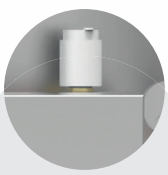
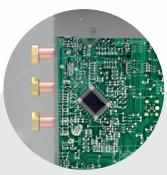
joule
Manufacturing Excellence

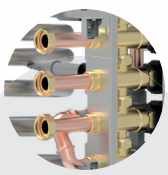
SAMSUNG

PACKAGED HEAT PUMP
SOLUTIONS


KODIAK COILS
Smooth Tube
High Efficiency


ACCTUATORS
Accurate
Zone Control


PCB
ELECTRIC BOARD
Easy Wiring


KODIAK MAINFOLD
Simple Assembly

For more products
and information visit:

www.jouleuk.co.uk

SAL-0011-1

INTRODUCING THE JOULE AIR SOURCE HEAT PUMP **POWERED BY SAMSUNG**

The ultimate in home climate convenience is here, thanks to ClimateHub - Samsung's new integrated solution for heating and domestic hot water supply.

With straightforward installation, smooth commissioning, quiet operation and smart connectivity, maintaining home comfort has finally been made easy.

R32
NEW REFRIGERANT GAS

The Technology - Air Source Heat Pumps

A heat pump is an energy-efficient system that uses the heat from the ambient air for heating and hot water. By using the ambient air and transferring this heat into the house through a hydronic system, such as underfloor heating, a heat pump requires less power input and offers greater power output than conventional boilers.

Quiet Operation

SAMSUNG IN QUIET MODE IS QUIETER THAN MITSI ULTRA QUIET

Today's climate systems need to meet increasingly strict sound level requirements and limit aural disturbance around the home. The Samsung ClimateHub system's 4-Step Quiet Mode allows users to reduce noise levels of the heat pump outdoor unit to as low as 35dB(A).

Smart Connectivity

CONNECTS INTO SMART THINGS CONTROL ENVIRONMENT

The ClimateHub system can be managed remotely. Using the optional Wi-Fi kit, users can control different aspects of the system through the Samsung SmartThings app - turn it on and off, control the functions and schedule its operation, from anywhere

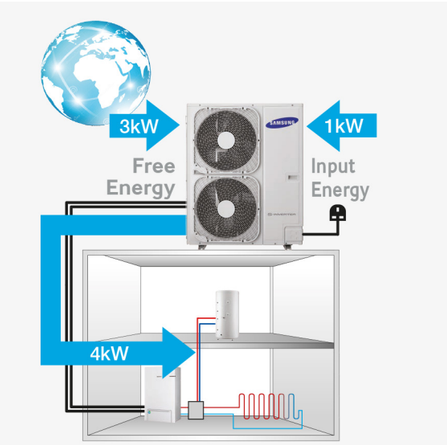
How it works?

A heat pump is an electrical device that extracts heat from one place and transfers it to another. The heat pump is not a new technology; it has been used around the world for decades. Refrigerators and air conditioners are both common examples of this technology.

Heat pumps transfer heat by circulating refrigerant through a cycle of evaporation and condensation. A compressor pumps the refrigerant between two heat exchanger coils. In one coil, the refrigerant is evaporated at low pressure and absorbs heat from its surroundings.

The refrigerant is then compressed en route to the other coil, where it condenses at high pressure. At this point, it releases the heat it absorbed earlier in the cycle.

Refrigerators and air conditioners are both examples of heat pumps operating only in the cooling mode. A refrigerator is essentially an insulated box with a heat pump system connected to it.

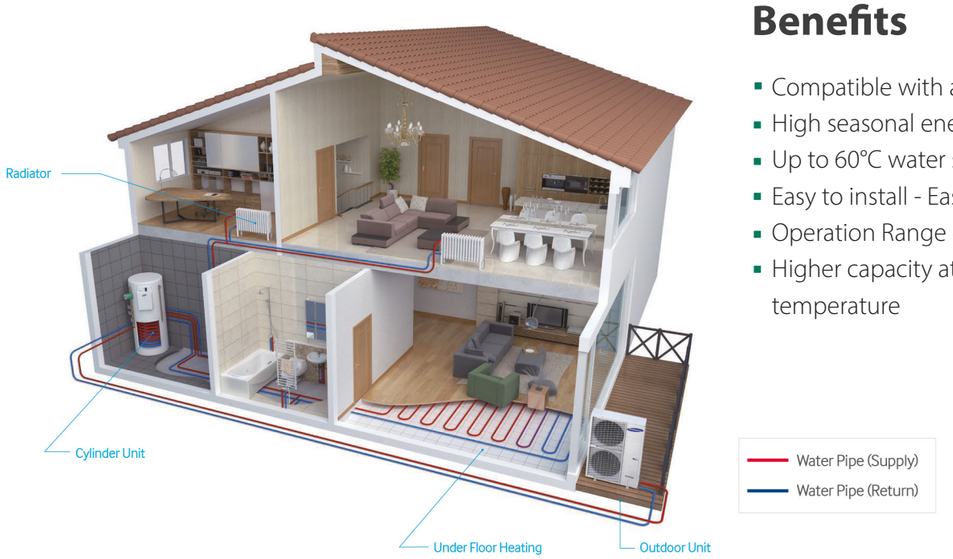


For every 1 kWh of energy input

=

An air source heat pump can deliver up to more than **4 kWh** in energy output.

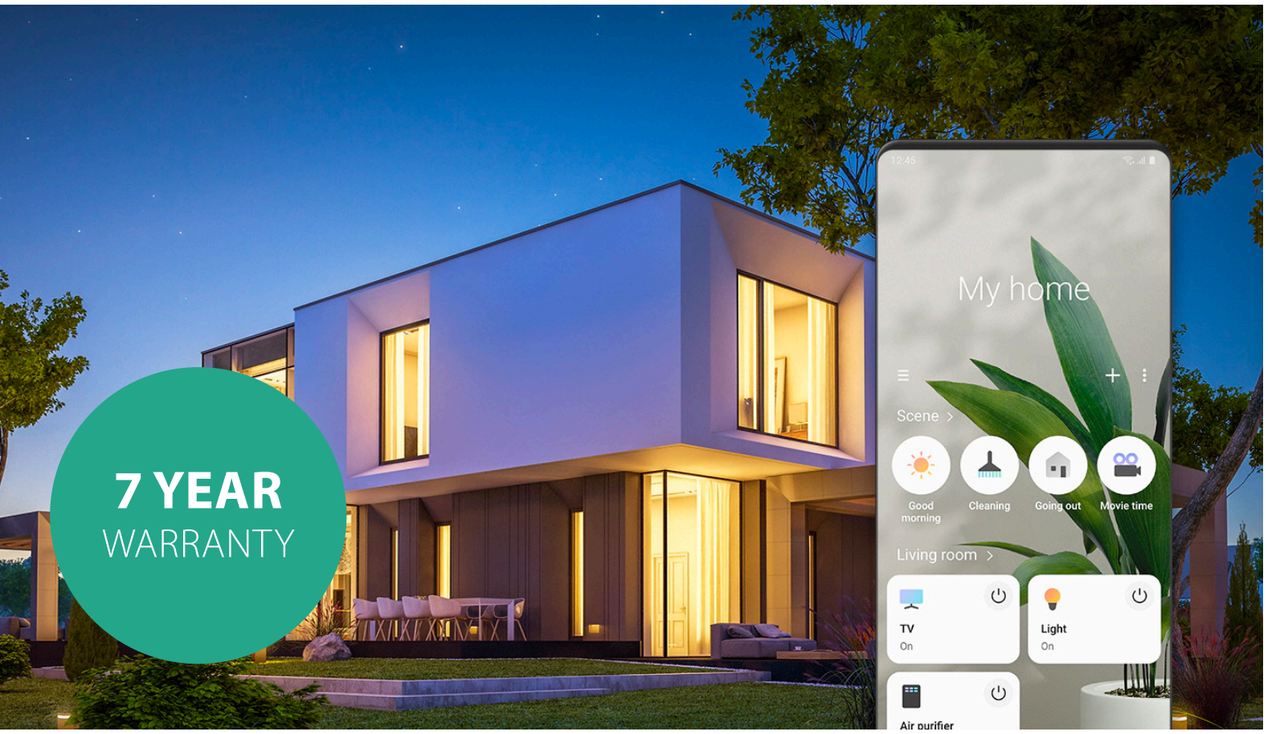
This is an energy efficiency ratio of more than **400%**, which is far superior to high energy efficiency boiler systems. Our heatpump packages have class leading SCOP.



Air Source Heat Pump Benefits

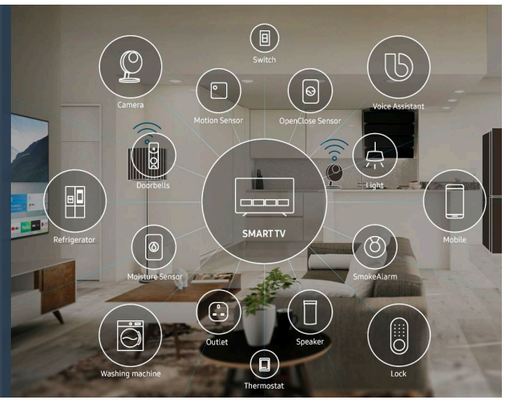
- Compatible with all low temp. systems
- High seasonal energy efficiency
- Up to 60°C water supply
- Easy to install - Easy to control
- Operation Range down to -20°C
- Higher capacity at low ambient temperature

SmartThings in conjunction with joule Manufacturing Excellence

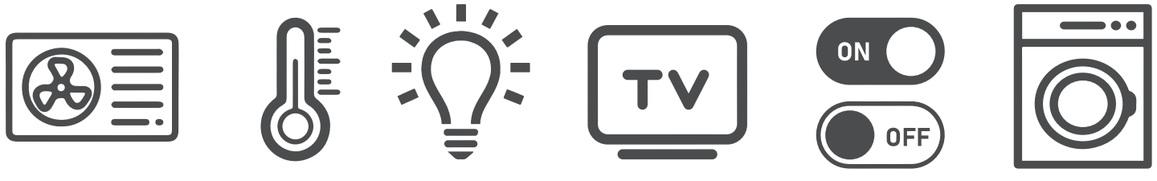


Hands-free control.

Use Bixby on your Galaxy phone to control your smart devices with your voice.



Smart Applications:



More available at: https://www.samsung.com/uk/apps/smartthings/

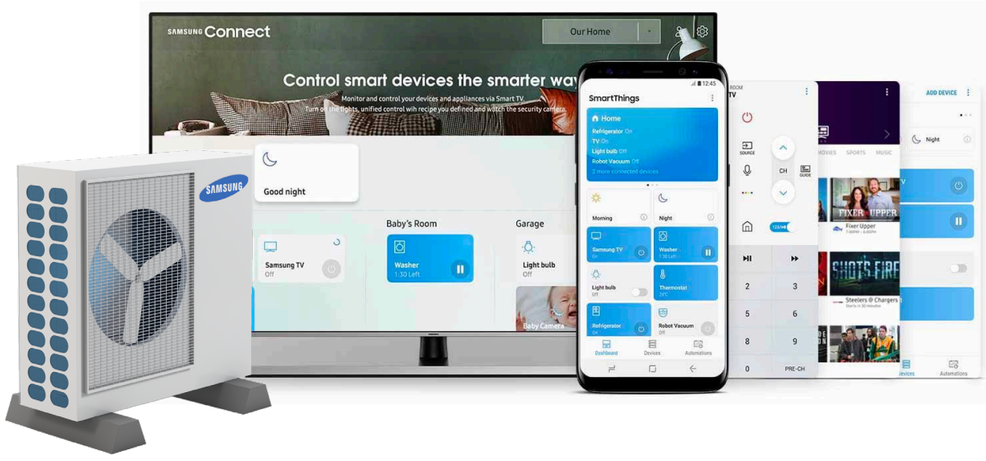
Samsung Smart - Samsung SmartThings App

More smart devices, one smart app.

Connect, automate, and manage all your Samsung and SmartThings-compatible appliances and electronics with a single, easy-to-use app.

Because smart should be simple, however many devices you bring home.

CONNECTS INTO SMART THINGS CONTROL ENVIRONMENT
Connect to your heatpump and smart cylinder from the comfort of your living room.



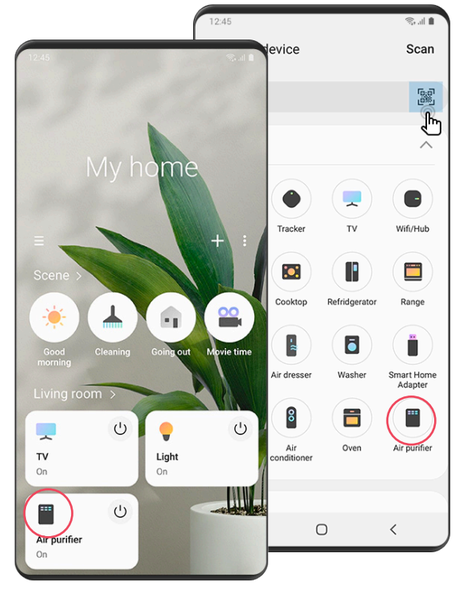
One app, multiple screens.

Access SmartThings features across a family of Samsung products, including smart phones, TVs, and fridges.

Your home, your way.

Make your home smarter with custom automation. Create schedules and scenarios, and let SmartThings do the rest.

It can even suggest new smart ways to automate your day.



joule KODIAK
Manufacturing Excellence

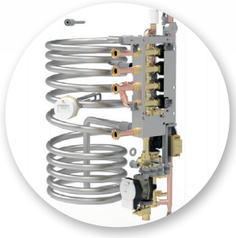
KODIAK
PRE PLUMB CYLINDER

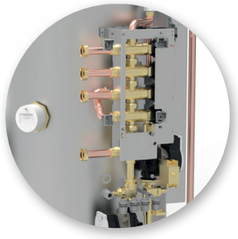
The Joule Kodiak cylinder provides improved performance and faster heat up times using smooth tube coil. Pre-plumbed cylinders come complete with integrated hydraulic components and advance controls.

Designed to minimise floor space and footprint whilst still offering optimum performance, the cylinder completely integrates with the Samsung monobloc air source heat pump range. The next generation compact Pre-Plumbed pack is designed to control the distribution of heat to each zone.

A unique, patented, modular zonal control manifold for heating and hot water systems.

Joule have optimised the layout ofthe preplumb developing a patented hydraulic design while also making it easier and faster to install the cylinder with improved access for the installer.





The hydraulic heating control section consists of:

- 2-port valve and motors
- ERP rated 7 metre circulating pump
- Pre-plumb hot water pipework
- By-pass valve
- Filling point connection

Joule-Samsung Mono

R32 A+++

Outdoor Unit				HHSM -G600005-1	HHSM -G600008-1	HHSM -G600012-1	HHSM -G600016-1
Controller				HZSMC -G6000000	HZSMC -G6000000	HZSMC -G6000000	HZSMC -G6000000
Operation	Nominal Capacity	Heating A7/W35[1]/A7/W55[2]	W	5.000/4.300	8.000/7.100	12.000/11.300	16.000/15.000
		Cooling A35/W18[1]	W	5.000	7.500	12.000	14.000
	Power Input (Nominal)	Heating A7/W35[1]/A7/W55[2]	W	1.030/1.520	1.770/2.530	2.650/3.730	3.620/5.180
		Cooling A35/W18[1]	W	1.140	1.900	2.770	3.280
	COP (Nominal Heating) A7/W35[1]/A7/W55[2]		W/W	4,85/2,83	4,52/2,81	4,53/3,03	4,42/2,90
	EER (Nominal Cooling) A35/W18[1]		W/W	4,39	3,95	4,33	4,27
	SCOP LWT 35°c/55°c		W/W	4,46/3,2	4,44/3,23	4,69/3,51	4,48/3,53
	Average Seasonal Space Heating Eff.Class*		-	A+++/A++	A+++/A++	A+++/A++	A+++/A++
	Current	MCA	A	16,00	22,00	28,00	32,00
		MFA	A	20,00	27,50	35,00	40,00
	Water Flow Rate	Min	l/min	7,00	7,00	12,00	12,00
		Max	l/min	48,00	48,00	58,00	58,00
	Leaving Water Temp	Heating	°C	15-65	15-65	15-65	15-65
		Cooling	°C	5-25	5-25	5-25	5-25
Function	Smart Grid Ready		-	●	●	●	●
	PV Enabled		-	●	●	●	●
	2-Zone Control		-	●	●	●	●
Power Supply			0,#,V,Hz	1Ø,220-240V,50Hz	1Ø,220-240V,50Hz	1Ø,220-240V,50Hz	1Ø,220-240V,50Hz
Compressor	Type		-	BLDC Twin Rotary	BLDC Twin Rotary	BLDC Twin Rotary	BLDC Twin Rotary
Base Heater			-	--	●	●	●
Sound	Sound	Heating Std	dB(A)	45	48	50	52
	Pressure	Cooling Std	dB(A)	45	48	50	54
	Sound	Heating Std	dB(A)	61	63	64	66
	Power	Cooling Std	dB(A)	62	64	65	68
Dimensions	Net Weight		Kg	58.5	76	110	110
	Net Dimensions (WxHxD)		mm	880 x 798 x 310	940 x 998 x 330	940 x 1420 x 330	940 x 1420 x 330
Refrigerant	Type		-	R32	R32	R32	R32
	Factory Charging		tC02e	0,68	0,78	1,49	1,49
			kg	1,00	1,15	2,20	2,20
Piping	Water Pipe	Inlet/Outlet	Ø,mm	28/28	28/28	28/28	28/28
	Water Pipe (DHW)	Inlet/Outlet	Ø,mm	22/22	22/22	22/22	22/22
Operation	Ambient Temperature	Heating	°C	-25-35	-25-35	-25-35	-25-35
		Cooling	°C	10-46	10-46	10-46	10-46
		DHW	°C	-25-43	-25-43	-25-43	-25-43

Joule-Samsung Mono

	Step 1				
Outdoor Unit	Sound Power dB(A)[2]	Output (kW)[1]	Correction Factor	Corrected Output (kW)	Corrected Sound Power dB(A)[2]
HHSM-G600005-1	61	4.97	0.87	4.32	58
HHSM-G600008-1	63	7.56	0.87	6.58	60
HHSM-G600012-1	64	12.81	0.87	11.14	61
HHSM-G600016-1	66	12.95	0.87	11.27	63

	Step 2				
Outdoor Unit	Sound Power dB(A)[2]	Output (kW) [1]	Correction Factor	Corrected Output (kW)	Corrected Sound Power dB(A)[2]
HHSM-G600005-1	61	4.97	0.78	3.88	56
HHSM-G600008-1	63	7.56	0.78	5.90	58
HHSM-G600012-1	64	12.81	0.78	9.99	59
HHSM-G600016-1	66	12.95	0.78	10.10	61

	Step 3				
Outdoor Unit	Sound Power dB(A)[2]	Output (kW) [1]	Correction Factor	Corrected Output (kW)	Corrected Sound Power dB(A)[2]
HHSM-G600005-1	61	4.97	0.64	3.18	54
HHSM-G600008-1	63	7.56	0.64	4.84	56
HHSM-G600012-1	64	12.81	0.64	8.20	57
HHSM-G600016-1	66	12.95	0.64	8.29	59

*1 These capacitys are calcuated at A2/W45. *2 Sound pressure values for heating mode.

Joule Item Code	HHSM-G600005-1	HHSM-G600005-1	HHSM-G600005-1	HHSM-G600008-1	HHSM-G600008-1	HHSM-G600008-1
Index number	104359	104360	104361	104367	104368	104369
Model name	AE050RXYDEG	AE050RXYDEG	AE050RXYDEG	AE080RXYDEG	AE080RXYDEG	AE080RXYDEG
Fuel	Electricity					
Heat emitter	Flow temp <= 55°C	Flow temp <= 45°C	Flow temp <= 35°C	Flow temp <= 55°C	Flow temp <= 45°C	Flow temp <= 35°C
Output power (kW) [@-4.7°C]	4.400	4.830	5.090	7.270	7.970	7.270
Reversible	No					
Heat source	Air					
Service provision	Space and water heating all year					
Heating duration						
Weather Compensation	Yes					
HW vessel	Separate and specified vessel					
HW volume (l)	150					
HW heat loss rate (kWh/day)	1.770					
HW heat exchanger area (m2)	0.950	0.950	0.950	1.250	1.250	1.250

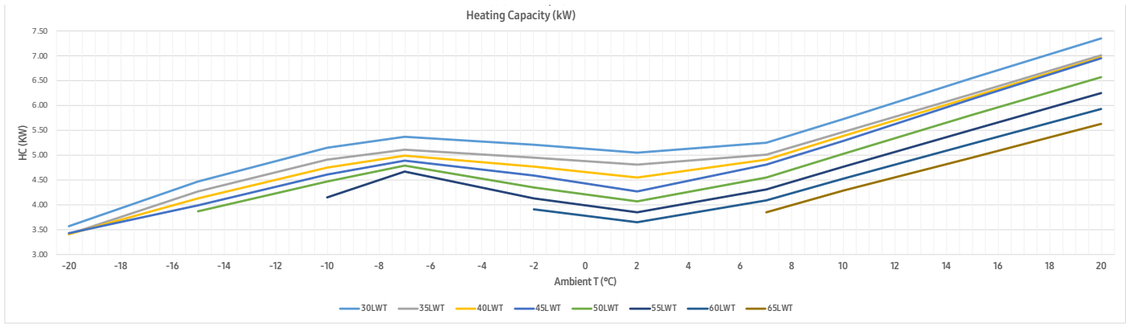
Joule Item Code	HHSM-G600012-1	HHSM-G600012-1	HHSM-G600012-1	HHSM-G600016-1	HHSM-G600016-1	HHSM-G600016-1
Index number	104375	104376	104377	104383	104384	104385
Model name	AE120RXYDEG	AE120RXYDEG	AE120RXYDEG	AE160RXYDEG	AE160RXYDEG	AE160RXYDEG
Fuel						
Heat emitter	Flow temp <= 55°C	Flow temp <= 45°C	Flow temp <= 35°C	Flow temp <= 55°C	Flow temp <= 45°C	Flow temp <= 35°C
Output power (kW) [@-4.7°C]	10.580	11.610	11.690	14.180	15.550	14.430
Reversible	No					
Heat source	Air					
Service provision	Space and water heating all year					
Heating duration						
Weather Compensation	Yes					
HW vessel	Separate and specified vessel					
HW volume (l)	150					
HW heat loss rate (kWh/day)	1.770					
HW heat exchanger area (m2)	1.800	1.800	1.800	1.800	1.800	1.800

Maximum Heating Capacity (Integrated Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), Pl (Power input)

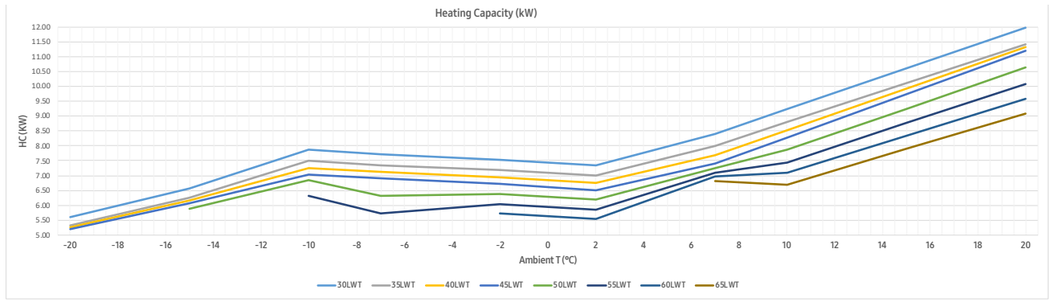
HHSM-G600005-1

LWT(℃)	30		35		40		45		50		55		60		65	
Tamb(℃)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)
-20	3.57	1.42	3.40	1.60	3.41	1.69	3.43	1.98								
-15	4.47	1.63	4.26	1.83	4.12	1.92	3.99	2.00	3.87	2.10						
-10	5.15	1.69	4.90	1.90	4.75	1.99	4.61	2.08	4.47	2.18	4.15	2.39				
-7	5.36	1.67	5.10	1.88	4.99	2.12	4.88	2.36	4.78	2.58	4.67	2.79				
-2	5.20	1.48	4.95	1.67	4.76	1.83	4.58	1.99	4.35	2.24	4.12	2.49	3.90	2.76		
2	5.04	1.29	4.80	1.45	4.54	1.54	4.27	1.62	4.06	1.82	3.84	2.03	3.64	2.25		
7	5.25	0.92	5.00	1.03	4.90	1.17	4.80	1.30	4.55	1.41	4.30	1.52	4.08	1.56	3.85	1.60
10	5.73	0.92	5.46	1.04	5.38	1.18	5.29	1.31	5.03	1.48	4.76	1.64	4.53	1.69	4.29	1.74
15	6.54	0.94	6.23	1.05	6.17	1.18	6.12	1.33	5.81	1.50	5.51	1.66	5.23	1.72	4.95	1.77
20	7.35	0.95	7.00	1.07	6.97	1.20	6.94	1.35	6.56	1.52	6.25	1.69	5.93	1.74	5.62	1.79



HHSM-G600008-1

LWT(℃)	30		35		40		45		50		55		60		65	
Tamb(℃)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)
-20	5.60	2.21	5.33	2.48	5.27	2.70	5.20	3.13								
-15	6.56	2.42	6.25	2.72	6.15	2.94	6.06	3.16	5.88	3.32						
-10	7.86	2.66	7.49	2.99	7.26	3.14	7.04	3.28	6.83	3.45	6.33	3.77				
-7	7.72	2.69	7.35	3.02	7.13	3.17	6.91	3.32	6.31	3.56	5.71	3.85				
-2	7.53	2.39	7.18	2.69	6.94	2.83	6.71	2.97	6.37	3.34	6.03	3.71	5.72	4.13		
2	7.35	2.09	7.00	2.35	6.75	2.49	6.50	2.62	6.18	2.95	5.85	3.28	5.54	3.64		
7	8.40	1.58	8.00	1.70	7.70	1.95	7.40	2.12	7.25	2.33	7.10	2.53	6.96	2.62	6.81	2.72
10	9.23	1.57	8.79	1.77	8.53	1.97	8.28	2.17	7.86	2.44	7.45	2.71	7.08	2.79	6.70	2.88
15	10.60	1.56	10.10	1.76	9.92	1.97	9.74	2.24	9.25	2.52	8.76	2.80	8.33	2.89	7.89	2.98
20	11.98	1.56	11.41	1.75	11.31	2.01	11.20	2.32	10.64	2.61	10.08	2.90	9.58	2.99	9.07	3.08



1. Heat ing capacity : Capac ity is accord ing to Eurovent rating st andard OM-3-207 5 and val id for heated wate r range L¦t = 3 - 8°(

2. Cooli ng capac ity : Capa cit y is according to Eurovent rat ing standard OM-3-207 5 and vali d for chill ed water range L¦t = 3~8 ℃

3. Powe r input : Powe r input is accord ing to Eu rovent rat in g standard OM-3- 2015.

4. Peak value : Test ed with out defr ost operat ion in accordance with EN7 457 7

* The real capacity would be chang ed according to the in stall environment.

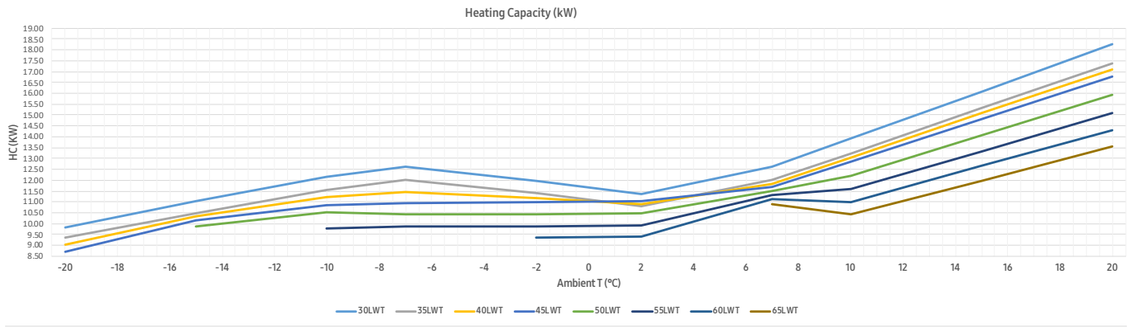
Joule Air Source Heat Pumps - Specification

Maximum Heating Capacity (Integrated Value)

LWT (Leaving Water Temp.), Tamb (Ambient Temp.), HC (Heating Capacity), Pl (Power input)

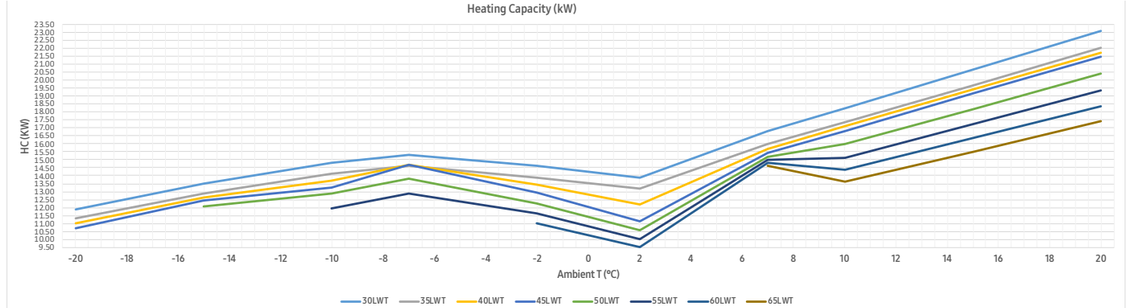
HHSM-G600012-1

LWT(℃)	30		35		40		45		50		55		60		65	
Tamb(℃)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)
-20	9.82	4.08	9.35	4.58	9.04	4.68	8.72	4.88								
-15	11.02	4.21	10.49	4.73	10.33	4.83	10.16	4.93	9.85	5.18						
-10	12.14	4.23	11.56	4.75	11.22	4.94	10.87	5.12	10.54	5.38	9.78	5.89				
-7	12.60	4.19	12.00	4.71	11.47	5.18	10.94	5.64	10.41	6.11	9.87	6.57				
-2	11.97	3.56	11.40	4.01	11.19	4.48	10.98	4.95	10.43	5.56	9.88	6.18	9.36	6.87		
2	11.34	2.94	10.80	3.30	10.91	3.78	11.02	4.25	10.47	4.78	9.92	5.31	9.40	5.90		
7	12.60	2.36	12.00	2.65	11.85	2.92	11.70	3.18	11.50	3.46	11.30	3.73	11.11	3.83	10.91	3.94
10	13.91	2.34	13.25	2.63	13.06	2.88	12.87	3.14	12.22	3.53	11.58	3.92	11.00	4.05	10.42	4.17
15	16.09	2.30	15.32	2.59	15.07	2.79	14.81	3.07	14.07	3.45	13.33	3.84	12.66	3.96	11.99	4.08
20	18.27	2.27	17.40	2.55	17.08	2.75	16.75	3.00	15.91	3.38	15.08	3.75	14.32	3.87	13.57	3.98



HHSM-G600016-1

LWT(℃)	30		35		40		45		50		55		60		65	
Tamb(℃)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)	HC(KW)	PI(KW)
-20	11.87	5.05	11.30	5.67	10.99	6.04	10.68	6.61								
-15	13.51	5.29	12.87	5.94	12.66	6.31	12.44	6.67	12.07	7.01						
-10	14.82	5.36	14.11	6.03	13.67	6.48	13.27	6.94	12.87	7.28	11.94	7.98				
-7	15.33	5.34	14.60	6.00	14.66	6.77	14.71	7.53	13.79	7.64	12.86	7.75				
-2	14.60	4.63	13.90	5.20	13.41	5.65	12.93	6.10	12.28	6.86	11.63	7.62	11.02	8.47		
2	13.86	3.92	13.20	4.40	12.17	4.53	11.14	4.66	10.58	5.24	10.03	5.83	9.50	6.47		
7	16.80	3.22	16.00	3.62	15.70	4.06	15.40	4.49	15.20	4.84	15.00	5.18	14.81	5.28	14.61	5.38
10	18.25	3.26	17.38	3.66	17.09	4.10	16.80	4.54	15.96	5.10	15.12	5.67	14.37	5.82	13.61	6.02
15	20.68	3.33	19.69	3.74	19.42	4.11	19.14	4.61	18.18	5.19	17.23	5.77	16.37	5.95	15.50	6.13
20	23.10	3.39	22.00	3.81	21.74	4.21	21.48	4.69	20.41	5.28	19.33	5.86	18.37	6.05	17.40	6.23



1. Heat ing capacity : Capac ity is accord ing to Eurovent rating st andard OM-3-207 5 and val id for heated wate r range L¦t = 3 - 8°(

2. Cooli ng capac ity : Capa cit y is according to Eurovent rat ing standard OM-3-207 5 and vali d for chilled water range L¦t = 3~8 ℃

3. Powe r input : Powe r input is accord ing to Eu rovent rat in g standard OM-3- 2015.

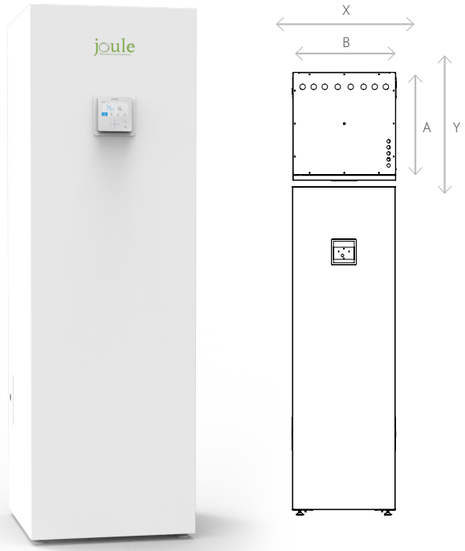
4. Peak value : Test ed with out defr ost operat ion in accordance with EN7 457 7

* The real capacity would be chang ed according to the in stall environment.

Compact Pre-Plumbed Cylinder
For Joule Samsung Monobloc Units

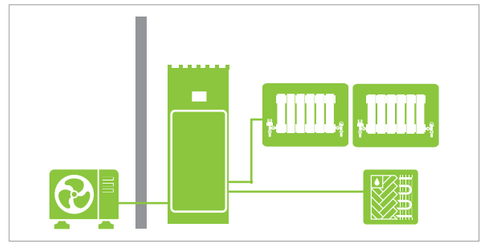
The new and innovative Smart Plumb Compact has been designed to not only look modern and minimise footprint for homeowners, but it also has been designed to benefit installers.

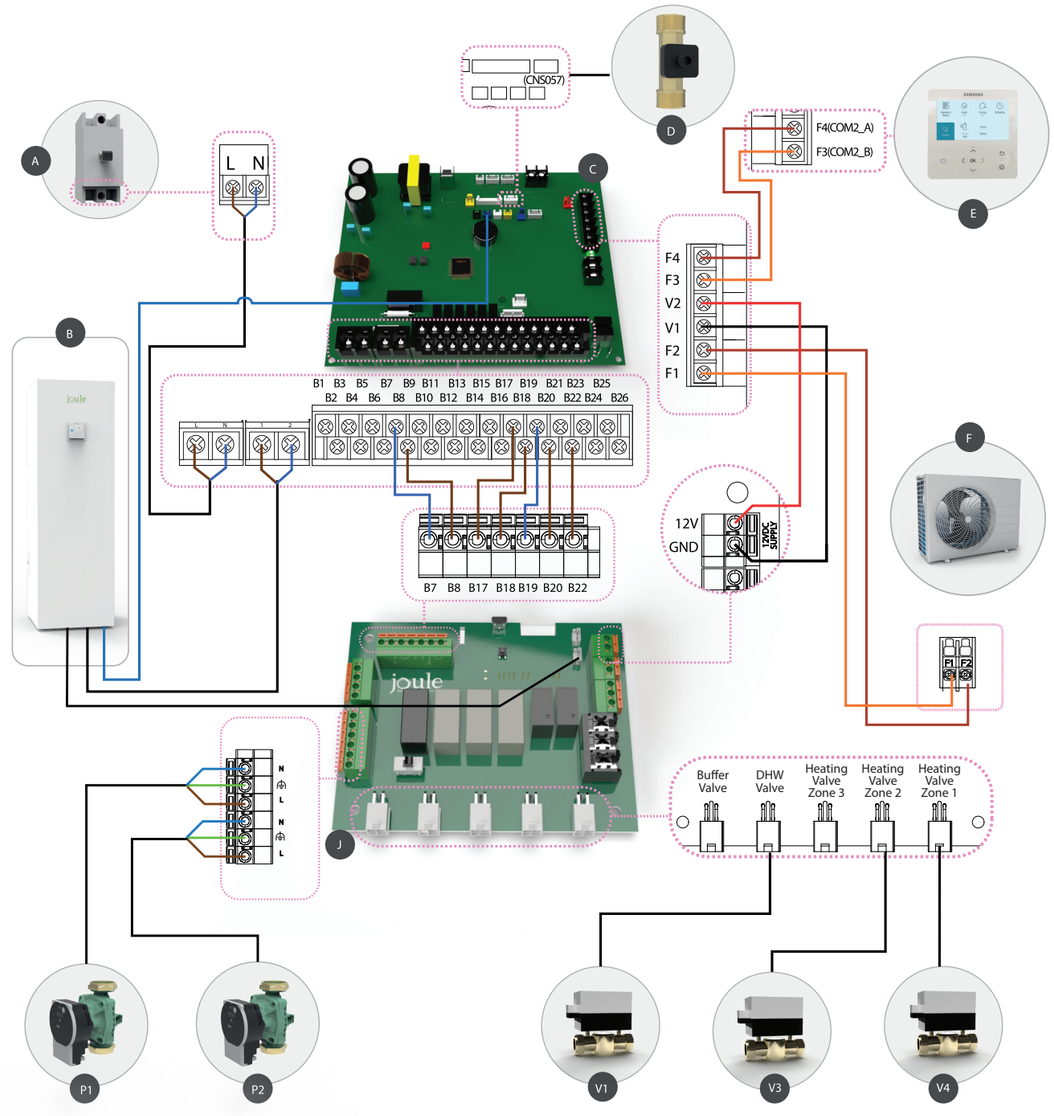
Having all main components easily accessible proves maintenance simple, as well as strategically assigning all valves to be part of one unit concludes everything being in a single place logically makes the job at hand simple, less time consuming and cost effective.



CYLINDER			HUGH-180COM-3C	HUGH-230COM-3C
NOMINAL HOT WATER VOLUME (LITRES)			180L	230L
HEAT PUMP COMBINATION HEATER - Large Profile (Average Climate) ErP Rating			C	
OPERATING AMBIENT TEMPERATURE (°C DB)			0 ~ +35°C (RH<80%)	0 ~ +35°C (RH<80%)
SOUND PRESSURE LEVEL AT 1M (dBA)			28	28
WATER		Primary Circuit Pump	willo- Yonos PARA RS 15	
		Sanitary Hot Water Pump		
		Connection Size (mm) Heating / DHW	28 / 22	28 / 22
WATER SAFETY DEVICES	Water Circuit	Control Thermistor (°C)	1 - 80	1 - 80
		Flow Sensor (minimum flow 7L/min)	Supplied	Supplied
	DHW Cylinder	Control Thermistor (°C)	75	75
		Temp and Pressure Relief Valve (°C)/ (MPa (Bar))	90 / 0.7 (7)	
DIMENSIONS (mm)		Width	595	
		Height	1900	
FOOTPRINT (mm)		Length (A)	620	
		Width (B)	595	
FREE FLOOR SPACE (mm)		Length (X)	595	
		Width (Y)	1020	
WEIGHT EMPTY / FULL (kg)			85/ 265	90/ 320
ELECTRICAL DATA		Electrical Supply	220-240v, 50Hz	
		Phase	Single	
		Fuse Rating - MCB Sizes (A)*1	20	
		Immersion Capacity (kW)	3	
		Max Running Current (A)	16	
		Fuse Rating - MCB Sizes (A)*1	20	

F	Samsung Outdoor Unit	V3	Heating Zone Valve 2
D	Flow Sensor	V4	Heating Zone Valve 1
P1	Primary Circulating Pump	E	Samsung Control Unit
P2	Heating Return Pump	B	Compact Pre Plumb Cylinder
V1	DHW Zone Valve	J	Kodiak PCB Board
A	30A ELCB	C	Samsung MIM Board

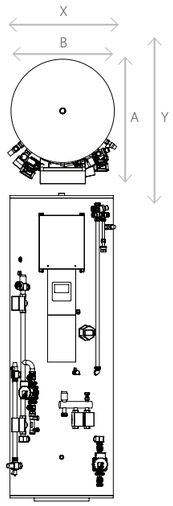




Smart Plumb Pre-Plumbed Cylinder
For Joule Samsung Monobloc Units

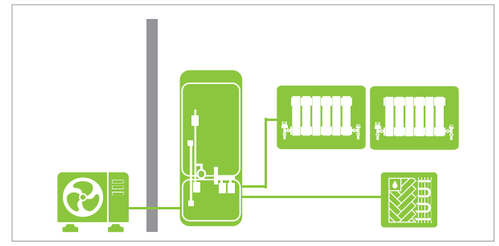
The Smart Plumb by Joule is the most innovative pre-plumbed solution for heat pump systems.
The cylinder / buffer combo is pre-plumbed, wired and commissioned before it leaves the factory.

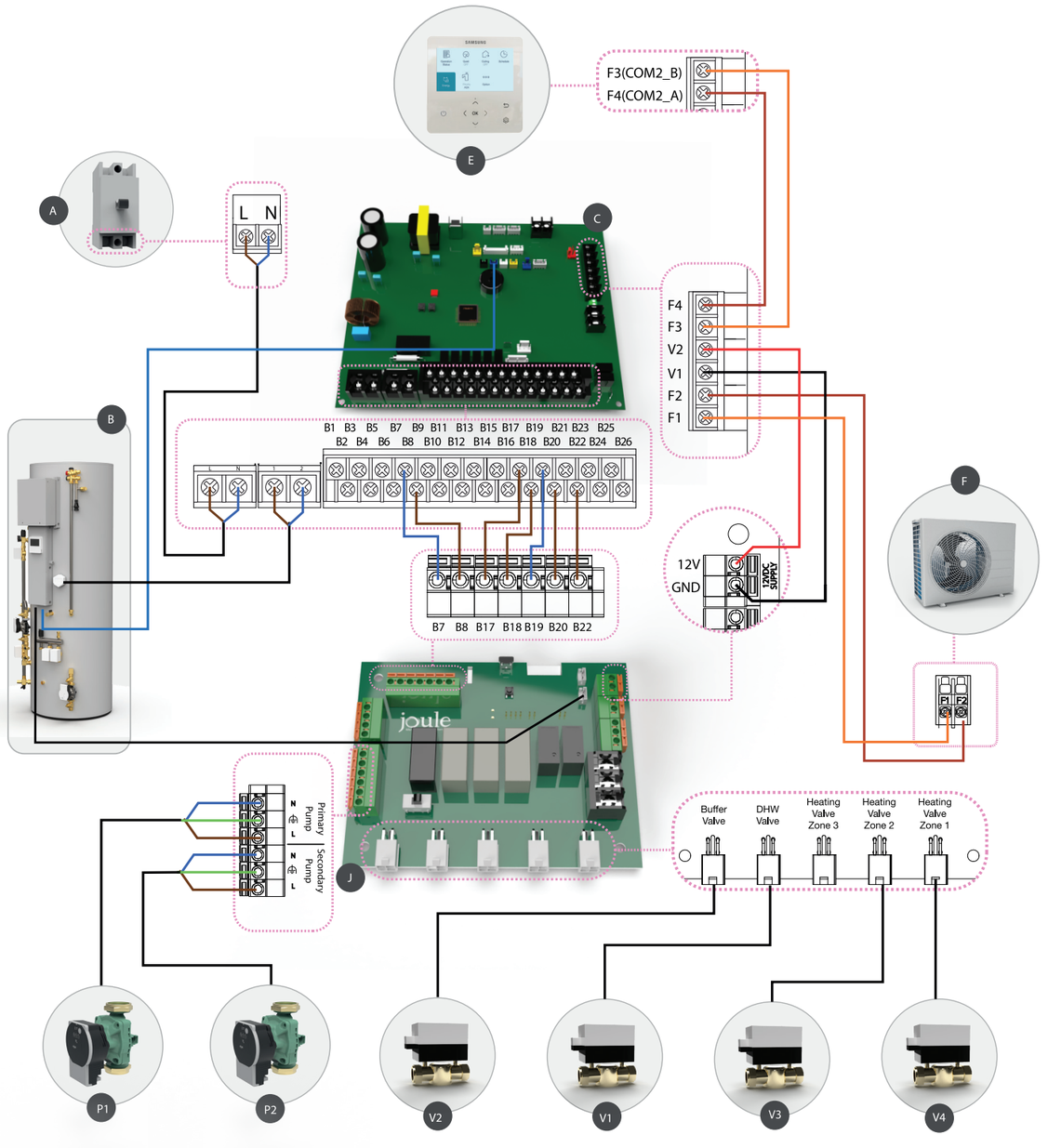
The buffer / low loss header acts as an intermediary vessel for the heating system which helps system flow rate and defrost cycling. With the cylinder sitting over the buffer tank the foot print has been greatly reduced. The control wires are all hidden behind the cable cover.



CYLINDER			HUGH-G61860-3C	HUGH-G62060-3C	HUGH-G62590-3C	HUGH-G63090-3C	HUGH-G63013-3C	HUGH-G64013-3C
NOMINAL HOT WATER VOLUME (LITRES)			180L/60L	200L/60L	250L/90L	300L/90L	300L/130L	400L/130L
ErP RATING			B/B	C/B	C/B	C/B	C/B	C/B
STANDING LOSS (W)			68	83	90	94	94	102
WATER		Primary Circuit Pump	Wilo - Yonos PARA RS 15					
		Heating Circuit Pump						
		Connection Size (mm) Heating / DHW	22mm					28mm
WATER SAFETY	Water Circuit	Control Thermistor (°C)	80					
	DHW Cylinder	DHW Expansion Vessel (Litres)	18					
		Control Thermistor (°C)	75					
		Over Temperature Cut-Out (°C)	80 ± 5					
		Temp and Pressure Relief Valve (°C) / (MPa (Bar))	90/0.7(7)					
		Expansion Relief Valve (Cold) (MPa (Bar))	0.6 (6)					
DIMENSIONS (mm)		Width	560		660		710	
		Height	1870	1980	1950		1850	2160
FOOTPRINT (mm)		Length (A)	740		800		910	
		Width (B)	740		800		910	
FREE FLOOR SPACE (mm)		Length (X)	1290		1350		1460	
		Width (Y)	840		900		1010	
WEIGHT EMPTY / FULL (kg)			78/ 318	83/ 343	92/ 432	96/ 451	101/ 491	113/ 643
CYLINDER MATERIAL	Cylinder	Cylinder Material	Stainless Steel Duplex LDX 2101					
	Insulation	Insulation Type	Polyurethane foam CFC-Free and HCFC Free					
		Insulation Thickness (mm)	50					
		GWP of Insulation	3.1					
		ODP of Insulation	0					
ELECTRICAL DATA		Electrical Supply	220-240v, 50Hz					
		Phase	Single					
		Fuse Rating - MCB Sizes (A)*1	20					
		Immersion Capacity (kW)	3					
		Max Running Current (A)	16					

F	Samsung Outdoor Unit	V3	Heating Zone Valve 2
D	Flow Sensor	V4	Heating Zone Valve 1
P1	Primary Circulating Pump	E	Samsung Control Unit
P2	Heating Return Pump	B	Smart Plumb Pre Plumb Cylinder
V1	DHW Zone Valve	J	Kodiak PCB Board
A	30A ELCB	C	Samsung MIM Board
V2	Buffer Valve		



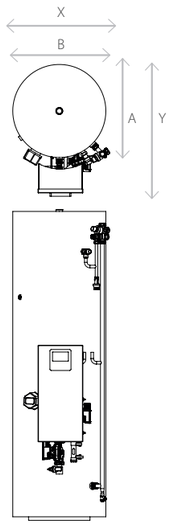


Standard KODIAK Pre-Plumbed Cylinder

For Joule Samsung Monobloc Units

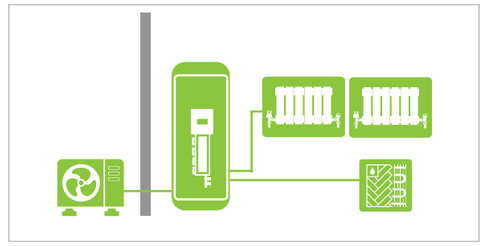
Our Koidak is the most innovative pre-plumbed solution for heat pump systems. The next generation compact Pre-Plumbed pack is designed to control the distribution of heat to each zone. A unique, patented, modular zonal control manifold for heating and hot water systems.

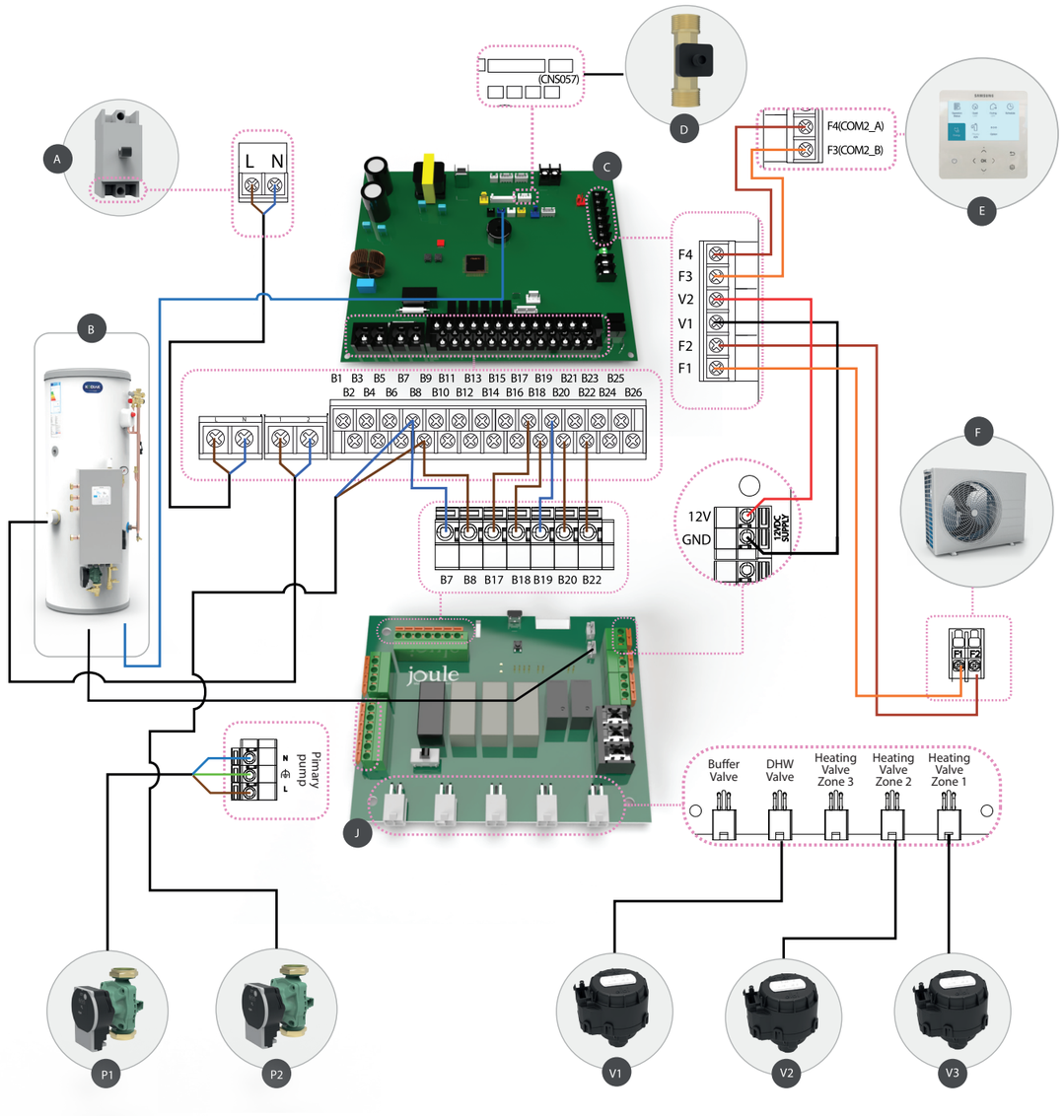
Joule have optimised the layout of the preplumb developing a patented hydraulic design while also making it easier and faster to install the cylinder with improved access for the installer.



CYLINDER			HUKH-G6150-L3C	HUKH-G6170-L3C	HUKH-G6200-L3C	HUKH-G6250-L3C	HUKH-G6300-L3C	HUKH-G6150-S3C	HUKH-G6170-S3C	HUKH-G6200-S3C
NOMINAL HOT WATER VOLUME (LITRES)			150	180	210	250	300	150	170	200
ErP RATING			C	C	C	C	C	C	C	C
STANDING LOSS (W)			55	66	81	89	92	70	79	84
WATER		Primary Circuit Pump	Wilo - Yonos PARA RS 15							
		Heating Circuit Pump								
		Connection Size (mm) Heating / DHW	22mm							
WATER SAFETY	Water Circuit	Control Thermistor (°C)	80							
	DHW Cylinder	DHW Expansion Vessel (Litres)	18							
		Control Thermistor (°C)	75							
		Over Temperature Cut-Out (°C)	80 ± 5							
		Temp and Pressure Relief Valve (°C) / (MPa (Bar))	90/0.7(7)							
		Expansion Relief Valve (Cold) (MPa (Bar))	0.6 (6)							
DIMENSIONS (mm)		Width	540	540	540	540	540	475	475	475
		Height	1134	1314	1499	1754	1974	1467	1732	1930
FOOTPRINT (mm)		Length (A)	540	540	540	540	540	475	475	475
		Width (B)	540	540	540	540	540	475	475	475
FREE FLOOR SPACE (mm)		Length (X)	1290	1290	1350	1350	1460	1920	1920	1920
		Width (Y)	840	840	840	840	840	740	740	740
WEIGHT EMPTY / FULL (kg)			58/208	64/244	66/266	77/327	82/382	58/205	64/244	66/266
CYLINDER MATERIAL	Cylinder	Cylinder Material	Stainless Steel Duplex LDX 2101							
	Insulation	Insulation Type	Polyurethane foam CFC-Free and HCFC Free							
		Insulation Thickness (mm)	50							
		GWP of Insulation	3.1							
		ODP of Insulation	0							
ELECTRICAL DATA		Electrical Supply	220-240v, 50Hz							
		Phase	Single							
		Fuse Rating - MCB Sizes (A)*1	20							
		Immersion Capacity (kW)	3							
		Max Running Current (A)	16							

F	Samsung Outdoor Unit	V3	Heating Zone Valve 2
D	Flow Sensor	V4	Heating Zone Valve 1
P1	Primary Circulating Pump	E	Samsung Control Unit
P2	Heating Return Pump	B	Compact Pre Plumb Cylinder
V1	DHW Zone Valve	J	Kodiak PCB Board
A	30A ELCB	C	Samsung MIM Board



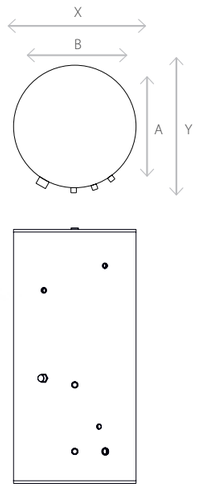


Standard Unplumbed Unvented Hot water Cylinder

For Joule Samsung Monobloc Units

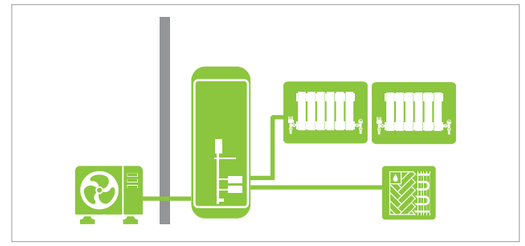
Joule hot water cylinders are next generation in pre-plumbed hot water solutions. With its sleek design and pre plumbed architecture the space requirements for the pre-plumbed hot water cylinder have been reduced dramatically.

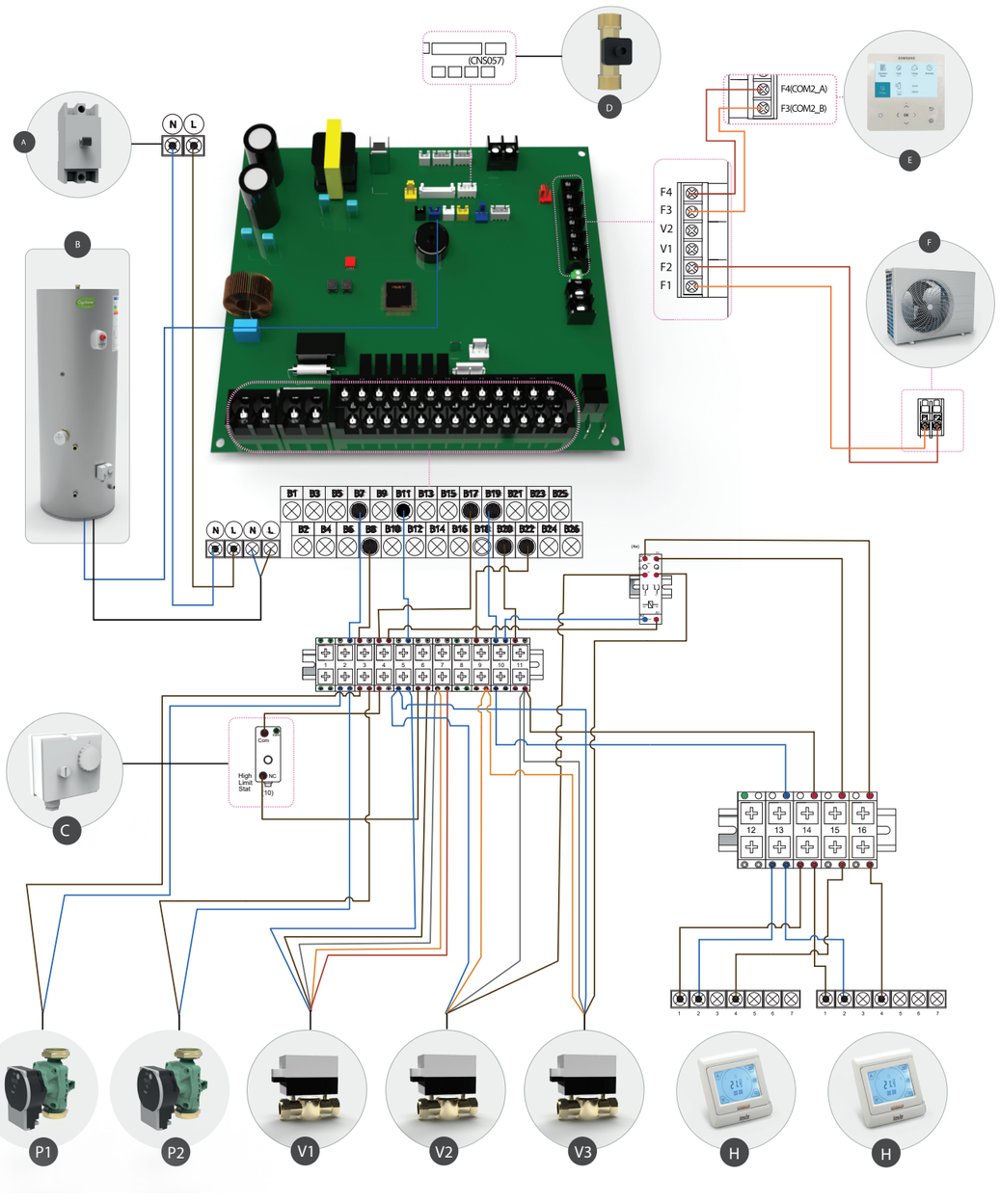
Our slimline models have been designed for the use in tight areas where there is more height than width available.



CYLINDER			TRJMVH-0180LFB	TRJMVH-0210LFB	TRJMVH-0250LFC	TRJMVH-0300LFC	TRJMVH-0180SFC	TRJMVH-0210SFC
NOMINAL HOT WATER VOLUME (LITRES)			180	210	250	300	180	210
ErP RATING			C	C	C	C	C	C
STANDING LOSS (W)			132	190	194	214	247	168
WATER		Primary Circuit Pump	N/A					
		Heating Circuit Pump						
		Connection Size (mm) Heating / DHW	28mm					
WATER SAFETY	Water Circuit	Control Thermistor (°C)	80					
	DHW Cylinder	DHW Expansion Vessel (Litres)	12L	19L			24L	12L
		Control Thermistor (°C)	75					
		Over Temperature Cut-Out (°C)	80 ± 5					
		Temp and Pressure Relief Valve (°C) / (MPa (Bar))	90/0.7(7)					
		Expansion Relief Valve (Cold) (MPa (Bar))	0.6 (6)					
DIMENSIONS (mm)		Width	540	540	540	540	475	475
		Height	1314	1499	1754	1974	1732	1930
FOOTPRINT (mm)		Length (A)	740	740	740	740	640	640
		Width (B)	740	740	740	740	640	640
FREE FLOOR SPACE (mm)		Length (X)	1290	1290	1350	1350	1460	1920
		Width (Y)	840	840	900	900	740	740
WEIGHT EMPTY / FULL (kg)			78/ 318	83/ 343	92/ 432	96/ 451	101/ 491	36/ 175
CYLINDER MATERIAL	Cylinder	Cylinder Material	Stainless Steel Duplex LDX 2101					
	Insulation	Insulation Type	Polyurethane foam CFC-Free and HCFC Free					
		Insulation Thickness (mm)	50					
		GWP of Insulation	3.1					
		ODP of Insulation	0					
ELECTRICAL DATA		Electrical Supply	220-240v, 50Hz					
		Phase	Single					
		Fuse Rating - MCB Sizes (A)*1	20					
		Immersion Capacity (kW)	3					
		Max Running Current (A)	16					

F	Samsung Outdoor Unit	V2	Heating Zone Valve 1
D	Flow Sensor	V3	Heating Zone Valve 2
P1	Primary Circulating Pump	E	Samsung Control Unit
P2	Heating Return Pump	C	High Limit Stat
V1	DHW Zone Valve	B	Standard Unplumbed Cylinder
A	30A ELCB	H	Joule Room Thermostat





Solution Key Features

- 7 year Warranty
- SCOP: Best on MCS Database – 4.52
- 65°C Hot Water
- <48DbdB - Quietest System on the Market
- 5Kw / 8 Kw Outputs
- Low GWP Refrigerant – R32

WHAT'S INCLUDED		
	Item Code	Item Code Description
	HZK-0Y-000001F	1"Y PATTERN STRAINER WITH ISOLATION
	HZK-0V-0000028	28mm Iso Valve Red
	HZK-0H28-0.075	Braided Hose 28mm 0.75m Ins Elbow (2 in a box)

RECOMMENDED COMPONENTS		
	Item Code	Item Code Description
	HZK-0K-0000000	ANTI-VIBRATION FIX-IT FOOT 600MM KIT
	HZK-0C-0000020	20L CONCENTRATE HP FLUID
	HMPYK -00000012	12L Robokit sealed system Kit + Br
	TZC-5-ESILPROG	Programmable LED Room Thermostat - P5

SYSTEM PRICE	
Item Code	Item Code Description
Kodiak Pre Plumb	
HXSM-G6-K201	SAMSUNG KODIAK 5 - 4.35KW 1PH 150L SLIMLINE
HXSM-G6-K202	SAMSUNG KODIAK 5 - 4.35KW 1PH 170L SLIMLINE
HXSM-G6-K212	SAMSUNG KODIAK 5 - 4.35KW 1PH 170L STANDARD
HXSM-G6-K213	SAMSUNG KODIAK 5 - 4.35KW 1PH 200L STANDARD
HXSM-G6-K215	SAMSUNG KODIAK 8 - 6.37KW 1PH 150L STANDARD
HXSM-G6-K216	SAMSUNG KODIAK 8 - 6.37KW 1PH 170L STANDARD
HXSM-G6-K217	SAMSUNG KODIAK 8 - 6.37KW 1PH 200L STANDARD
HXSM-G6-K218	SAMSUNG KODIAK 8 - 6.37KW 1PH 250L STANDARD
HXSM-G6-K219	SAMSUNG KODIAK 12 - 10.43KW 1PH 170L STANDARD
HXSM-G6-K220	SAMSUNG KODIAK 12 - 10.43KW 1PH 200L STANDARD
HXSM-G6-K221	SAMSUNG KODIAK 12 - 10.43KW 1PH 250L STANDARD
HXSM-G6-K222	SAMSUNG KODIAK 12 - 10.43KW 1PH 300L STANDARD
HXSM-G6-K209	SAMSUNG KODIAK 12 - 10.43KW 1PH 170L SLIMLINE
HXSM-G6-K223	SAMSUNG KODIAK 16 - 12.28KW 1PH 210L STANDARD
HXSM-G6-K224	SAMSUNG KODIAK 16 - 12.28KW 1PH 250L STANDARD
HXSM-G6-K225	SAMSUNG KODIAK 16 - 12.28KW 1PH 300L STANDARD

SYSTEM PRICE	
Item Code	Item Code Description
Smart Plumb - Buffer	
HXSM-G6-094	SAMSUNG MONO 5 - 4.35KW 1PH JOULE HP MONO 200/60L
HXSM-G6-096	SAMSUNG MONO 8 - 6.37KW 1PH JOULE HP MONO 200/60L
HXSM-G6-099	SAMSUNG MONO 12 - 10.43KW 1PH JOULE HP MONO 200/60
HXSM-G6-124	SAMSUNG MONO 12 - 10.43KW 1PH JOULE HP MONO 400/13
HXSM-G6-102	SAMSUNG MONO 16 - 12.28KW 1PH JOULE HP MONO 200/60
HXSM-G6-125	SAMSUNG MONO 16 - 12.28KW 1PH JOULE HP MONO 400/13

Outdoor Unit

Item Code		Description
	HHSM-G600005-1	Mono 5 - 4.35kw R32 Ashp Outdoor Unit Std
	HHSM-G600008-1	Mono 8 - 6.37kw R32 Ashp Outdoor Unit Std
	HHSM-G600012-1	Mono 12 - 10.43kw R32 Ashp Outdoor Unit Std
	HHSM-G600016-1	Mono 16 - 12.28kw R32 Ashp Outdoor Unit Std
	HHSM-G600016-3	Mono 16 - 12.28kw R32 Ashp Outdoor Unit 3ph
	HHSA-G60005-01	Mono 5 - 4.35kw R32 Ashp Outdoor Unit Coastal
	HHSA-G60009-01	Mono 8 - 6.37kw R32 Ashp Outdoor Unit Coastal
	HHSA-G60012-01	Mono 12 - 10.43kw R32 Ashp Outdoor Unit Coastal
	HHSA-G60016-01	Mono 16 - 12.28kw R32 Ashp Outdoor Unit Coastal
	HHSA-G60016-03	Mono 16 - 12.28kw R32 Ashp Outdoor 3ph Coastal

Controller

Item Code		Description
	HZSMC-G6000000	MONO CONTROL CENTRE (MIM-E03CN) - GEN 6

Electrical

Item Code	Description
PZI-A-00000000	Pv Ac Isolator
HZSMC-MIMH04EN	Samsung Wi-Fi Receiver 2.0 (Ehs) (Mim-H04en)
HZU-ELEC-MET	Emlite A100c Single Phase Kwh Meter - Mcs

Mechanical

Item Code		Description
	HZK-0C-0000020	20l Concentrate Hp Fluid
	HZK-0H28-0.075	Insulated Flex Conn Pipes (28mm X 300mm) Elbow
	HZK-0K-0000000	Anti-Vibration Fix-It Foot 600mm Kit
	HZK-0Y-000001F	1"Y Pattern Strainer With Isolation
	HZK-0P-0000000	Combined Fill Flush + Flow Met
	HMPYK-00000012	12l Robokit Sealed System Kit + Br
	HMPYK-00000018	18l Robokit Sealed System Kit + Br
	HMPYK-00000024	24l Robokit Sealed System Kit + Br
	HZK-0D-0000000	Heat Pump Wall Drip Tray (1100x400)
	HZK-0J-0000000	Heat Pump Wall Bracket (Pair)
	HZK-0V-0000028	28mm Iso Valve Red

joule | modulair

Manufacturing Excellence

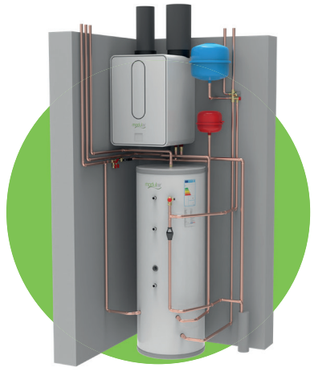
Advancing with design initiatives

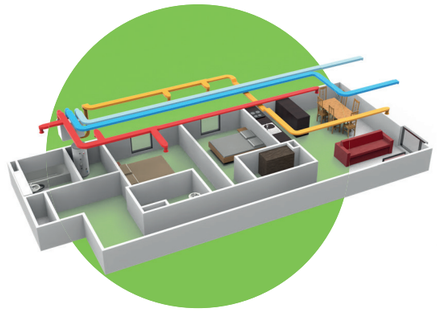
The Modul-AIR ALL-E Exhaust Air Heat Pump (EAHP) and optional Green Comfort provides mechanical ventilation with heat recovery (MVHR), domestic hot water (DHW) & heating via radiators or underfloor (UFH).

This solution is best suited for new build apartment developments. It uses the waste heat from the extract ventilation through a heat pump cycle to provide the heating and hot water for the dwelling.

When fitted with the optional Green Comfort the supply air to the habitable space is pre-heated to increase the occupants comfort level and thus reducing the load on the radiators or underfloor heating in the dwelling.

With regulations continuing to be implemented, a typical dwellings heating load is reducing while the requirement for more renewable heat sources is increasing. With regard to the UK this solution is future proofing the development post Future Homes 2025 standards. In Ireland this solution exceeds NZEB building standards.





Ventilation

When there is no heating or hot water load the Modul-AIR ALL-E operates as a standard MVHR system when fitted with the Green Comfort module. If the Green Comfort module is not fitted it operates as a cMEV system. The ventilation rates are in line with Part F (Ireland, England, Wales) and Part CCC (Scotland) boost and trickle rates. Boost can be provided via a number of options such as manual, humidity or CO2. When there is a heat or hot water demand the ventilation rate increases to boost level. The energy is extracted from the stale air and the now cool air is exhausted to outside.

Storeroom Design Considerations

Certain criteria's must be considered when designing the store room for the Modulair All-E, GreenComfort and cylinder. Firstly, the Modulair must be mounted on a suitably structured wall. It cannot be mounted on a wall adjoining a bedroom. Clearance distances on both the heat pump and cylinder must be adhered to in order to provide suitable maintenance access for the system. Careful consideration must be taken to ensure these clearance distances are not restricted by standard door head heights.

Heat Emitter Design

The Modul-AIR ALL-E & Green Comfort work seamlessly with either radiators or underfloor heating. As with all low temperature heat pumps there are a number of design parameters that differ with high temperature conventional systems.

COMPLETE
RENEWABLE HEATING SOLUTIONS

joule
Manufacturing Excellence

ECOHEAT

INDOOR HEAT PUMP CYLINDER FOR EFFICIENT HOT WATER

NEW 2023

The EcoHeat DHW Heat Pump Cylinder efficiently provides all the domestic hot water (DHW) requirement for a typical dwelling.

Sleak in its design the EcoHeat can fit seamlessly into a standard sized kitchen unit if required, potentially freeing up additional storage room in the airing cupboard. The supply air is fed to the heat pump cylinder via insulated ducting. The ECoHeat range comes in various volumes to suit any requirement. (180L & 220L Standard).

Due to the high efficiencies, the cylinder reduces the dwelling emissions in SAP/DEAP making it possible to achieve compliance using electric space heating.

WHY THIS TECHNOLOGY?

The EcoHeat complies with the new Part L of the building regulations. The carbon emissions factor for electricity has been reduced by 74% in comparison to previous levels. It now stands at 0.136kgCO2/kWh. This is the single biggest driver for heat pumps in new build dwellings. As can be seen in the carousel above, the future homes standards due to take effect in 2025 requires a new dwelling to have 75% less carbon emissions than that the notional dwelling. The EcoHeat can play an importantg part in achieving this. A decentralised solution like the Modulair has no requirement for a heat distribution network running throughout the development. This, in addition to the capital benefit, has a significantly positive impact on the overheating risk analysis of the building as can be determined by following the CIBSE TM59 methodology.

UNIT LOCATION CONSIDERATIONS

Typically the EcoHeat will be located in a store room or within a standard utility or kitchen unit. All connections are taken off the front side for ease of access and maintenance. Like with all DHW heat pump cylinders to minimise pressure drop and increase efficiencies the unit should minimise ducting runs when feasible. Maintenance must be considered so all servicible G3 components are easily accessed.

DUCTING DESIGN CONSIDERATIONS

A good ducting design should look to minimise system pressure drops. One way excessive pressure drops can happen is if ducting sizes are too small. We recommend using 220x90mm on main runs.

Another way excessive pressure drops can happen is if the external vents are not adequately sized.

These must be a double airbrick or a vent of equal free area.

- Hot water up to 55ºC in heat pump mode
- Maximum reliability and high efficiency
- Energy savings up to 75% compared to a traditional electric boiler
- Up to 10 years warranty on the tank
- Large volume of hot water always available
- Intelligent control, allowing time scheduling for electricity pricing periods
- Interface integrated in the unit
- Recirculation socket as standard
- Anti-corrosion without the need for sacrificial anode
- Automatic anti-legionella disinfection
- Low noise impact fans

JOULE HIGH EFFICIENCY SOLAR THERMAL SYSTEMS

What Is a Solar Thermal Panel?

While solar PV panels use the energy from the sun to generate electricity, solar thermal panels use the sun to heat up water. As such, solar PV panels and solar thermals are two very different technologies.

Solar thermal uses free renewable energy from the sun which, just like the solar PV panels, will help you save money and reduce your carbon footprint.

Compatible with renewable energy sources.

Reduce Carbon Footprint

Improve Home Efficieny

Lower running temperatures for reduced energy bills.

Spot In The Sun

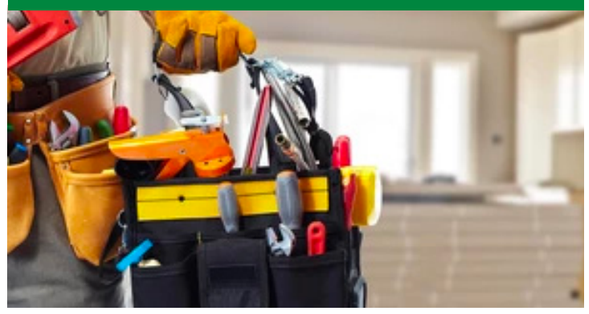
Just like solar PV panels, a solar thermal system needs the sun as the main energy source. Therefore, the optimal position to be situated is somewhere with direct sunlight for the most part of the day.

However, they don't necessarily need to be placed on a roof. Other possible places could be on a flat roof or hang from a wall, as long as it gets direct sunlight.

Renewable Energy Source

The most important benefit is that solar energy is a 100% renewable energy source. We will always have solar energy.

Low Maintenance



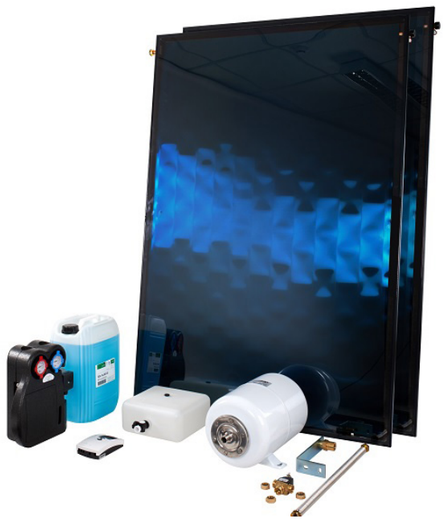
Solar thermal panels require little maintenance and only occasional planned servicing. You only have to keep them relatively clean.

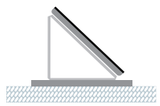
IMPORTANT NOTICE

A solar thermal system requires a dedicated solar cylinder. If you don't own a solar cylinder, the existing cylinder is replaced or a dedicated cylinder with a solar heating coil is added.

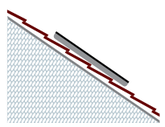
Navitas 2m/2.5m On Roof System

MCS CERTIFIED





Flat-Roof 45°



Pitched-Roof, Parallel

TECHNICAL DATA		
	2M	2.5M
Certification Number	BBA 0192	
Collector type	Roof-mounted collector	
Overall area [m2]	2.02	-
Absorber area [m2]	1.85	-
Aperture area [m2]	1.93	-
L x W x H [mm]	1.730 x 1.170 x 73	-
Weight [kg]	31	-
Absorber capacity [l]	1.56	-
Housing	Al-frame	
Surface	Al, natural or anodized (improved corrosion resistance)	
Back plate	Al-sheet	
Absorber sheet	Al, high selectiv coated	
Absorption* [%]	95	
Emission* [%]	5	
Ø manifold [mm]	18 or 22 (¾ or 1")	
Ø risers [mm]	8	
Connections	blank (compression joint), coupling nut with flat seal	
Glass	3.2 mm tempered solar safety glass	
Transmittance of glass [%]	90	
Insulation	40 mm mineral wool plate	
Max. stagnation temperature	184 °C under test conditions	
Max. operating pressure	10 bar	
Proper heat transfer medium	Polypropylene glycol / water mixture	
Approved installation angle	min. 15°, max. 75°	
Packaging	Customer specific	

SYSTEM PRICE

Item Number	Item Description	Roof Dimensions	Recomended Cylinder Size
		W x L x H (mm)	
SX-OR-2.0-0-02-S	2 PANEL 2M ON-ROOF SOLAR KIT - SLATE	2240 x 1730 x 83	250L
SX-OR-2.0-0-02-T	2 PANEL 2M ON-ROOF SOLAR KIT - TILE	2240 x 1730 x 83	250L
SX-OR-2.0-0-02-B	2 PANEL 2M ON-ROOF SOLAR KIT - BOLT	2240 x 1730 x 83	250L
SX-OR-2.0-0-03-S	3 PANEL 2M ON-ROOF SOLAR KIT - SLATE	3710 x 1730 x 83	300L
SX-OR-2.0-0-03-T	3 PANEL 2M ON-ROOF SOLAR KIT - TILE	3710 x 1730 x 83	300L
SX-OR-2.0-0-03-B	3 PANEL 2M ON-ROOF SOLAR KIT -BOLT	3710 x 1730 x 83	300L

COMPONENTS INCLUDED

Item Number	Item Description	Quantity
SZ-L-OD-OERP5B	SOLAR PUMP	1
SVE-000000024	24L SOLAR EXPANSION VESSEL	1
SKU-000000020	20L SOLAR FLUID	1
OZM-00000.75HP	MIXING VALVE	1
SKT-0000000000	1M PIPE TAILS AND FITTINGS	2
SKN-C-00000ERP	SOLAR CONTROLER	1
SZ-OG-OOOOO4	SOLAR PIPE ENTRY GASKET SET 4"	1
	ROOF MOUNTING KIT	1

OPTIONAL EXTRAS

Item Number	Item Description
SVB-000000000P	SOLAR DISCHARGE - PLASTIC
SVS-0000000000	SOLAR EXP VESSEL CONNECT SET
SPD-16-50-0000	DN16 50M SOL SS PIPE DUO INS
SZ-J-0000DN-16	SOLAR FITTING JOINER PACK DN16

Notes Section

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