CHWS

PROPAK THERMAL SERIES

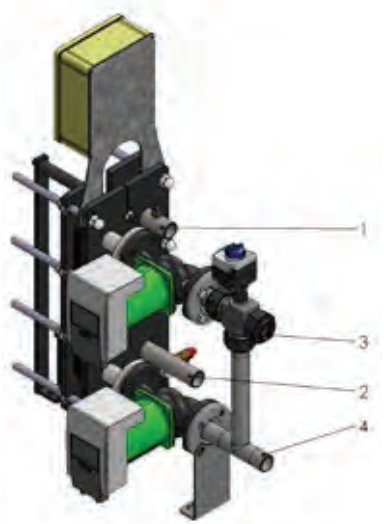
Installation Manual
Operation & Maintenance Manual

Principal

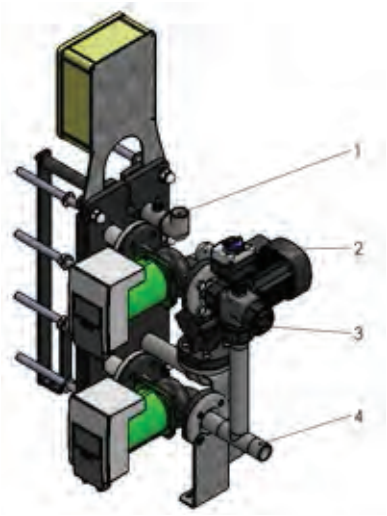
CHWS Propak is a compact and highly efficient DHW production system incorporating a gasketed plate heat exchanger, electrically actuated 3-port control valve, A-rated ERP variable speed primary pumps with a secondary pump supplied on the Propak plus units

The unit is complete with a full PID controller and PT100 temperature sensor. The motorized 3-port valve allows high speed adjustment of the primary heat input to match changes in secondary hot water demand. The design maintains the outlet temperature at the set point (default 60ºC) and consequently reduces the risk of legionnaires disease within the system.

See schematic layout:



A) Propak Thermal Instantaneous



B) Propak Thermal Plus Semi-Instantaneous

Key

1 Secondary Inlet
2 Secondary Outlet
3 Primary Inlet
4 Primary Outlet

Propak Models - Instantaneous

Provide hot water (DHW) instantaneously to hot water outlets without storage.

Propak Model D –

Two primary side pumps, no secondary side (DHW) pump.

Propak Model S –

One primary side pump, no secondary side (DHW) pump.

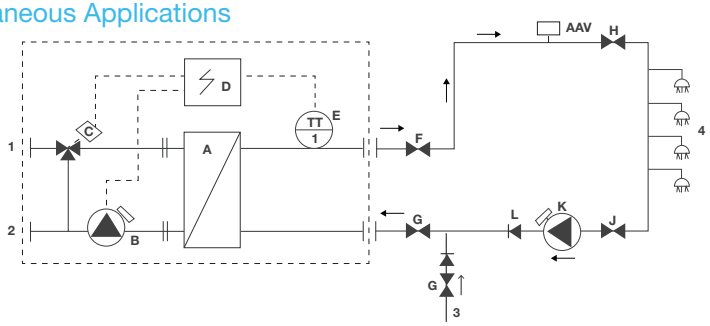
Propak Models - Semi Instantaneous

Provide hot water (DHW) semi instantaneously by using a buffer storage cylinder to manage peak demand flows where demand exceeds instantaneous capacity.

Propak Model DS –
Two primary side pumps, one secondary side (DHW) pump.

Propak Model SS –
One primary side pump, one secondary side (DHW) pump.

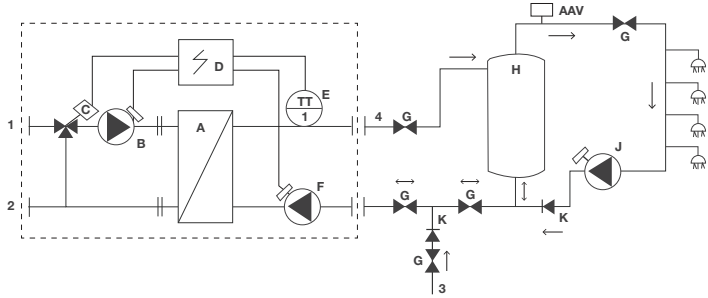
Instantaneous Applications



Key

1	Primary flow	A	Heat exchanger	G	Isolation valve
2	Primary return	B	Primary pump	H	Isolation valve
3	Cold mains feed	C	Control valve	J	Isolation valve
4	Secondary flow	D	Control panel	K	Secondary return pump
		E	Temperature sensor	AAV	Automatic air vent
→	DHW Flow direction	F	Isolation valve		

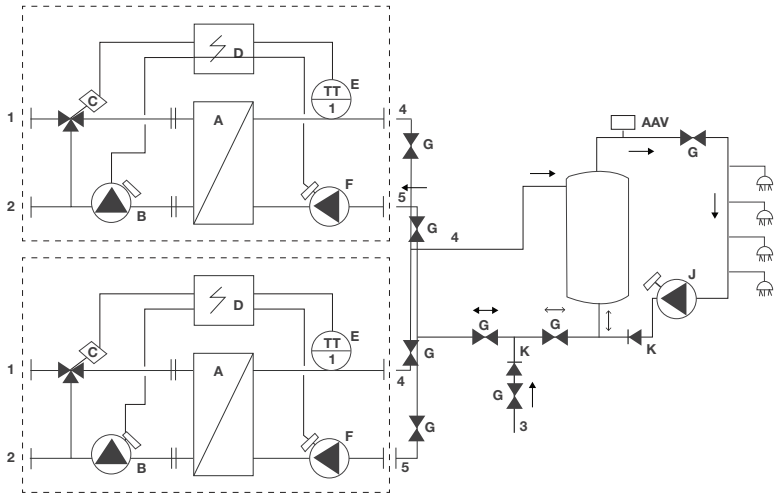
Semi-Instantaneous Applications



Key

1	Primary flow	A	Heat exchanger	G	Isolation valve
2	Primary return	B	Primary pump	H	Buffer vessel
3	Cold mains feed	C	Control valve	J	Secondary return pump
4	Secondary flow	D	Control panel	K	Non-return valve
		E	Temperature sensor	AAV	Automatic air vent
→	DHW Flow direction	F	Secondary shunt pump		

Semi-Instantaneous Applications Duty-Duty



Key

1	Primary flow	A	Heat exchanger	G	Isolation valve
2	Primary return	B	Primary pump	H	Buffer vessel
3	Cold mains feed	C	Control valve	J	Secondary return pump
4	Building service flow	D	Control panel	K	Non-return valve
5	Building service return	E	Temperature sensor	AAV	Automatic air vent
		F	Secondary shunt pump		

The Propak Thermal come fully assembled and are ready to operate. All ancilliaries are mounted on the unit using stainless steel piping. All Propak units are tested hydraulically and electrically at the factory.

Installation

All installation work must be undertaken by a qualified and competent person.

The heat exchangers must be installed in accordance with the following requirements:

- The current Building Regulation
- The Water Supply (Water Fittings) Regulations 1999
- IEE Regulations

Additionally, installation should be performed in accordance with all relevant requirements of the Local Authority and recommendations of the British Standards and Codes of Practice:

BS EN 806 Parts 1-5: 2000 – 2012 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages. This standard supersedes the following British Standards and Codes of Practice: CP99, CP310, CP324, CP202, CP342 Part 2, Centralised Hot Water Supply.

BS 7206:1990 Specification for unvented hot water storage units and packages.

BS EN 12828: 2012 +A1:2014 Heating systems in buildings.

CIBSE Guide G.

Building Regulations G3.

Unloading

The Propak unit comes assembled on a mild steel skid which should be mounted on prepared foundations that are level and suitable for the size and weight of the unit.

The unloading of the equipment is the responsibility of the recipient and should be carried out with care to avoid damage to the unit.

- Use web slings (no metal chains). Insert them in the designated notches on the head and follower.
- When moving and handling the heat exchanger, make sure that it is properly supported and secured as its high centre of gravity may cause it to tip over.
- Never lift the unit by its guide rails, compression bolts or pipework.
- Shield the plates, pumps, valves & controller from impacts as they could cause irreparable damage.

Pipework

Make sure that the pipework connections are aligned and correctly spaced before connecting. See that the weight of the pipework is taken by external supports and not by the Propak. Allowances should be made for expansion of the pipes either by suitable bends or flexible joints. Threaded connections may be sealed with PTFE tape. Flanged connections should be sealed with a suitable gasket and sealing agent.

Venting Vent valves must be fitted at the highest point in the connecting pipework to enable purging air for initial operation.

Purge all pump bodies, see the pump manufacturers instructions supplied. Flush out the system pipework before installing to remove any foreign matter which may impact on the valve and pump operation.

Filling

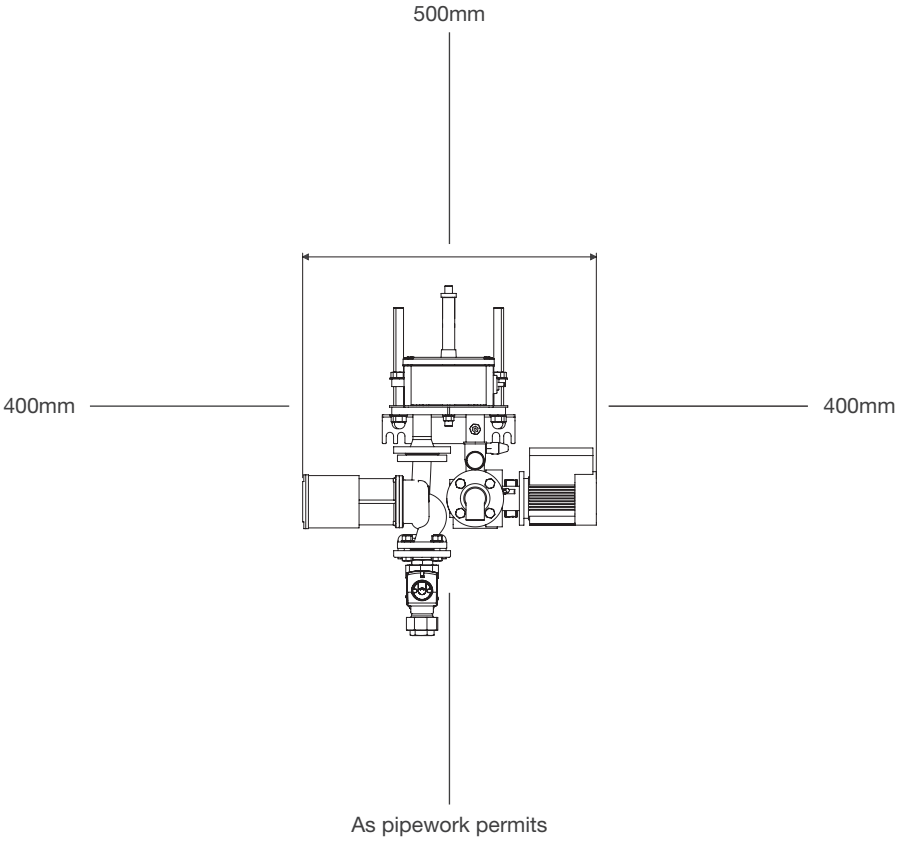
Before filling the system check that the drain valve is closed and all air vents are open. Slowly fill both sides of the system with water. Caution:- Do not fill the system too quickly otherwise pockets of air may become trapped. Once filled purge air at high points and purge all the pump bodies. Switch the power on to the unit and check the controller settings and enable the required functions.
(see further set up instructions)

The heat exchanger and its components must never be used for purposes other than those for which they were initially designed.

Electrical connection

Connect a single phase 230V 50Hz supply to the Mains Input terminals. (See electrical wiring diagrams section). If the unit is to be controlled remotely connect the remote control switch or contacts to the Remote enable terminals.

Propak Clearances



Commissioning

Before installation this manual must be read. The controller has been set at the factory with default parameters. If any function needs tuning, values can be changed with reference to the instruction manual for parameter setting. Initially, the commissioning process should be carried out with the factory settings.

Contact us to arrange a commissioning engineer's visit.

Maintenance and repairs

The frequency of the inspections depends on the water hardness, temperature and flow rate. CHWS can offer a low cost annual service contract. Please contact us for more information.

We recommend the following periodical checks:

- Weekly inspection to check for leaks from pipes or components.
- Weekly inspection to make sure that the operation control systems is stable and that the temperature does not fluctuate. Temperature hunting causes unnecessary wear of valves, actuators.
- The control box does not require any specific maintenance; annually check the electrical connections tightening.
- Annually check the control valve that no leaks are detected. Lime scaling on the connected devices. Scaling of the secondary side will be evidenced by: a high pressure drop on the secondary side of the exchanger, improper temperature range on the secondary side of the exchanger, low temperature difference between inlet and outlet on the primary side of the exchanger when the control valve is fully open.

Only replace any defective parts with the original spare parts. Please contact CHWS for spare parts. Maintenance work must be carried out by a qualified and authorized technician.

- Hazard of electrical shock or scalding.
- Before carrying out any works disconnect power supplies.
- With high primary and secondary temperatures there is a risk of scalding.
- All pipework must be cool before carrying out work.

Warranty

Our equipment comes with a 24-month warranty from the date of shipment and is subject to commissioning by CHWS. The manufacturer's liability is limited to the replacement of any damaged parts that are not repairable. No other financial reimbursement may be claimed in any case under the warranty. The fault and probable cause must be advised to CHWS before any remedial works is undertaken. The defective part should then be returned to our Head Office for assessment unless prior arrangement to proceed otherwise has been supplied from CHWS. Assessment of the defective part will conclude whether or not the terms of the warranty apply.

Exclusions:

Non-compliance with the guidelines for installation, configuration and maintenance: Over pressures, water-hammer, scaling, noncompliant water quality.

Also excluded from the warranty:

- Fitting costs, refitting costs, packaging, transport, and any accessories or equipment not supplied by CHWS, which will only be covered by any warranties issued by said third-party manufacturers.
- Any damage caused by connection errors, insufficient protection, misapplication or faulty or careless operations.
- Equipment disassembled or repaired by any other party than CHWS or TPS.

Non-payment for goods will lead to all operational warranties covering the delivered equipment being terminated.

Boilers/CHP Providing Primary Flow

PRIMARY FLOW AND RETURN TEMPERATURES 80/60 Deg C DHW TEMPERATURES 10/65 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3023	100	1.22	0.44
3033	150	1.83	0.65
3045	200	2.44	0.87
4017	250	3.05	1.09
5021	300	3.66	1.31
5025	350	4.27	1.53
5031	450	5.49	1.97
6031	500	6.1	2.19
6035	550	6.71	2.41
6039	600	7.33	2.68

PRIMARY FLOW AND RETURN TEMPERATURES 80/60 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3009	42	0.51	0.2
3013	63	0.77	0.3
3017	83	1.01	0.4
3023	112	1.37	0.54
3025	122	1.49	0.58
3029	140	1.71	0.67
3033	157	1.92	0.75
3039	181	2.21	0.86
3045	203	2.48	0.97
4021	217	2.65	1.04
4025	256	3.12	1.22
4029	293	3.58	1.4
5031	312	3.81	1.49
5035	362	4.42	1.73
5039	399	4.86	1.91
5043	453	5.53	2.16
5049	477	5.82	2.28

PRIMARY FLOW AND RETURN TEMPERATURES 80/45 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3009	55	0.38	0.26
3013	90	0.63	0.43
3017	125	0.87	0.6
3023	180	1.25	0.86
3025	200	1.39	0.96
3029	235	1.63	1.12
3033	275	1.91	1.31
3039	315	2.19	1.51
3045	355	2.47	1.7
4021	370	2.57	1.77
4025	445	3.09	2.13
4029	510	3.54	2.44
5031	540	3.75	2.58
5035	630	4.38	3.01
5039	690	4.8	3.3
5043	770	5.35	3.68
5049	835	5.8	3.99

PRIMARY FLOW AND RETURN TEMPERATURES 70/50 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3009	42	0.51	0.2
3013	63	0.77	0.3
3017	83	1.01	0.4
3023	113	1.37	0.54
3025	122	1.48	0.58
3029	140	1.7	0.69
3033	157	1.91	0.75
3039	182	2.21	0.87
3045	204	2.48	0.97
4021	239	2.9	1.14
4025	289	3.51	1.38
4029	297	3.61	1.42
5031	363	4.41	1.73
5035	409	4.97	1.95
5039	458	5.56	2.19
5043	480	5.83	2.29
5049	493	5.88	2.35

Heat Pump Providing Primary Flow

PRIMARY FLOW AND RETURN TEMPERATURES 70/15 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3811	10	0.043	0.048
3821	25	0.108	0.12
3829	40	0.176	0.193
3835	50	0.22	0.24
3843	60	0.26	0.29
3851	75	0.33	0.36
3859	90	0.39	0.43
3867	100	0.43	0.48
3875	115	0.5	0.55

PRIMARY FLOW AND RETURN TEMPERATURES 70/15 Deg C DHW TEMPERATURES 10/65 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3821	10	0.16	0.04
3835	20	0.32	0.09
3851	30	0.47	0.13
3867	40	0.63	0.18
3875	45	0.71	0.19

PRIMARY FLOW AND RETURN TEMPERATURES 70/20 Deg C DHW TEMPERATURES 10/65 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3811	15	0.07	0.06
3821	30	0.143	0.13
3829	40	0.19	0.18
3835	50	0.23	0.22
3843	65	0.31	0.28
3851	80	0.38	0.35
3859	90	0.43	0.39
3867	105	0.5	0.46
3875	120	0.57	0.53

PRIMARY FLOW AND RETURN TEMPERATURES 70/25 Deg C DHW TEMPERATURES 10/65 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3811	20	0.107	0.09
3821	50	0.27	0.22
3829	80	0.43	0.35
3835	95	0.51	0.42
3843	120	0.645	0.53
3851	145	0.78	0.64
3859	170	0.91	0.75
3867	195	1.04	0.85
3875	220	1.18	0.96

Water to Water Heat Pump Providing Primary Flow

PRIMARY FLOW AND RETURN TEMPERATURES 70/60 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3045	100	2.43	0.48
4017	120	2.93	0.58
5025	180	4.39	0.87

PRIMARY FLOW AND RETURN TEMPERATURES 68/58 Deg C DHW TEMPERATURES 10/60 Deg C

PROPAK MODEL	HEAT INPUT kW	PRIMARY FLOW RATE LITRES/SECOND	SECONDARY DHW FLOW RATE LITRES/SECOND
3045	100	2.43	0.48
4017	120	2.93	0.58
5025	180	4.39	0.87

Propak Compatability with Heat Pumps

		Boiler Primary F&R Temperatures				Conventional ASHP Primary F&R Temperatures			High Temp ASHP Primary F&R			Water to Water Heat Pump Temperature F&R			DHWR
Model Number	Max Pump Duty (m3 / hr)	80/60	80/45	82/71	70/50	65/60	60/55	55/50	70/25	70/20	70/15	70/62	70/60	68/58	70/65 55/60
2507	3.5	No	No	No	No	No	No	No	No	No	No	No	No	No	**Yes**
2509	3.5	No	No	No	No	No	No	No	No	No	No	No	No	No	**Yes**
2511	3.5	No	No	No	No	No	No	No	No	No	No	No	No	No	**Yes**
2513	3.5	No	No	No	No	No	No	No	No	No	No	No	No	No	**Yes**
2515	3.5	No	No	No	No	No	No	No	No	No	No	No	No	No	**Yes**
3017	6	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3023	6	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3025	6	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3029	9	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3033	9	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3039	9	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
3045	9	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	**Yes**	**Yes**	**Yes**	No
3531	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3535	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3539	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3543	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3811	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3821	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3829	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3835	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3843	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3851	6	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3859	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3867	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
3875	9	No	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No	No	No	No
4015	13	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	**Yes**	**Yes**	**Yes**	No
4017	13	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No
4021	13	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
4025	13	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
4029	13	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
4035	13	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
5021	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	**Yes**	**Yes**	**Yes**	No
5025	21	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	**Yes**	**Yes**	**Yes**	No
5031	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
5035	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
5039	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
5043	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No
5049	21	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No	No	No	No	No	No	No	No

Operation & Maintenance Manual

Control box

Display

The control unit allows the display of operating conditions: factory settings or programmed settings and indication of errors – it also enables users to respond to changes in basic and advanced settings.

The Propak Thermal comes with a range of factory pre set parameters, these can be changed by adjustments in the basic parameter setting mode or the advanced programming mode.

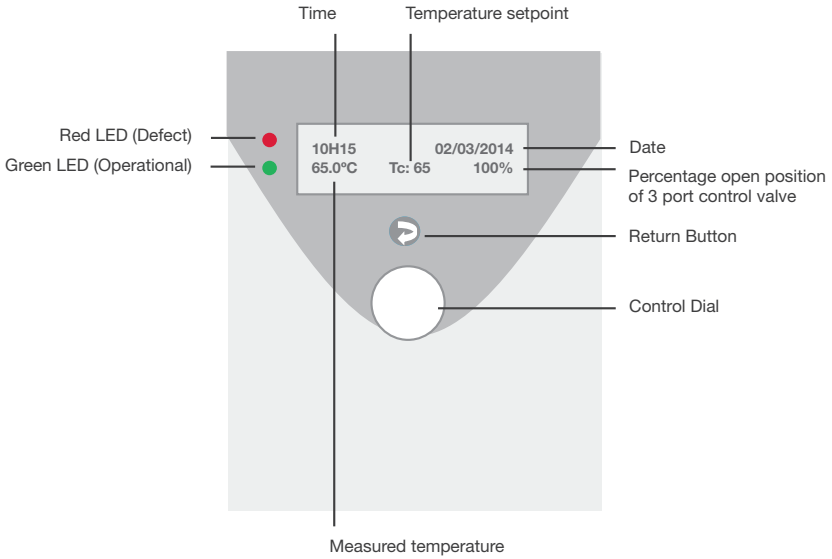
Navigation

To enter the programming menu, press the and hold the control Dial for 5 seconds and then release.

The screen displays:

MENU ECS
Selection PROG

- All consolidation and modification of program settings are achieved using the Control Dial.
- To enter a program or to consent a parameter, press the Control Dial.
- To exit a program step, press the return button.



Simple and advanced settings

The factory settings can be modified in basic and advanced settings.

List of simple settings

Menu		Factory settings	Setting mode
Day setting	• DHW temperature setting • Adjustment Single or Daily Temperature setpoint Starting time	✓	Basic and Advanced configuration mode
Night setpoint	• DHW temperature setting • Adjustment Single or Daily Temperature setpoint Starting time	✓	Basic and Advanced configuration mode
Setting the time	• Setting the time • Setting the date • Setting the day of the week	✓	Basic and Advanced configuration mode

Details of basic and advanced settings

DAY SETPOINT	Factory settings	Basic and Advanced configuration mode		Settings on site	Index
Temp: °C	58°C	0°C - 99°C	DHW temperature setting	-	100
Daily	No	Yes - No	Daily setting	-	101
Monday: °C	58°C	0°C - 99°C	DHW temperature setting and daily starting time	-	102
Monday: hrs	6:00	0:00 - 23:00		-	103
Tuesday: °C	58°C	0°C - 99°C		-	104
Tuesday: hrs	6:00	0:00 - 23:00		-	105
Wednesday: °C	58°C	0°C - 99°C		-	106
Wednesday: hrs	6:00	0:00 - 23:00		-	107
Thursday: °C	58°C	0°C - 99°C		-	108
Thursday: hrs	6:00	0:00 - 23:00		-	109
Friday: °C	58°C	0°C - 99°C		-	110
Friday: hrs	6:00	0:00 - 23:00		-	111
Saturday: °C	58°C	0°C - 99°C		-	112
Saturday: hrs	6:00	0:00 - 23:00		-	113
Sunday: °C	58°C	0°C - 99°C		-	114
Sunday: hrs	6:00	0:00 - 23:00		-	115

Administrator mode can be accessed from Operator mode via the last sub-menu of the setting menu.

Details of basic and advanced settings

NIGHT SETPOINT	Factory settings	Basic and Advanced configuration mode		Settings on site	Index
Temp: °C	58°C	0°C - 99°C	DHW temperature setting	-	130
Daily	No	Yes - No	Daily setting	-	131
Monday: °C	58°C	0°C - 99°C	DHW temperature setting and daily starting time	-	132
Monday: hrs	22:00	1:00 - 23:00		-	133
Tuesday: °C	58°C	0°C - 99°C		-	134
Tuesday: hrs	22:00	1:00 - 23:00		-	135
Wednesday: °C	58°C	0°C - 99°C		-	136
Wednesday: hrs	22:00	1:00 - 23:00		-	137
Thursday: °C	58°C	0°C - 99°C		-	138
Thursday: hrs	22:00	1:00 - 23:00		-	139
Friday: °C	58°C	0°C - 99°C		-	140
Friday: hrs	22:00	1:00 - 23:00		-	141
Saturday: °C	58°C	0°C - 99°C		-	142
Saturday: hrs	22:00	1:00 - 23:00		-	143
Sunday: °C	58°C	0°C - 99°C		-	144
Sunday: hrs	22:00	1:00 - 23:00		-	145

INSTAL. TYPE	Factory settings	Advanced configuration mode		Settings on site	Index
	(following product configuration)	Simple Inst. Double Inst. Semi - Inst. S-S Semi - Inst. D-S Semi - Inst. D-D	Installation type	-	200

LEGIONELLA	Factory settings	Advanced configuration mode		Settings on site	Index
Active:	No	Yes - No	Activating treatment	-	240
Day:	Wednesday	-	Date	-	241
Starting hour: hrs	3h	0h - 23h	Time	-	242
Duration cycle: min	20 min	1 min - 99 min	Duration	-	243
Second sensor:	No	Yes - No	Second sensor option	-	244
Temp. Settings: °C	80 °C	0°C - 99°C	Treatment temperature	-	245
Neut. Legio AL: min	3 min	0 min - 9 min	Alarm delay after completion	-	246

In compliance with the regulations (preventing risk of burn), all safety measures should be taken to ensure that during the water treatment, water temperature does not exceed 60°C at the taps.

ALARM AND STEP	Factory settings	Advanced configuration mode		Settings on site	Index
Turbo: Tc- °C	10°C	0°C - 99°C	$\triangle T$ to set off turbo	-	260
Al High: Tc+ °C	15°C	0°C - 99°C	$\triangle T$ to set off alarm	-	261
Al low: Tc- °C	15°C	0°C - 99°C	High or low	-	262
High abs AL: °C	80°C	0°C - 99°C	Absolute alarm	-	263
Low abs AL: °C	40°C	0°C - 99°C	High or low	-	264
Temp2Max Out:	No	Yes - No	Activate the limitation and	-	268
Temp2Max: °C	80°C	10°C - 99°C	Max output temperature	-	269
Hysteresis:	0.2	0.1 - 9.9	Hysteresis defects	-	270
Check mes:	No	Yes - No	Return signal of the opening of the 3WV	-	271
Diff mes: %	10%	1% - 99%	Measure difference at opening	-	272
Open Valve: %	10%	0% - 99%	Opening 3WV	-	273
Auto reset:	Yes	Yes - No	Automatic reset	-	299

DISPLAY DEFECT RELAY	Factory settings	Advanced configuration mode		Settings on site	Index
AL high Temp:	1	0 - 2	Relay / defects assignment	-	300
AL low Temp:	1	0 - 2		-	301
AL pump 1:	2	0 - 2		-	302
AL pump 2:	2	0 - 2		-	303
AL pump 3:	2	0 - 2		-	304
AL pump 4:	2	0 - 2		-	305
AL Input Ana 1:	2	0 - 2		-	306
AL Input Ana 2:	2	0 - 2		-	307
AL Input Ana 3:	2	0 - 2		-	308
AL sensor:	2	0 - 2		-	313

HISTORY OF DEFECTS		List of defect history (max 20)	Index 340

OPERATING COUNTER	Factory settings	Advanced configuration mode		Settings on site	Index
Pump 1: hrs	Oh	Oh - 99999h	Time duration of each pump operation in hours	-	350
Pump 2: hrs	Oh	Oh - 99999h		-	351
Pump 3: hrs	Oh	Oh - 99999h		-	352
Pump 4: hrs	Oh	Oh - 99999h		-	353

INPUTS / OUTPUTS		Factory settings	Advanced configuration mode		Settings on site	Index
Analog Input 1						
	Type:	Pt100			-	370
	Offset:	0	-10 to 100		-	371
	Low scale:	0	-9.9 to 9.9		-	372
	High scale:	100	-10 to 100		-	373
Analog Input 2						
	Type:	Pt100			-	380
	Offset:	0	-10 to 100	PT100	-	381
	Low scale:	0	-9.9 to 9.9	0-10v / 4-20mA	-	382
	High scale:	100	-10 to 100	and	-	383
Analog Input 3						
	Type:	0-10V		shift of input signal	-	390
	Offset:	0	-10 to 10		-	391
	Low scale:	0	-9.9 to 9.9	0-10v / 4-20mA	-	392
	High scale:	100	-10 to 100	Output signal	-	393
Analog Input 1						
	Type:	4-20mA			-	400
	Offset:	0.0	-100 to 100		-	401
Analog Input 2						
	Type:	4-20mA			-	405
	Offset:	0.0	-100 to 100		-	406

PID CONTROLLER	Factory settings	Advanced configuration mode		Settings on site	Index
Prop band:	8.0	0 - 100	Proportional band	-	420
Derivated: %	40.0%	0.0% - 100%	Derivative time	-	421
Integral:	0.2	0 - 100	Integral time	-	422
Dead band:	0.0	0 - 20	Dead band	-	423
3WW opening time: secs	35s	0s - 255s	Time duration of the 3 way valve	-	424
Output max: %	100%	25% - 100%	Opening limite of the valve	-	425
Cold:	No	Yes - No	Cold option	-	426
△PP/3WV: %	40.0%	0.0% - 99%	Shift of pump/3WV signal	-	427

Taking into account the parameters of PID occurs after a reboot of the box.

PROG. SELECTION	Factory settings	Advanced configuration mode		Index
	DHW	DHW / GMP*/ aquaAirless*	Application type	439

* unavailable

FORCED START	Factory settings	Advanced configuration mode		Settings on site	Index
Pump 1:	No	Yes - No	Forced start for each pump		440
Pump 2:	No	Yes - No		-	441
Pump 3:	No	Yes - No		-	442
Pump 4:	No	Yes - No		-	443
Three-way-valve 3P					
Forced:	No	Yes - No	Forced start	-	445
No change: +/-%	5%	0% - 50%	No settings	-	446
Analog Output 1					
Forced:	No	Yes - No	Forced start	-	450
Value: %	50%	0% - 100%	No settings	-	451
Analog Output 2					
Forced:	No	Yes - No	Forced start	-	455
Value: %	50%	0% - 100%	% of cancelling	-	456
Cancel:	No	Yes - No	value		459

MODBUS RTU / RS485	Factory settings	Advanced configuration mode		Settings on site	Index
Address:	1	1 - 128	Modbus address	-	460
Bauds:	9600	4800 - 9600 - 19200	Communication speed	-	461
Parity:	None	None / Even / Odd	Parity	-	463
Num Stop Bit:	1	1 - 2	output RS 485	-	464

FACTORY SETTINGS	Factory settings	Advanced configuration mode		Settings on site	Index
Reset:	No	Yes - No	Reset to factory settings	-	479

SET THE TIME	Factory settings	Advanced configuration mode		Settings on site	Index
Hour: hrs	✓	0h00 - 23h59	Hour	-	480
Date:	✓	- - / - - / - -	Date	-	481
Day:	✓	- - - - - - day	Day of the week	-	482

ADMINISTRATOR MODE	Factory settings	Basic and Advanced configuration mode		Settings on site	Index
Administrator mode:	No	Yes - No	Access admin. mode	-	899

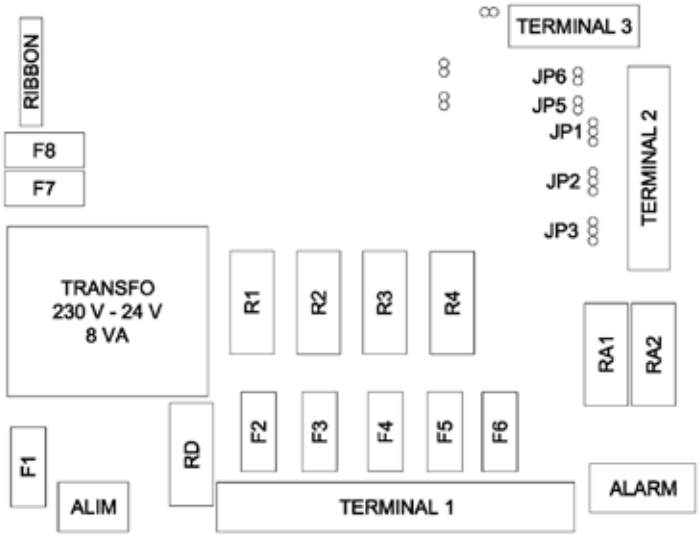
Index Modbus	Variables
1	Measure
2	Set point
3	Output
4	Current defects
5	Word State 1
6	In Ana1
7	In Ana2
8	In Ana3
9	Out An1
10	Out An2
11	In Digital
12	In Ipso
13	Out Relay
14	Current step
15	Bit Defect 1
16	Bit Defect 2

Electrical diagram

Voltage

The box must be supplied by applicable and practice standards. MONO box: Tension 1x230V monophase 50 Hz + ground

Full Load current: D version 3 series 4A, 4 series 6A, 5 series 7A.
DS version 3 series 5A, 4 series 8A, 5 series 10A

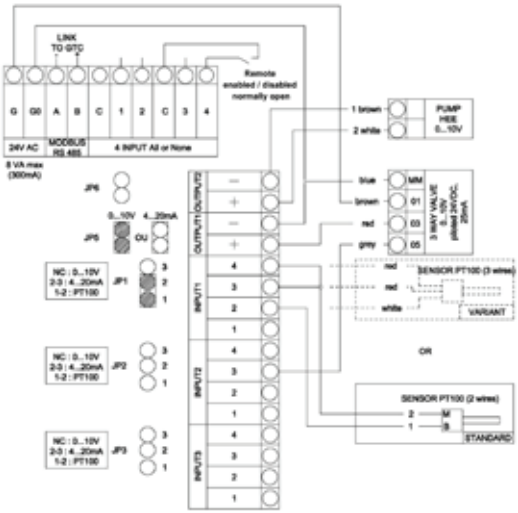


Delay fuse (5 x 20mm)	
F1	Power supply CPU 220V (315 mAT)
F2	pump 1 (6.3 AT)
F3	pump 2 (6.3 AT)
F4	pump 3 (6.3 AT)
F5	pump 4 (6.3 AT)
F6	3-way valve 220V (315 mAT)
F7	transformer 24V (315 mAT)
F8	transformer 220V (315 mAT)

Pluggable relay	
R1	pump 1
R2	pump 2
R3	pump 3
R4	pump 4
RA1	alarm 1
RA2	alarm 2
RD	degraded mode

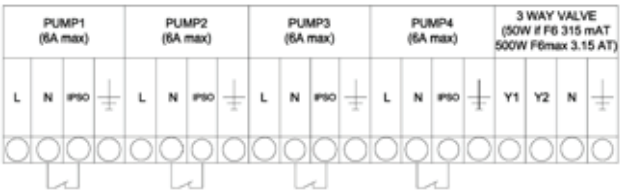
Terminal 2 and 3

Cable section 0.75 mm² max

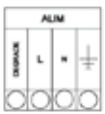


Terminal 1

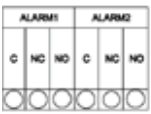
Cable section 1.5 mm²



Electricity supply:
cable section
2.5 mm² max

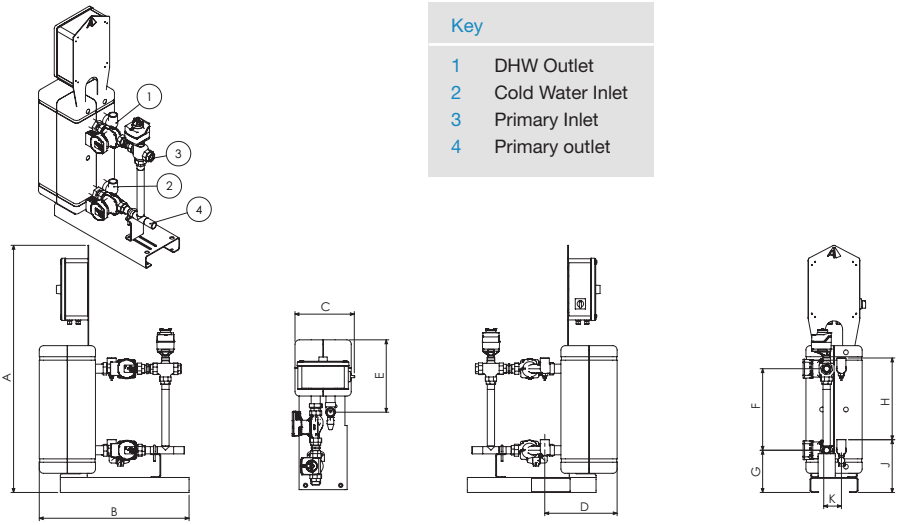


Alarms: Section cables 1.5 mm²
Potential free
Break capacity 230 VAC
4A charge resistance
ALARM 1 Temperature alarm
ALARM 2 System component alarm
Common Alarm C-C connected normally closed



ProPak Thermal 25 SERIES

Instantaneous Packaged Plate Heat Exchanger



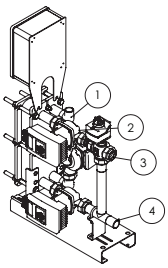
Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet

Dimensions mm

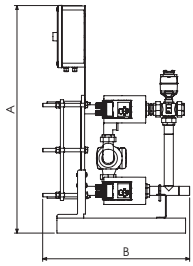
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
2507 - 2515 D	1152	700	302	383	337	380	197	380	506	69

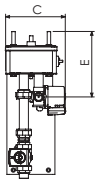
ProPak Thermal 25 SERIES

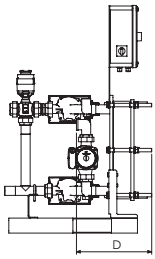
Semi-instantaneous Packaged Plate Heat Exchanger

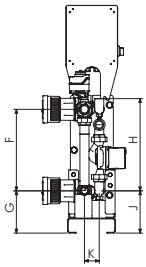


Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet







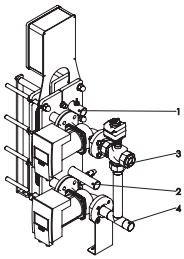


Dimensions mm

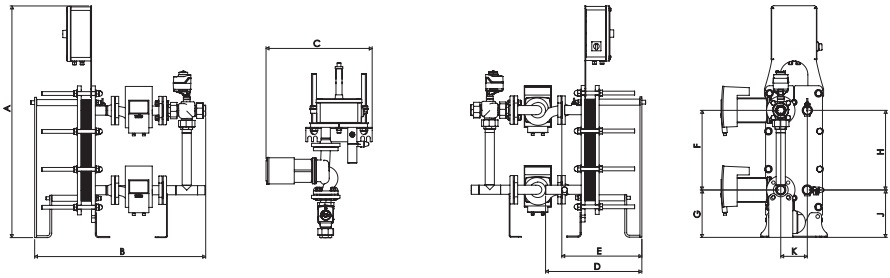
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
2507 - 2515 DS	1152	700	302	383	337	380	197	122	506	69

ProPak Thermal D 3 SERIES

Instantaneous Packaged Plate Heat Exchanger



Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet

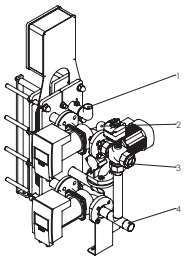


Dimensions mm

ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3013 - 3045 D	1030	648	340	311	311	380	127	380	189	69

ProPak Thermal DS 3 SERIES

Semi-Instantaneous Packaged Plate Heat Exchanger



Key	
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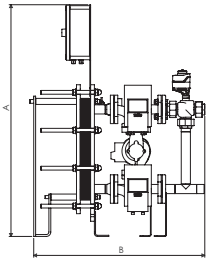
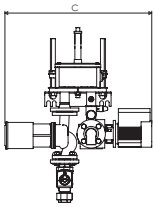
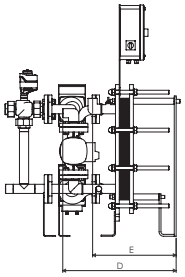
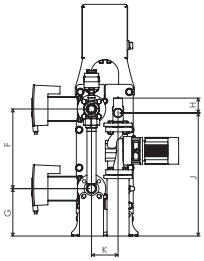
4	Primary outlet







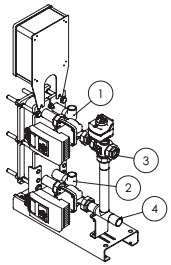


Dimensions mm

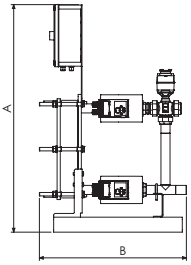
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3013 - 3045 DS	1030	648	349	440	300	380	127	162	408	69

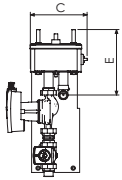
ProPak Thermal 35 SERIES

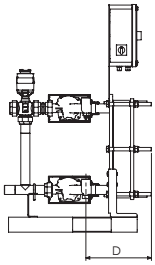
Instantaneous Packaged Plate Heat Exchanger

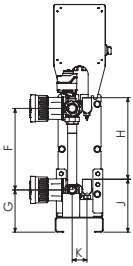


Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet







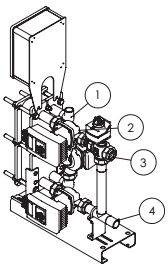


Dimensions mm

ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3531 - 3543 D	1380	900	460	494	494	420	320	420	300	140

ProPak Thermal 35 SERIES

Semi-instantaneous Packaged Plate Heat Exchanger



Key	
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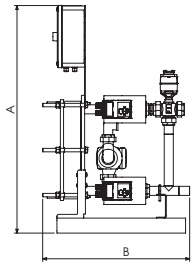
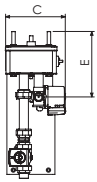
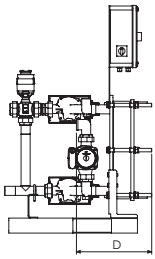
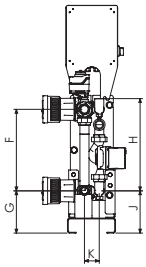






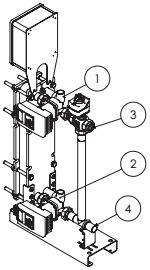


Dimensions mm

ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3531 - 3542 DS	1380	863	460	538	494	420	320	162	558	140

ProPak Thermal 38 SERIES

Instantaneous Packaged Plate Heat Exchanger



Key	
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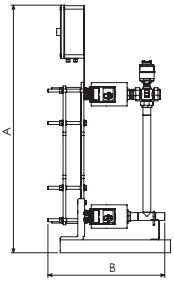
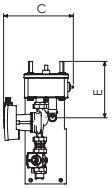
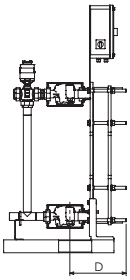
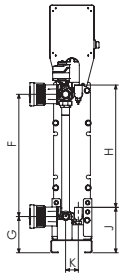






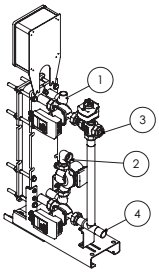


Dimensions mm

ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3811 - 3875 D	1347	686	379	305	305	665	197	665	247	69

ProPak Thermal 38 SERIES

Semi-instantaneous Packaged Plate Heat Exchanger



Key

1	DHW Outlet
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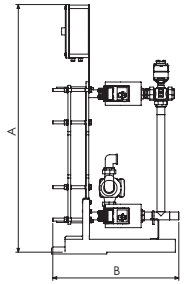
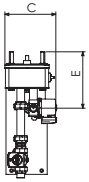
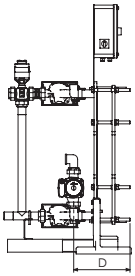
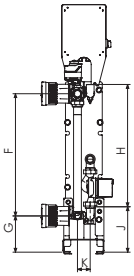






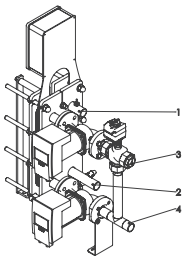


Dimensions mm

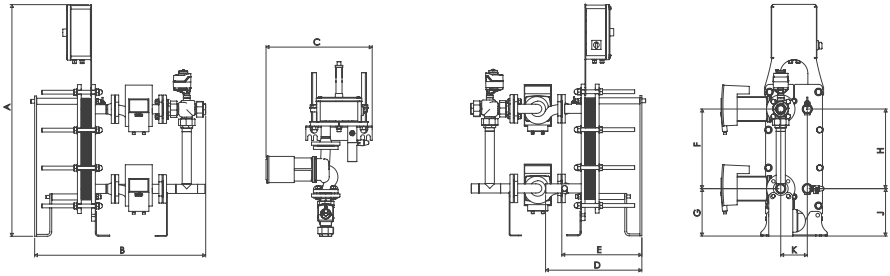
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
3811 - 3867 DS	1347	686	390	351	305	665	197	407	506	69

ProPak Thermal D 4 SERIES

Instantaneous Packaged Plate Heat Exchanger



Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet

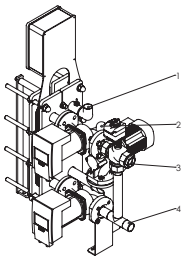


Dimensions mm

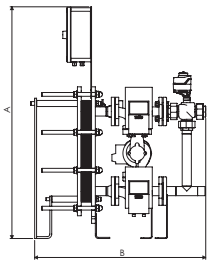
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
4021 - 4035 D	1310	922	560	509	409	420	250	420	250	140

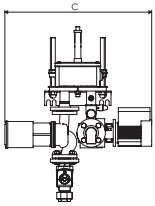
ProPak Thermal DS 4 SERIES

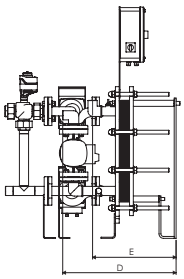
Semi-Instantaneous Packaged Plate Heat Exchanger

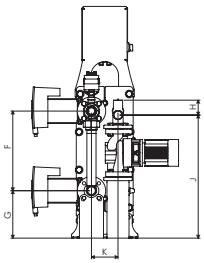


Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet







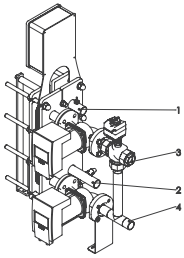


Dimensions mm

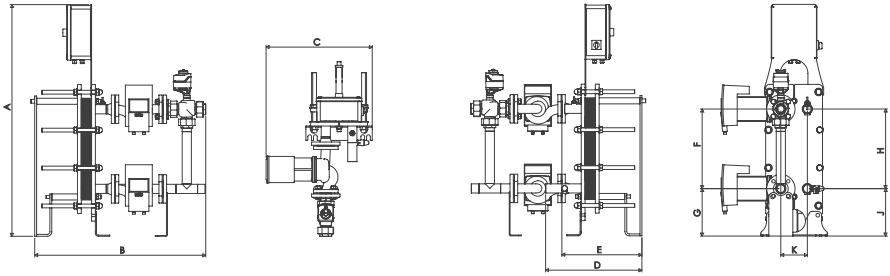
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
4021 - 4035 DS	1310	922	778	618	461	420	250	79	649	140

ProPak Thermal D 5 SERIES

Instantaneous Packaged Plate Heat Exchanger



Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet

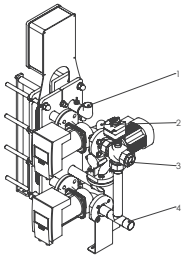


Dimensions mm

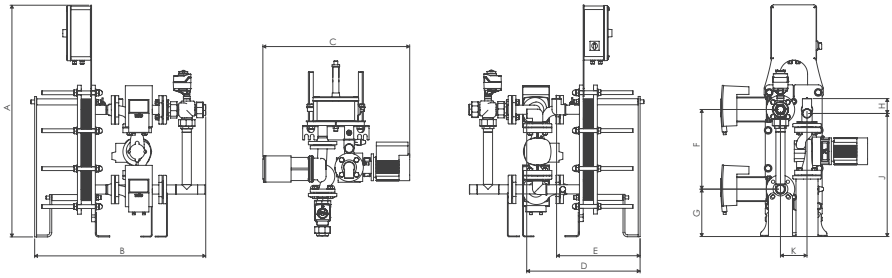
ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
5031 - 5049 D	1310	974	563	549	411	420	250	420	250	140

ProPak Thermal DS 5 SERIES

Semi-Instantaneous Packaged Plate Heat Exchanger



Key	
1	DHW Outlet
2	Cold Water Inlet
3	Primary Inlet
4	Primary outlet



Dimensions mm

ProPak	A - Total Height	B - Total Depth	C - Total Width	d	e	f	g	h	j	k
5031 - 5049 DS	1310	974	793	659	451	420	250	9	719	140

Notes

COMMERCIAL HOT WATER SOLUTIONS LTD (CHWS LTD)

65 Gazelle Road, Weston Industrial Estate
Weston-super-Mare, Somerset. BS24 9ES
t. 01934 244 770
e. info@chwsltd.co.uk
www.chwsltd.co.uk

"Commercial Hot Water Solutions Ltd (CHWS Ltd) are a Bosch recognised supplier of high quality commercial and industrial hot water generators and storage vessels for use with the Bosch Commercial and Industrial range of boilers and water heaters"