51.5	54
Recovery – Litres per hour								
20°C rise	1085	1163	1421	1705	1921	1981	2218	2325
30°C rise	723	775	947	1137	1280	1321	1478	1550
35°C rise	620	664	812	974	1097	1132	1267	1329
40°C rise	543	581	711	853	960	990	1109	1163
45°C rise	482	517	632	758	854	880	986	1033
50°C rise	434	465	568	682	768	792	887	930
55°C rise	395	423	517	620	698	720	806	846

### PRODUCT DATA

		Ducted Exhaust	Non Ducted Exhaust
Heating Capacity <sup>1</sup>	kW	39.55	39.55
Power Input <sup>1</sup>	kW	10.25	10.25
COP <sup>1</sup>		3.9	3.9
Recovery @ 50°C Rise <sup>1</sup>	L/hr	682	
Operating Range (ambient)	°C	5-45	
Outlet Temperature	°C	65	
Refrigerant		R134a	
TPR Valve Setting (VE/SS)	kPa	1000/850	
ECV Valve Setting (VE/SS) <sup>3</sup>	kPa	850/700	
Maximum Water Pressure Supply			
Without ECV (VE/SS) <sup>3</sup>	kPa	800/680	
With ECV (VE/SS) <sup>3</sup>	kPa	650/550	
Electrical Connection		380 - 415 Volts / 3 Phase / 50 Hz	
Max Current per Phase (running)	Amps	30.14	27.94
Minimum Circuit Size (per phase)	Amps	40	
Air Flow (at maximum static pressure)	L/s	5830	5270
Maximum Static Pressure	Pa	100	20
Minimum Ventilation per inlet and outlet	m <sup>2</sup>	1.93	
Minimum room volume for indoor installation <sup>4</sup>	m <sup>3</sup>	17.73	
Sound Pressure Level	dBA	69@3m	
Approx Weight Empty	kg	300	
Approx Weight Full	kg	310	
Storage per Heat Pump	L	400-8,000	
Clearances			
Evap Coil Side	mm	1000	
Back (vertical discharge models)	mm	Nil	
Back (horizontal discharge models)	mm	2000	
Display Side	mm	850	
Water Connections Side	mm	600	
Top (vertical discharge models)	mm	2000	
Top (horizontal discharge option)	mm	Clearance above unit required for service personnel to stand	

### PUMP & PIPE SIZING CHART

Number of Heat Pumps in Parallel	1	2	3	4
Primary Pump	Grundfos CM 10-1			
Branch Size	50			
Header Size	50	80	100	100

Note: Header pipe sizing is based on a total length of 40m of primary flow and return piping and 20 bends, excluding equa-flow manifolds on storage tanks and heat pumps @ 1.2m/sec velocity. One pump per Heat Pump.

### ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE)	CM 10-1	17520- BACnet TCP/IP	17495
1000L to 5000L (SS)		17521- BACnet MS/TP	
		17522- Modbus RS485	

<sup>1</sup> 20°C ambient/60%RH. 39°C water in / 45°C water out.

<sup>2</sup> Non ducted models.

<sup>3</sup> ECV not supplied with water heater

<sup>4</sup> To comply with AS1677.2, the minimum room size permissible is 7.5m<sup>3</sup> for 16kW and 17.73m<sup>3</sup> for 35kW per heat pump for indoor installation. A larger room size is recommended for efficient heat pump operation.

INSTALL A





# WATER TO WATER HEAT PUMP

FOR WHERE ENERGY  
EFFICIENCY IS ESSENTIAL



REDUCED  
CHILLING  
LOAD

W  
CERTIFIED

COMPACT

UP TO 7.0 COP  
EFFICIENCY\*

## The Rheem Water to Water (W2W) range

includes units using R134a for hot water heating up to 65°C, with a minimum entering water temperature on the building chiller loop of 12°C, giving a return water temperature of 7°C, with the units being compact and suitable for indoor or outdoor installation.



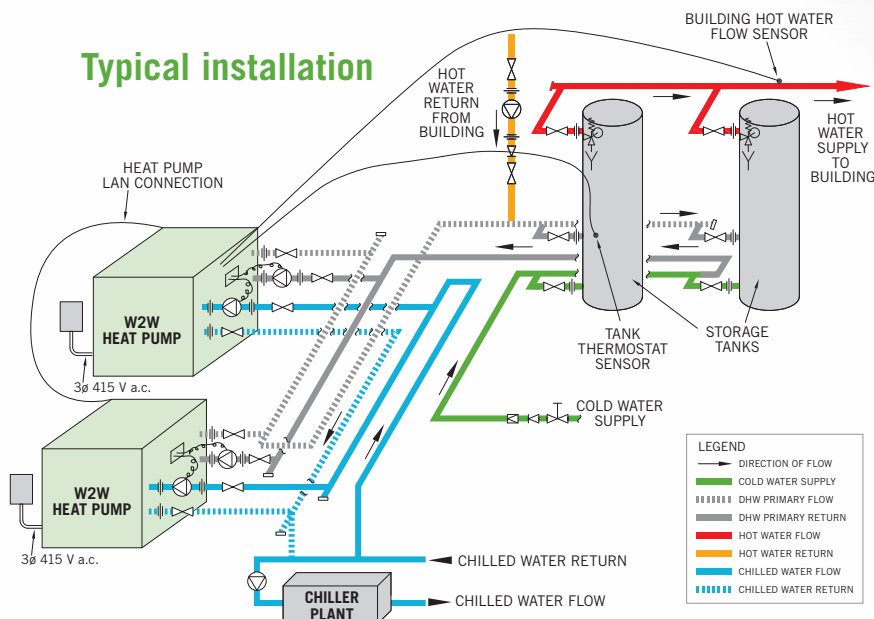
### Efficiency

The ability of these units to provide a dual efficiency sees combined COPs of up to 7.0<sup>5</sup>. The efficiency in hot water production is up to 4.0<sup>5</sup> and this leads to substantial savings in energy use and heating cost. The savings are magnified where the cooling by-product lessens a building's chilling load. COP in cooling are up to 3.0<sup>5</sup>.

### Return on investment

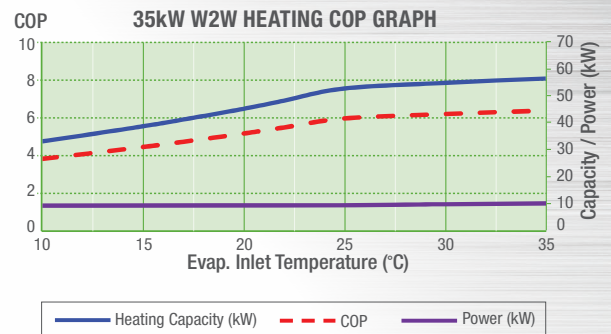
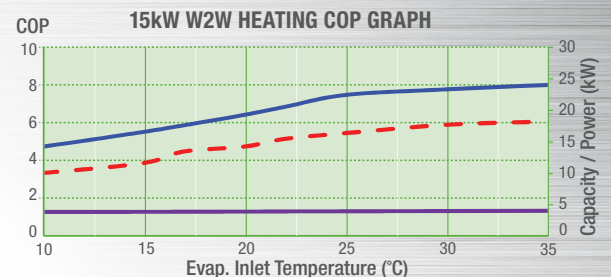
High COP of this product results in a very favourable return on investment making the W2W HP both a sound environmental and financial investment compared to gas and electric heating systems.

### Typical installation



### More key features

- Water Mark certified 316L stainless steel, double-wall brazed plate heat exchanger on domestic hot water side
- Multiple safeties including low temperature freeze protection and flow switch on the chilled water side
- Full commercial construction with marine grade aluminium case

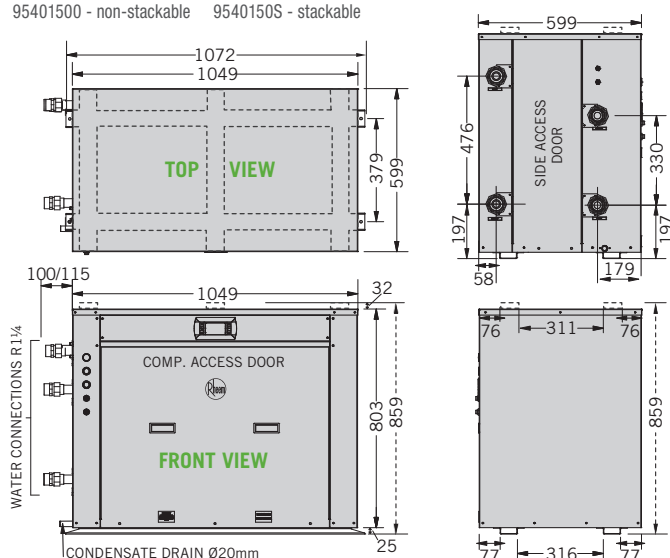


COMES ON STEADY, HOT AND STRONG

# WATER TO WATER 15kW & 35kW MODEL TECHNICAL DATA

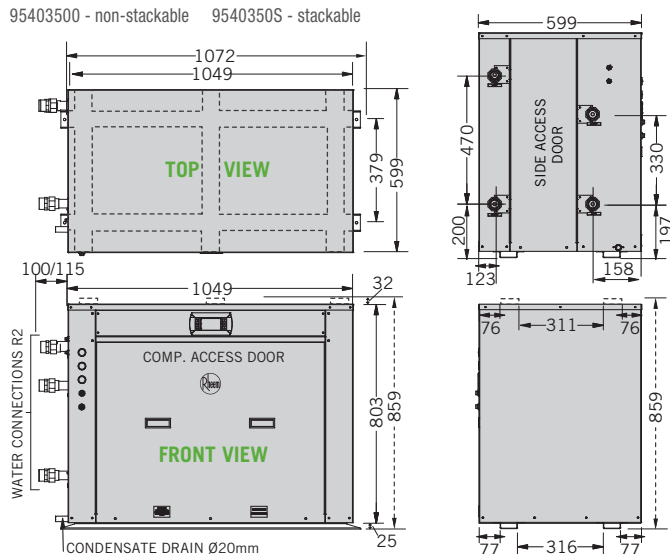
## 15kW MODEL

95401500 - non-stackable 9540150S - stackable



## 35kW MODEL

95403500 - non-stackable 9540350S - stackable



----- For stackable models

### PUMP & PIPE SIZING CHART (15kW/35kW)

	15kW				35kW			
No. of Heat Pumps in Parallel	HOT SIDE				HOT SIDE			
Pump	1	2	3	4	1	2	3	4
Branch Size (mm)	Grundfos CM 3-2				Grundfos CM10-1			
Header Size (mm)	40	50	65	80	50	80	100	100
No. of Heat Pumps in Parallel	COLD SIDE				COLD SIDE			
Pump	1	2	3	4	1	2	3	4
Branch Size (mm)	Grundfos CM 3-2				Grundfos CM10-1			
Header Size (mm)	40	50	65	80	50	65	100	100

MODEL	15kW	35kW
Nominal Heating Capacity <sup>5</sup>	15kW	34.75kW
Nominal Cooling Capacity <sup>5</sup>	11.3kW	25.9kW
Power Input kW <sup>5</sup>	3.7kW	8.8kW
Coefficient of Performance (Heating) <sup>5</sup>	4	4
Coefficient of Performance (Cooling) <sup>5</sup>	3	3
Maximum DHW Temperature	65 °C	
Refrigerant	R134a	
Hot Water Side		
TPR Valve Setting (VE/SS)	1000/850 kPa	
ECV Setting (VE/SS) <sup>3</sup>	850/700 kPa	
Maximum Water Supply Pressure	316L Stainless steel – Double wall brazed plate	
– Without ECV (VE/SS) <sup>3</sup>	800/680 kPa	
– With ECV (VE/SS) <sup>3</sup>	680/550 kPa	
Hot Water Side Flow Rate	1.1L/s	2.2L/s
Heat Exchanger Heating Design	316L Stainless steel – Double wall brazed plate	
Design Heating Temperature Difference	6 °K	
Design Pressure Drop	40kPa	
Cold Water Side		
Maximum Water Supply Pressure	2450kPa	
Cold Water Side Flow Rate	1.1L/s	1.85L/s
Heat Exchanger Cooling Design	316L Stainless steel – Single wall brazed plate	
Design Cooling Temperature Difference	5 °K	
Design Pressure Drop	40kPa	
Minimum room volume for indoor installation	5.6m <sup>3</sup>	15.34m <sup>3</sup>
Electrical Connection	3 Phase / 415V / 50Hz	
Max Current per Phase (running)	11.56A	25.54A
Minimum Circuit Size (per phase)	20A	32A
Sound Pressure Level	59dBa @ 3m	
Approx Weight Empty	100kg	120kg
Approx Weight Full	105kg	125kg
Storage per Heat Pump	400L to 4000L	400L to 8000L
Clearances		
Front	850mm	
Back	Nil mm	
Water Connections Side	850 mm	
RHS Side	Nil mm	
Top (clearance above unit required for service personnel to stand)	0 mm	

<sup>5</sup> Rating Conditions: Heating 39°C Water in, 45°C water out, 51°C SCT, Cooling 12°C water in, 7°C water outlet, 2°C SST.

### ACCESSORIES

Storage Tank	Pump	BMS Card	LAN Cable
410L (VE)	2 x CM 3-2 (16kW)	17520- BACnet TCP/IP	17495
1000L to 5000L (SS)	2 x CM 10-1 (35kW)	17521- BACnet MS/TP	
		17522- Modbus RS485	

### RECOVERY

	15kW		35kW	
Evaporator Inlet Temperature °C	12	20	12	20
Output kW	15	22	35	50
<b>Recovery – Litres per hour</b>				
20°C rise	643	943	1500	2143
30°C rise	429	629	1000	1429
35°C rise	367	539	857	1224
40°C rise	321	471	750	1071
45°C rise	286	419	667	952
<b>50°C rise</b>	<b>257</b>	<b>377</b>	<b>600</b>	<b>857</b>
55°C rise	234	343	545	779

INSTALL A



## CASE STUDIES

### SYDNEY OPERA HOUSE

NEW SOUTH WALES

Rheem commissioned the installation of 2x Water to Water heat pumps deep within the Opera House structure.

Energy is drawn from the harbour to provide DHW for kitchen, washrooms and back of house.

The system is operating at a COP 7.0 which led to the 4 Star Green Star performance rating.



### SOUTHERN OCEAN LODGE

SOUTH AUSTRALIA

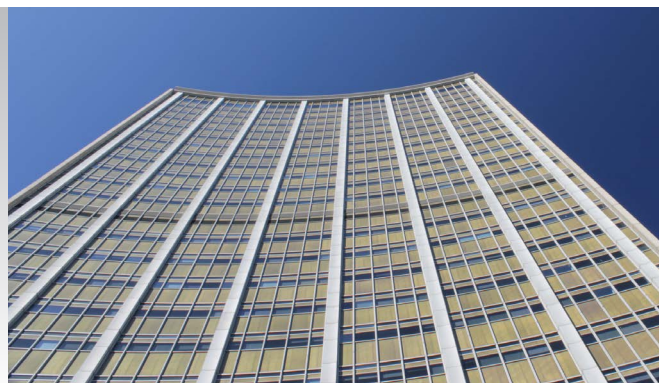
Southern Ocean Lodge is our very first installation of Rheem commercial Air to Water heat pump in 2008 providing efficient use of diesel generators for domestic hot water.



### CIRCULAR QUAY BUILDING – SYDNEY

NEW SOUTH WALES

Rheem commercial Air to Water heat pump with vitreous enamel storage tanks providing domestic hot water for the Sydney Cove Building.



**Let Rheem solve your next hot water problem.**

Phone your local Rheem technical advisory service on 132 552



TECHNICIANS WITH  
EXPERT PRODUCT  
KNOWLEDGE



CERTIFIED TO  
MEET AUSTRALIAN  
STANDARDS



PRIORITY ACCESS  
TO GENUINE  
SPARE PARTS



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RHE311 by TIH on April 2019

COMES ON STEADY, HOT AND STRONG

INSTALL A

