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

CURTIN UNIVERSITY PERTH, WA

Challenge

Western Australia's Curtin University has embarked on the delivery of their Master Plan, which will transform the Perth campus into a collaborative innovation precinct.

To reduce ongoing operational and running costs Stantec chose to work with Rheem on a central plant system.

By installing high efficiency Rheem Air to Water Commercial Heat Pumps, the "Exchange" building achieved 6 Star certification.

Hot Water Solution

Across the entire precinct, Rheem supplied:

- 4 x Rheem 35kW Air to Water Commercial Heat Pumps
- 4 x Rheem 16kW Air to Water Commercial Heat Pumps
- 4 x BMS monitoring
- 29 x Rheem 1000L RT Series Storage Tanks
- 3 x Rheem Tankpak Deluxe gas water heaters



AIR TO WATER HEAT PUMP

FOR WHERE ENERGY EFFICIENCY IS ESSENTIAL



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

HIGHLY EFFICIENT

On average, 25% of the operating cost of an electric water heater. Delivers hot water up to 65° C¹, with a system Coefficient of Performance (COP) of up to 4.2². 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 it's air from and discharge within basement car parks without flueing, unlike gas systems therefore reducing CO₂ emissions.

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').



*For full terms and conditions contact Rheem or visit www.rheem.com.au/warranty

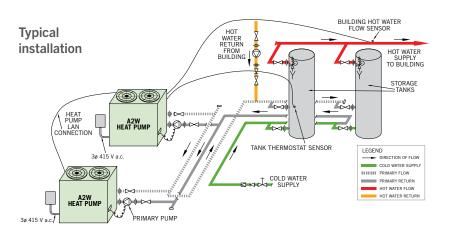
SUITS MOST AUSTRALIAN CLIMATES

Manufactured by Rheem in Australia and supported by a nationwide in-house Service team, with local technical support. 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 fully dipped with Rheem Kote(R) to provide extra protection in corrosive atmospheres, and the unit has been tested in ambient conditions as high as 45°C.

 Rheem iQ control provides on board diagnostics, system configuration and optional high level BMS connectivity via Modbus or BACnet



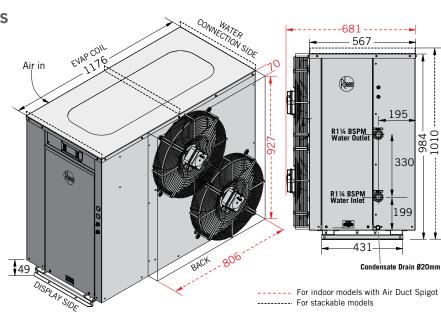




AIR TO WATER 16kW MODEL

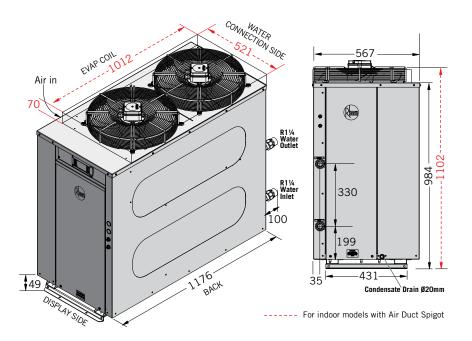
Horizontal Discharge Models

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



Vertical Discharge Models

95301600 - Non Ducted 95201600 - Ducted



06

TECHNICAL DATA

Product data Num Discrie Exhanut Num ITR3 Hasting Chapachy ¹ Nu ITR3 ITR3 Preventingdi Nu 4.26 4.26 Excerpting SDC fisci Uhr 4.2 4.2 Recovery SDC fisci C -4.5	AIR TO WATER 16KW MODEL						
Power inget*KW4.264.26Coefficient of Performance OPT4.24.2Recovery 65V° Rise?Lhr4.24.2Recovery 65V° Rise?C-4.5Maximu DWT PerperdureC-4.5Marine DWT Perperdure°C-7.5Refigarant°C-7.5Hart Marter Sale	Product data		Ducted Exhaust	Non Ducted Exhaust			
Cartheirs of Profession4.24.2Recovery 60°C RiseiUhr300Operating Range (ambient)°C-0.45Maximum DMM Properature°C-1.34aHart March°C-1.34aHart Sale	Heating Capacity ²	kW	17.83	17.83			
Recovery 6 3°C Rise ¹ Lihr300Operating Ringe familient°C-45Maximun DHV Temperature°C65Richigerant·································	Power Input ²	kW	4.26	4.26			
Operating Range tambint)°C	Coefficient of Performance COP ²		4.2	4.2			
Anima DNM Peoperature C G G Refrigerant C G G Hat Maximus DNM Peoperature U IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Recovery @ 50°C Rise ²	L/hr		300			
RefigrantIdeHork Viters GeFor Visiting (VE/RT)Ik PaSouthward Supply Pressure- With Supply PressureAr Super Versure- With Supply PressureAr Supply- Supply Pressure- Supply- Supply	Operating Range (ambient)	°C		0-45			
New Secting (VE/R1) IV Value Secting (Maximum DHW Temperature	°C		65			
TPR Valve Setting (VE/RT)* kPa	Refrigerant			R134a			
EV HPa B Maximum Water Supply Pressure I - Without ECV (VE/RT) KPa B Solution ECV (VE/RT) L/s G Design Prossure Drop L/s I.1 Design Prossure Drop KPa 3 Hatt Exchanger Design L/s 316 SLimitation State DWBP Arrisbe L/s 316 SLimitation State DWBP Arrisbe L/s 20 Maximum State Pressure L/s 80 20 Maximum State Pressure Pa 80 20 Maximum State Pressure Pa 80 20 Minimum Circuit Bressure Pa 80 20 Minimum Circuit Bressure Pa 80 20 Minimum Circuit Bressure Size(ser phase) Amps 15.2 Max Curcut per Phase funning, incl pump) Amps 15.2 Max Circuit Bressure Size(ser phase) Amps 12.0 Storage per Heat Pump kg 12.0 15 Storage per Heat Pump L 4.0 4.00 4.00 4.00 4.00 4.00 4.00 <td>Hot Water Side</td> <td></td> <td></td> <td></td>	Hot Water Side						
Maximum Karls Supply PressureInInterference- Without ECV (VE/RT)KPa800(680- With ECV (VE/RT)In5500(550Design Five RafeL/s.1Design Five RafeKPa-316 Statil-sessite DWBPAre Statil	TPR Valve Setting (VE/RT)	kPa	:	1,000/850			
· Wihot ECV (VE/RT)kPa	ECV Setting (VE/RT) ³	kPa		850/700			
- With ECV (VE/RT)I600Design Flow RateL/s1.1Design Pressure DropKPa33Heat Exchanger DesignKPa31G Stail	Maximum Water Supply Pressure						
Design Plow RateL/s1.1Design Pressure DropKPa33Heat Exchanger DesignKPa31G StallAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableVariableAir StoeVariableVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeVariableAir StoeAir S	- Without ECV (VE/RT)	kPa		800/680			
Design Pressure DropKPa33Heat Exchanger DesignIde316 StailerAir SideIde316 StailerAir SideL/s1600Maximum static pressure)Id8020Maximum Static PressurePa8020Maximum Static PressurePa8020Minimu Static PressurePa8020Minimu Static PressureMa3 Phase/30-415V/50 HzMax Current per Phase (running, incl pump)Amps3 Phase/30-415V/50 HzMax Current per Phase (running, incl pump)Amps15.22Minimum Circuit Breaker size (per phase)Amps15.22Approx Weight Emptykg120Approx Weight Fullkg120Storage per Heat PumpL400-4,000Sourd Pressure LeveldBa500Storage per Heat Pumpmm500Storage per Heat Pum	- With ECV (VE/RT)			650/550			
Hat Exchange DesignIde316 State JUBPAir SideAir SideAir Flow (at maximum static pressure)L/s1600Maximum Static PressurePa8020Minimum Ventilation per inlet and outletm²1Electrical Connectionm²316 State JubyMax Current per Phase (running, incl pump)Amps17.0615.22Minimum Circuit Breaker size (per phase)Amps17.0615.22Instilation DataL/s2015.22Approx Weight Emptykg12015.22Storage per Heat Pumpkg12039.38Storage per Heat PumpL30.439.30.415Clearancesm12039.38Clearancesm120Back (norizontial discharge models)mm50.0Back (horizontial discharge models)mm50.0Uter Connection Sidemm50.0Top (vertical discharge models)mm1.20.	Design Flow Rate	L/s		1.1			
Air SideAir Flow (at maximum static pressure)L/s1600Maximum Static PressurePa8020Minimum Ventilation per inlet and outletm²1Electrical Connectionm²3 Phase / 380 · 415V / 50 HzPower SupplyAmps3 Phase / 380 · 415V / 50 HzMax Current per Phase (running, incl pump)Amps17.06Minimum Circuit Breaker size (per phase)Amps17.06Installation DataV20Approx Weight Fundykg120Storage per Heat PumpL $400 - 4,000$ Sound Pressure Levelde $50 \odot$ Back (vertical discharge models)mm 500 Back (vertical discharge models)mm $1,220$ Water Connection Sidemm $1,220$	Design Pressure Drop	kPa	33				
Air Flow (at maximum static pressure)L/sIOOMaximum Static PressurePa8020Minimum Ventilation per inlet and outletm²IElectrical ConnectionPower SupplyAmps3 Phas J 20 415V / 50 H2Max Current per Phase (running, incl pump)Amps17.0615.22Minimum Circuit Breaker size (per phase)Amps17.0615.22Installation DataApprox Weight Emptykg120Approx Weight Fullkg125Storage per Heat PumpdBa4000Sound Pressure LeveldBa9 andEva Coll Sidemm500Back (vertical discharge models)mm1,200Back (horizontal discharge models)mm1,200Bypisy Sidemm500Water Connection Sidemm500Top (vertical discharge models)mm1,200Top (vertical discharge models)mm500Top (vertical discharge models)mm500Top (vertical discharge models)mm500Water Connection Sidemm500Top (vertical discharge models)mm500Water Connection Sidemm500Top (vertical discharge models)mm500Mater Connection Sidemm500	Heat Exchanger Design		316 Stainless Steel DWBP				
Maximum Static PressurePa8020Minimu Ventilation parinlet and outletm²1Electrical ConnectionPower SupplyAmps3 Phas-// 415V/50 HzMax Current per Phase (running, incl pump)Amps17.0615.22Minimum Circuit Breaker size (per phase)Amps7.0615.22Installation DataAmps201Approx Weight Emptykg12020Approx Weight Fullkg12020Storage per Heat PumpL4.0004.000Sound Pressure LeveldBa5.93mEva Coli Sidemm5.00120Back (vertical discharge models)mm1.200Back (horizontal discharge models)mm5.00Bypa Sidemm5.001.200Top (vertical discharge models)mm5.00Top (vertical discharge models)<	Air Side						
Minimum Ventilation per inlet and outletm²1Electrical ConnectionPower SupplyI3 Phase-JatSV 50 HzMax Current per Phase (running, incl pump)Amps17.0615.22Minimum Circuit Breaker size (per phase)Amps17.0615.22Installation DataI20Installation PateApprox Weight Emptykg120120Approx Weight Fullkg125Storage per Heat PumpLStorage per Heat PumpL4000500Storage per KelelMm500120Storage per Kelelmm500120Storage per Kelelmm1,200120Storage per Kelelmm500120Storage per Kelelmm500120Storage per Kelelmm500120Storage per Kelelmm500120Storage per Kelelmm1,200120Storage per Kelelmm1,200120Storage per Kelelmm1,200120Storage per Kelelmm1,200120Storage models)mm500120Storage models)mm500120Storage models)mm500120Vater Connection Sidemm1,200120Top (vertical discharge models)mm1,200120Storage models)mm1,200120Storage models)mm1,200120Storage models)mm <td>Air Flow (at maximum static pressure)</td> <td>L/s</td> <td></td> <td>1600</td>	Air Flow (at maximum static pressure)	L/s		1600			
Electrical Connection Power Supply Image: Connection (Connection (Con	Maximum Static Pressure	Ра	80	20			
Power SupplyImage: Image:	Minimum Ventilation per inlet and outlet	m ²		1			
Max Current per Phase (running, incl pump)Amps17.0615.22Minimum Circuit Breaker size (per phase)Amps20Installation DataKg120Approx Weight Emptykg125Approx Weight Fullkg125Storage per Heat PumpL400-4,000Sound Pressure LeveldBa59 @ 3mClearancesmm500Back (vertical discharge models)mm1,200Back (horizontal discharge models)mm500Display Sidemm500Vater Connection Sidemm500Top (vertical discharge models)mm500Nater Connection Sidemm500Top (vertical discharge models)mm500Nater Connection Sidemm500Top (vertical discharge models)mm500Nater Connection Sidemm500Top (vertical discharge models)mm500Top (vertical discharge models)mm1,200	Electrical Connection						
Minimum Circuit Breaker size (per phase)Amps20Installation DataKg120Approx Weight Emptykg120Approx Weight Fullkg125Storage per Heat PumpL400 – 4,000Sound Pressure LeveldBa59 @ 3mClearancesEva Coil Sidemm500Back (vertical discharge models)mm1,200Display Sidemm500Water Connection Sidemm500Top (vertical discharge models)mm500Top (vertical discharge models)mm500Water Connection Sidemm500Top (vertical discharge models)mm1,200	Power Supply		3 Phase	/ 380-415V / 50 Hz			
Installation DataApprox Weight Emptykg120Approx Weight Fullkg125Storage per Heat PumpL400 - 4,000Sound Pressure LeveldBa59@ 3mClearancesEva Coll Sidemm500Back (vertical discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Max Current per Phase (running, incl pump)	Amps	17.06	15.22			
Approx Weight Emptykg120Approx Weight Fullkg125Storage per Heat PumpL400 – 4,000Sound Pressure LeveldBa59 @ 3mClearancesEva Coil Sidemm500Back (vertical discharge models)mmNilBack (horizontal discharge models)mm850Vater Connection Sidemm500Top (vertical discharge models)mm1,200	Minimum Circuit Breaker size (per phase)	Amps		20			
Approx Weight FullkgApprox Weight FullkgStorage per Heat PumpLSound Pressure LeveldBaGearancesCEva Coil SidemmBack (vertical discharge models)mmBack (horizontal discharge models)mmDisplay SidemmWater Connection SidemmTop (vertical discharge models)mmTop (vertical discharge models)mmMater Connection SidemmTop (vertical discharge models)mmTop (vertical discharge models)mm	Installation Data						
Storage per Heat PumpL400 - 4,000Sound Pressure LeveldBa59@ 3mClearancesEva Coil Sidemm500Back (vertical discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Approx Weight Empty	kg		120			
Sound Pressure LeveldBa59@ 3mClearancesClearancesEva Coil Sidemm500Back (vertical discharge models)mmNilBack (horizontal discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Approx Weight Full	kg		125			
ClearancesClearancesEva Coil Sidemm500Back (vertical discharge models)mmNilBack (horizontal discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Storage per Heat Pump	L	4	00 - 4,000			
Eva Coil Sidemm500Back (vertical discharge models)mmNilBack (horizontal discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Sound Pressure Level	dBa		59 @ 3m			
Back (vertical discharge models)mmNilBack (horizontal discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Clearances						
Back (horizontal discharge models)mm1,200Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Eva Coil Side	mm	500				
Display Sidemm850Water Connection Sidemm500Top (vertical discharge models)mm1,200	Back (vertical discharge models)	mm	Nil				
Water Connection Side mm 500 Top (vertical discharge models) mm 1,200	Back (horizontal discharge models)	mm		1,200			
Top (vertical discharge models) mm 1,200	Display Side	mm		850			
	Water Connection Side	mm		500			
Top (horizontal discharge models) mm Clearance above unit required for service personnel to stand	Top (vertical discharge models)	mm		1,200			
	Top (horizontal discharge models)	mm	Clearance above unit requ	uired for service personnel to stand			

PUMP AND PIPE SIZING CHART								
Number of Heat Pumps in Parallel	1	2	3	4				
Primary Pump		CN	13-2					
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 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)		17520 BACnet TCP/IP	
1000L to 5000L (SS)	CM 3-2 366084	17521 BACnet MS/TP	17534
	000004	17522 Modbus RS485	

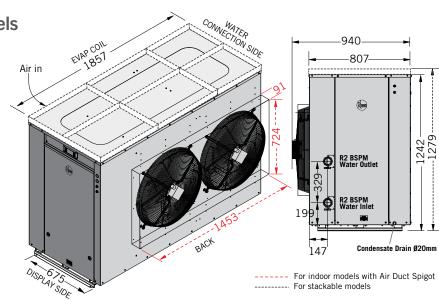
 1 When ambient temperature is not likely to drop below 10°C during operation. 2 20°C ambient/60%RH. 39°C water in / 45°C water out. 3 ECV not supplied with water heater.

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AIR TO WATER 35kW MODEL

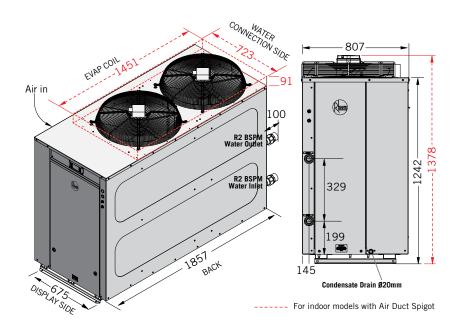
Horizontal Discharge Models

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



Vertical Discharge Models

95303500 – Non Ducted 95203500 – Ducted



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TECHNICAL DATA

AIR TO WATER 35KW MODEL					
PRODUCT DATA		Ducted Exhaust	Non Ducted Exhaust		
Heating Capacity ²	kW	39.55	39.55		
Power Input ²	kW	10.25	10.25		
Coefficient of Performance COP ²		3.9	3.9		
Recovery @ 50°C Rise ²	L/hr		680		
Operating Range (ambient)	°C		5-45		
Maximum DHW Temperature	°C		65		
Refrigerant			R134a		
Hot Water Side					
TPR Valve Setting (VE/RT)	kPa	1	1,000/850		
ECV Setting (VE/RT) ³	kPa		850/700		
Maximum Water Supply Pressure	kPa				
- Without ECV (VE/RT)			800/680		
- With ECV (VE/RT)			650/550		
Design Flow Rate	L/s		2.2		
Design Pressure Drop	kPa	40			
Heat Exchanger Design		316 Stainless Steel DWBP			
Air Side					
Air Flow (at maximum static pressure)	L/s	5,830	5,270		
Maximum Static Pressure	Ра	80	20		
Minimum Ventilation per inlet and outlet	m ²		1.93		
Electrical Connection					
Power Supply		3 Phase /	/ 380-415V / 50 Hz		
Max Current per Phase (running, incl pump)	Amps	34.9	32.34		
Minimum Circuit Breaker size (per phase)	Amps		40		
Installation Data					
Approx Weight Empty	kg		300		
Approx Weight Full	kg		310		
Storage per Heat Pump	L	4	00-8,000		
Sound Pressure Level	dBa		69 @ 3m		
Clearances					
Evap Coil Side	mm		1,000		
Back (vertical discharge models)	mm	Nil			
Back (horizontal discharge models)	mm		2,000		
Display Side	mm		850		
Water Connection Side	mm		600		
Top (vertical discharge models)	mm		2,000		
Top (horizontal discharge models)	mm	Clearance above unit requ	uired for service personnel to stand		

PUMP AND PIPE SIZING CHART				
Number of Heat Pumps in Parallel	1	2	3	4
Primary Pump		Grundfo	s CM 10-1	
Branch Size		Ę	50	
Header Size	50	80	100	100
Note: Header nine sizing is based on a total length of 4	10m of primary flo	w and return nini	ng and 20 bends	excluding

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

ACCESSORIES			
Storage Tank	Pump	BMS Card	LAN Cable
410L (VE)		17520- BACnet TCP/IP	
1000L to 5000L (SS)	CM 10-1 366094	17521- BACnet MS/TP	17534
	000001	17522- Modbus RS485	

¹ When ambient temperature is not likely to drop below 10°C during operation.
 ² 20°C ambient/60%RH. 39°C water in / 45°C water out.
 ³ ECV not supplied with water heater.

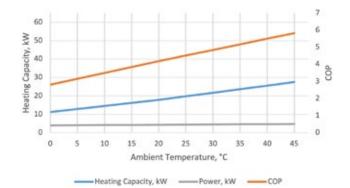
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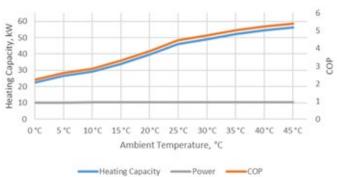
AIR TO WATER 16KW MODEL RECOVER	Y									
Ambient Temperature °C	0	5	10	15	20	25	30	35	40	45
Output (kW)	11.18	12.85	14.51	16.17	17.83	19.76	21.69	23.62	25.55	27.48
Recovery – Litres per hour										
20°C rise	481	553	624	695	767	850	933	1016	1099	1182
25°C rise	385	442	499	556	613	680	746	813	879	945
30°C rise	320	368	416	464	511	566	622	677	732	788
35°C rise	274	315	356	397	438	485	532	580	627	675
40°C rise	240	276	312	348	383	425	466	508	549	591
45°C rise	214	246	277	309	341	378	415	451	488	525
50°C rise	N/A	221	250	278	307	340	373	406	439	473
55°C rise	N/A	201	227	253	279	309	339	369	400	430

AIR TO WATER 35KW MODEL RECOVER	Y									
Ambient Temperature °C Output (kW)	0 22.63	5 26.60	10 29.07	15 33.96	20 39.55	25 46.04	30 49.05	35 52.11	40 54.57	45 56.28
Recovery – Litres per hour										
20°C rise	973	1144	1250	1460	1701	1980	2109	2241	2347	2420
25°C rise	778	915	1000	1168	1361	1584	1687	1793	1877	1936
30°C rise	649	763	833	974	1134	1320	1406	1494	1564	1613
35°C rise	556	654	714	834	972	1131	1205	1280	1341	1383
40°C rise	487	572	625	730	850	990	1055	1120	1173	1210
45°C rise	432	508	556	649	756	880	937	996	1043	1076
50°C rise	N/A	458	500	584	680	792	844	896	939	968
55°C rise	N/A	416	455	531	618	720	767	815	853	880

16 kW A2W COP and Heating Capacity

35 kW A2W COP and Heating Capacity





WATER TO WATER HEAT PUMP

FOR WHERE ENERGY EFFICIENCY IS ESSENTIAL

The Rheem Water to Water (W2W) range.

Includes units using readily available R134a for hot water heating up to 65°C, with a minimum entering water temperature on the building chiller loop of 12°C, or higher temperatures on the condenser loop, 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 7.0^1 . The efficiency in hot water production is up to 4.0^1 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 3.0^1 .

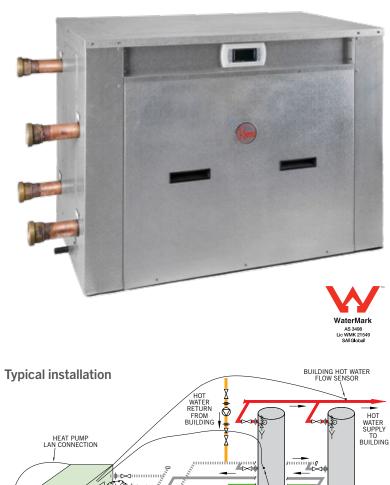
RETURN ON INVESTMENT

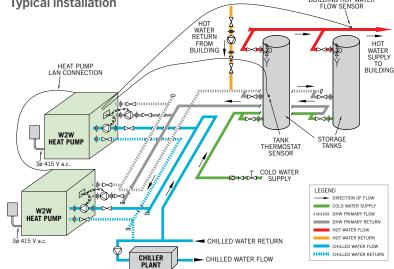
High COP of this product provides enormous savings compared to gas and electric heating systems which results in a very favourable return on investment making the W2W HP both a sound environmental and financial investment.

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
- Rheem iQ control provides on board diagnostics, system configuration and optional high level BMS connectivity via Modbus or BACnet







INSTALL A

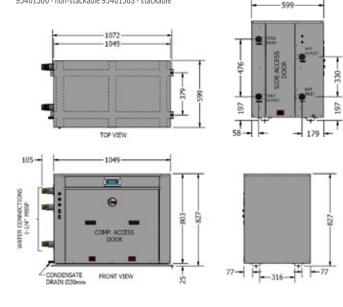
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15kW Model

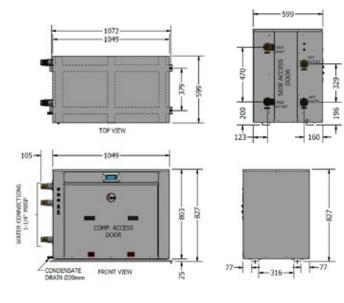
95401500 - non-stackable 9540150S - stackable



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35kW Model

95403500 - non-stackable 9540350S - stackable



MODEL	15kW	35kW
Nominal Heating Capacity at 12°C Cold Water Temperature ¹	15kW	34.75kW
Nominal Cooling Capacity at 12°C Cold Water Temperature ¹	11.3kW	25.9kW
Nominal Heating Capacity at 35°C Cold Water Temperature ²	27.65kW	64.84kW
Power Input kW ¹	3.69kW	8.75kW
Coefficient of Performance (Heating) ¹ at 12°C	4.06	3.97
Coefficient of Performance (Cooling) ¹ at 12°C	3	3
Coefficient of Performance (Heating) ² at 35°C	6.97	7.1
Maximum DHW Temperature	65	i°C
Refrigerant	R13	34a
Hot Water Side		
TPR Valve Setting (VE/SS)	1000/8	50 kPa
ECV Setting (VE/SS) ³	850/7	00 kPa
Maximum Water Supply Pressure – Without ECV (VE/SS) ³ – With ECV (VE/SS) ³		80 kPa 50 kPa
Hot Water Side Flow Rate	1.1L/s	2.2L/s
Heat Exchanger Heating Design		less steel – brazed plate
Design Heating Temperature Difference	6'	°K
Design Pressure Drop	40	kPa
Cold Water Side		
Maximum Water Supply Pressure	245	OkPa
Cold Water Side Flow Rate	1.1L/s	1.85L/s
Heat Exchanger Cooling Design		less steel – prazed plate
Design Cooling Temperature Difference	5'	°К
Design Pressure Drop	40	kPa
Electrical Connection	3 Phase / 4	15V / 50Hz
Max Current per Phase (running, incl pumps)	13.96	29.94
Minimum Circuit Size (per phase)	20A	40A
Sound Pressure Level	59dBa	a @ 3m
Approx Weight Empty	100kg	120kg
Approx Weight Full	105kg	125kg
Storage per Heat Pump	400L to 4000L	400L to 8000L
Clearances		
Front	850	Imm
Back	Nil	mm
Water Connections Side	500	Imm
RHS Side	Nil	mm
Top (clearance above unit required for service personnel to stand)	350	Imm
Rating Conditions: Heating 39°C water in, 45°C water out, 51°C SCT, Cold 3	12°C water in. 7°C wate	er outlet. 2°C SST.

Rating Conditions: Heating 39°C water in, 45°C water out, 51°C SCT, Cold 12°C water in, 7°C water outlet, 2°C SST.
 Rating Conditions: Heating 39°C water in, 45°C water out, 51°C SCT, Cold 35°C water in, 29.5°C water outlet, 10°C SST.
 ECV not supplied with water heater

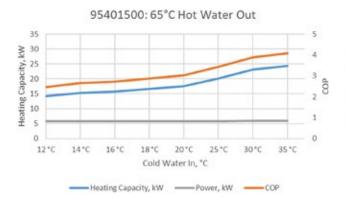
ACCESSORIES			
Storage Tank	Pump	BMS Card	LAN Cable
410L (VE)	2 x CM 3-2 (16kW)	17520-BACnet TCP/IP	
		17521-BACnet MS/TP	17534
1000L to 5000L (SS) 2	2 x CM 10-1 (35kW)	17522-Modbus RS485	

PUMP AND PIPE SIZING CHART											
		15	kW			35	kW				
No. of Heat Pumps											
in Parallel	1	2	3	4	1	2	3	4			
Pump		Grundfo	s CM 3-2			Grundfo	s CM10-1				
Branch Size (mm)		4	0			5	50				
Header Size (mm)	40	50	65	80	50	80	100	100			
No. of Heat Pumps		COLD				COLD) SIDE				
in Parallel	1	2	3	4	1	2	3	4			
Pump	Grundfos CM 3-2					Grundfo	s CM10-1				
Branch Size (mm)	40					5	50				
Header Size (mm)	40	50	65	80	50	80	100	100			

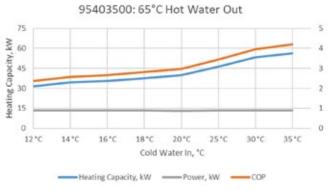
RECOVERY – 15 KW W2W								
Ambient Temperature °C Output (kW)	12 14.99	14 16.46	16 16.97	18 18.06	20 19.21	25 22.39	30 26.04	35 27.65
Recovery – Litres per hour								
20°C rise	645	708	730	777	826	963	1120	1189
25°C rise	516	566	584	621	661	770	896	951
30°C rise	430	472	486	518	551	642	746	793
35°C rise	368	404	417	444	472	550	640	679
40°C rise	322	354	365	388	413	481	560	594
45°C rise	286	315	324	345	367	428	498	528
50°C rise	258	283	292	311	330	385	448	476
55°C rise	234	257	265	282	300	350	407	432

RECOVERY – 35 KW W2W								
Ambient Temperature °C	12	14	16	18	20	25	30	35
Output (kW)	34.75	38.21	39.44	42.00	44.72	52.25	60.98	64.84
Recovery – Litres per hour								
20°C rise	1494	1643	1696	1806	1923	2247	2622	2788
25°C rise	1195	1314	1357	1445	1538	1797	2098	2231
30°C rise	996	1095	1131	1204	1282	1498	1748	1859
35°C rise	854	939	969	1032	1099	1284	1498	1593
40°C rise	747	822	848	903	961	1123	1311	1394
45°C rise	664	730	754	803	855	999	1165	1239
50°C rise	598	657	678	722	769	899	1049	1115
55°C rise	543	597	617	657	699	817	954	1014

15 kW W2W COP and Heating Capacity



35 kW W2W COP and Heating Capacity



INSTALL A

leem