



**ECONOPLATE E2
(WATER TO WATER) SERIES
PACKAGED PLATE HEAT EXCHANGERS
E2A(****)/E2B(****)/E2C(****)**

**INSTALLATION, OPERATION & MAINTENANCE
DOCUMENTATION**

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Contents

| | |
|-----------------|---|
| Page 3 | General Description |
| Page 4 | E2A(****) Technical Specification |
| Page 5 | E2A(LTHWS) Semi-Instantaneous Mechanical Drawing |
| Page 6 | E2B(****) Technical Specification |
| Page 7 | E2C(****) Technical Specification |
| Page 8 | E2C(LTHWS) Semi-Instantaneous Mechanical Drawings |
| Page 9 | Primary Installation |
| Page 10 | Secondary Installation |
| Page 11 | Secondary Installation Schematics |
| Page 12 | Electrical Details & External Connections |
| Page 13 & 14 | Operation |
| Page 14 & 15 | Maintenance |
| Page 16 & 17 | Fault Finding |
| Page 18 | Temporary Operation |
| Page 19 & 20 | Parts List Current Models |
| Page 22 onwards | Econotrol 2100 Controller Instructions |

GENERAL DESCRIPTION:

The Stokvis Econoplate E2(****) series of packaged plate heat exchangers are available in 3 ranges with outputs up to approximately 1100kW dependent upon application.

The E2(****) series are designed, where necessary, to operate up to a maximum operating temperature of 140°C** (see Primary Installation), and to provide hot water or heating instantaneously, without the need for storage, up to their maximum rated output. Econoplate units can be coupled to a buffer vessel for even greater outputs of hot water.

All units are built around an epoxy coated chassis containing the heat exchanger. This heat exchanger is made up of a number of gasketed stainless steel plates which form the channels for primary and secondary water to flow through. Plates can be readily added, up to the chassis limit, enabling the output capacity of an existing unit to be increased if required.

Plate heat exchangers have low water content and low thermal inertia making them ideal for use in systems with varying heat loads. The primary and secondary water both make a single pass across the heat exchanger, in opposing directions, enabling required heat exchange to take place.

The E2(****) series units are supplied with fast acting 2-port motorized control valves fitted to the primary circuit. This valve is modulated by a purpose built PID controller which senses the secondary water temperature and opens or closes the valve in response.

The primary flow must be fed to the unit by a pump, which is itself speed controlled, and thus able to vary the flow to the Econoplate in response to changes in load dictated by the modulating valve as it modulates. This creates a varying back pressure to which the pump can react. Alternatively, a system with a primary flow that does not pump directly to the unit may be suitable, provided pressure cannot build up when other circuits close off, resulting in the full head of the pump being applied to the valve.

For instantaneous hot water service usage, a secondary hot water service return pump and non-return valve can be supplied, fitted and wired to the unit as an option. For semi-instantaneous hot water usage, a transfer pump can be provided to pump water from a storage vessel to the Econoplate. For LTHW, a secondary pump can be supplied. If required, pump contactors and overloads can be included and housed within the control panel. Overload trip indication is displayed on the panel. In addition, timed pump overrun can be incorporated to dissipate temperature when the Econoplate is used with time switch control applications.

In addition to the PID controller, the control panel on the E2(****) series plate heat exchanger contains: valve opening/closing and secondary pump running functional indicator lamps, a 500mA control fuse, a 10A output fuse, duplex pump duty share (if fitted), high/low temperature alarm indication, volt free common temperature alarm terminals, high temperature lockout and an extra low voltage external interlock circuit. Time control can be by: either the internal inbuilt 7 day time clock for either 2 temperatures of operation or a single temperature and night off per day, or externally using the extra low voltage "external time clock" circuit for either 2 temperatures of operation or a single temperature and night off. On some units, secondary pump overloads are included as standard. On other units, they can be provided as an option. Overload trip indication is displayed on the panel.

All Econoplate units are fully assembled and factory wired for ease of installation, leaving only the electrical supply and primary and secondary water circuits to be connected on site.

E2A(**) TECHNICAL SPECIFICATION:**

- Chassis Plate : Epoxy coated steel 25mm thick
- Front Plate : Epoxy coated steel 20mm thick
- Heat Exchanger Plate : 316 grade stainless steel
- Plate Gaskets : EPDM
- Retaining Bolts : 16mm carbon steel
- Maximum Primary Operating Temperature : 140°C
- Maximum Primary Operating Pressure : 10 bar
- Maximum Secondary Operating Pressure : 6 bar
- Primary Water Connections (standard) : Inlet – Cast Iron, DN40, PN10
Outlet – 1½” BSPM
- Secondary Inlet : Bronze 1½” BSPF
- Secondary Outlet : Bronze 1½” BSPF
- Secondary Hot Water Service Return : Bronze 1” BSPF (¾” BSPF when
HWS secondary pump fitted)
- Primary Control Valve : 2-port, Cast Iron, DN40, PN10
- Primary Control Valve Actuator : 230V, modulating, motor open/close
- Control Panel (standard):
 - ABS enclosure
 - Electronic PID temperature controller
 - 7 day time clock control of 2 temperature settings and/or 1 temperature and night off, per day
 - Safety extra low voltage circuit for external “clock” control of 2 temperatures or 1 temperature and off
 - Safety extra low voltage circuit for external interlock
 - Adjustable high limit and low limit temperature alarms, temp. alarm lamp, common volt free temp. alarm and selectable high temp. lockout modes
 - Functional indication of: secondary pump enabled and valve opening/closing
 - LCD digital display of day and time, secondary flow temperature and any faults
 - Pump mode selection including duplex pump duty share
 - Full menu driven interrogation of parameters and operating modes
 - 500mA control fuse, 10A output fuse

Options:

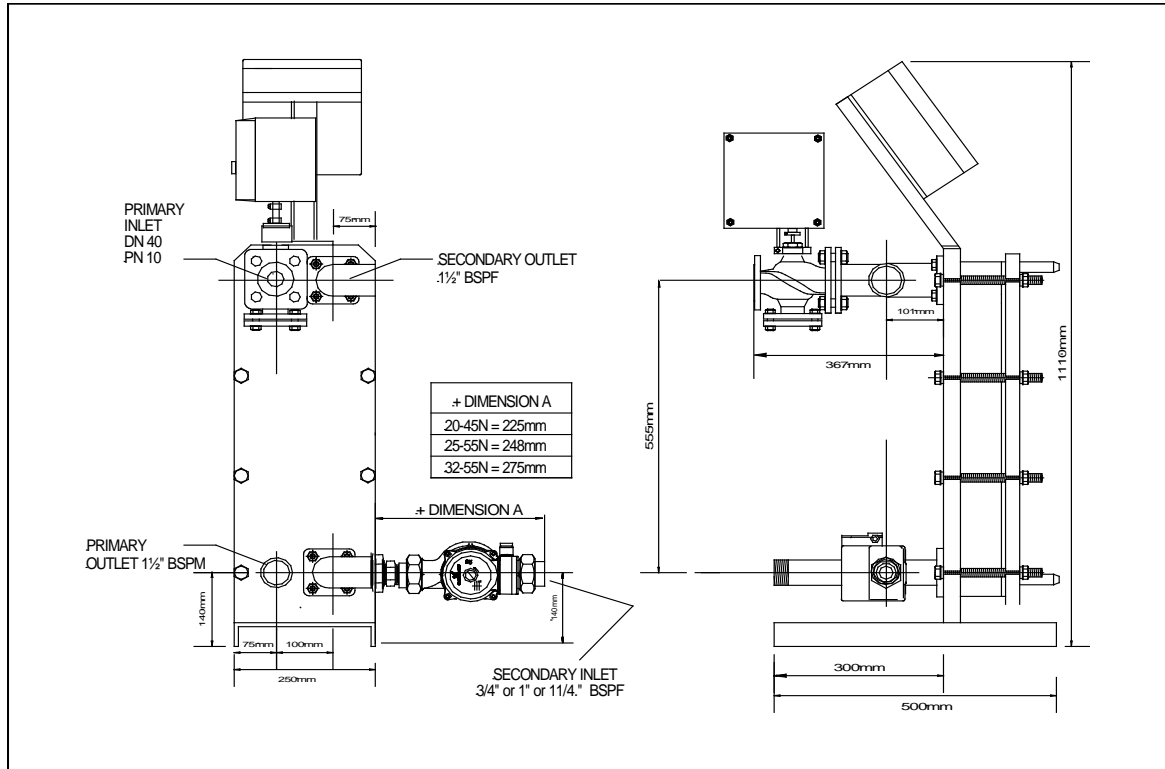
- HWS Secondary Recirc. Pump : UP20-45N (1-phase) (C/W Bronze NRV)
- HWS Secondary Transfer pump : Various – Dependent on selection
- Additional Primary Shut Off Valve, Actuator and High Limit Thermostat : 2-port, DZR Cast Brass Body, DN40, PN40
: 230V, motor open/spring close
: 230V, manual reset, IP54

WEIGHT: 140kg (max.) (excluding options) LENGTH: 567mm (excluding options)
HEIGHT: 1110mm (excluding options) WIDTH: 250mm (excluding options)

MECHANICAL DETAILS.

There are many variants of E2A & E2B(****) units however below is 1 such example, specific drawings can be provided for other applications.

E2A(LTHWS)+1T SEMI-INSTANTANEOUS INCLUDING SECONDARY TRANSFER PUMP ON ANGLED SECONDARY INLET:



E2B(**) TECHNICAL SPECIFICATION:**

- Chassis Plate : Epoxy coated steel 25mm thick
- Front Plate : Epoxy coated steel 25mm thick
- Heat Exchanger Plate : 316 grade stainless steel
- Plate Gaskets : EPDM
- Retaining Bolts : 16mm carbon steel
- Maximum Primary Operating Temperature : 140°C
- Maximum Primary Operating Pressure : 10 bar
- Maximum Secondary Operating Pressure : 6 bar
- Primary Water Connections (standard) : Inlet – Cast Iron, DN50, PN10
Outlet – 2” BSPM
- Secondary Inlet : Bronze 2” BSPF
- Secondary Outlet : Bronze 2” BSPF
- Secondary Hot Water Service Return : Bronze 1¼” BSPM (or 1¼” BSPF when
HWS secondary recirc. pump fitted)
- Primary Control Valve : 2-port, Cast Iron, DN50, PN10
- Primary Control Valve Actuator : 230V, modulating, motor open/close
- Control Panel (standard):
 - ABS enclosure
 - Electronic PID temperature controller
 - 7 day time clock control of 2 temperature settings and/or 1 temperature and night off, per day
 - Safety extra low voltage circuit for external “clock” control of 2 temperatures or 1 temperature and off
 - Safety extra low voltage circuit for external interlock
 - Adjustable high limit and low limit temperature alarms, temp. alarm lamp, common volt free temp. alarm and selectable high temp. lockout modes
 - Functional indication of: secondary pump enabled and valve opening/closing
 - LCD digital display of day and time, secondary flow temperature and any faults
 - Pump mode selection including duplex pump duty share
 - Full menu driven interrogation of parameters and operating modes
 - 500mA control fuse, 10A output fuse

Options:

- HWS Secondary Recirc. Pump : UPS32-55N (1-phase) (C/W Bronze NRV)
- HWS Secondary Transfer pump : Various – Dependent on selection
- Additional Primary Shut Off Valve : 2-port, DZR Cast Brass Body, DN50, PN40
Actuator : 230V, motor open/spring close
and High Limit Thermostat : 230V, manual reset, IP54

WEIGHT: 140kg (max.) (excluding options) LENGTH: 597mm (excluding options)
HEIGHT: 1110mm (excluding options) WIDTH: 250mm (excluding options)

E2C(**) TECHNICAL SPECIFICATION:**

| | |
|---|---|
| -Chassis Plate | : Epoxy coated steel 25mm thick |
| -Front Plate | : Epoxy coated steel 25mm thick |
| -Heat Exchanger Plate | : 316 grade stainless steel |
| -Plate Gaskets | : EPDM |
| -Retaining Bolts | : 16mm carbon steel |
| -Maximum Primary Operating Temperature | : 140°C |
| -Maximum Primary Operating Pressure | : 10 bar |
| -Maximum Secondary Operating Pressure | : 6 bar |
| -Primary Water Connections (standard) | : Inlet – Cast Iron, DN50, PN10 Outlet – 2” BSP |
| -Secondary Inlet HWS/LTHW | : Bronze 2” BSPF |
| -Secondary Inlet LTHW | : Stainless Steel 2” BSPF |
| -Secondary Outlet HWS/LTHW | : Bronze 2” BSPF |
| -Secondary Outlet LTHW | : Stainless Steel 2” BSPF |
| -Secondary Hot Water Service Return | : Bronze 1¼” BSPM (or 1¼” BSPF when HWS secondary recirc. pump fitted) |
| -Primary Control Valve | : 2-port, Cast Iron, DN50, PN10 |
| -Primary Control Valve Actuator | : 230V, modulating, motor open/close |
| -Control Panel (standard): | |
| •ABS enclosure | |
| •Electronic PID temperature controller | |
| •7 day time clock control of 2 temperature settings and/or 1 temperature and night off, per day | |
| •Safety extra low voltage circuit for external “clock” control of 2 temperatures or 1 temperature and off | |
| •Safety extra low voltage circuit for external interlock | |
| •Adjustable high limit and low limit temperature alarms, temp. alarm lamp, common volt free temp. alarm and selectable high temp. lockout modes | |
| •Functional indication of: secondary pump enabled and valve opening/closing | |
| •LCD digital display of day and time, secondary flow temperature and any faults | |
| •Pump mode selection including duplex pump duty share | |
| •Full menu driven interrogation of parameters and operating modes | |
| •500mA control fuse, 10A output fuse | |

Options:

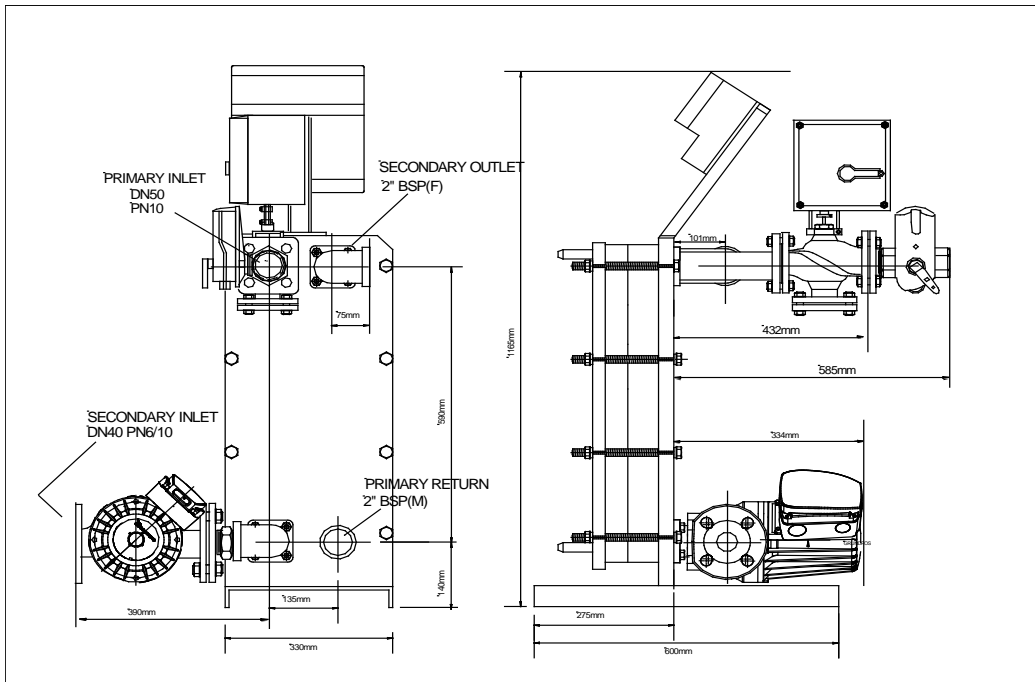
| | |
|---|--|
| •HWS Secondary Recirc. Pump | : UPS32-55N (1-phase) (C/W Bronze NRV) |
| •HWS Secondary Transfer Pump | : Various – Dependent on selection |
| •Additional Primary Shut Off Valve Actuator and High Limit Thermostat | : 2-port, DZR Cast Brass Body, DN50, PN40 : 230V, motor open/spring close : 230V, manual reset, IP54 |

WEIGHT: 160kg (max.) (excluding options) LENGTH: 707mm (excluding options)
HEIGHT: 1165mm (excluding options) WIDTH: 330mm (excluding options)

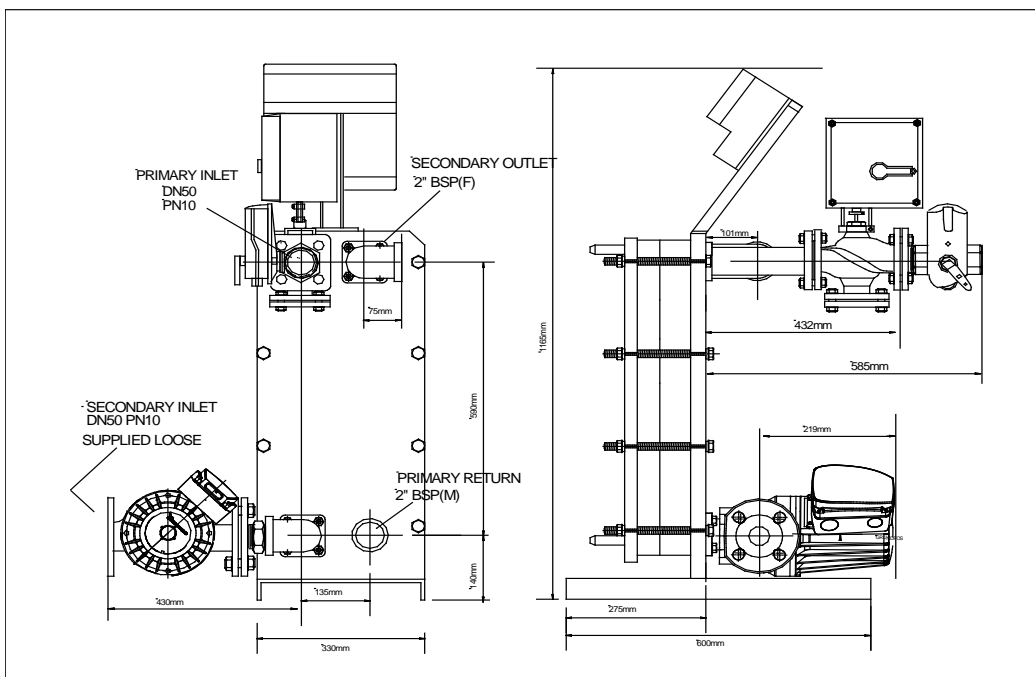
MECHANICAL DETAILS.

There are many variants of E2C(****) units however below are 2 such examples, specific drawings can be provided for other applications.

E2C(LTHWS)+1T SEMI-INSTANTANEOUS, INCLUDING UPS40-60/120 FB SECONDARY TRANSFER PUMP ON STRAIGHT SECONDARY INLET AND ADDITIONAL 2-PORT PRIMARY SHUT OFF VALVE AND ACTUATOR:



E2C(LTHWS)+1T SEMI-INSTANTANEOUS, INCLUDING UPS50-120/2FB SECONDARY TRANSFER PUMP ON ANGLED SECONDARY INLET AND ADDITIONAL 2-PORT PRIMARY SHUT OFF VALVE AND ACTUATOR:



PRIMARY INSTALLATION:

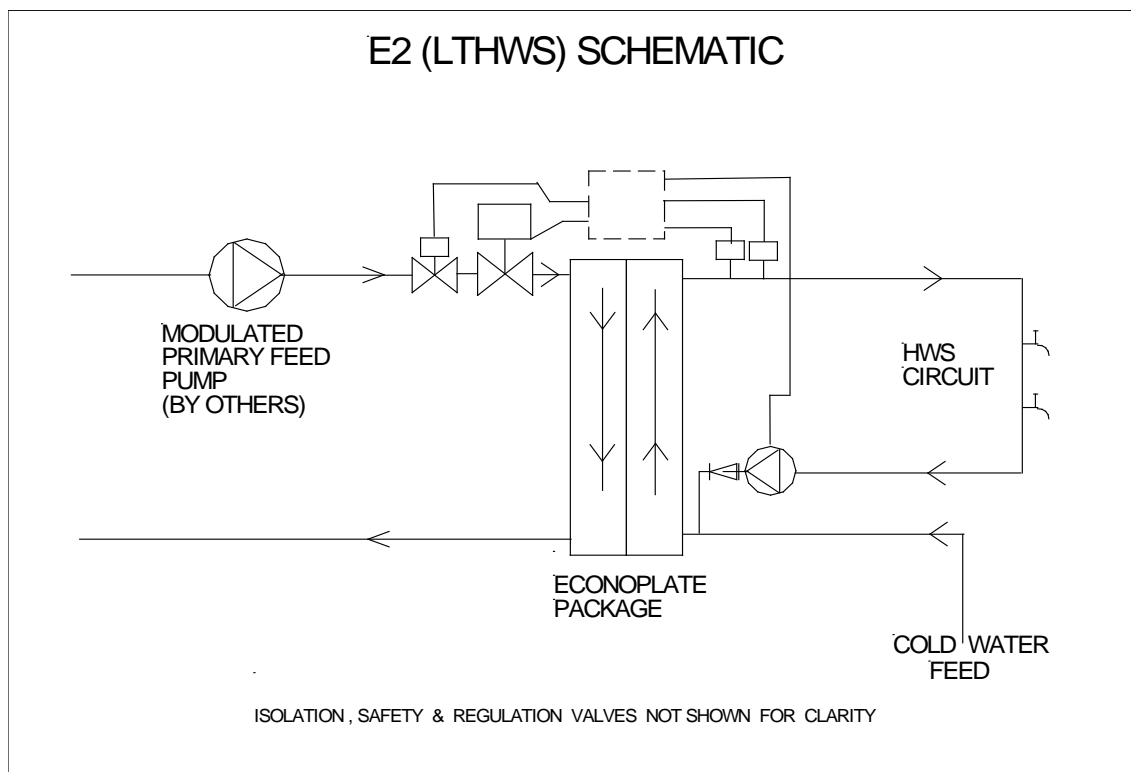
The flow from the primary heat source is connected to the 2-port valve and the return to the lower BSP threaded connection. Connections must be made using appropriate counter flanges/unions, and suitable isolating valves should be installed to enable servicing of the unit after installation.

To ensure correct operation, water at the design flow temperature should be available close to the plate heat exchanger at all times. Consequently when a demand for hot water occurs, the Econoplate is able to respond quickly to prevent temperatures dropping.

The primary flow must be fed to the unit by a pump, which is itself speed controlled, and thus able to vary the flow to the Econoplate in response to changes in load dictated by the modulating valve as it modulates. This creates a varying back pressure to which the pump can react. Alternatively, a system with a primary flow that does not pump directly to the unit may be suitable, provided pressure cannot build up when other circuits close off, resulting in the full head of the pump being applied to the valve.

**On systems, where the heat source is capable of raising the temperature over 95°C, a manual reset high limit thermostat set to 90°C can be provided to interrupt the supply of energy to the primary water. As a flow can persist, following failure of the control valve, an additional spring return primary shut off valve, operated by a manual reset high limit thermostat set to 90°C, can be provided. This valve will also interrupt the supply of energy if the electrical power supply is interrupted.

Typical Installation of an Econoplate E2(**) Series Plate Heat Exchanger on a hot water system (Including additional spring return primary shut off valve and manual reset high limit thermostat):**



SECONDARY INSTALLATION DETAILS:

INSTANTANEOUS HOT WATER APPLICATIONS:

When water is being drawn directly from the Econoplate into the distribution system to the taps, this is termed instantaneous hot water generation.

The cold water feed connection is made into the bottom horizontal bronze connection on the rear of the Econoplate. The cold feed may either be from a cold feed storage tank, which can itself be boosted if required, or directly from the mains.

An unvented kit of components, required by Part G3 of the Building Regulations 2000 amended in 2010 and complying with any Installation Requirements for Bylaw Compliance can be provided to complete the package when the cold feed is boosted or mains fed.

The hot water service flow is connected to the top bronze connection, again on the rear of the Econoplate. This connection can be identified by noting the electrical temperature probe fitted into it.

A secondary recirculation must be maintained at all times, either around the installation, or locally to the Econoplate. For this purpose, a connection is provided in the bronze cold feed casting, or alternatively if the optional secondary recirculation pump (complete with non-return valve) is provided, then the connection is made onto the pump.

SEMI-INSTANTANEOUS HOT WATER APPLICATIONS:

When hot water is drawn from a storage vessel into the distribution system to the taps and the vessel is heated directly by the Econoplate, this is termed semi-instantaneous hot water generation. This type of installation particularly suits applications which have low cold feed pressures, sporadic usage or insufficient boiler power available.

The cold feed connection is made into the bottom of the vessel. The cold feed can still be either from a cold feed storage tank, which can itself be boosted, or it can be mains fed. The same restrictions/requirements as above apply, with the additional requirement of a Temperature & Pressure relief valve(s) (T&P Valve).

The Econoplate is fitted with a transfer pump which draws water from the bottom of the vessel at the design flow-rate of the Econoplate. This water enters the Econoplate through the lower bronze connection and is heated to the desired temperature. It is then pumped from the top bronze connection into a top connection on the vessel. The flow-rate should be set using the speed control on the pump, or, if a more accurate method is required, a flow setting device can be supplied or a double regulating valve could be incorporated in the pipework. In many cases a simple lockshield valve may suffice. Hot water flows from the top of the vessel into the distribution system and to the taps. No hot water return is required for the operation of the Econoplate in this type of system.

N.B. Isolating valves should be fitted to all circuits.

LTHW APPLICATIONS:

For LTHW units, the system return is connected to the bottom horizontal connection and the flow to the top connection. When operating, the secondary design flow rate must be maintained at all times, either around the installation or locally to the Econoplate. If the unit is shut down at any time, a pump over run should be incorporated to dissipate any heat.

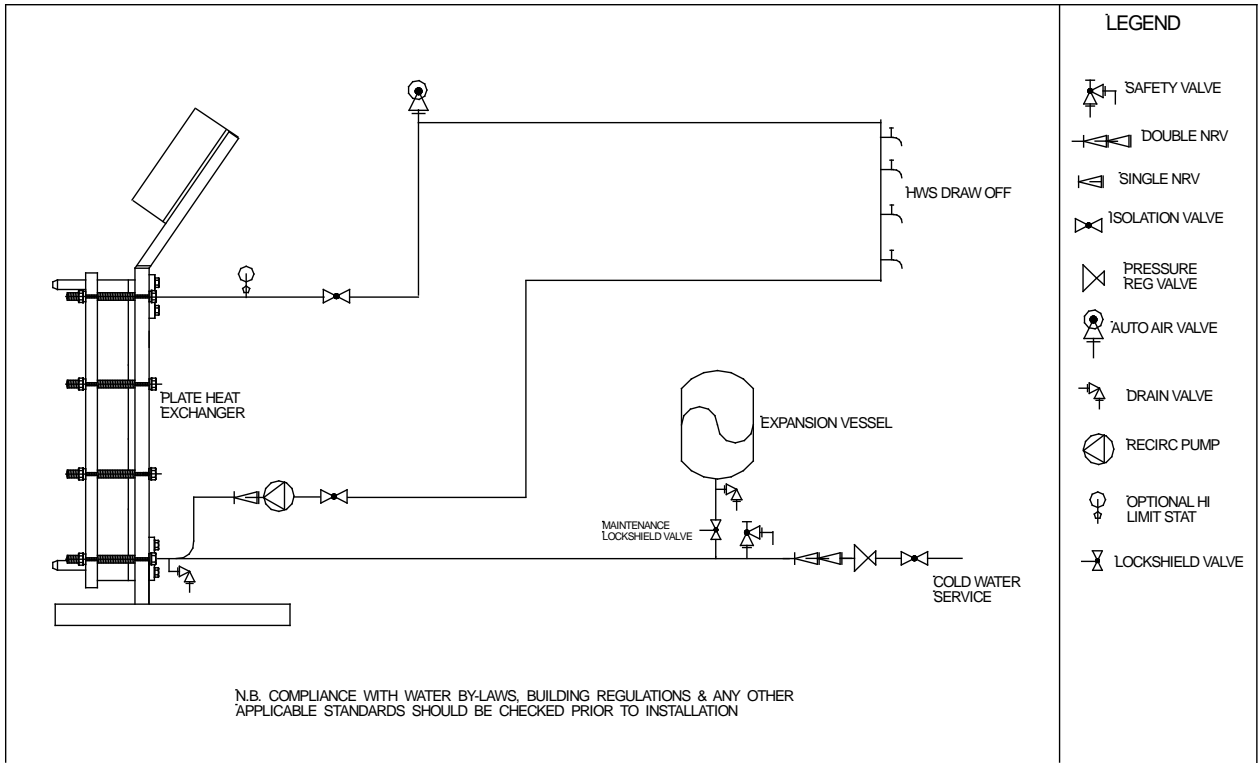
OTHER APPLICATIONS:

Many other applications other than hot water service can be catered for. The lower connection on the unit is the return or inlet and the top connection is the flow or outlet.

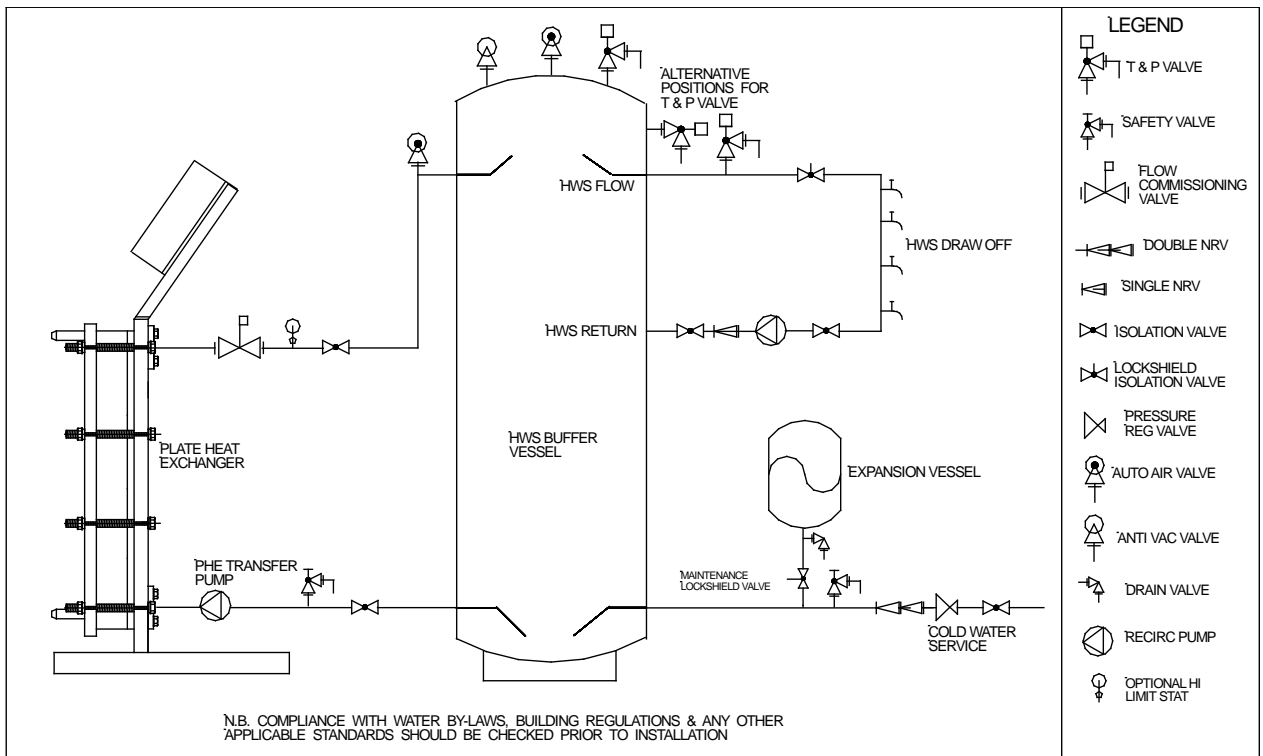
RECOMMENDED MINIMUM CLEARANCES FOR MAINTENANCE:

450mm front, 300mm pump side, 150mm other side

SECONDARY CONNECTIONS: INSTANTANEOUS SYSTEM WITH MAINS COLD FEED CONNECTION:



SECONDARY CONNECTIONS: SEMI-INSTANTANEOUS WITH STORAGE AND MAINS COLD FEED CONNECTION:



ELECTRICAL DETAILS:

E2(****)+0R (230V, 1-phase): Full-load current = 0.2A

When a secondary recirculation pump (+1R) or secondary transfer pump (+1T) has been opted for, the corresponding amperage below must be added to the above chassis figure for total full-load current.

| | | |
|-----------------|------------------|---------------|
| UP20-45N | (230V, 1-phase): | + 0.52A, 120W |
| UPS25-55N | (230V, 1-phase): | + 0.38A, 85W |
| UPS32-55N | (230V, 1-phase): | + 0.46A, 105W |
| UPS32-80N | (230V, 1-phase): | + 0.98A, 220W |
| Magna3 40-80FN | (230V, 1-phase): | + 1.20A, 265W |
| Magna3 40-120FN | (230V, 1-phase): | + 1.95A, 440W |

An external electrical supply isolator should always be fitted adjacent to the unit. The supply itself should be provided with suitable protection in accordance with current IEE regulations and codes of practice.

EXTERNAL CONNECTIONS:

Common Temperature Alarm

A rise of 10°C above the set point or a fall of 20°C below the set point causes an alarm relay to be energized. A pair of volt free terminals, which close on a fault (after a given time), are available for external indication.

External Interlock

An external safety device or switched circuit can be connected to the Econoplate which will shut the unit down in case of a fault. It is a safety extra low voltage circuit; an open circuit should be used to shut the unit down.

N.B. This circuit will have already been utilized if the additional primary shut-off valve, actuator and high-limit thermostat has been opted for.

External "Clock"

An external device can be connected to switch between 2 temperatures, or to switch between a single set point and off. A closed contact across this safety extra low voltage circuit gives the "day" setting and an open circuit the "night" setting.

Fuse Protection

The electronic controller is protected by a 500mA fuse and the main p.c.b. output side is protected by a 10A fuse; both are located on the p.c.b.

WARNING

NEVER RUN CONTROL CABLES USING LOW VOLTAGES WITH POWER CABLES; INDUCED VOLTAGES CAN AFFECT THE OPERATION OF THE CONTROLLER.

OPERATION:

Prior to switching the Econoplate on it must be ensured that the unit is filled with water and that all pipework and pumps are vented.

Once this is complete and the unit is on, the Econoplate Controller should be set up as described in the Econotrol 2100 Controller Manual to suit the particular requirements of the client.

The pump(s) should be vented; a 3-phase secondary pump may be fitted, therefore the direction of rotation must also be checked. In all cases the pump run current should be measured, and if applicable, the overloads should be set accordingly. Secondary pump overload trip is indicated on the LCD display, and on duplex units, auto changeover is also included. These functions should be checked.

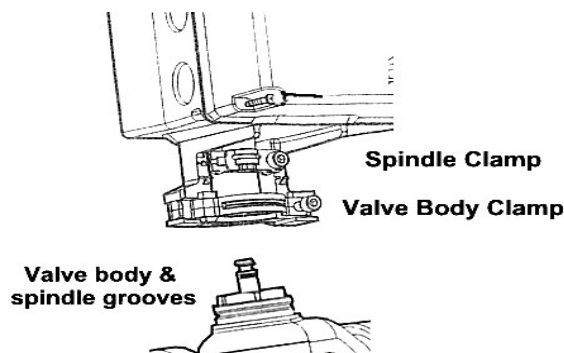
On all units, the motorized valve should be checked for correct connection and travel by simulating a load / no load situation.

Current E2(****) units are fitted with a Sauter VUE valve with an AVM124F130 actuator.

To check the correct connection of valve and actuator proceed as follows:

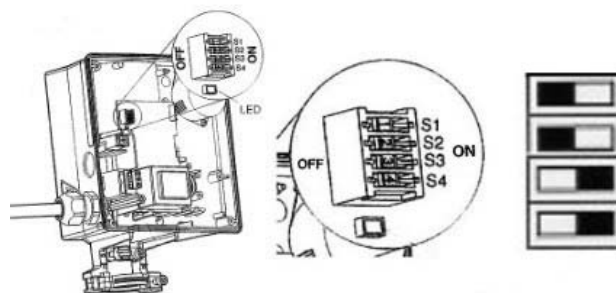
AVM124:

Units fitted with the **AVM124** actuator are connected to the valve body and spindle by two clamps which are secured with hexagon head screws. The upper (drive spindle) clamp can be released and the spindle can be checked for up and down movement by hand without removing the bottom (valve body) clamp. Once the valve spindle movement is checked, ensure that both clamps are refitted correctly in the location grooves on the spindle and valve body and are not loose.



Units fitted with the **AVM124** actuator have automatic self adjusting valve spindle travel.

AVM124 actuators also have a switch coding for valve speed inside the actuator cover, which can be seen through the clear lid, and these should be set as below:



There is also a single green LED just below the switch block which gives indication of the following functions of the actuator.

| | | |
|---|---|---|
| Quick intermittent flashing | : | Initialization procedure |
| Continuous illumination | : | Actuator moving to set point position |
| Short Flashing with longer delay between flashing | : | Set point reached |
| Longer flashing with shorter delay between flashing | : | Too much force detected (possible valve seized) |
| Rapid flashing | : | Actuator in manual mode |

MAINTENANCE:

If the installation is set up as per the above instructions, and if the pre-set factory values are unchanged, the Stokvis Econoplate unit should not need dismantling for service for many years.

A large temperature drop between inlet and outlet of the primary circuit, but lack of hot water indicates a lack of primary flow, possibly due to an external blockage. Any internal clogging may be detected as follows:

- A high pressure drop between inlet and outlet of the secondary hot water circuit.
- A small temperature drop between inlet and outlet of the primary circuit (under 20°C at full load) indicates the exchanger is clogged.

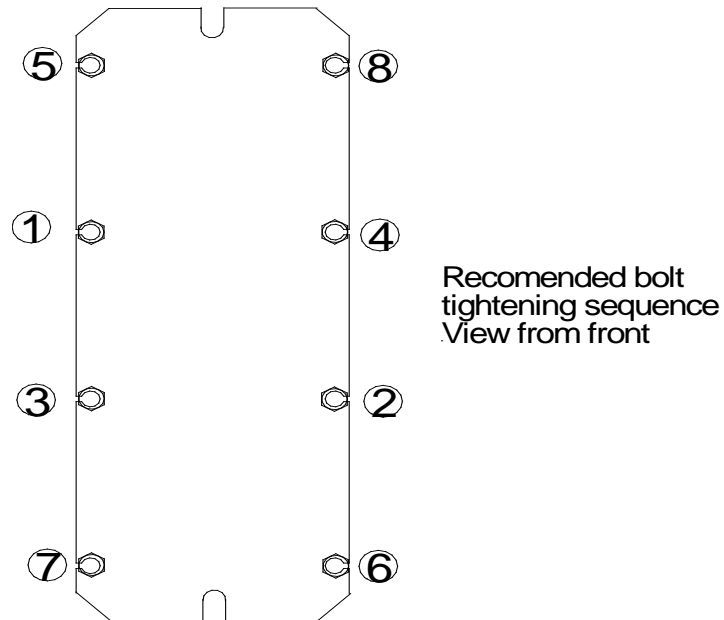
A plate pack consists of:

- Firstly, a 4-hole first/start plate, which has a gasket around all 4 ports; this plate sits against the fixed chassis plate.
- Next are a number of intermediate plates:
 - On the E2A(****) & E2B(****) (parallel units), intermediate plates should be fitted so that the chevron pattern, stamped on the plates, alternates up then down on adjacent plates, with the gasket facing the fixed chassis plate.
 - On the E2C(****) (cross flow units), intermediate plates consist of left and right handed plates, which alternate throughout a plate pack (different plate types and gasket gluing configurations exist, see Plate Identification).
- Lastly, a no-hole blank/end plate, which has a gasket around all 4 ports; the moveable chassis plate sits against this end plate.

If it is required to clean the plate pack, the below instructions should be followed:

- Isolate the exchanger, primary side first, allowing the temperature to fall below 40°C and then isolate the secondary side.
- Reduce the pressure by opening the vents and drain both primary and secondary.
- Carefully release the securing bolts between the frame and front plate. Slacken the bolts in sequence to reduce stress on individual bolts.
- Remove the plates one at a time from the unit leaving the last plate in situ against the fixed chassis, unless you have new chassis liners available. If possible, keep the plates in order ready for reassembly; otherwise refer to the following notes. Specific instructions are available on request for all plate types (see Plate Identification).

- Carefully clean the plates using a nylon brush and warm water (do not use a metallic device). A proprietary de-scaling agent may be used if necessary. Rinse thoroughly with clean fresh water. Always follow the correct safety procedures when handling chemicals. Reassemble the plates in the same order that they were removed.
- Replace front plate and tighten the bolts in a similar manner to that used on an automobile cylinder head to ensure an even distribution of force over the surface of the plate, see below:

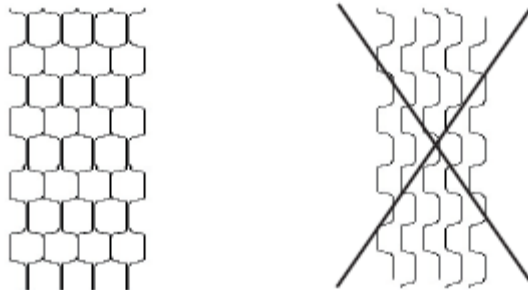


The correct tightening figure is checked by measuring the distance between the moveable front plate and the fixed rear chassis plate and should be calculated as follows:

- E2A(****) & E2B(****):
 - GCP-009 – 3.1mm +/- 0.05mm x the number of plates
- E2C(****):
 - GL-013 – 3.4mm per plate x the number of plates

This distance should be measured next to each bolt to ensure even tightening of the plate pack.

- A visual check on the correct assembly can be made by looking at the edge of the plates. A pattern resembling a honeycomb should always be seen:



- If the plates are dirty, it is important to also clean the temperature sensor.

FAULT FINDING:

LITTLE OR NO HOT WATER AT TAP OUTLETS OR FOR HEATING:

1. Check the external electrical supply to the unit – reinstate if necessary. Check control panel isolator switch is in the ON position.
2. Check for the LCD display on the control panel – if not on, check/replace 500mA control fuse.
3. If the 500mA fuse blows repeatedly, set the Econoplate to give temporary hot water (see Temporary Operation) and replace the p.c.b. as soon as possible.
4. If there is an LCD display but no apparent outputs to pumps etc, check the 10A output fuse on the p.c.b. If it is blown, make electrical checks on all pumps and valves fitted to the unit. Repair/replace or isolate faulty item and replace 10A fuse.
5. Check that the external primary pump is operating – check the flow rate if possible, check the pump rotation by removing the pump end cap. Replace pump head or switch permanently to standby pump if available.
6. Check that the primary supply temperature is correct and that there is nothing in the external pipe work that could restrict flow e.g. faulty pumps, strainers, non-return valves, isolating valves, air locks etc. This would show as a large temperature drop on the primary but with a lack of hot water.
7. Check to ensure correct connection of valve and actuator as described previously in the Operation section.
8. Check that the motorized valve is mechanically operating – place in manual operation and move the valve through its travel to check for seizure. Strip and clean or replace as required.
9. Check that the valve motor is electrically operating – raise and lower the set point on the controller and observe. If the motor does not work, see Temporary Operation.
10. Check the ΔT across inlet and outlet of the primary circuit; a small temperature drop (under 20°C on HWS application at full load) indicates that the heat exchanger is contaminated with debris causing clogging. Other applications will have different design ΔT s.

FLUCTUATING TEMPERATURES AT TAP OUTLETS OR TO HEATING CIRCUIT:

1. Check that the secondary pump is operating correctly and that good circulation exists – carefully feel the temperature of the return pipe, if it is cool then there is no circulation.
2. Check that a non-return valve is fitted on the HWS return and that it is not letting by and so allowing the cold feed to pass up the HWS return – carefully feel for a cool return pipe.

3. Check that the motorized valve is opening and closing in response to changes in demand – raise and lower the set point on the controller or open and close some hot water taps and observe the valve. Also check that the linkages between the valve and motor are secured.
4. Check that the motorized valve is responding by moving in the correct direction – test as above. If incorrect, electrically isolate the Econoplate and reverse the + and – valve motor connections on the p.c.b. Reinststate the electrical supply and check again.
5. Check that the temperature sensor is not scaled – isolate the secondary side of the unit and remove the sensor. Clean as appropriate. If heavily scaled, the plate heat exchanger is likely to be similarly affected. Strip and clean as necessary (see Maintenance).

LEAKING FROM THE PLATE HEAT EXCHANGER:

1. Check that the heat exchanger is bolted up fully – measure the space occupied by the plates, next to each bolt. The gap between the chassis plate and front clamping plate should be checked (see Maintenance for figures). If this is not correct, relieve the pressure on primary and secondary side and tighten to the correct figure (see Maintenance). If the unit still leaks, the affected plates should be replaced.
2. Check that the maximum operating pressure has not been exceeded at any time.

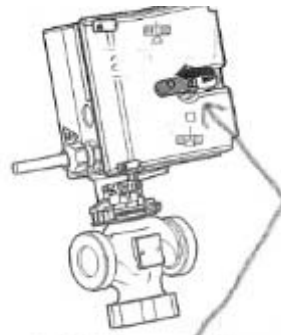
NO WATER FROM HIGHEST TAP OUTLET:

1. The resistance through the heat exchanger exceeds the static head/pressure of the cold feed. If water flow has deteriorated from when originally installed, strip and clean the heat exchanger (see Maintenance). If scaled up, also clean the temperature probe. If new, investigate the effect of turning off HWS recirculation pumps, where they are installed, on the HWS return. If water flow is improved, try operating the pump on a lower speed, or reinstall it on the HWS flow, perhaps with a bypass and non-return valve if the Econoplate flow exceeds the maximum flow of the pump. Another option could be to install a larger pump on the cold feed connection with the HWS return teed into the cold feed on the suction side of the pump.

TEMPORARY OPERATION:

TO PROVIDE HOT WATER IN THE EVENT OF COMPONENT FAILURE CAN BE ACHIEVED AS FOLLOWS:

- a) Open the 2-port valve fully by hand using the fold out lever on the outside of the actuator as shown below.



AVM124 manual lever

The single LED will flash off and on rapidly; this indicates manual override is in operation.

N.B. A valve is closed when the valve spindle is uppermost on all types of valve.

- b) Ensure that there is an electrical supply to a primary and secondary pump and link the start/stop terminals for pump(s) if not already made.
- c) Reduce the boiler flow temperature to a maximum of 65°C for HWS applications to prevent excess secondary temperatures or to the secondary set point for other applications.
- d) Set the high temperature alarm to automatic – refer to “Econotrol 2100 Manual” for procedure (see later).

N.B. If fitted with an additional high temperature primary shut off 2-port VKR valve and AKF actuator, this will also need to be in the open position. To do this, ensure that the electrical feed from the Econotrol to the limit stat (and subsequently to the AKF actuator) is live or made live. If either the valve/actuator/high limit/auxiliary relay has failed, then manually open the valve (remove drive).

PARTS LIST: CURRENT MODELS

CONTROLLER & SENSOR (ALL):

ESS8133 Econotrol 2100 controller exc. Enclosure
ESS6600/1 E Series Adjustable Temperature Sensor 1/8" BSP PT100

VALVE & ACTUATOR:

VUE040F300 2-port Valve Sauter VUE040F300 (E2A(***))
VUE050F200 2-port Valve Sauter VUE050F200 (E2B(***)/E2C(***))
AVM124F130 Sauter Actuator AVM124F130

HEAT EXCHANGER PLATES & LINERS:

GCP009H START 4-hole First/Start Plate (E2A(LTHWS)/E2B(LTHWS))
GCP009H INT Intermediate Plate (E2A(LTHWS)/E2B(LTHWS))
GCP009H BLANK No-hole Blank/End Plate (E2A(LTHWS)/E2B(LTHWS))
ESS4647 43mm Through-Frame Liner (E2A(***)/E2B(***))
GCP009L INT Intermediate Plate (low pressure drop)
(E2A(***)xxL/E2B(***)xxL)

GL13H START 4-hole First/Start Plate (E2C(LTHWS))
GL13H LH Left-Hand Intermediate Plate (E2C(LTHWS))
GL13H RH Right-Hand Intermediate Plate (E2C(LTHWS))
GL13H BLANK No-hole Blank/End Plate (E2C(LTHWS))
ESS8127 52mm Through-Frame Liner (E2C(***))
GL13L LH Left-Hand Intermediate Plate (low pressure drop) (E2C(***)xxL)
GL13L RH Right-Hand Intermediate Plate (low pressure drop) (E2C(***)xxL)

PUMPS:

N.B. "New Style" pumps have "commando" type electrical connections.

Optional Secondary Pumps:

"New Style" UP20-45N 1-phase (95906472) (E2A(LTHWS))
"New Style" UPS25-55N 1-phase (95906772) (E2A(LTHWS))
"New Style" UPS32-55N 1-phase (95906773) (E2A(LTHWS)/E2B(LTHWS)/E2C(LTHWS))
"New Style" UPS32-80N 1-phase (95906448) (E2A(LTHWS)/E2B(LTHWS))
Magna3 40-80FN (230V, 1-phase)
Magna3 40-120FN (230V, 1-phase)

CHASSIS COMPONENTS:

E2A(****)/E2B(****) Guide pins M16 x 200mm (up to 35 plates)
E2A(****)/E2B(****) Guide pins M16 x 250mm (37-49 plates)
E2A(****)/E2B(****) Guide pins M16 x 330mm (51-59 plates)
E2C(****) Guide pins TIL/M/033/A 150mm (up to 24 plates)
E2C(****) Guide pins TIL/M/034/A 250mm (26-38 plates)
E2C(****) Guide pins TIL/M/035/A 350mm (40-70 plates)
E2A(****)/E2B(****) M16 Hex Set Screws x 130mm (up to 17 plates)
E2A(****)/E2B(****) M16 Hex Set Screws x 180mm (19-27 plates)
E2A(****)/E2B(****) M16 Hex Set Screws x 200mm (29-43 plates)
E2A(****)/E2B(****) M16 Hex Set Screws x 250mm (45-55 plates)
E2A(****)/E2B(****) M16 Hex Set Screws x 300mm (57-59 plates)
E2C(****) M20 Hex Set Screws x 180mm (22-24 plates)
E2C(****) M20 Hex Set Screws x 280mm (36-34 plates)
E2C(****) M20 Hex Set Screws x 380mm (36-70 plates)
EC270032160 Non-Return Valve Watts 1¼" (F-F)
NN020 Non-Return Valve Watts ¾" 230020165 (M-F)
Drain cock ½" male

CONTACTOR & OVERLOAD:

ESS8121 Telemecanique Overload 1-phase LR2-K0306 (0.8-1.2A)
ESS8122 Telemecanique Overload 1-phase LR2-K0308 (1.8-2.6A)
ESS8123 Telemecanique Overload 1-phase LR2-K0310 (2.6-3.7A)
ESS8124 Telemecanique Overload 3-phase LR2-K0307 (1.2-1.8A)
ESS8125 Telemecanique Contactor LC1-K0610U7

SPECIAL APPLICATION

Telemecanique Overload 1-phase LR2-K0314 (5.5 – 8.0A)
Telemecanique Contactor LC1-K09004P7

OPTIONAL EXTRAS:

2-port Primary Shut Off Valve – Sauter VKR040F300-FF40mm, Rp 1½", PN40
(E2A(LTHWS))
2-port Primary Shut Off Valve – Sauter VKR050F300-FF50mm, Rp 2", PN40
(E2B(LTHWS)/E2C(LTHWS))
Primary Shut Off Valve Actuator – Sauter AKF112F120
AT603 – High Limit Thermostat – Jumo 603070/0070-5
211-1304 – 230V Interlock Relay
541-3120 – Box of 10A Fuses (10 No.)
563-463 – Box of 500mA Fuses (10 No.)

OBSOLETE PARTS.

UPS40-60/2FB 1-phase (96401921) (E2B(LTHWS)/E2C(LTHWS))
UPS40-60/2FB 3-phase (96401923) (E2B(LTHWS)/E2C(LTHWS))
UPS40-120/2FB 1-phase (96401949) (E2B(LTHWS)/E2C(LTHWS))
UPS40-120/2FB 3-phase (96401951) (E2B(LTHWS)/E2C(LTHWS))
UPS50-120/2FB 1-phase (96402108) (E2B(LTHWS)/E2C(LTHWS))
UPS50-120/2FB 3-phase (96402110) (E2B(LTHWS)/E2C(LTHWS))

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