

LOKE

Instantaneous packaged plate heat exchanger

Installation, Commissioning, Maintenance
and User instructions



Models

LOKE8-50
LOKE8-75
LOKE8-100
LOKE8-125
LOKE8-150
LOKE8-175
LOKE8-200
LOKE8-225
LOKE8-250

DOCUMENT IDENTIFICATION

Article	Language	Version	Amended by
LOKE water heater ICM	English	V1	SJA

DRAFT

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1.0 INTRODUCTION

The Lochinvar LOKE Instantaneous packaged plate heat exchanger is designed to heat domestic hot water (DHW) using low temperature hot water (LTHW) from a boiler or similar. The unit is designed with a low return temperature during demand to ensure boilers are in continuous condensing mode.

LTHW is supplied to the unit from the low loss header by a primary DHW pump at the design flow rate as shown in the Technical data table according to the model being fitted.



The primary DHW pump is not supplied with the unit.

When there is a DHW demand the three-port control valve modulates to allow LTHW to be pumped through the plate heat exchanger providing DHW at the required set point.

The temperature of the DHW outlet is monitored at the fixed sensor on the DHW outlet pipe, this will send a signal to the controller which then modulates the control valve maintaining setpoint.

1.1 ANCILLARY OPTIONS

- Unvented system kit
 - CLK3520 for use with Models LOKE8-50 to LOKE8-150
 - COLK3503 for use with Models LOKE-175 to LOKE8-250
- Direct storage vessels with matched primary circulation pumps



For units being installed with a storage vessel contact Lochinvar Limited Internal Sales for a suitable unvented kit

- Heat exchanger insulation jacket
- Skid mounting base

2.0 SAFETY GUIDELINES



READ AND UNDERSTAND THE INSTRUCTIONS

Read and fully understand all instructions before attempting to operate maintain or install the unit.

Keep these instructions near the water heater for quick reference.

This equipment must be installed by a competent person. All installations must conform to the relevant Building Regulations. Health & Safety requirements must also be considered when installing any equipment. Failure to comply with the above may lead to prosecution



Without written approval of the manufacturer the internals of the water heater may not be changed. When changes are executed without approval, the water heater certification and warranty becomes invalid.

Commissioning, maintenance and repair must be done by a skilled installer/engineer, according to all applicable standards and regulations.

2.1 GENERAL DESCRIPTION OF SAFETY SYMBOLS USED



BANNED

A black symbol inside a red circle with a red diagonal indicates an action that should not be performed



WARNING

A black symbol added to a yellow triangle with black edges indicates danger



ACTION REQUIRED

A white symbol inserted in a blue circle indicates an action that must be taken to avoid risk



ELECTRICAL HAZARD

Observe all signs placed next to the pictogram. the symbol indicates components of the unit and actions described in this manual that could create an electrical hazard.



HOT SURFACES

The symbol indicates those components with a high surface temperature that could create a risk.



This symbol shows essential information which is not safety related



Recover or recycle material



Lochinvar Limited is not liable for any damage caused by inaccurately following these installation instructions. Only original parts may be used when carrying out any repair or service work.



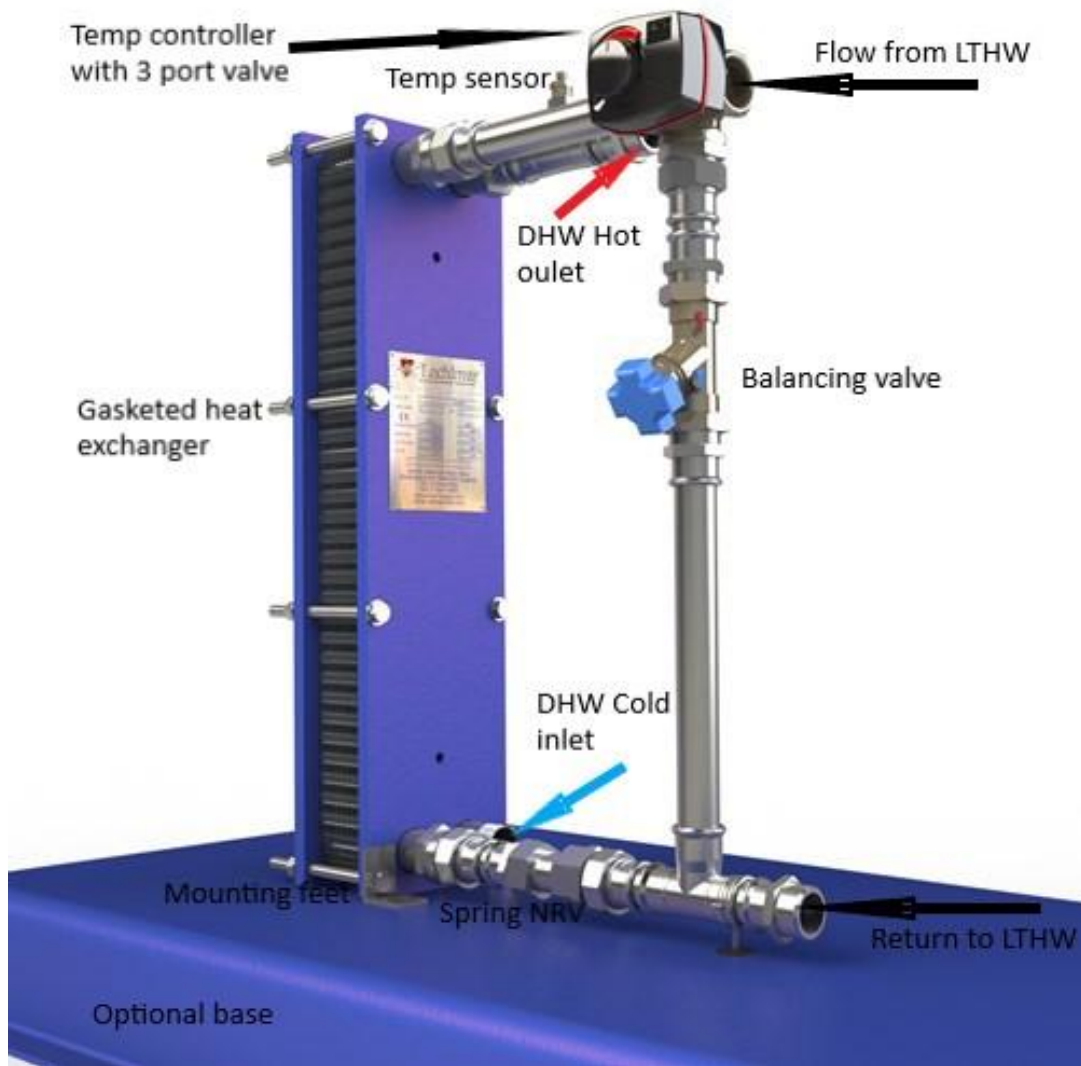
This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children **MUST** be supervised to ensure that they do not play with the appliance.

3.0 SIZING AND SELECTION

LOKE package plate heat exchangers are an instantaneous type water heater; maximum flow rates can be found in the technical data tables. If there is a chance the peak demand could temporarily exceed the maximum flow rate of the unit chosen, then consideration should be given to using a small buffer vessel to cope with this peak flow.

For help with sizing and selection please contact your local Area Sales Manager or Lochinvar Internal Sales.

4.0 PRINCIPAL PARTS



5.0 CONTROLLER

Ambient temperature Max	+55C	Sensor	Type NTC
Ambient temperature Min	-5C	Enclosure rating	IP41
Temperature range	+5 to + 95C	Power supply	230V /1Ph/ 50hz
Protection class	II	Torque	6Nm
Power consumption	230v AC: 10VA	Connection, mounting set	External thread
Running time at maximum speed	30seconds	Supplied parts	Actuator with pre-assembled sensor
Material			Adapter kit for valve
Flow pipe sensor	stainless steel		Mounting set for sensor
Mounting set for flow pipe sensor	DZR Brass		230v AC transformer with UK Plug

6.0 TECHNICAL DATA

6.1 MODELS LOKE8-50 TO LOKE8-150

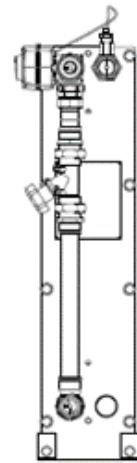
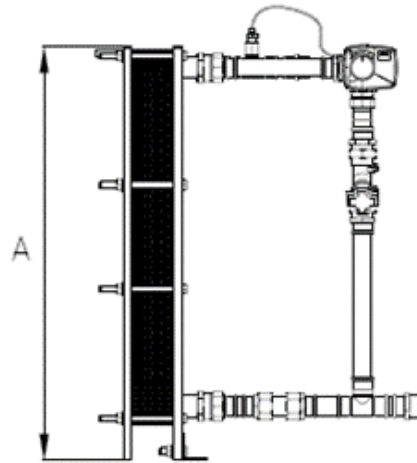
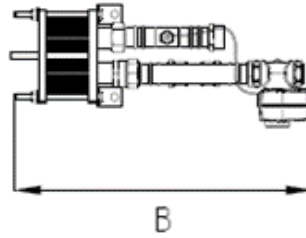
Output	Unit	LOKE8-50	LOKE8-75	LOKE8-100	LOKE8-125	LOKE8-150
Heat Transfer Duty	kW	50	75	100	125	150
Thermal efficiency	%	99.5	99.5	99.5	99.5	99.5
Primary Side						
Inlet Temperature	°C	75	75	75	75	75
Outlet Temperature	°C	Varies Depending on Demand (40 At Full Demand)				
Fluid Flow Rate	litre/second	0.34	0.51	0.68	0.85	1.03
Fluid type		Water	Water	Water	Water	Water
pressure drop	bar	0.21	0.28	0.27	0.31	0.28
Connection size and type	Inch BSPT	1"	1"	1"	1"	1¼"
Max Working Temperature	°C	100	100	100	100	100
Maximum Working Pressure	bar	10	10	10	10	10
Secondary Side						
Inlet Temperature	°C	Varies Depending on Demand (10 At Full Demand)				
Outlet Temperature	°C	65	65	65	65	65
Fluid Flow Rate	litres/second	0.22	0.33	0.43	0.54	0.65
Fluid type		Water	Water	Water	Water	Water
pressure drop	bar	0.11	0.11	0.11	0.12	0.12
Connection size and type	Inch BSPT Male	1"	1"	1"	1"	1¼"
Max Working Temperature	°C	95	95	95	95	95
Maximum Working Pressure	bar	10	10	10	10	10
Performance						
Recovery Rate @ 55°C ΔT	litres/hour	792	1188	1548	1944	2340
Recovery Rate @ 55°C ΔT	litres/second	0.22	0.33	0.43	0.54	0.65
Recovery Rate @ 50°C ΔT	litres/hour	871	1307	1703	2138	2574
Recovery Rate @ 50°C ΔT	litres/second	0.24	0.36	0.47	0.59	0.72
General						
Plate Material		AISI 316 Stainless Steel				
Gasket Material		EPDM - Clip On				
Empty weight	kg	53	65	67	69	70
Electrical Requirements		230V /1Ph/ 50hz				

6.2 MODELS LOKE8-200 TO LOKE8-250

Output	Unit	LOKE8-175	LOKE8-200	LOKE8-225	LOKE8-250
Heat Transfer Duty	kW	175	200	225	250
Thermal efficiency	%	99.5	99.5	99.5	99.5
Primary Side					
Inlet Temperature	°C	75	75	75	75
Outlet Temperature	°C	Varies Depending on Demand (40 At Full Demand)			
Fluid Flow Rate	litre/second	1.2	1.37	1.54	1.71
Fluid type		Water	Water	Water	Water
pressure drop	bar	0.3	0.33	0.35	0.38
Connection size and type	Inch BSPT	1¼"	1¼"	1¼"	1¼"
Max Working Temperature	°C	100	100	100	100
Maximum Working Pressure	bar	10	10	10	10
Secondary Side					
Inlet Temperature	°C	Varies Depending on Demand (10 At Full Demand)			
Outlet Temperature	°C	65	65	65	65
Fluid Flow Rate	litres/second	0.76	0.87	0.98	1.09
Fluid type		Water	Water	Water	Water
pressure drop	bar	0.12	0.12	0.12	0.11
Connection size and type	Inch BSPT Male	1¼"	1¼"	1¼"	1¼"
Max Working Temperature	°C	95	95	95	95
Maximum Working Pressure	bar	10	10	10	10
Performance					
Recovery Rate @ 55°C ΔT	litres/hour	2736	3132	3528	3924
Recovery Rate @ 55°C ΔT	litres/second	0.76	0.87	0.98	1.09
Recovery Rate @ 50°C ΔT	litres/hour	3010	3445	3881	4316
Recovery Rate @ 50°C ΔT	litres/second	0.84	0.96	1.08	1.20
General					
Plate Material		AISI 316 Stainless Steel			
Gasket Material		EPDM - Clip On			
Empty weight	kg	72	74	77	79
Electrical Requirements		230V /1Ph/ 50hz			

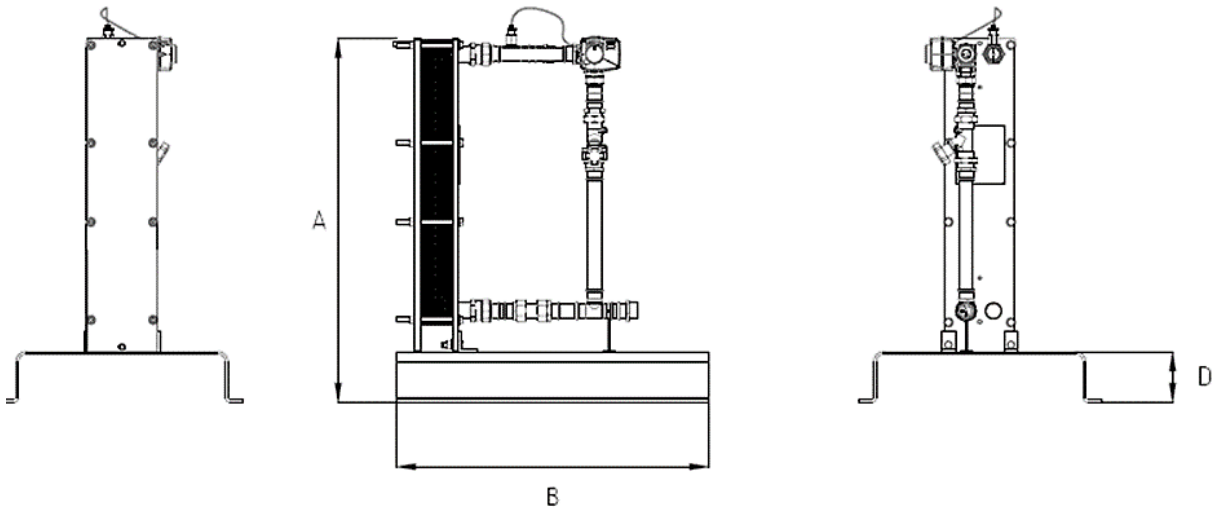
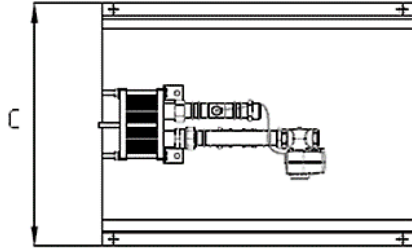
7.0 DIMENSIONS AND CLEARANCE

		Unit	Dimension
A	Total Height	mm	835
B	Depth	mm	710
C	Width	mm	196



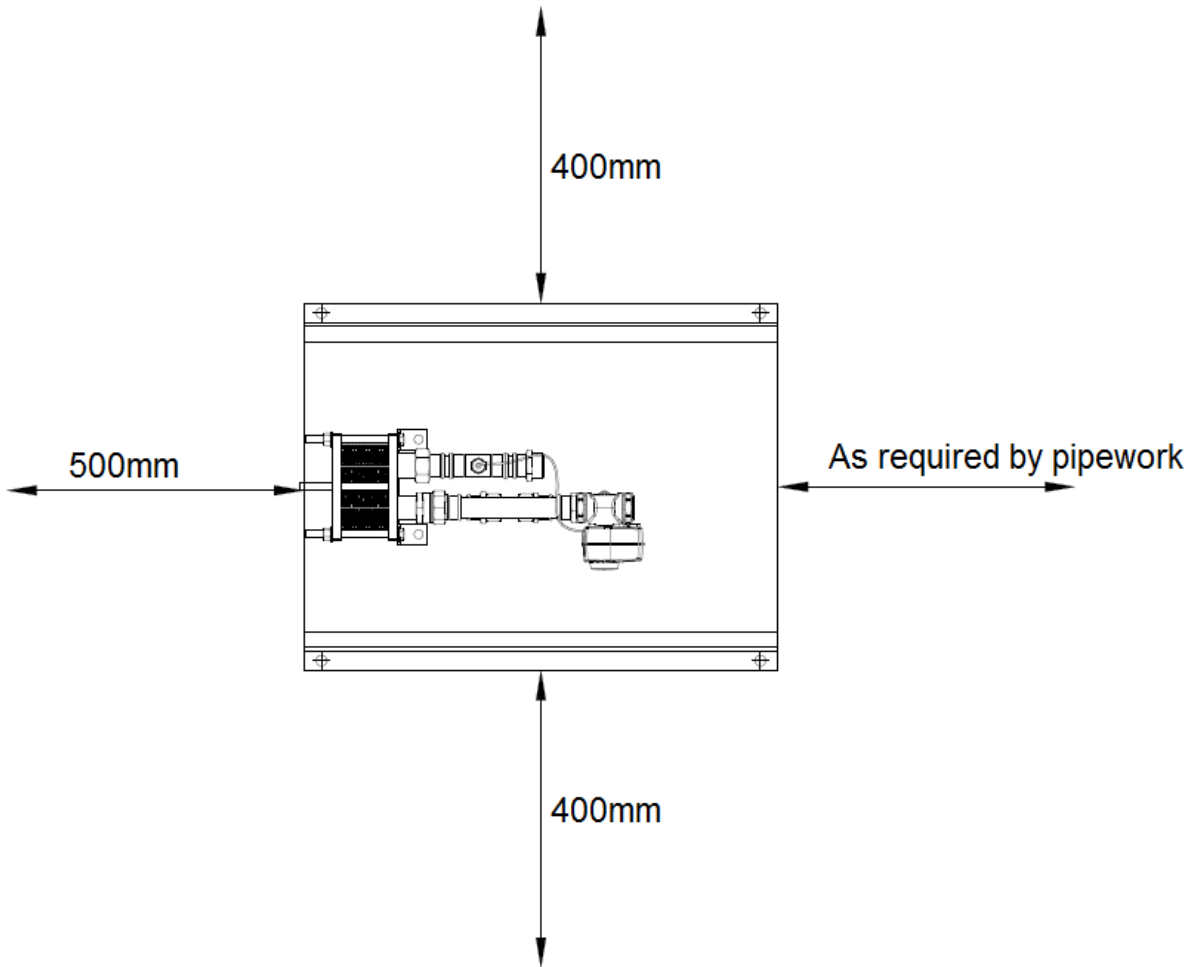
7.1 DIMENSIONS OF UNIT WITHOUT OPTIONAL BASE

		Unit		Dimension
A	Total Height	mm		965
B	Depth	mm		800
C	Width	mm		620
D	Base Depth	mm		130



7.2 DIMENSIONS OF UNIT WITH OPTIONAL BASE FITTED

7.3 CLEARANCES



- Unit shown with optional base fitted, if unit does not have optional base clearances are from side of plate pack.
- Side clearances can be reduced but the unit may need to be removed in the future if the plate pack requires replacing or cleaning

8.0 INSTALLATION

8.1 GENERAL REQUIREMENTS

The LOKE water heater has been designed to operate trouble free for many years. These instructions should be followed closely to obtain the maximum usage and efficiency of the equipment.

8.2 RELATED DOCUMENTS

The installation of the equipment **MUST** be in accordance with the relevant requirements Building Regulations, I.E.E. Regulations and the bylaws of the local water undertaking.

In addition, the installation should follow the relevant guidance offered in the following documents. It is not practical to list all relevant information, but emphasis is placed on the following documents, as failure to comply with the guidance given will almost certainly result in an unsatisfactory installation:

Regulation	Description
BS EN 806 1-5	Specifications for installations inside buildings conveying water for human consumption.
BS 7671 :2008 + A3:2015	Code of practice for low temperature hot water systems of output greater than 45 kW.
BS 7074: 1989 Parts 1 and 2	Application, selection and installation of expansion vessels and ancillary equipment for sealed systems.
BS 7671: 2008 + A1: 2011	Requirements for electrical installations, I.E.E. wiring regulations seventeenth edition.
BS 7671: Amendment 2: August 2013	
BS EN 12828:2012+A1:2014	Heating systems in buildings. Design for water-based heating systems.

CIBSE: Guides

Part A Environmental Design

Part G Public health engineering

H.S.E. guidance

SAFED BG01 Guidance on safe operation of Water Heaters

Manufacturer's notes must not be taken in any way as overriding statutory obligations.

8.3 WATER QUALITY

Water supply quality may adversely affect the efficiency performance and longevity of Water Heaters and Hot Water systems. Hard water may cause the formation of lime scale which will reduce operating efficiency and may cause early product failure. Please note the following: -

- Water Hardness – should not exceed 205ppm CaCO₃ and Total Dissolved Solids (TDS) of untreated water should not exceed 350ppm.
If these values are exceeded a water treatment specialist should be consulted. Water Softeners and Water Conditioners may be considered, but whichever method is selected, it should be suitable for installation with Direct Gas-fired Water Heaters. A maintenance regime will also be required for such systems
- High hot water temperature and high demand for hot water is likely to cause quicker limescale formation



The formation of limescale or other solids can cause a blockage within the heat exchanger, which in turn may cause premature failure. Such instances are not regarded as defects in manufacture and will not be covered under the product warranty.

8.4 LOCATION



The equipment must be installed on a level surface that is capable of adequately supporting its weight (when filled with water) and any ancillary equipment. Locate the equipment so that if the appliance or any connecting pipework should leak, water damage will not occur. When such locations cannot be avoided it is recommended that a suitable drain pan be installed under the equipment. The pan should be adequately drained.

8.5 LIFTING



Always exercise extreme caution when lifting to avoid damage, lift from underneath on a pallet or base if fitted
Avoid lifting from any of the pipework, controller, or valves

8.6 WATER CONNECTIONS



Do not weld near to or on the heat exchanger or associated components.

Use two wrenches when attaching unions to the domestic water circuit threaded stub connections. One wrench to be used to tighten the union & the other to prevent the stub end from rotating – this avoids damage to the gasket inside the unit that seals against the back on the stub connection. Use a non-hardening thread sealant for best results. Threads are BS21 – taper, male. It is necessary to support the secondary pump and the pipe work as the heat exchanger connections are not designed to accept any weight being imposed upon them.

To avoid damage to the unit, to prevent failure and to ease maintenance, we recommend the following:

- Pipe-work - fully support to avoid weight/forces acting upon the unit / connections.
- The fitting of flexible couplings if the pipe work is subject to vibration.
- The pipe work is completely flushed before attaching to exchanger. The exchanger acts as an effective filter and will become blocked if pipe-work debris can enter the plate pack.
- The fitting of suitable vents, isolation valves & drains. To allow servicing of the package without complete system draining appropriate isolation valves should be fitted.
- The fitting of non-return valves where appropriate
- The fitting of suitable sized pressure relief valves in the pipe work on both circuits (essential safety requirement).



The LOKE must be installed as per the schematics [here](#), failure to include all necessary valves etc. Will invalidate the warranty and could lead to a dangerous situation on site.

8.7 UN-VENTED SYSTEM ARRANGEMENT

If the LOKE is to be used in an unvented arrangement, the system should follow the guidance given in **BS6700** and must comply with **The Building Regulations: Part G3 in England and Wales, P5 in Northern Ireland and P3 in Scotland**. A kit of components that have been suitably sized for the unvented or boosted operation of the appliance is available from Lochinvar Limited. For further information, see below.

8.8 STANDARD UN-VENTED KITS

LOK Model	Part Number	Description	QTY
LOKE8-50 TO LOKE8-150	CLK3520	22MM MONOBLOC INLET CONTROLS INCLUDES;	1
		NON-RETURN VALVE	
		PRESSURE REDUCING VALVE - 3 TO 6 BAR	
		6 BAR PRESSURE RELIEF VALVE	
LOKE8-175 TO LOKE8-250	COLK3503	28MM MONOBLOC INLET CONTROL INCLUDES:	1
		• NON-RETURN VALVE	
		• PRESSURE REDUCING VALVE 3 TO 6 BAR	
		• 6 BAR PRESSURE RELIEF VALVE	

8.8.1 EXPANSION VESSEL SIZING

The following information is based on an inlet pressure of 3.5 bar and an expansion vessel efficiency of 0.45 using a standard 6 bar unvented kit. If the system will have different parameters a more detailed calculation will need to be made.

$$VV = \frac{SV * e}{0.45}$$

Where:

VV = Vessel Volume
 SV = System Volume
 e = Coefficient of Expansion

Stored Temp. °C	30	35	40	45	50	55	60
e	0.005	0.006	0.008	0.010	0.012	0.015	0.017
Stored Temp. °C	65	70	75	80	82	85	90
e	0.020	0.023	0.026	0.030	0.031	0.033	0.037

8.9 CIRCULATING PUMPS

The LOKE will require a suitably sized DHW primary pump sized to match the required flowrate and overcome the plate pressure drop details can be found in the [technical data table](#).

8.10 CONTROL

The controller is factory fitted to the three-port valve.

8.11 OVERHEAT PROTECTION

Due to its simple design the LOKE does not feature an overheat cut-off, in order to fully comply with Building regulation G3 and to prevent a scalding risk downstream at the outlets a suitable second form of protection must be installed after the outlet from the unit. Depending upon whether the LOKE has been fitted with or without a storage vessel there are several options available to installers:

1. Fitting a suitable tempering valve on the hot outlet will prevent temperatures exceeding that set at the tempering valve.
2. Fitting a two-port valve on the primary pipework connected to a strap on sensor on the DHW side, this will close preventing further heat transfer.
3. If installed with a storage vessel a suitable thermostat fitted to the store could close a two-port valve fitted on the primary pipework.

See schematics for further information.



To comply with Building regulation G3 a suitable second form of temperature protection must be fitted to the system, this second form of protection is not supplied with the unit.

9.0 SCHEMATICS

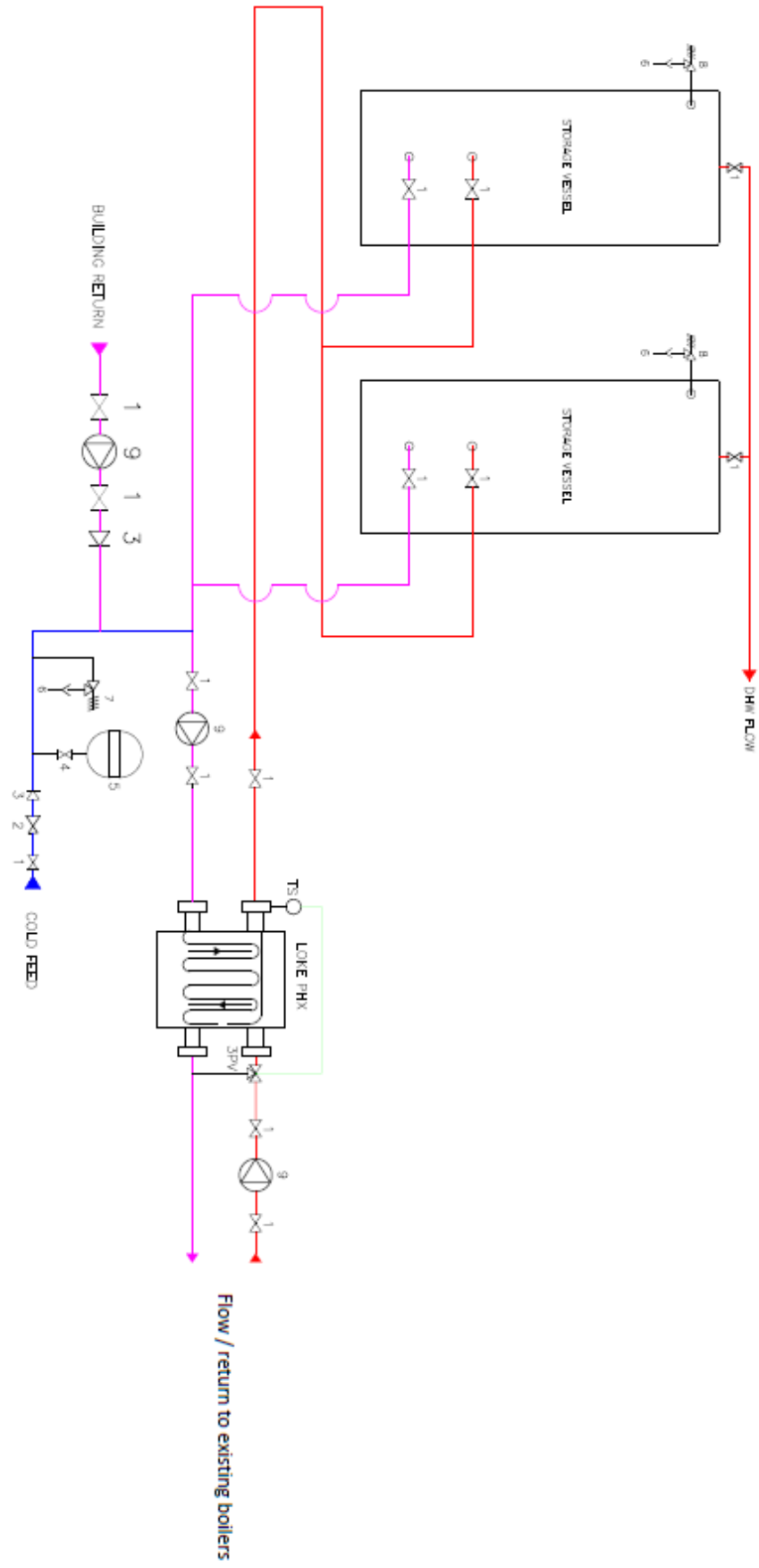
9.1 KEY FOR SCHEMATICS



Lochinvar limited may provide technical advice and guidance to assist with best practice, optimisation and installation of Lochinvar products; however, we will not be liable for any duties as designers under construction (design and management regulations 2015). In all cases where information is provided, the customer must assess and manage risks associated with the technical information and advice provided.

SYMBOL	DESCRIPTION
IV	ISOLATION VALVE
LSV	LOCKSHIELD VALVE
TPRV	TEMPERATURE AND PRESSURE RELIEF VALVE
TD	TUNDISH
EXV	EXPANSION VESSEL
EV	EXPANSION VALVE
PRV	PRESSURE REDUCING VALVE
NRV	NON-RETURN VALVE
TS	TEMPERATURE SENSOR (VESSEL SENSOR)
BRP	BUILDING RETURN PUMP
PMP	PRIMARY CIRCULATING PUMP
RLY	RELAY
TV	TEMPERING VALVE
TS	TEMPERATURE SENSOR

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Schematic LOKE with storage vessel-schematic

10.0 ELECTRICAL SUPPLY

Wiring external to the equipment must be installed in accordance with the I.E.E. Regulations and any local regulations that apply.

10.1 ELECTRICAL SUPPLY REQUIREMENTS



Warning: this appliance must be earthed



A suitably competent person must check wiring. Normal supply required is 230 volts' AC, single phase, 50hz. An isolator with a contact separation of at least 3mm in all poles should be sited close to the equipment and must only serve that equipment. The double pole switch must be readily accessible under all conditions

The controller fitted to the three-port valve simply plugs into a standard UK plug socket, alternatively the plug can be removed, and the controller hard wired into a junction box.

10.2 EXTERNAL CONTROLS

There are no external control options with the LOKE unit, if a unit is required with BMS control options a standard LOK unit should be used, contact Lochinvar Internal sales for more information.

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11.0 COMMISSIONING AND TESTING

11.1 WATER CONNECTIONS

See **Section 8.6: WATER CONNECTIONS**



The system should be thoroughly flushed out with cold water without any circulating pumps in position. Ensure all the valves are open.

Check the system for leaks and repair as necessary. If the system is configured in a sealed arrangement, check the expansion vessel cushion pressure and pressurisation unit settings.

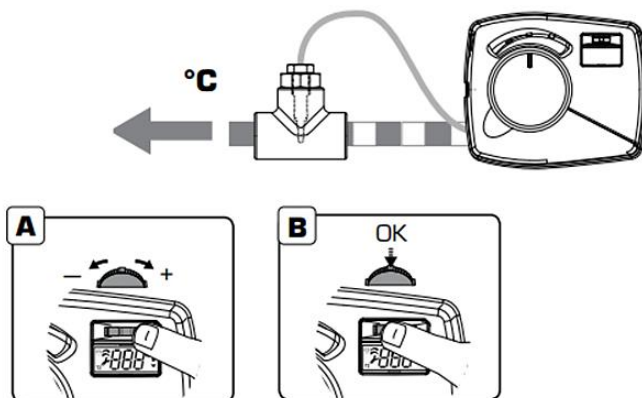
11.1 TEMPERATURE ADJUSTMENT PROCEDURE

Once filled with water, and before use, or if the system has been drained down for a period of time, it is important to check the operation of the valve – switch on the controller and set the temperature to a high level (temperature altered by raising the set point). The actuator should slowly rotate until the valve is at the fully diverting position and then stop. Now lower the temperature (below ambient), and the actuator should rotate anti-clockwise and stop at around the fully open position.

If the actuator does not move, or does not turn full travel, then switch off at the panel, the controller is not functioning correctly and will need to be investigated further.

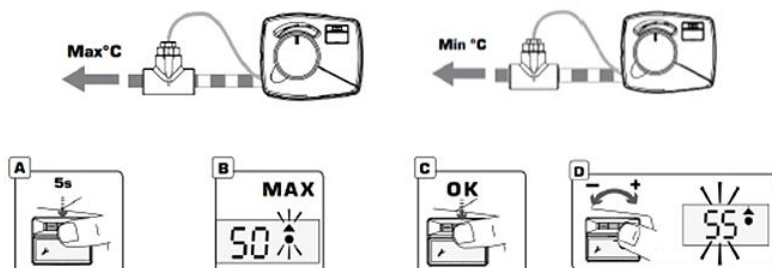
11.1.1 SETTING/CHANGING TEMPERATURE SET POINT

Ensure controller is plugged in or the junction box turned on if hard wired.



A= To change setpoint move joystick to either the left or right
B= Press joystick down to confirm new setpoint

11.1.2 SETTING MIN/MAXIMUM FLOW TEMPERATURES



A=Press joystick and hold for five seconds
B=Choose menu Max or Min
C=Select OK
D=Adjust setting by scrolling with the joystick
C=Select OK
A=Press down joystick and hold for five seconds to return to main menu

12.0 MAINTENANCE

12.1 MAINTENANCE SCHEDULE

Time Interval	Once a year as a minimum, every six months in hard water areas.
Performance	Check temperature and flow against commissioning data.
Plate pack	Check the tightening dimension, and look for any signs of leakage from heat exchanger.
Connections	Check general condition, and for any signs of leakage.
Frame	Wipe clean all painted parts, and check surfaces for signs of damage - "touch up" if necessary.
Bolts & bars	Check for rust, and clean. Lightly coat threaded parts with molybdenum grease, or a corrosion inhibitor (ensure that no grease, etc. falls onto the plate gaskets).
Electrical	Check the security of all electrical connections and inspect the wiring for damage.

12.2 DRAINING DHW WATER SYSTEM

The LOKE and associated storage vessel (if fitted) must be drained if it is to be shut down and exposed to freezing temperatures. Maintenance and service procedures may also require draining the water heater.

1. Unplug or turn off the LOKE electrical disconnect switch.
2. Connect a hose to the system drain valve.
3. Locate hose's discharge in an area where hot water will not cause any damage or injury.
4. Close the cold-water inlet valve from the header tank or unvented kit unit to water heater system.
5. Open the drain valve.
6. Working systematically from the highest point in the system, open outlets to allow the system to drain.
7. Close all outlets.
8. If the water heater is being drained for an extended shutdown, it is suggested the drain valve be left open during this period.



Note: The heat exchanger cannot be completely drained of water

12.3 REFILLING THE SYSTEM

1. Close the drain valve.
2. Open the cold-water inlet valve from the header tank or unvented kit to the water heater system.
3. Working systematically towards the highest point in the system, open all outlets and allow any trapped air to escape.
4. Follow the commissioning instructions as detailed in [commissioning and testing](#).
5. Check for water leakage and airlocks, remedy as necessary.

12.4 RELIEF VALVE

At least once a year, the pressure relief valve should be checked to ensure correct operation. To check the valve, the manual override lever should be operated several times. The valve should seat properly and operate freely.

If water does not flow, drain the water heater, remove the inoperative valve and inspect for obstructions or corrosion. Replace with a new valve of equivalent size as necessary.

12.5 CLEANING PLATE GASKETS



Instead of cleaning the plates, Lochinvar can supply a replacement plate pack. See spare parts finder at www.lochinvar.ltd.uk



Wear gloves & eye goggles when using cleaning detergents



Brushing: Use nylon or other types of “soft” scrubbing brushes with detergent. Never use a metal brush, steel wool, or sand/glass paper.



Detergents: Consult a cleaning specialist for a suitable choice of detergent. Ensure that all detergents used are compatible with the plate and gasket material before use.

Plate material: 316 stainless steel

Gasket material: EPDM-WRAS APPROVED

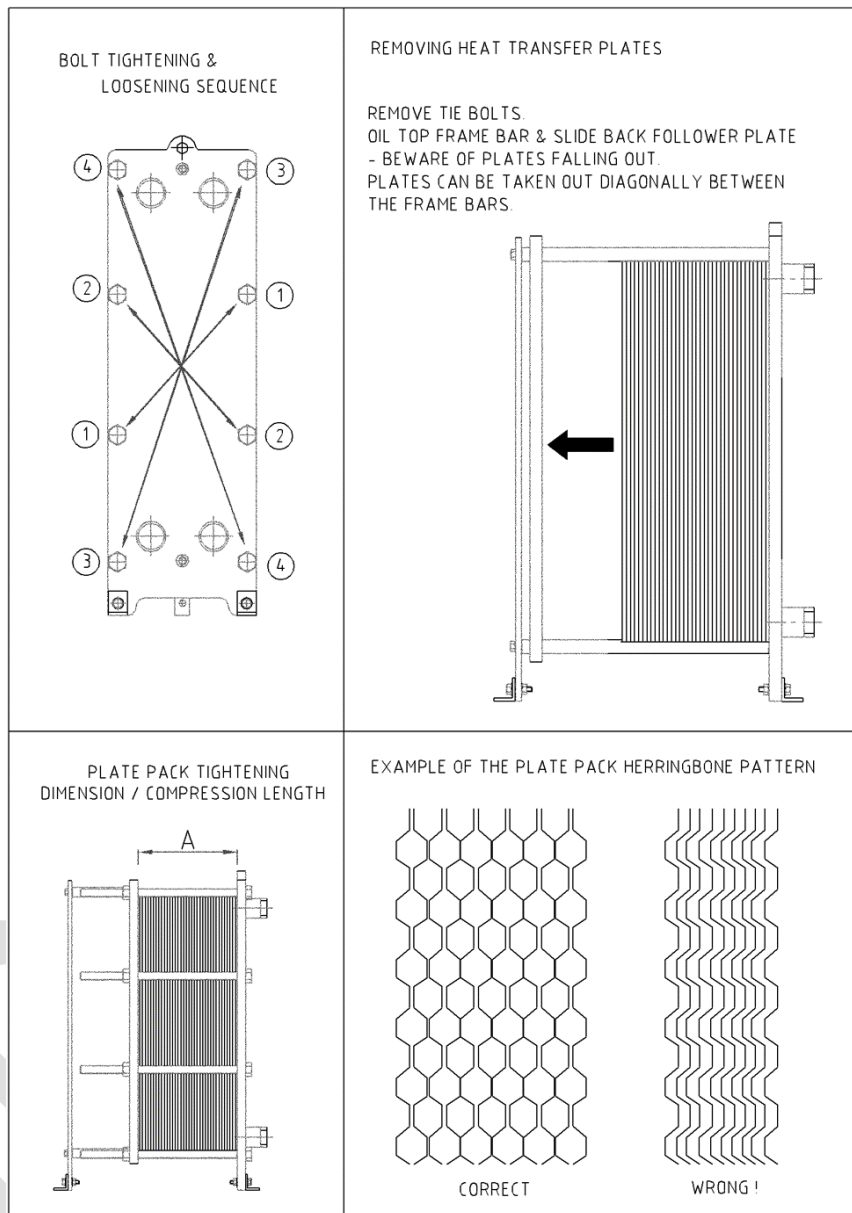
12.6 ASSEMBLY



Before starting to assemble the plate you will require the plate sequencing sheet, this should be in the paperwork supplied with the Plate heat exchanger. If this cannot be found contact Lochinvar Technical support before starting work.

- Refer to the Plate Sequence Sheet to determine the order of the plates, & the type required.
- Fit the start plate (see illustration on next page), ensuring the plate pattern is pointing in the correct direction as indicated on the plate sequence sheet.
- Fit plates in the correct order according to the Plate Sequence Sheet.
- Ensure all gaskets face towards the fixed / head frame plate (connection end).
- Alternate between left & right-handed plates - if the plate edges form a regular honeycomb pattern, then the left / right hand sequence is correct (see illustration below for herringbone pattern example)

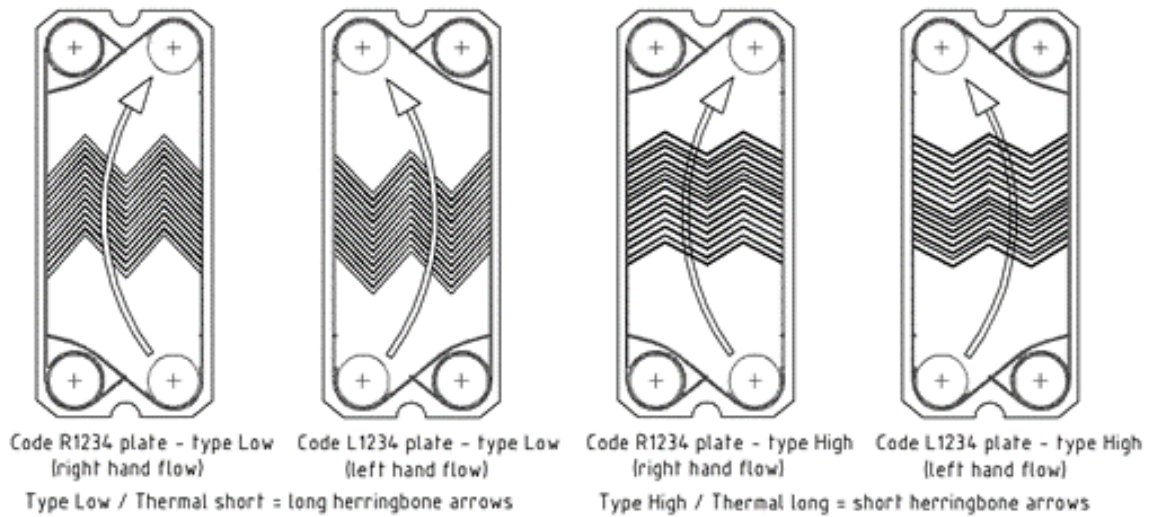
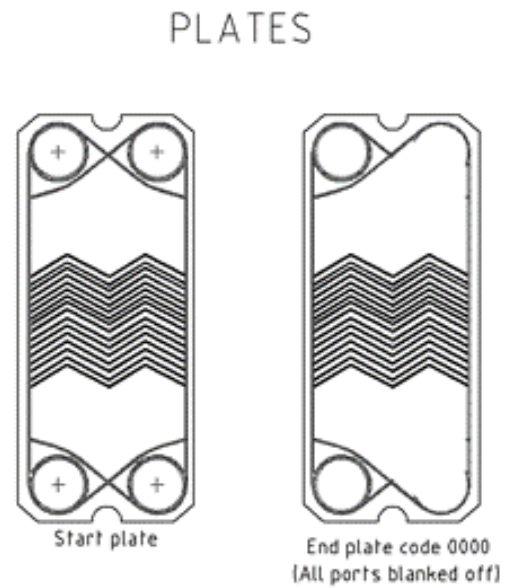
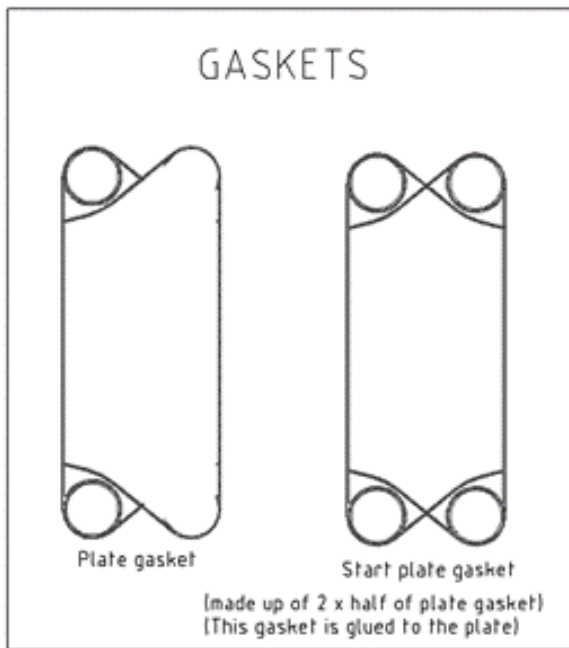
Dimension A can be found within the plate sequencing sheet.



12.6.1 ASSEMBLY DIAGRAMS

12.7 PROCEDURE

1. Lightly oil the tie bolt threads.
2. Evenly tighten all bolts. We recommend the use of ratchet / friction spanners.
3. Ensure clamping is as uniform as possible, thus keeping the frames plates parallel throughout the operation. Avoid skewing the frame plates by more than 10mm.
4. Tightening is complete when the distance between the inside faces of the two frame plates is within the compression length maximum and minimum dimensions as given on the plate pack sequence sheet.
5. Finally check that all bolts are in tension and clean any spilt oil off the frame plates.
6. On completion, the unit can be pressure tested at no more than 6 bar g.



12.7.1 EXAMPLES OF GASKET AND PLATE TYPES

13.0 FAULT FINDING

13.1 HEAT EXCHANGER PLATE PACK ASSEMBLY

1. Nuts and fittings are tight to turn - insufficient oil on threads.
2. Plates move out of alignment: remove plates & degrease, then dry, inspect plate hanging system for damage.

13.2 EXCESSIVE PRESSURE DROPS

1. Liquid flows higher than design: Check & adjust.
2. Plate channels blocked: Back flush, Power flush or dismantle to clean.
3. Inaccurate measurement: Check pressure gauge for accuracy.
4. Ensure measurement does not include any bend, valve / fitting, & pipe run losses.
5. Liquid temp. below design: Viscous media generate higher resistance to flow at lower temperatures.
6. Media used not as per design: The addition of glycol or other additives can increase the pressure drop.

13.3 LEAKAGE

1. leakage near connection: First heat transfer plate gasket damaged – dismantle heat exchanger plate pack, and check condition. If the threaded connections are rotated when in situ, damage can occur to the backing O-rings. Refer to connection tightening section of the manual.
2. Flange gaskets leaking – check / replace.
3. Crack in weld at joint – Dye Pen. Check and repair (remove plates out of heat exchanger before welding).
4. Cross contamination: Check all plates for cracks and / or holes.
5. Leakage from plate pack: Check tightening dimension Check condition of the gaskets. Check that all gaskets are seated correctly.
6. For nearly all leakage problems, it will be required to dismantle the plate pack before any attempts to rectify the fault can be made. Mark the area(s) from where the leaks are occurring before taking apart the exchanger to assist in fault finding once plates are taken out of exchanger.

13.4 DECREASE IN THE PERFORMANCE

1. Plate surfaces require cleaning or de-scaling.
2. Pumps or associated controls have failed.
3. Liquid flows not as per the design specification - as shown in technical table.
4. Associated boiler under sized.
5. Primary temperature lower than design figures.
6. Sensors faulty.
7. Plate pack has not been assembled correctly.
8. Unit running in co-current flow, instead of counter current - check with contract drawing and alter pipe work if necessary., and check direction of pump flows.
9. Air lock has developed in the plate pack
- 10.

14.0 DECLARATION OF CONFORMITY



Declaration of Conformity

Supplier: Lochinvar Limited
7 Lombard Way
The MXL Centre
Banbury, United Kingdom

Hereby declares that the following products:

Product Description: LOKE packaged gasketed plate heat exchangers for the production of domestic hot water

Product Models: LOKE8-50, LOE8-75, LOKE8-100, LOKE8-125, LOKE8-150, LOKE8-175, LOKE8-200, LOKE8-225, LOKE8-250

Have been manufactured, inspected and pressure tested in accordance with the requirement of the:

European Pressure Equipment Directive (PED) 97/23/EC,

Article 3, Paragraph 3 of DL 25, Feb.2000, n 93

Conditions of use:

1. The installation instructions have been followed
2. Fluids being passed through the heat exchanger are non-hazardous in the group 2 category
3. The maximum working pressures and temperatures as noted on the equipment data plate are not exceeded.

Company:
Lochinvar Limited

Date:
6th November 2020

Signature:

S J ADDIS
Product Manager

DRAFT



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