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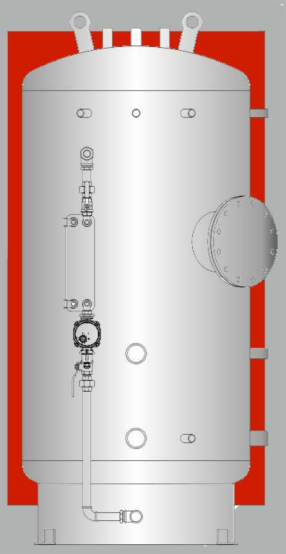

Product Guide

DOMESTIC HOT WATER SOLUTIONS

STORPLATE SPP & SPB DHW GENERATORS
GASKETED & BRAZED HEAT EXCHANGERS

Inventive Engineering

StorPlate SP Semi-Instantaneous Water Heaters

The Arbe SP StorPlate series of semi-instantaneous water heaters are used for the production of DHW through an external gasketed plate heat exchanger & pump arrangement.

The SP range of units have capacities from 200 litre to 5000 litre as standard. The heat outputs on this range start at 30 kW on all models with maximum outputs of 1000 kW on the larger models, with other outputs available on request. The StorPlate SPP units can be supplied with factory fitted primary control systems with all controls and fixed or variable speed shunt pumps. The shell material and pipework are stainless steel as standard. All our units are compliant with the UKCA PE(S)R 2016 Regulations.

The SP range of units are also available with primary controls including various controls options, with systems designed to ensure compliance with G3:2010 Building Regulations without the need for extra controls, along with separate high limit temperature valve for HTM 04-01 compliance

1. SPB - Standard StorPlate unit with brazed heat exchanger and secondary circulating pump & without primary controls
2. SPP - Standard StorPlate unit with gasketed heat exchanger and secondary circulating pump & without primary controls
3. SPBC - StorPlate unit with brazed heat exchanger. Package c/w controls comprising PLC based systems and touch screen technology or PID controller and primary control valves and a fixed or variable speed primary pump(s)
4. SPPC - StorPlate unit with gasketed heat exchanger. Package c/w controls comprising PLC based systems and touch screen technology or PID controller and primary control valves and a fixed or variable speed primary pump(s)

The SPBC & SPPC range of generators are supplied with a primary controls package incorporating a primary shunt pump, primary control valve and a control panel, all factory packaged. The primary pumps are available with single or twin heads with auto-changeover function and control valves are available as 3-port or 2-port to suit requirements with associated pumps, if required.

We also offer SPPR units that have a removable heater battery supplied factory fitted, that can be used as a preheat heat exchanger, from sources such as waste heat capture, heat pumps or solar panels etc.

StorPlate SP Semi-Instantaneous Water Heaters

The Arbe SP StorPlate water heaters are available with several different variations, giving certain designations in the unit description. The following chart shows the standard variations available but we can supply bespoke designs to suit any requirement

Example:
StorPlate SPPC1500-PPIQ-3V-90-6B-1P1S - a 1500 litre unit with a 90 kW duty, 6.0 BarG design pressure, with a single fixed speed primary pump and a single secondary pump.

SPPC	1500	PPIQ	3V	100	6B	1P1S
↓	↓			↓	↓	↓
Model	**Capacity (Litres)**	**Control Panel**	**Control Valve**	**kW Rating**	**Design Pressure**	**Primary Controls Package**
SPB	200	PPIQ	3CV	30	6B - 6.0 BarG	0P1S No Primary Pump Single Fixed Speed Secondary Pump 3-Port Modulating Control Valve
SPP	300	PPMB	2CV	50	8B - 8.0 BarG	
SPBC	500	PPBN	2SV	75	10B - 10.0 BarG	
SPPC	800	PBAS		100		
	1000			125		1P1S Single Fixed Speed Primary Pump Single Fixed Speed Secondary Pump 3-Port Modulating Control Valve
	1500			150		
	2000			175		
	2050			200		
	2500			225		2P1S Twin Fixed Speed Primary Pump Single Fixed Speed Secondary Pump 3-Port Modulating Control Valve
	3000			250		
	4000			275		
	5000			300		
				350		1EP1S Single Variable Speed Primary Pump Single Fixed Speed Secondary Pump 2-Port Shut-Off Valve
				400		
						2EP1S Twin Variable Speed Primary Pump Single Fixed Speed Secondary Pump 2-Port Shut-Off Valve

Standard Principle - Bespoke Design & Build Packages

The Arbe SP StorPlate water heaters are designed to suit each application, so all units are bespoke to suit the site and specification requirements, including dimensions, connections and duties. Additional equipment can also be installed as part of the package, such as heat meters and additional controls.

The heat exchangers on the units are designed for each application and sized on the primary circuit temperatures, so can operate between temperatures of 60°C and 110°C and above.

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StorPlate SP Semi-Instantaneous Water Heaters

Capacity (Litres)	StorPlate - Standard Vessel Dimensions & Connection Sizes													
	X1	Y	Z	C /E	D	F	G	H	J	K	L	M	N	S
100	400	1140	1015	1½"	¾"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
200	450	1600	1475	1½"	¾"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
300	550	1615	1490	1½"	¾"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
400	650	1580	1535	1½"	¾"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
500	700	1685	1640	2"	1"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
600	750	1735	1645	2"	1"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
700	800	1840	1740	2"	1"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
800	850	1815	1770	2"	1"	½"	⅜"	1"	2"	DN200	1¼"	½"	½"	¾"
900	900	1825	1780	2"	1"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
1000	900	1985	1940	2"	1"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
1250	1050	1870	1825	2"	1"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
1500	1100	2015	1970	2"	1"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
2000	1200	2220	2175	2"	1"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
2500	1300	2335	2290	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
3000	1400	2425	2380	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
3500	1500	2475	2430	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
4000	1500	2755	2710	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
4500	1600	2745	2700	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
5000	1700	2725	2680	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
6000	1800	2890	2845	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
7000	1900	3025	2980	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
8000	2000	3105	3060	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
9000	2000	3425	3380	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"
10000	2100	3445	3400	2"	1½"	½"	⅜"	1"	2"	DN300	1¼"	½"	½"	¾"

Connections

A	Primary Flow
B	Primary Return
C	Secondary Flow
D	Secondary Return
E	Cold Feed
F	Thermometer
G	Pressure Gauge
H	Safety Valve
J	Immersion Heater (Optional)
L	Drain
M	Control Sensor
N	High Limit Thermostat
S	Anti-Vacuum Valve

Model	Maximum Temperature	Maximum Design Pressure
SP		
Secondary Side	90°C	10.0 BarG
Primary Side	110°C	16.0 BarG

Note: Higher Maximum Temperatures & Design Pressures are Available to Suit Requirements

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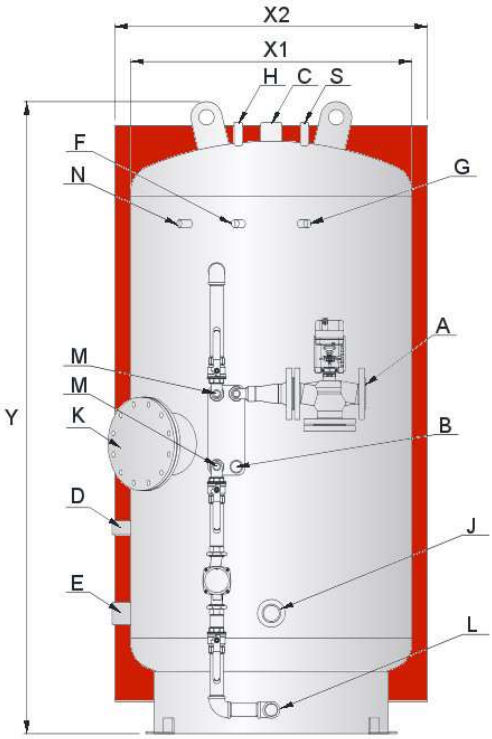
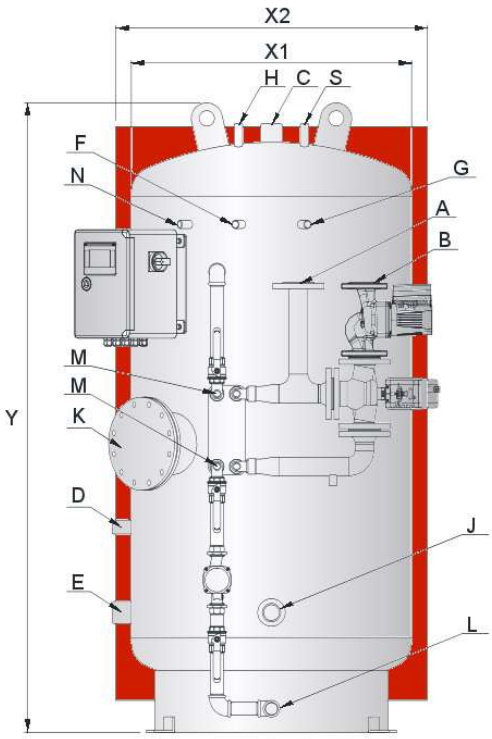
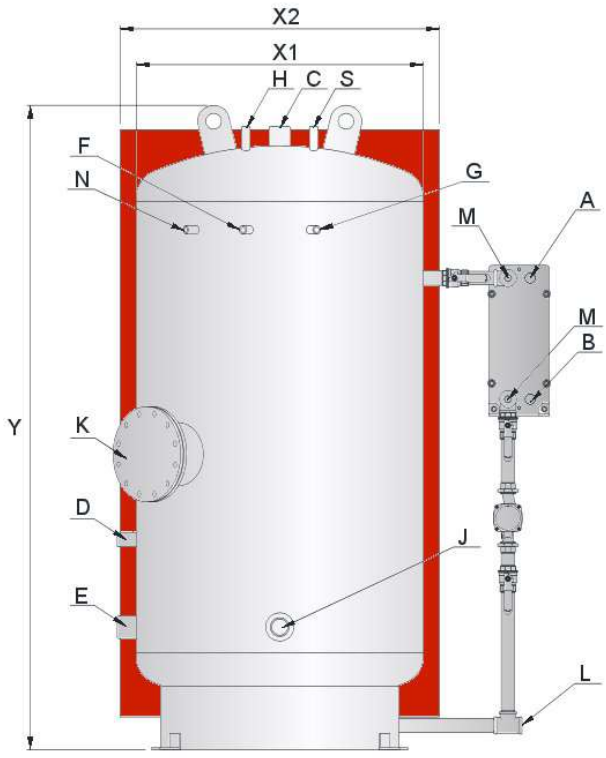
StorPlate SP Semi-Instantaneous Water Heaters



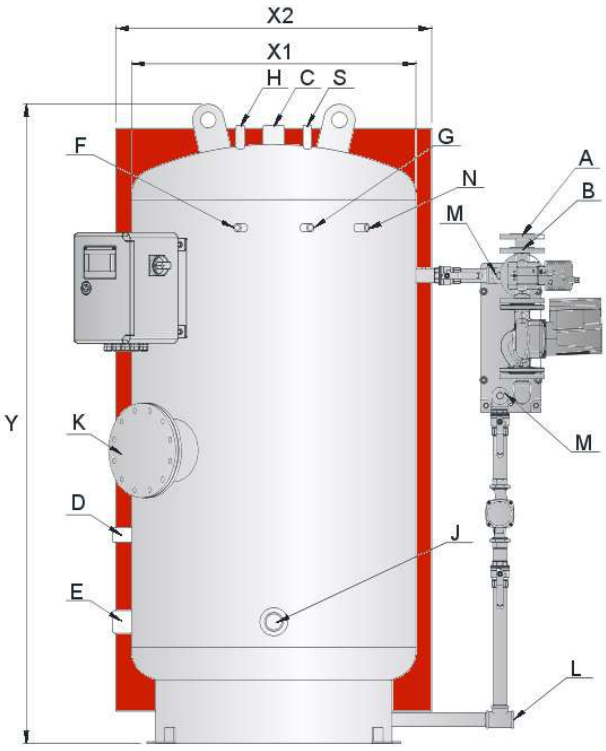
StorPlate SPB



StorPlate SPBC



StorPlate SPP



StorPlate SPPC

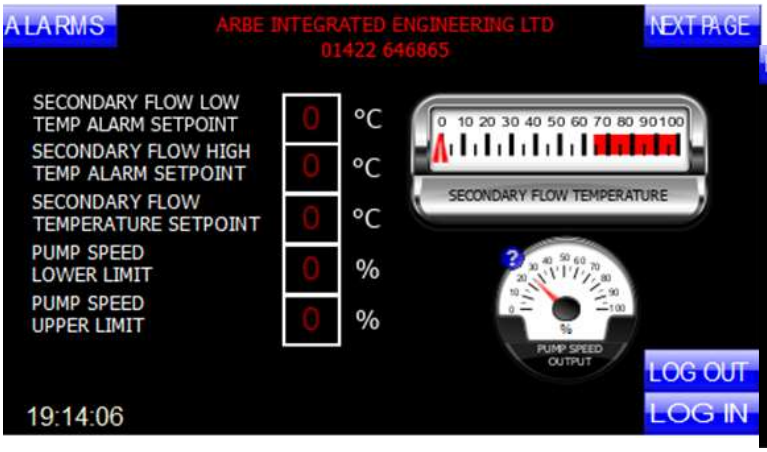
mim-IQ Controls

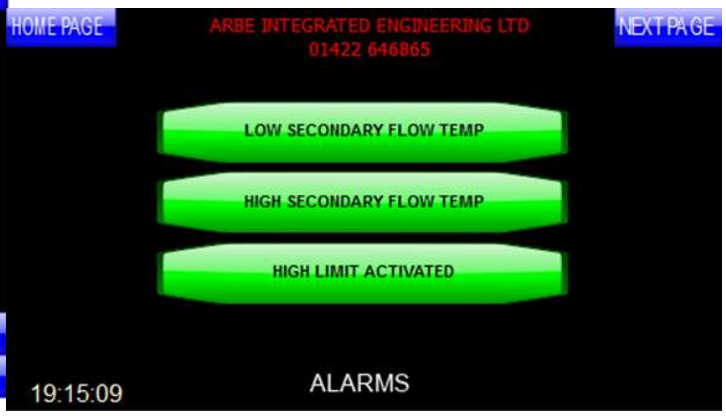
Our StorPlate SP*C DHW packages can be supplied as standard with our PPIQ, mim-IQ™ PLC based control systems. The control panel controls the power supplies to the package. This is performed in a number of ways to in order to control the fully automatic operation of the package. All of the possible functions for this control system are operated via this touch screen panel. Once the power supply to the package is live and the Main Isolator switched on, after a short time, our 'Home' screen will be displayed.

Features

- Can control valve position on standard units or pump speed on the E variable speed models
- Volt-free contact available for common alarm
- Remote BMS enable facility available
- Programmable pasteurisation program as an option

In addition to the above, our mim-IQ panel can offer a remote view and package control. If this option is supplied as part of the package, the package(s) are able to be viewed through an online portal. This may be Google for example. All we need to do is set up the parameters within the package HMI on commissioning. To enable this to work and function correctly, each package would need a Cat 5 or Cat 6 data cable installed directly into the Ethernet port on the HMI itself. Each package would also need a unique pre-determined IP address. We can assist with this, should this option be required.



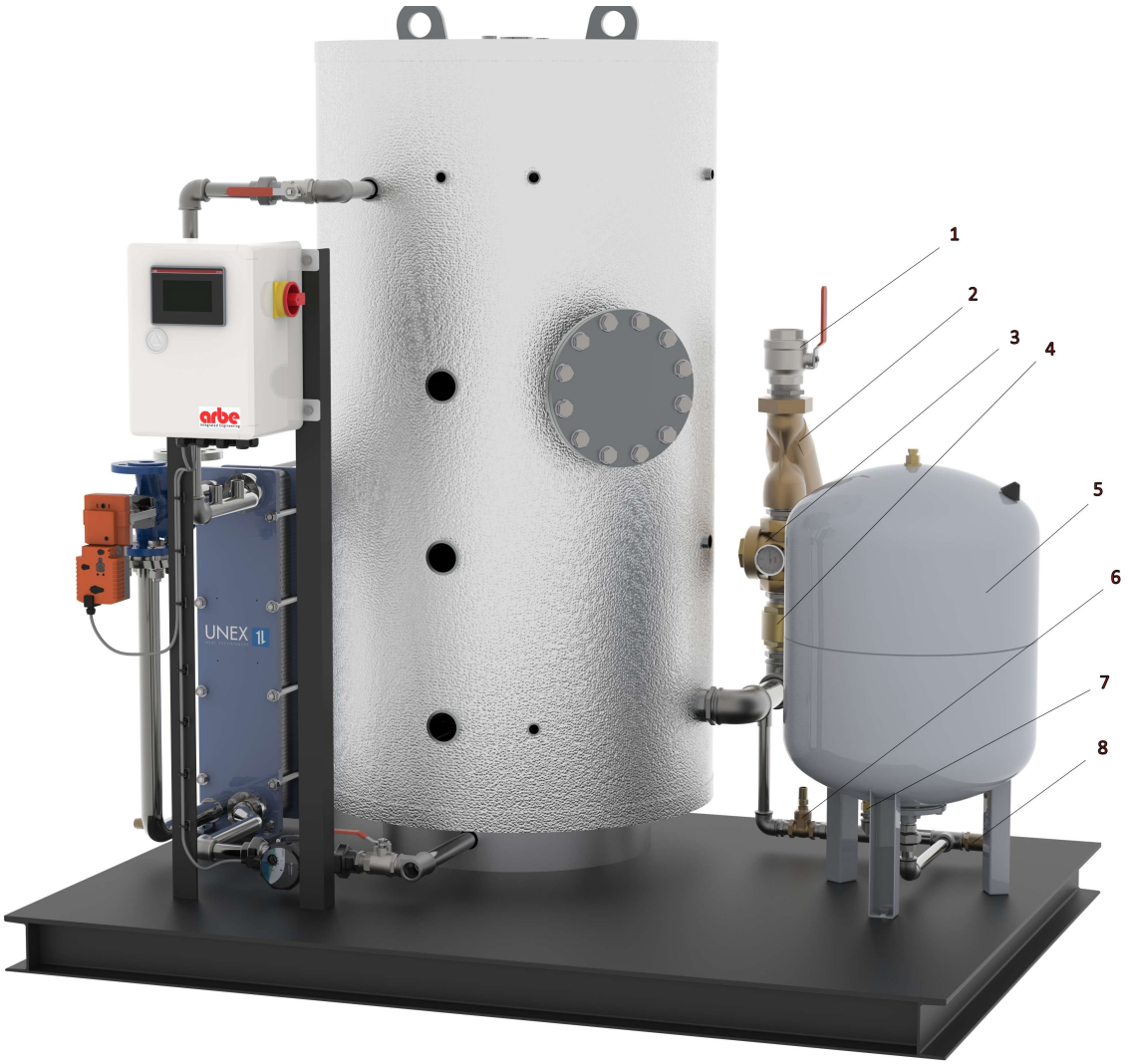


Other Connectivity Available

Our StorPlate control systems can be supplied with other software adaptions to suit site requirements, such as MODbus and BACnet open-protocol connectivity.

StorPlate SP Installation in Unvented Systems

The layout below is the standard recommended cold feed kit available with our StorPlate units for unvented systems, complying with Building Regulations. The size of each cold feed and kit expansion vessel is project specific so please contact us with any queries on sizing or the kit that is required. The unit can be supplied factory packaged with the unvented kit on a fabricated skid base, reducing site installation time, which also removes the need for a concrete plinth to be made on site



Key

1. Isolating Valve
2. Strainer
3. Pressure Reducing Valve
4. Check Valve
5. Expansion Vessel
6. Expansion Relief Valve
7. Expansion Isolating Valve
8. Expansion Drain Valve

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Expansion Vessel Sizing

Expansion vessel sizes can be quickly calculated using our table below. Sizing is simple:

1. Look up your system content (or nearest capacity shown which is above)
2. Look at the cold feed pressure in the blue bar (at 10°C)
3. Look up your maximum hot working pressure in the red bar (at 60°C), either with a 0.5 BarG pressure difference between hot and cold or a 1.0 BarG difference
4. This will give the recommended expansion vessel(s) size

Cold Feed Pressure (BarG) at 10°C	2.0		2.5		3.0		3.5		4.0		4.5		5.0	
Maximum Working Pressure (BarG) at 60°C	2.5	3.0	3.0	3.5	3.5	4.0	4.0	4.5	4.5	5.0	5.0	5.5	5.5	6.0
System Capacity (Litres)	Recommended Expansion Vessel Capacity Required (Either Single or Multiple Vessels)													
250	35	18	35	24	50	24	50	24	50	35	60	35	60	35
500	60	35	80	50	80	50	100	50	100	60	150	60	150	60
750	100	60	150	60	150	80	150	80	150	80	200	100	200	100
1000	150	80	150	80	200	100	200	100	200	150	300	150	300	150
1250	150	100	200	100	200	150	300	150	300	150	300	150	300	150
1500	200	150	300	150	300	150	300	150	300	200	400	200	400	200
1750	300	150	300	150	300	150	300	200	400	200	400	200	400	300
2000	300	150	300	200	400	200	400	200	400	300	750	300	750	300
2500	300	200	400	200	400	300	750	300	750	300	750	300	750	300
3000	400	300	750	300	750	300	750	300	750	400	750	400	750	400
3500	750	300	750	300	750	300	750	400	750	400	750	400	1000	750
4000	750	300	750	400	750	400	750	400	750	750	1000	750	1000	750
4500	750	400	750	400	750	400	1000	750	1000	750	1000	750	1000	750
5000	750	400	750	400	1000	750	1000	750	1000	750	1250	750	1250	750
5500	750	400	750	750	1000	750	1000	750	1250	750	1250	750	1250	750
6000	750	750	1000	750	1000	750	1250	750	1250	750	1250	750	1500	750
6500	1000	750	1000	750	1000	750	1250	750	1250	750	1500	750	1500	1000
7000	1000	750	1000	750	1250	750	1250	750	1500	750	1500	1000	1750	1000
7500	1000	750	1250	750	1250	750	1500	750	1500	1000	1750	1000	1750	1000
8000	1000	750	1250	750	1250	750	1500	750	1500	1000	1750	1000	2000	1000
8500	1250	750	1250	750	1500	750	1500	1000	1750	1000	1750	1000	2000	1250
9000	1250	750	1250	750	1500	1000	1750	1000	1750	1000	2000	1000	2000	1250
9500	1250	750	1500	750	1500	1000	1750	1000	2000	1000	2000	1250	2250	1250
10000	1250	750	1500	1000	1750	1000	1750	1000	2000	1250	2250	1250	2250	1250
10500	1250	750	1500	1000	1750	1000	2000	1000	2000	1250	2250	1250	2500	1250
11000	1500	750	1500	1000	1750	1000	2000	1250	2250	1250	2250	1250	2500	1500
11500	1500	1000	1750	1000	2000	1000	2000	1250	2250	1250	2500	1500	2750	1500
12000	1500	1000	1750	1000	2000	1250	2250	1250	2250	1250	2500	1500	2750	1500
12500	1500	1000	1750	1000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1500
13000	1750	1000	2000	1000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1750
13500	1750	1000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1500	3000	1750
14000	1750	1000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1750	3250	1750
14500	1750	1000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1750	3250	1750
15000	2000	1250	2250	1250	2500	1500	2750	1500	3000	1750	3250	1750	3500	2000

Insulation

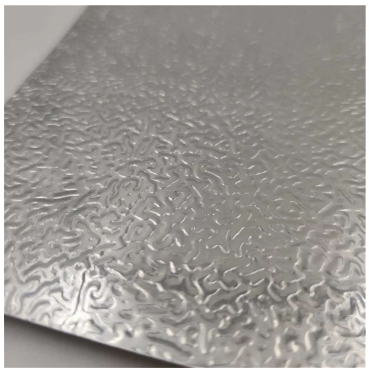
The range of StorPlate packages supplied by Arbe are insulated with mineral wool insulation, and can be fitted with closed cell insulation if required. Vessels are finished in a stucco aluminium casing as standard, suitable for internal and external applications or with stainless steel or Aluzinc cladding as options. For applications where the vessel is to be installed externally the insulation is specifically designed for this.

High Density Mineral Fibre Insulation
The insulation consists of high quality mineral fibre rolls, faced with reinforced aluminium foil, with a nominal density of 45 kg/m^3.

Fire Properties
Reaction to Fire, Euroclass: A1 - EN 13501-1
Combustability: Non-Combustible - EN ISO 1182:2002, Class O According to BS476: Part 6 1989 and Part 7 1997

Thermal Conductivity
Thermal Conductivity (Declared) in 10°C λ_{10} 0.034 W/m_K
Thermal Conductivity (Declared) in 50°C λ_{10} 0.039 W/m_K
Thermal Conductivity (Declared) in 100°C λ_{10} 0.048 W/m_K

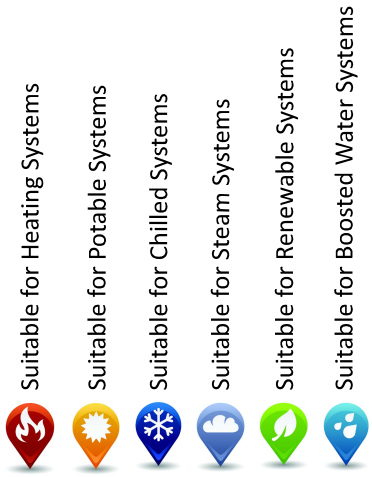
Moisture Properaties
Water Absorption, Short Term WS, Wp: ≤ 1 kg/m^2 EN 1609



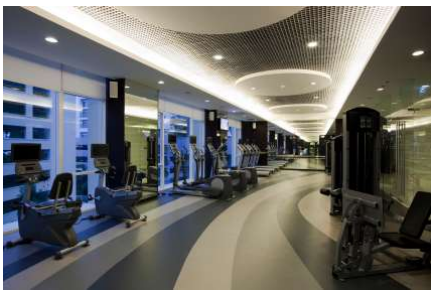
StorPlate SP Semi-Instantaneous Water Heaters

The Arbe SP StorPlate water heaters can be designed to suit any application, should our standard offering not fit what is required in the specification. This may include multiple heat exchangers, different specifications of equipment such as pumps or controls, or vessel and pipework materials.

Our design department can design any requirements into the packages to suit each application



Key to Product Suitability



Design | Supply | Manufacture | Install | Commission

DHW & LTHW Generation	Heat Exchangers	Solar Energy
Booster Sets & Pressurisation	Package Plantrooms	Chillers & Heat Pumps
Steam Packages & Equipment	Gas & Biomass Boilers	Buffer Vessels
Condensate Removal & Recovery	CHP & Heat Recovery	Complete HVAC Integration

arbe Integrated Engineering

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