

Salamander Pumps



**Making life easier for
Plumbers**



**THE COMPLETE PUMP
INSTALLATION & WARRANTY GUIDE**

ISSUE.02.MARCH 2005

Salamander Pumps installer – *Important, before you start!*

As correct installation is your guarantee to safety and a trouble free system, it is in everyone's best interests for you to check that you can comply with these instructions.

We recommend you to turn to pages 10-13 and if your installation is not straight forward, or if you have any reservations or doubts – CONSULT THE PUMPWISE HELPLINE IMMEDIATELY.







If you are calling from site and your need for technical guidance is urgent – say so – and we will call you back quickly.

Customers who consult the Helpdesk will benefit from an extra years warranty FREE – simply by implementing the Helpdesk Engineers recommendations for any specific installation.

When the job is finished – tear off and hand to the householder, the final page of these instructions. Your cooperation to complete and return the reply paid Warranty Card will be appreciated.

If you have called the PumpWise Helpline please complete the Warranty Card comments section – to say whether you were pleased or dissatisfied with the service provided.

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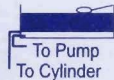
CT50 / 55 / 75 & NP50 Pumps

Check you have got it right

It is essential to make sure that:

1. The Cold stored water capacity is adequate for ALL THE HOUSEHOLD REQUIREMENTS. (minimum 50 gallons per bathroom, 80 gallons for one (1) bathroom plus an en suite shower room)

2. The Cold supplies to the cylinder and to the pump are taken from the opposite side of the cold tank to the cold mains inlet. **The bottom of the cold tank MUST ALSO be checked and cleared of debris.**



3. In systems where there are two (2) or more bathrooms, the cold supply to the cylinder MUST BE in 28mm pipework.



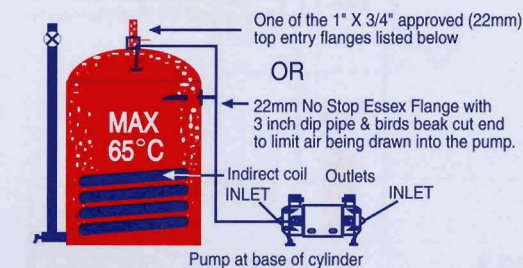
4. **Multiple CWS Tanks MUST BE linked in 28mm with the bottoms of the tanks at the same level.**

5. The maximum static head to the pump does not exceed 15 metres.

6. **NEVER SUPPLY THE PUMP DIRECTLY FROM THE COLD MAINS OR A MAINS FED APPLIANCE. (ANDREWS TYPE WATER HEATER)**

7. **NEVER** put a non return valve; inverted loop; restrictive "ball O fix" or an air vent on the supply pipework to a pump.

8. **The stored hot water temperature MUST NOT exceed 60-65°C. see specific diagrams and notes cols 2 & 3 page 13.**



▲ FIG 1

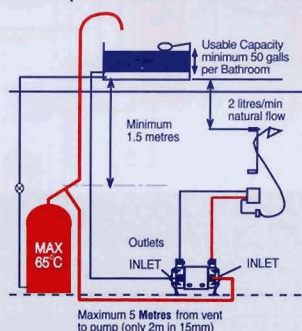
9. **The best possible position for the pump is at or near the base of the cylinder at least 600mm below the bottom of the Cold Water Storage tank.**

10. **The area around the pump MUST BE sufficient to allow air flow for cooling of the motor.**

11. **The best hot connection from the cylinder is either**

- A 3/4" NO STOP ESSEX FLANGE or
- An APPROVED TOP ENTRY FLANGE (eg Salamander Compression "S" Flange) see also Column 13 page 12

12. **The Hot and Cold Supply pipework to the pump is maximum 5 metres (NOT MORE THAN 2 metres in 15mm)**



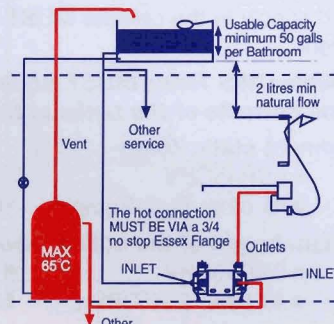
▲ FIG 2

Exclusive hot and cold supplies to the pump with the hot from the vent angled at 45°.

13. Acceptable exceptions are – Hot supply – from the vent-angled at 45°, vertically down WITH THE hot connection at the vent, at least 1.5 METRE below the base of the CWS tank.

Alternatively the hot and cold supplies to the pump can be teed off other 22/28mm supplies provided that the:

- Tee off to the pump is first call.
- Hot connection at the cylinder is via a 3/4" NO STOP ESSEX FLANGE.
- The cold supply to the pump is not shared with the cold feed to the cylinder.

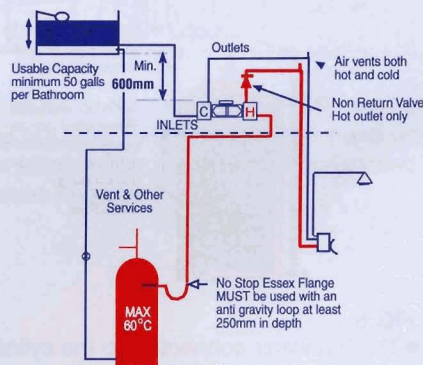


▲ FIG 3
PUMPS POSITIONED (above the Hot outlet)

An Anti Gravity Loop (AGL) off a NO STOP ESSEX flange MUST BE fitted to all systems where the pump is mounted above the hot outlet from the cylinder. (see col 2 Page 12 – Anti Gravity Loop)

In these systems the stored hot water temperature must not exceed 60°C.

All up & over pipe work must be vented at the highest point on the outlet of the pump. And a NRV fitted to the hot outlet only. **LOFT MOUNTED PUMPS MUST BE PROTECTED AGAINST FROST DAMAGE.**



▲ FIG 4

In positive head systems, allow for increased resistance of long pipe runs with multiple bends. The natural flow from the shower head or other outlets MUST be at least 1 Ltr/min per side (hot or cold).

IMPORTANT NOTICE

In systems where there are communal risers (e.g. block of flats) or secondary circuits - pumped or otherwise contact the PUMPWISE helpline for discussion and clarification.

All RightPumps (including NP75)

Check you have got it right

It is essential to make sure that:

1. The Cold stored water capacity is adequate for ALL THE HOUSEHOLD REQUIREMENTS. (minimum 50 gallons per bathroom; 80 gallons for (1) bathroom plus an en-suite shower room).

2. The Cold supplies to the cylinder and to the pump are taken from the opposite side of the cold tank to the cold mains inlet. **The bottom of the cold tank MUST ALSO be checked and cleared of debris.**



3. In systems where there are two (2) or more bathrooms, the cold supply to the cylinder MUST BE in 28mm pipe work.



4. **Multiple CWS Tanks MUST BE linked in 28mm with the bottoms of the tanks at the same level.**

5. **Maximum static head**

- ESP45CPV 5 METRES
- All other RightPumps 10 METRES

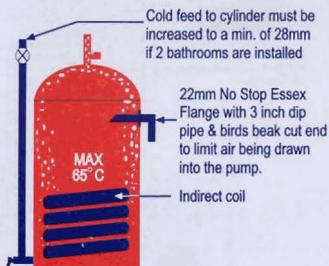
Maximum height of the outlets above pumps

- ESP45CPV 5 METRES
- All other ESP.CPV's 10 METRES

6. **NEVER SUPPLY THE PUMP DIRECTLY FROM THE COLDWATER MAINS, OR A MAINS FED APPLIANCE (i.e. Andrews type water heater) For RSP45's maximum two (2) metres of 15mm inlet pipework**

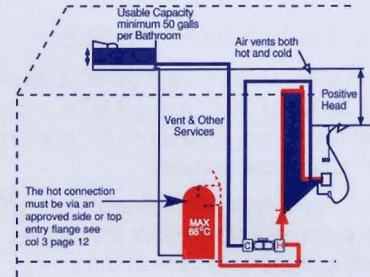
7. **The best possible position for the pump is at or near the base of the cylinder at least 600mm below the bottom of the Cold Water Storage tanks with Hot and Cold Supply pipework to the pump as short as possible (Hot max 3-4 metres)**

8. **The area around the pump MUST BE sufficient to allow air flow for cooling of the motor.**



▲ FIG 5

9. **The hot water connection to the cylinder MUST BE made via a**
- 3/4" NO STOP ESSEX FLANGE or
 - AN APPROVED TOP ENTRY FLANGE (e.g. Salamander compression "S" flange) see also column 3 page 12
10. **The HOT and COLD water services to the pump MUST BE exclusive to it in 22mm pipework (NOT SHARED WITH OTHER SERVICES).**
11. **NEVER put an air vent, inverted loop, restrictive balofix or a non return valve in the supply pipework to a pump. For RSP45 Maximum 2 meters of 15mm inlet pipework.**

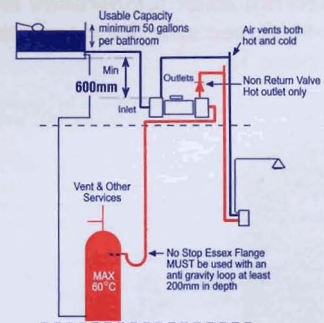


▲ FIG 6 Exclusive Hot & Cold supplies to the pump with the Hot from the cylinder VIA an Approved Flange.

PUMPS POSITIONED (above the Hot outlet)

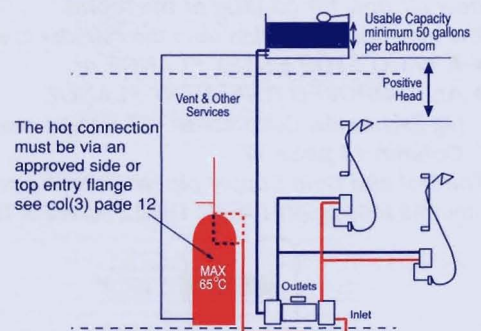
All up & over pipe work must be vented at the highest point on the outlet of the pump. And a NRV fitted to the hot outlet only. Loft mounted pumps must be protected against frost damage. For guidance call Pumpwise Helpdesk. Tel. 0870 855 4200.

An Anti Gravity Loop (AGL) off a NO STOP ESSEX flange MUST BE fitted to all systems where the pump is mounted above the hot outlet from the cylinder. (see col 2 page 12 - Anti Gravity Loop). In these systems the stored hot water temperature must not exceed 60°C.



▲ FIG 7

In positive head systems, allow for increased resistance of long pipe runs with multiple bends. The natural flow from the shower head or other outlets MUST be at least 1 1/min per side (hot or cold).



▲ FIG 8

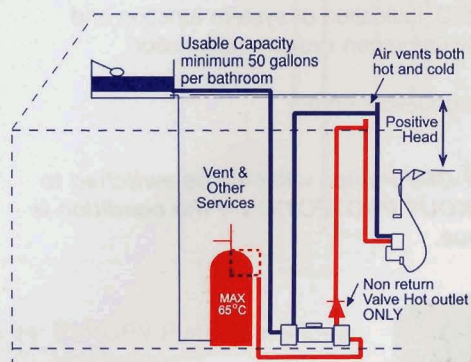
IMPORTANT NOTICE

In systems where there are communal risers (e.g. block of flats) or secondary circuits - pumped or otherwise contact the PUMPWISE helpline for discussion and clarification.

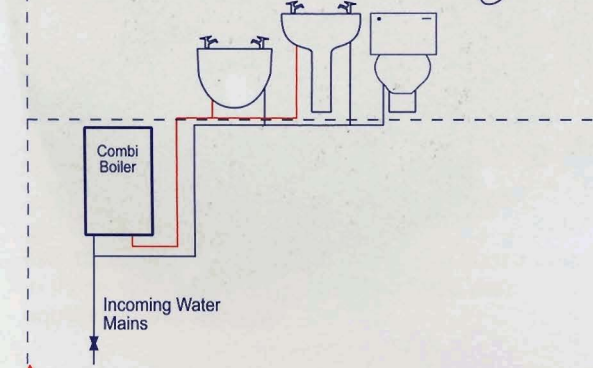
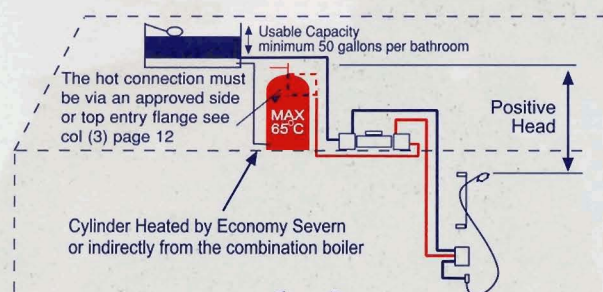
RIGHT SHOWER PUMPS

Designed purely for showers. The right shower pump is best determined by the customers expectations and choice of shower head.

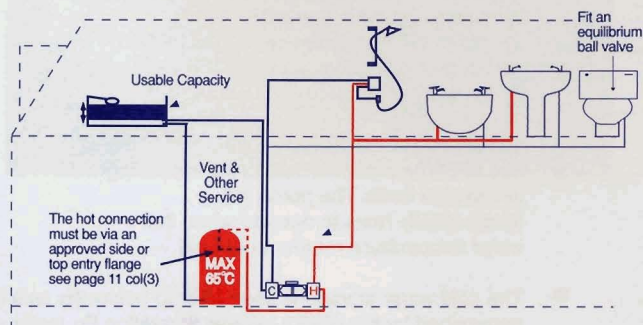
Negative Head Systems are best accomodated by using the Right ESP-CPV range of pumps which feature electronic sensor protection and an integral pressure vessel (see column 2 page 7)



▲ FIG 9 Up & Over pipe work from any RSP twin pump



▲ FIG 10 Combi boiler system with RSP twin pump to boost the shower from a CWS tank & a direct Cylinder



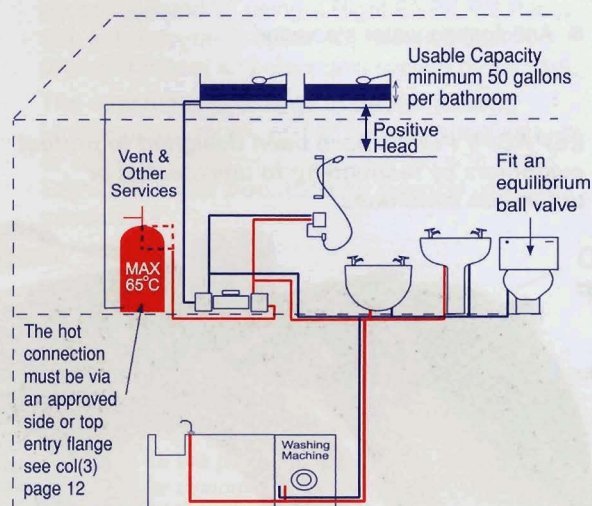
▲ FIG 11 An ESP-CPV Twin to a Bathroom in a loft - conversion.

RIGHT WHOLE HOUSE PUMPS

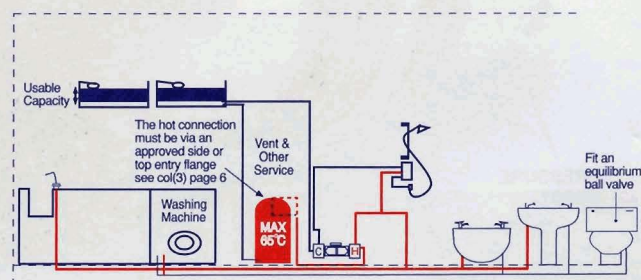
Uniquely equipped with a bypass loop. Selection of the Right Whole House Pump for a system will be determined by the resistance of, or the pressure required at the outlets.

In these systems

- Multiple CWS Tanks MUST BE linked in 28mm pipework with the bottoms of the tanks at the same level
- Toilets MUST BE fitted with an equilibrium ball valve



▲ FIG 12 Whole House system with any RHP twin pump



▲ FIG 13 Whole Flat System with ESP-CPV twin pump, such systems are likely to operate positive head when a shower is not fitted. When a shower is incorporated the system becomes negative head.

IMPORTANT NOTICE

When an ESP-CPV Pump is to be used to replace a conventional negative head Right/Diamond pump, then the RCM & CCM CONTROLS fitted above the old pump MUST BE REMOVED FROM THE SYSTEM.

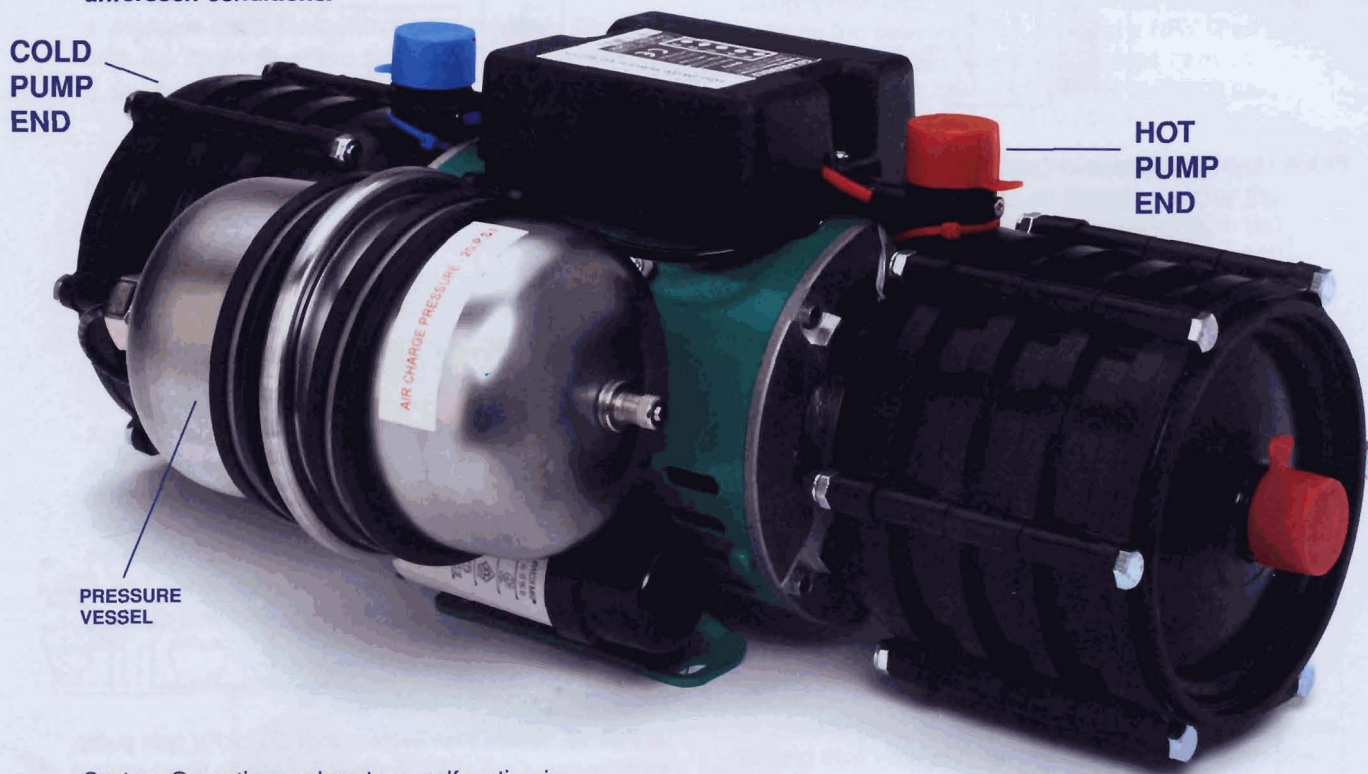
ESP CPV Pumps

With electronic system protection ESP CPV pumps are the culmination of four years intensive research to develop advanced pumps incorporating micro electronic technology and sensors capable of:-

- Positive or Negative head operation is self selecting.
- Supply water temperature sensing
- Anticipating water starvation
- Sensing chronic aeration
- L.E.D. indication of system function and any unforeseen system malfunction
- Diagnostic memory

ESP CPV Pumps have been designed to protect customers by responding to unexpected or unforeseen conditions.

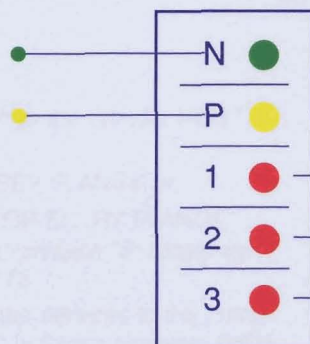
ESP CPV Pumps will only be switched to LOCKOUT PROTECTION if the condition is serious.



System Operation and system malfunction is indicated via five L.E.D.'s located on top of the Pump Junction Box lid as follows:

NEGATIVE HEAD Operation - Green L.E.D. ON

POSITIVE HEAD Operation - Yellow L.E.D. ON



LOCK-OUT - RED L.E.D. ON due to Pump Hunting ON:OFF ON:OFF etc at least 10 times within 4 mins

LOCK-OUT - RED L.E.D. ON due to aeration & or water starvation -in either condition the pump will first endeavour to purge the airlock or blockage via an ON- OFF sequence during which No 2 Red LED will FLASH

TEMPORARY LOCK-OUT - RED L.E.D. ON due to the hot water temperature exceeding acceptable limits. The pump will automatically reset to operate when the water temperature returns to normal

- The cold water storage is seen to drop below the safe level determined by the WSP3 - Water Starvation Protector - if fitted. All three (3) RED L.E.D.'s FLASH See col 1 page 12

IMPORTANT NOTES

The **HOT** & **COLD** pump ends are identified by **RED (hot)** & **BLUE (cold)** tie wraps and sleeves at each outlet. See above illustration.

When an ESP.CPV Pump is to be used to replace a conventional NEGATIVE HEAD Right / Diamond pump then any existing RCM - CCM control modules fitted to the outlets of the old pump MUST BE REMOVED from the system.

NON-RETURN VALVE's MUST NOT be fitted in the discharge pipework between the pump outlet's and system outlet's except in systems where there is mixed cold mains and pumped hot supplies to a mixer valve/tap.

PATENT PENDING

ESP-CPV PUMPS (POSITIVE HEAD)

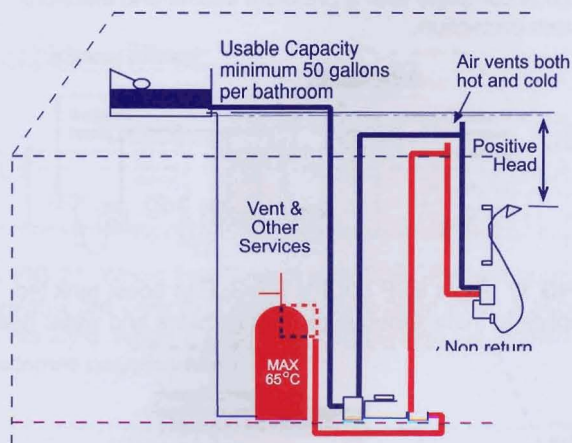


FIG 14 ESP-CPV Pump to a Shower.

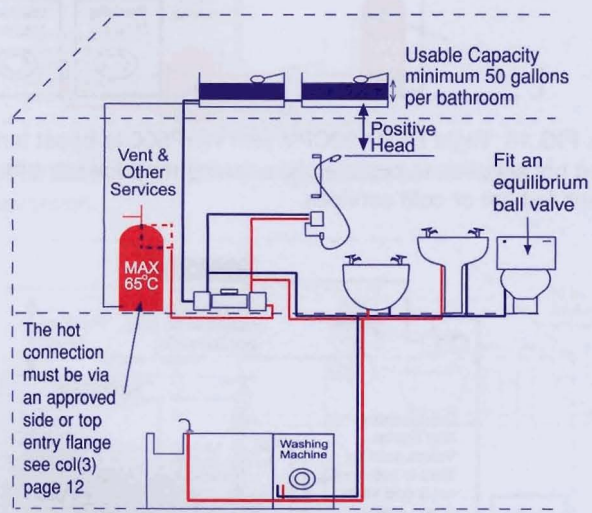


FIG 15 ESP-CPV Twin Pump to a whole house system. In these systems TOILETS must be fitted with equilibrium ball valve(s).

NEGATIVE HEAD SYSTEMS

Negative Head Systems are those where the shower head or other outlets are above or are level with the cold water storage tank, or when the low head pressure does not provide enough natural flow to the outlet. Salamander positive head pumps require a natural flow of only 1 litre per minute per flow switch. Negative head systems are typically loft conversions or flats with showers which have self-contained hot and cold water services.

Fully Automatic Negative Head Systems are best accommodated by using a Right ESP-CPV Pump (the fully integrated option which has a built-in pressure vessel and electronic system protection). The requirements of large systems including Multiple body sprays and or boosted supplies to **two or more bathrooms** are best served with **Right ESP-CPV super booster with integral pressure vessels**.

ESP-CPV

The ESP - CPV Range of pumps are featured on pages 7, 8 & 9. In these systems the pumps automatically determine the requirement for positive or negative head operation as the pump is commissioned. **The correct procedure for commissioning is therefore extremely important. (see col 2 page 10)**

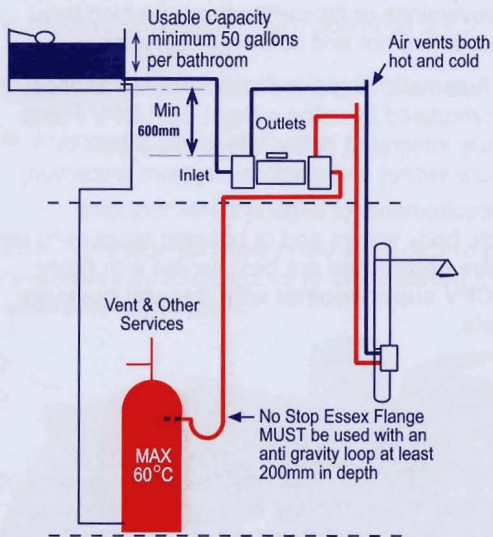
IMPORTANT NOTICE
In systems where there are communal risers (e.g. block of flats) or secondary circuits - pumped or otherwise contact the PUMPWISE helpline for discussion and clarification.

IMPORTANT NOTICE
Never use an ESP Twin Pump to boost the supplies to an instantaneous Electric shower or to a water heater.

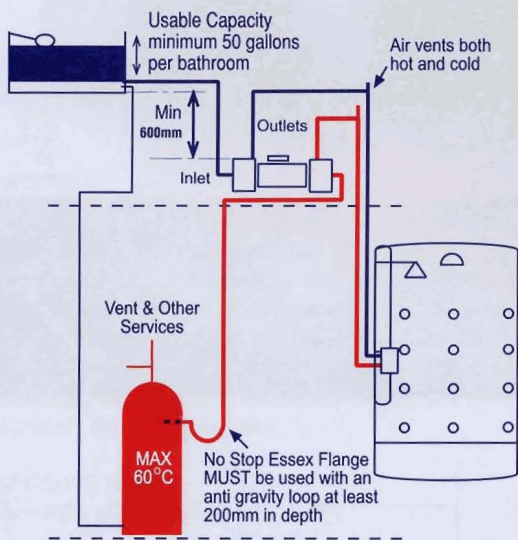
IMPORTANT NOTICE
When an ESP-CPV Pump is to be used to replace a conventional negative head Right/Diamond pump, then the RCM & CCM CONTROLS fitted above the old pump **MUST BE REMOVED FROM THE SYSTEM**.

ESP CPV PUMPS TO SHOWER COLUMNS OR CABINETS

(These will invariably be required to operate NEGATIVE HEAD)



▲ FIG 16A ESP140 CPV to a shower column.



▲ FIG 16B ESP140CPV to a shower cabinet. SHOWER COLUMNS & CABINETS in larger whole house systems. Or systems with multiple bathrooms will be best served by an **ESP CPV SUPER BOOSTER**

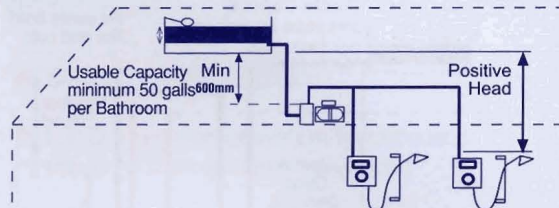
(see col 2 page 9). Figs 25:26:27

IMPORTANT NOTICE

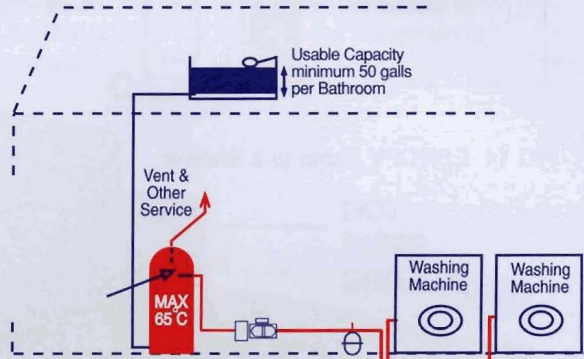
When an ESP CPV Pump is to be used to replace a conventional negative head Right/Diamond pump, then the RCM & CCM CONTROLS fitted above the old MUST BE REMOVED FROM THE SYSTEM

ESP CPV SINGLE (NEGATIVE HEAD)

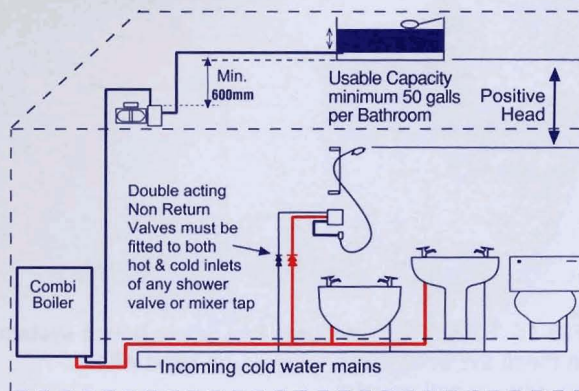
These systems are best accommodated by using a Right ESP80 / 120CPV single pump (the fully integrated option) which is complete with a pressure vessel and electronic system protection.



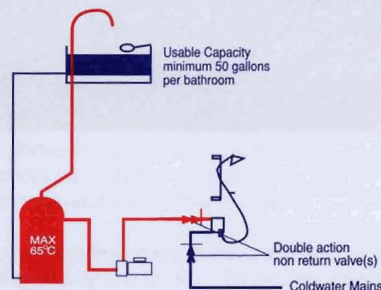
▲ FIG 17 Right ESP 80CPV SINGLE to boost tank fed supplies to instantaneous electric showers and water heaters



▲ FIG 18 Right ESP 120CPV with WHP500 to boost tank fed hot supplies to commercial washing machines or other tank fed hot or cold services.

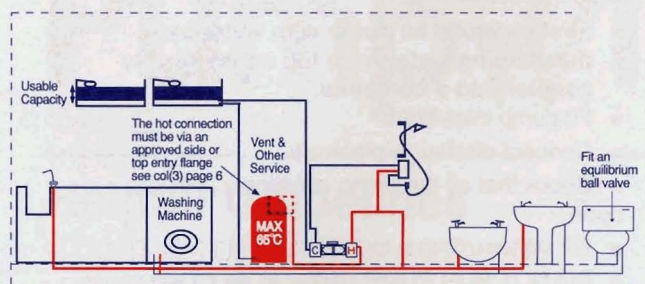


▲ FIG 19 Tank fed, Pressurised Cylinder or Combi Boiler System with Right ESP CPV80 SINGLE to boost the hot supply water pressure and cold water mains supplies "cold" to shower:bath:basin:toilet.

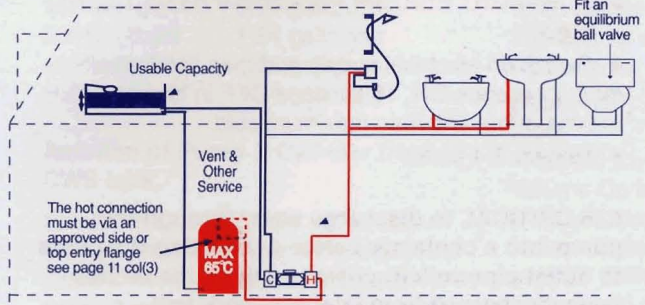


▲ FIG 20 Tank fed (hot) with cw mains cold systems MUST USE Right ESP80 CPV.

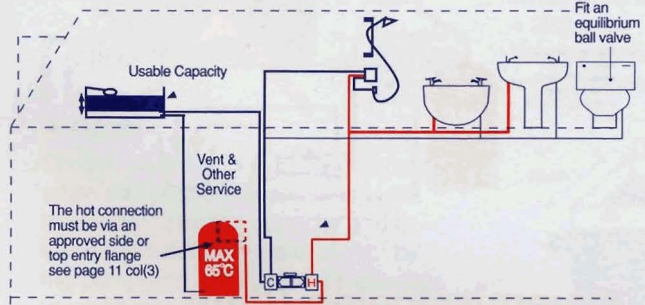
ESP.CPV TWINS (NEGATIVE HEAD)



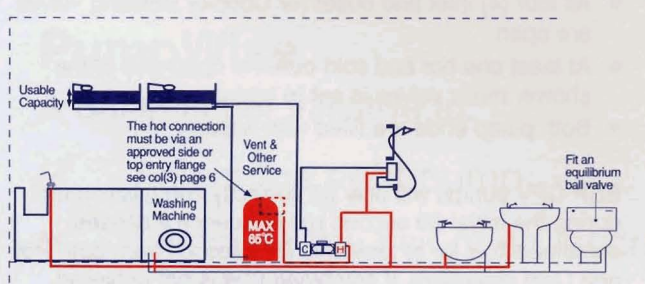
▲ FIG 21 Whole Flat System with ESP.CPV twin pump, such systems are likely to operate positive head when a shower is not fitted. When a shower is incorporated the system becomes negative head.



▲ FIG 22 An ESP.CPV Twin to a Bathroom in a loft-conversion.



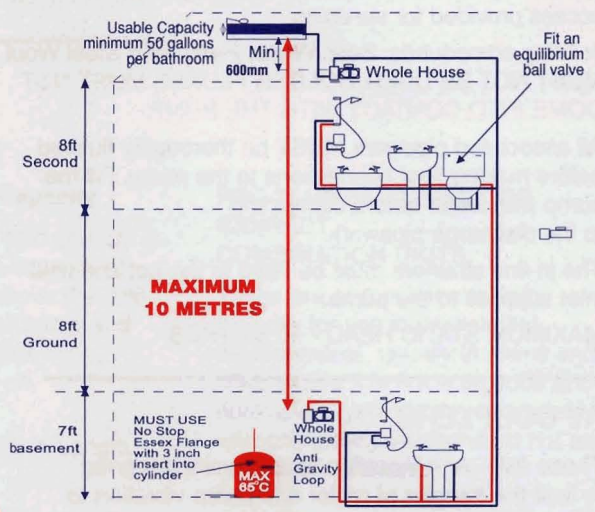
▲ FIG 23 An ESP.CPV Twin to a Bathroom in a loft-conversion.



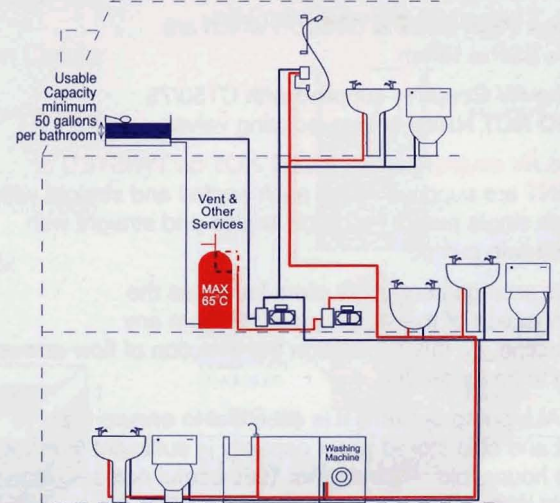
▲ FIG 24 Whole Flat System with ESP.CPV Twin Pump. Such systems are likely to operate negative head when a shower is incorporated.

ESP.CPV SUPER BOOSTERS

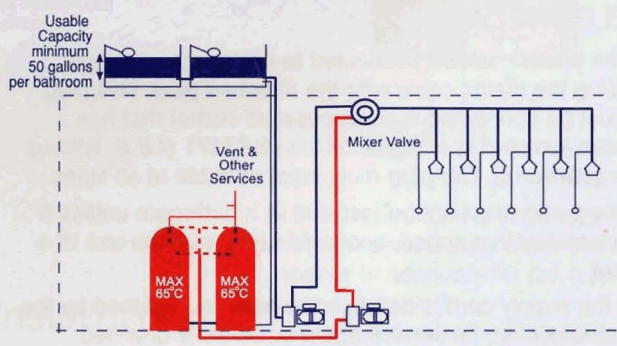
Created to meet the requirements of those who live in large houses or whose idea of a really good shower is a total deluge. **In these systems toilets MUST BE fitted with equilibrium ball valves.**



▲ FIG 25 Large Whole House System with the Hot & Cold pumps independently mounted.



▲ FIG 26 Large Whole House System with the RSB Hot & Cold pumps mounted in the airing cupboard.



▲ FIG 27 Sports Complex with multiple showers

IMPORTANT NOTICE
When an ESP.CPV Pump is to be used to replace a conventional negative head Right/Diamond pump, then the RCM & CCM CONTROLS fitted above the old MUST BE REMOVED FROM THE SYSTEM

All Salamander Pumps

PLUMBING

The installation must comply with the relevant requirements of local bye-laws.

The pump **MUST** be mounted upright (shaft horizontal - not screwed down). Pump must be adequately vented, protected from frost, with access provided for servicing.

Jointing compounds, Boss White, Hemp and Steel Wool, **MUST NOT BE USED. SOLDER FLUXES MUST NOT COME INTO CONTACT WITH THE PUMP.**

All associated pipework **MUST** be thoroughly flushed before making final connections to the pump. Fill the pump with water before connecting to the discharge pipework.

The in-line strainers must be fitted to the hot and cold inlet supplies to the pump.

MAXIMUM STATIC HEAD - 10 METRES.

AV COUPLERS

These AV – Anti-Vibration couplers are designed to limit the transfer of motor and pump vibration to the associated pipework. All Salamander AV Couplers are 3/4 BSP FI x 22mm PushFit with built in isolating valves except

- New Pearl 50/55 & CT50/75 which are 3/4 BSP x 15mm

- The AV Couplers supplied with CT50/75 **DO NOT HAVE** built in isolating valves

The AV couplers which **MUST NOT** be **TWISTED** or **BENT** are supplied – one each angled and straight with each single pump, two each angled and straight with each twin pump.

This arrangement of couplers facilitates the connection of the supply pipework from any direction. (In this application the direction of flow arrows are to be ignored).

In ALL pump systems it is essential to ensure that the hot and cold stored water capacity is sufficient to meet the household requirements. (see useful notes – Usable Cold Water Storage) page 11 fig 29 & 30

ELECTRICAL

The pump must be connected to the electrical supply using the mains cable with the attached plug. This plug must be connected to an accessible socket that has been installed in compliance with BS7671 (**I.E.E. Wiring regulations**). The plug must be accessible at all times.

The pump must not be installed in a bathroom unless it is installed in a space, accessible only with the use of a tool.

If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified person in order to avoid a hazard.

Higher rated fuses **MUST NOT** be used.

COOLING AND VENTILATION

The pump should be placed in a position where there is an adequate air flow to cool the motor and separated from any other appliances that generate heat. It should be installed in a clear space allowing 100mm additional space at each side, end and top of the pump.

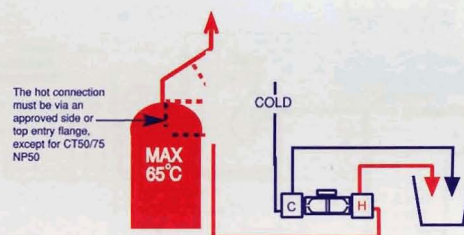
Before you finish

COMMISSIONING

- **First carefully fill pump with water by discharging water from the outlet flexible coupler into a container.**
- Fit pump inlet filters.
- Connect discharge pipework.
- Check that all the pump isolating valves are open.
- Fill system. Check for leaks.
- **DO NOT RUN PUMP DRY** – to do so will cause irreparable damage to your pump.
- Open shower mixer valve/system outlets to maximum hot and cold to check the natural flow (unpumped) flow of at least 1 litre per minute – positive head systems.
- **FOR RIGHT ESP.CPV Pumps see notes below Fig.28.**
- Switch on electrical supply and then run pump for 2-3 seconds ON, 10 seconds OFF in turn at maximum hot and then maximum cold.
- Repeat 3-4 times.

It is **CRITICAL** to discharge water through the pump into a container before connecting the pump to outlet pipework in order to ensure the air has been discharged from inlet pipework and pump chambers. This will not happen if the outlet pipework is connected to the pump.

The best method is:-



▲ FIG 28

Commissioning Right ESP.CPV Pumps

Do not attempt to activate the pump until you have first made sure:

- All four (4) inlet and outlet AV Coupler isolating valves are open
- At least one hot and cold outlet is open and or the shower mixer valves is set to mid-position
- Both pump ends are filled with water

ESP CPV pumps will only be correctly commissioned if during the initial 20 second run sequence it senses combined flow for at least five (5) seconds from both Hot and Cold chambers. If combined flow is not achieved **ALL FIVE (5) PUMP LED'S WILL FLASH.**

If the pump is correctly commissioned the appropriate **YELLOW** (Positive head) LED or **GREEN** (Negative head) LED with indicate system status.

If all five (5) LED's flash - disconnect the power - check isolating valves and outlets are open - recommence commissioning sequence.

Helpful Guidelines

■ COLD WATER SUPPLIES & STORAGE

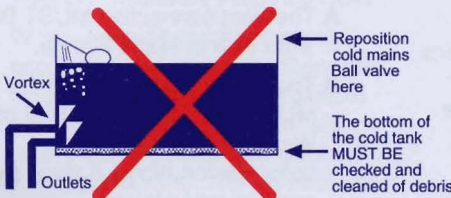
Recovery of Cold Storage

The recovery rate of a typical 1/2 inch high pressure part II BS1212 ball valve is:

15PSI (1bar)	0.97 galls/min
30PSI (2bar)	1.34 galls/min
40PSI (2.7bar)	1.58 galls/min
60PSI (4bar)	1.94 galls/min

Aeration of Pump & Cylinder from CWS tank.

When the incoming cold mains ball valve is positioned above the cold feeds to the cylinder & to the pump - Aerated water is drawn into the pump as illustrated.



▲ FIG 29

Chronic aeration of the pump occurs when this problem is combined with inadequate storage capacity and or when the volume of water drawn by the pump and other services exceeds the refill rate and creates a vortex which draws air and possibly debris into the pump.

Cold Storage Usable Capacity

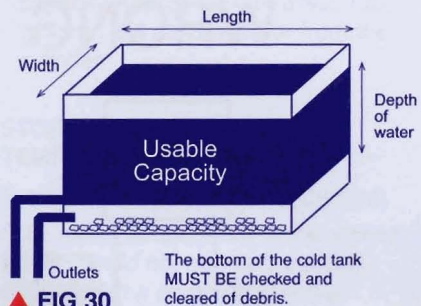
The usable capacity of cold storage is easily calculated as the capacity of water in the cold tank above the cold feeds to the cylinder, the pump and other outlets - see formula

Formula for calculation on Rectangular Tank:

Depth (15") X Width (23") X Length (36")
 = 12,420 Cu Inches
 Volume Cu In (12,420) X 0.01639
 = 203.56 litres
 Volume litres (203.56) X 0.22
 = 44.78 Gallons.

Formula for calculation on Circular Tank:

Depth (15") X Radius (17") X Radius (17") X 3.142 (Pi)
 = 13,621 Cu Inches
 Volume Cu In (13,621) X 0.01639
 = 223 litres
 Volume litres (223) X 0.22
 = 49 Gallons.

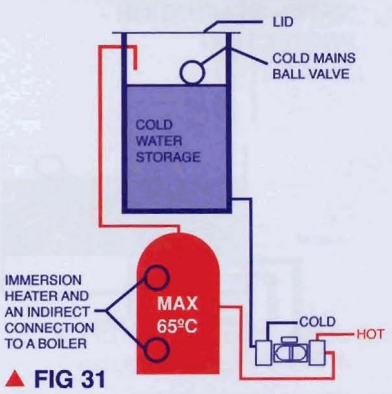


▲ FIG 30

PRE-PLUMBED DIRECT OR INDIRECT - COMBINATION UNITS.

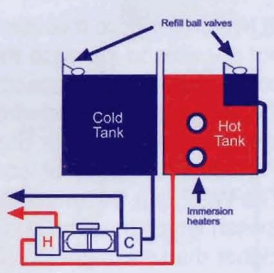
These are purpose made units typically for use in multiple flat developments, usually in towns and cities where it is advantageous and desirable to provide the occupants with completely independent hot and cold water services.

In these systems the ideal pump is an ESP45/75 CPV. For alternative types of combination units see Elson, below and Fortic (type) fig 33 page 12.



▲ FIG 31

ELSON (type) TANKS



▲ FIG 32

- In these systems it is important to ensure the hot & cold water storage capacity is adequate for the type of pump to be used.
- The refill ball valve on the small cold tank which refills the hot tank is correctly set to prevent aeration of the hot supply water to the pump.

Smaller capacity Elson Tank systems may benefit from a WSP3-water starvation protection unit (see col 1 page 12). For guidance consult helpline 0870 855 4200.

PumpWise

A Salamander initiative to:

- ✓ Select the right pump
- ✓ Eliminate the risk of an incorrect installation
- ✓ Pump warranty extended to 3 years
- ✓ A quiet life and peace of mind

Helpful PumpWise Guidelines

■ WATER STARVATION PROTECTION ■ PIPEWORK ARRANGEMENTS

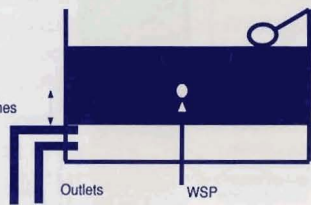
FORTIC (type) TANKS & PRE-ASSEMBLED UNITS



▲ FIG 33

Typically used in very small flats and houses. Not usually with sufficient water capacity of cold water for pumped systems.

WATER STARVATION - PROTECTION

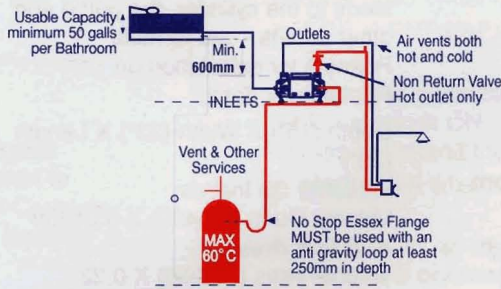


▲ FIG 34

In systems where it is absolutely not possible to increase the usable cold water storage capacity to meet the increased demand of a pumped system; a WSP (Water Starvation Protection Unit) may be considered. The WSP is a Salamander Level Switch which must be positioned 4" higher than the highest outlet from the Cold Water Storage tank. When the water level drops too far the WSP will switch off the pump until the CWS water level is recovered.

ANTI-GRAVITY LOOPS

An anti-gravity Loop (AGL) must always be fitted to systems where the pump is positioned above the hot outlet from the cylinder. The AGL which limits aeration of the hot supply to the pump is formed by bending the pipework downwards for 250mm, as it exits the Essex Flange, before rising again to the pump.

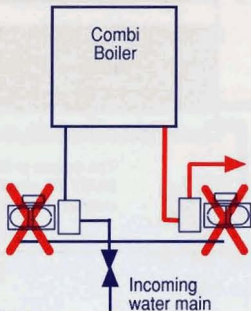


▲ FIG 35

COMBI BOILERS & WATER HEATERS

As these appliances are invariably supplied directly from the Cold Mains - they are not normally suitable for booster pumps. The exceptions are featured in Figs 19 & 24 on pages 8 & 9.

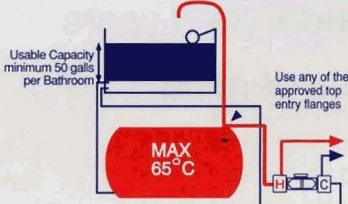
WRONG



▲ FIG 36

HORIZONTAL CYLINDERS

As horizontal (torpedo) cylinders are problematic for boosted systems consult Pumpwise for guidance and correct use of an approved top entry



▲ FIG 37

APPROVED FLANGES (CYLINDERS)

The 3/4" No Stop Essex and the other approved top entry flanges with extension pipes into the cylinder (listed col 1 page 2), represent the best known means of ensuring minimal aeration of the Hot supply water to the pump. The No Stop Essex flange is in all circumstances the best option.

SALAMANDER S

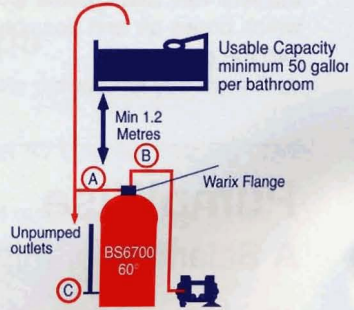
- NEW APPROVED - Top entry compression cylinder flange.

YORK FLANGE

These may be used in systems where the Hot Water requirement is less than 20 LPM.

WARIX FLANGE

- A. The Vent connection MUST BE from side in Warix Flange.
- B. The supply connection to the pump MUST BE FROM THE TOP of the Warix Flange via a 22mm compression elbow & there by avoid inverted loops.
- C. In systems where there are one bathroom and an en-suit shower. Or two or more bathrooms the cold feed to the cylinder MUST BE in 28mm pipework.



▲ FIG 38

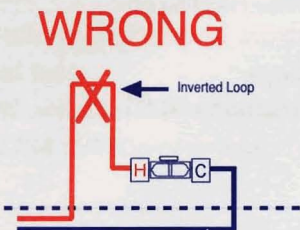
Helpful PumpWise Guidelines

■ PIPEWORK ARRANGEMENTS ■ NEGATIVE HEAD SYSTEMS ■ STORED HOT WATER

INVERTED LOOPS

An inverted loop in the supply pipe-work to the pump, particularly on the hot side as illustrated; is likely to

- Interfere with the initiation & smooth operation of the pump.
- Restrict the supply water to the pump and risk internal mechanical damage.



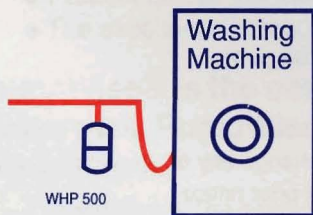
▲ FIG 39

PRIMATIC CYLINDERS

Are not suitable for pumped systems.

WATER HAMMER PROTECTION

Water hammer most commonly occurs in systems where there are long pipe runs supplying solenoid activated appliances e.g. washing machines or outlets with quick acting/turn taps/valve(s). The harmful effect of water hammer shock waves can be cushioned by fitting a Salamander WHP500 pressure vessel unit, into the supply pipework as close as possible to the outlet from which the shock waves are originating.



▲ FIG 40

FULLY AUTOMATIC NEGATIVE HEAD SYSTEMS

Are best accommodated by using a Right ESP-CPV TWIN or single pump (the fully integrated option) which is complete with a pressure vessel and electronic sensor protection.

For further details consult the Salamander Helpdesk 0870 855 4200

PUMP HUNTING PROTECTION

In negative head systems all the discharge pipework after the pump is pressurised. In such systems there exists the possibility the pump will hunt ON-OFF-ON etc at intervals.

This will happen:

- If all the outlets are not fully closed.
- If there is a leak at a connection.
- If boosted toilets are not fitted with equilibrium ball valves.
- or as residual hot water contracts in long pipe runs.

The irritating effects of hunting are cushioned by the pressure vessel which is an inbuilt feature of ESP CPV pumps.

STORED HOT WATER VOLUME

In calculating the volume of the stored hot water requirement it is important to consider:-

- Number of bathrooms, with particular attention to the size of baths
- Number of persons in household
- Time spent in shower eg: 10mins in a 5 gall/minute shower will use up 50 galls of the Cold Water Storage capacity Approx 60% of which (30 gallons) will be Hot Water from the cylinder.

STORED HOT WATER TEMPERATURE

Extract from BS5546:1990 (Current)

"The mean temperature of the stored water should not normally exceed 60°C and in a combined central heating and domestic hot water system it is recommended that the stored water temperature is controlled independently from that on the primary circuit"

Extract from BS6700:1997

"Under normal conditions the temperature of stored hot water should never exceed 65°C. A stored hot water temperature of 60°C is considered sufficient to meet all normal requirements and will minimise scale deposits in hard water areas".

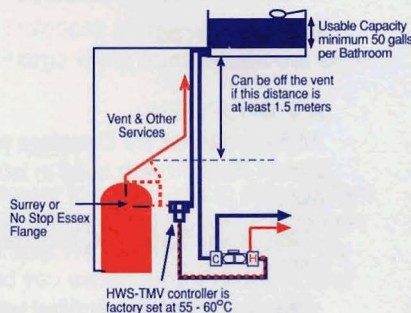
Effective Control of Stored Hot water is simply achieved by use of a cylinder thermostat and zone valve or direct acting thermostatic valve (eg tapstat).

In systems where the stored hot water temperature is not controlled eg Aga, Solid fuel appliance or very crudely by the boiler thermostat, use a Salamander HWS TMV controller.

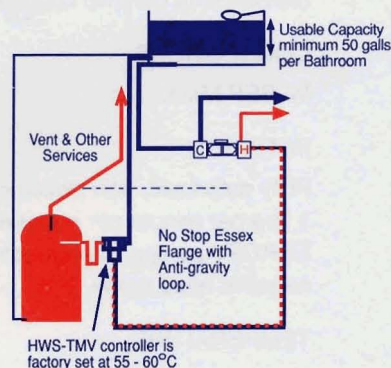
HWS TMV CONTROLLER

The Salamander HWS TMV controller is designed to protect booster pumps in systems where the stored hot water is uncontrolled – see below.

Hot Water, - typically heated by an AGA: Solid Fuel Appliance or simply under the control of a gas/oil boiler thermostat.



▲ FIG 41 HWS controller to floor mounted pump.



▲ FIG 42 HWS controller to loft mounted pump.

GENERAL SPECIFICATION

APPLICATIONS:

All Salamander pumps are designed to boost low pressure Hot and Cold supplies from tank-fed services. When supplies from a water heater or a combination boiler are to be boosted contact the Salamander PumpWise* Helpline (0870 855 4200) for guidance.

VOLTAGE:

230 Volts 50 Hz.

MOTOR TYPE:

Capacitor start and run induction type motor with stainless steel shaft and in-built resetting thermal protection (complies with BS5000 part 11).

PUMP MATERIALS:

All moulded components are manufactured from Acetal Copolymer.

MAXIMUM HEAD

ESP45 CPV	5 Metres
CT50/75, NP50/75, NP55/85	15 Metres
All other pumps	10 Metres

A.V. COUPLERS:

All Salamander AV Couplers are 3/4 BSP FI x 22mm PushFit with built in isolating valves except

- New Pearl 50/55 & CT50/75 which are 3/4 BSP x 15mm
- The AV Couplers supplied with CT50/75 **DO NOT HAVE** built in isolating valves

MECHANICAL SEALS:

Rotary mechanical face seals (carbon rotary element with ceramic counter face).

CONNECTIONS:

3/4" BSP Male.

INITIATION:

Fully automatic, flow switch operated, requiring 1 litre per minute per pump end. Except Right ESP.CPV pumps when required to operate in negative head mode.

TEMPERATURE:

Maximum fluid temperature 60-65°C.

MAXIMUM PERIOD OF PROTECTION

The following pumps are rated 30min on / 30 min off

NP50, NP75, CT50, CT75

RSP75, RSP100, RHP75, RHP100

ESP75CPV, ESP100CPV

*PumpWise

A Salamander initiative to help customers and to provide a support service which is second to none.

THE PUMPWISE GUIDE TO TROUBLE FREE INSTALLATION:

- Choosing the right pump for the job.
- Making sure the stored Hot and Cold water is sufficient for all household requirements.
- Following the simple guidelines for correct installation.
- Controlling the temperature of the domestic hot water at 60°C max (65°C if the pump is positioned on the floor beside the cylinder).

PUMPWISE HELPLINE:

Installers and consumers can be sure of a speedy and sympathetic response to requests for technical help, guidance or if it is necessary on-site service. In case of difficulty call our PumpWise Helpline on 0870 855 4200.

Installers please note the company's relevant product installation instructions MUST be followed.

PUMP NOISE:

With the technological advances achieved in RightPumps, Salamander has taken another step forward in the quest to supply all our customers with even quieter Centrifugal pumps. Despite this no pump is completely silent. Correct installation will minimise vibration and transmission noise. New Pearl and CT50/75 pumps are characterised by a high pitched hum or whine.

WARRANTY:

Salamander pumps benefit from a full two (2) year's warranty. This is extended to three (3) years when customers consult us through the PumpWise initiative.

**An indefinitely extended warranty can be arranged subject to payment of a nominal annual fee. For IEW scheme © details and application form
Tel: 0870 855 4200.**

Incorrect installation may invalidate the pump warranty.

The company operate a policy of continuous development and reserves the right to change any of the specifications of its products without prior notice. All information data and illustrations given in this leaflet may be subject to variation.



DECLARATION OF CONFORMITY

Salamander Pumped Shower Systems Limited
2-10 St Johns Street, Bedford MK42 0DH,

The following water pumps

NP50, NP75, NP55, NP85, CT50, CT75, RSP45, RSP75, RSP100
RHP45, RHP75, RHP100, ESP45 CPV, ESP75 CPV, ESP100 CPV
RGP40, RGP80, RGP120, ESP80 CPV, ESP120 CPV, ESP150 CPV

Meet the protection requirements of European Directives
89/336/EEC (EMC) & 73/23 EEC (low voltage)

in accordance with standards

BS EN 60335-1 : 1996 , BS EN 60335 - 2-41 1996 +amd 1

BS EN 55014-1 :2001 , BS EN 55014 - 2 : 1997

BS EN 61000-3-2:2001, BS EN 61000 - 3-3 : 1995

Laidler Associates

Belasis Business Centre, Coxwold Way, Billingham TS23 4EA

In Pursuit of Excellence

The concept for All Salamander Pumps is to supply all our customers with an inherently strong, durable, user friendly and price competitive product. All Salamander Pumps are capable of delivering continental pressure, efficiently and reliably in any domestic situation and most importantly they are plumber friendly.

Warranty

Salamander pumps benefit from a full two (2) year's warranty. This is extended to three (3) years when customers consult us through the PumpWise initiative. Incorrect installation may invalidate the pump warranty.

Indefinitely Extended Warranty

An indefinitely extended warranty can be arranged subject to payment of a nominal fee.

For IEW scheme[®] details and an application form Telephone: 0870 855 4200

Fax: 01234 355939 or e-mail: Tech@pumpwise.co. uk

THE PUMPWISE INITIATIVE

Is Salamanders commitment *to help customers*

- Select the right pump for the job
- Eliminate the risk of an incorrect installation

- Contact the PumpWise Helpdesk at any sign of aeration or spluttering of the discharge water from the shower or other outlets.

YOUR SHOWERING SENSATION FOR LIFE

You are recommended to:

- Complete and return the attached Warranty Card.
- Take care that the temperature at your stored hot water NEVER exceeds the recommended maximum of 60-65°C, (60°C MAX if the pump is positioned above the Hot outlet from the cylinder).

PUMPWISE COMMITMENT

Despite strenuous commitment to create and to manufacture the indestructible pump our efforts are tempered by the laws of physics and of human frailty. We are not infallible but we can assure you that should you experience a problem, and you contact the PumpWise Helpline we will if necessary arrange to fix the problem on site.

At Salamander Pumps the focus is for year on year improvement in:

- The application of a new technology
- Product quality, production and administrative efficiency
- The excellence of the support service to all our customers

PumpWise[®] is the cornerstone of our support service to customers. PumpWise is the means by which customers are guaranteed:

- ✓ Selection of the right pump for the job
- ✓ The avoidance of installation pitfalls
- ✓ An extended three (3) year warranty FREE

For PumpWise[®] help, guidance or advice simply call 0870 855 4200 (0900-1700 hrs weekdays) you speak with real people:

- No call waiting
- No recorded messages or canned music
- No queuing system

We actually answer your call, a polite person will ask you the nature of your call and contact details. **We guarantee to call you back at our expense.**