New iCO Pump Specification and Features

- **Serviceability –** The new pump has a removable cover so that the internal components can be serviced and maintained in the field by the installing company. Pumps can now be repaired in the field rather than being sent back to the manufacturer which will save on costly revisits.

- **Integrated Inlet/Outlet Manifolds –** All of the inlet manifold (Strainer, low pressure switch, actuated ball valve) and outlet manifold (isolation valve, pressure gauge, drain valve) are now integrated within the enclosure. No more untidy valves and hoses.

- **No permanent drain required –** Operation of the pump is no longer requires a permanent drain to be provided.

- **Wall or floor mounting -** If fitted on the floor or in a cupboard the enclosure has a flat back which fits neatly against a wall. Fixing holes are provide in the back of the chassis for optional wall mounting.

- **Low Standing Pressure -** The system now operates off a flow switch rather than a pressure switch. This means that the system will eventually drop down to mains water pressure and sit there indefinitely without calling the pumps to work. Previously any loss in pressure due to a small leak in the distribution pipework could cause the pumps to come on at undesirable times. Now the system sits at mains water pressure and will not bring the pumps on unless there is a significant flow of more than 0.5lpm.

- **Fire Resistance –** The pump enclosure is now completely constructed from steel providing fire resistance and additional resistance against mechanical damage.

- **Actuated ball valve –** Previously after the pump had finished its run time it would cut power to the pumps however it would still be able to run indefinitely at mains water pressure. We have now integrated an actuated ball valve which will shut off the water supply and the power to the pumps following elapse of the selected run time.

- **Drip tray with float switch –** There is always a risk of damage to products during transit or installation. The risk of damage to property as a result of internal components leaking is almost eliminated with the addition of a drip tray and float switch within the base of the pump enclosure. In the event of any escape of water from damaged components the float switch will operate and close that actuated ball valve to shut off the water supply to the pump

- **Corrosion resistance -** The internal pump components are now made of the highest quality corrosion resistant materials.

- **Robust operation –** There are no solenoid or pressure relief valves that run to permanent drain. This avoids any problems associated with dirt under the seals which could result in a small escape of water and pumps running at undesirable times.

- **Adjustable pump run time** – The pump runtime can be adjusted with a dil switch to suit 30min (Residential) or 10min (Domestic) depending on the category of the system.

- **Pre-action / Double Knock Operation -** With any water based fire suppression system there is always risk of unwanted operation through accidental or malicious damage to pipework or nozzles/sprinklers. The discharge of water could be potentially damaging to the property the system is protecting.
  As an additional measure to protect against unwanted operation we have incorporated facility to receive an input from the smoke detection system on the pump control and monitoring board. When using this facility, the pumps would need to have **both** the smoke detection **and** the nozzle operate before the pumps will run. If just the nozzle operates the system will not run. If just the smoke detection operates the system will not run. Both smoke (to the operate the detection system) and heat (to operate the nozzle) will need to be present for the system to run.

  Whilst this is an optional facility iCO would recommend that you use this on every installation to provide an additional level of protection against unwanted operation.
  The smoke detection system must be compliant with BS5839 pt6 Grade D LD1 with detection provided in every room that us protected by the mist system.

- **Relay Connections -** Additional relays have been provided for connection to 3rd party equipment
  - 2x Fault relay NO / NC
  - 2x Alarm relay NO / NC

  This will allow for connection to multiple equipment such as fire alarms and AOV's without having to provide external relay boxes.

- **External Power Out -** 12v Power out has been provided for powering 3rd party equipment such as GSM alarm diallers for remote monitoring or external relays.

- **Battery Backed Up –** The board is battery backed up to provide an intermittent audible alarm to warn occupants that the mains power to the pump is switched off.

- **LCD Display –** An internal LCD Display has been provided on the control and monitoring board which indicates the status of the system.

- **Thermal Fuse –** A thermal fuse has been provided on the control and monitoring board to cut the power if the temperature reaches over 100degC.

- **Remote Stop Button -** Connection for a remote pump stop button has been provided on the control and monitoring board. This can be run out in a radial circuit to a push button.

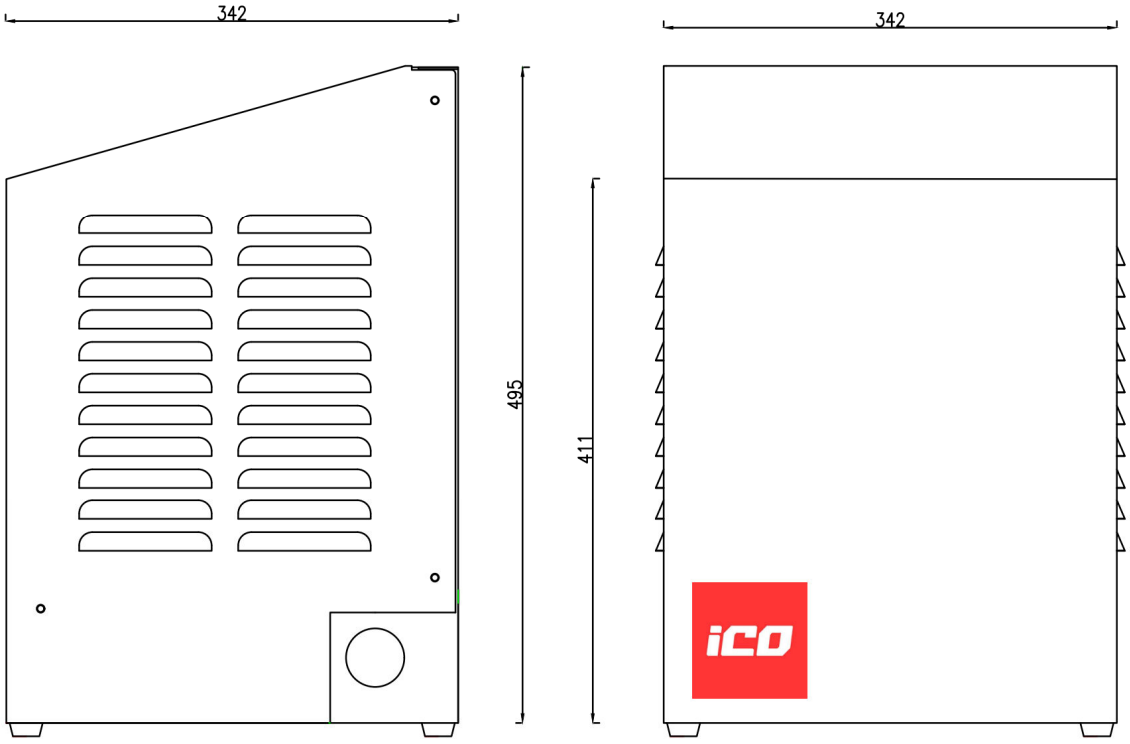
- **Remote Start Button -** Connection for remote pump start button for use on kitchen systems or other applications has been provided on the control and monitoring board. This can be run out on a radial circuit to a yellow break glass call point or similar.

Note: If this pump is used for any application other than residential and domestic water mist such as commercial kitchens system or saunas it must be used with an appropriate fire tested nozzle for use in that specific application.
iCO nozzles should not be used for any application other than residential or domestic water mist.

- **Adjustable pump run pressure -** the pump run pressure can be adjusted from 10 – 100 bar to suit different nozzles which may be used for protection of different applications.

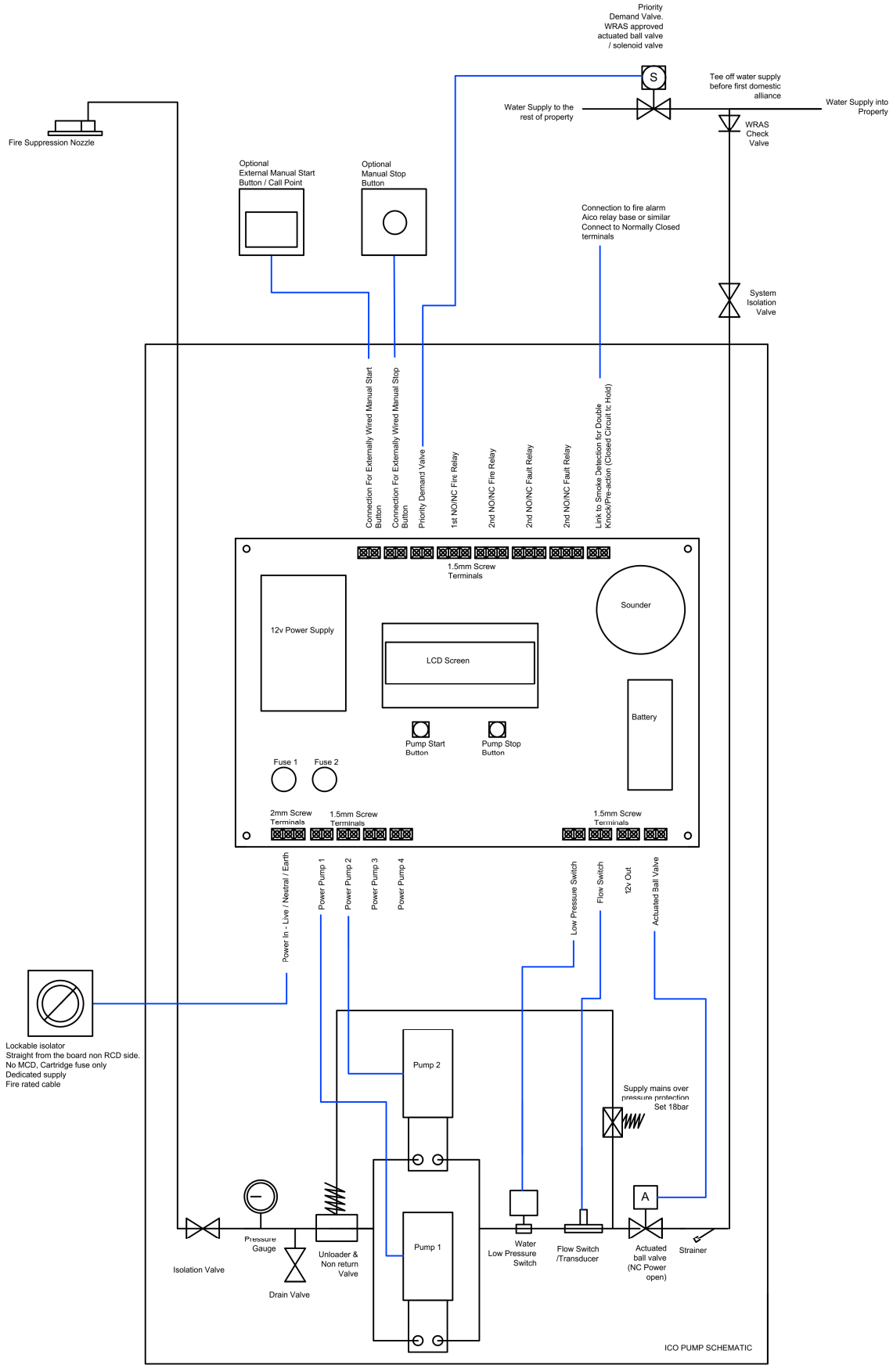
- **IP Rating** - The new pump has a rating of IP53

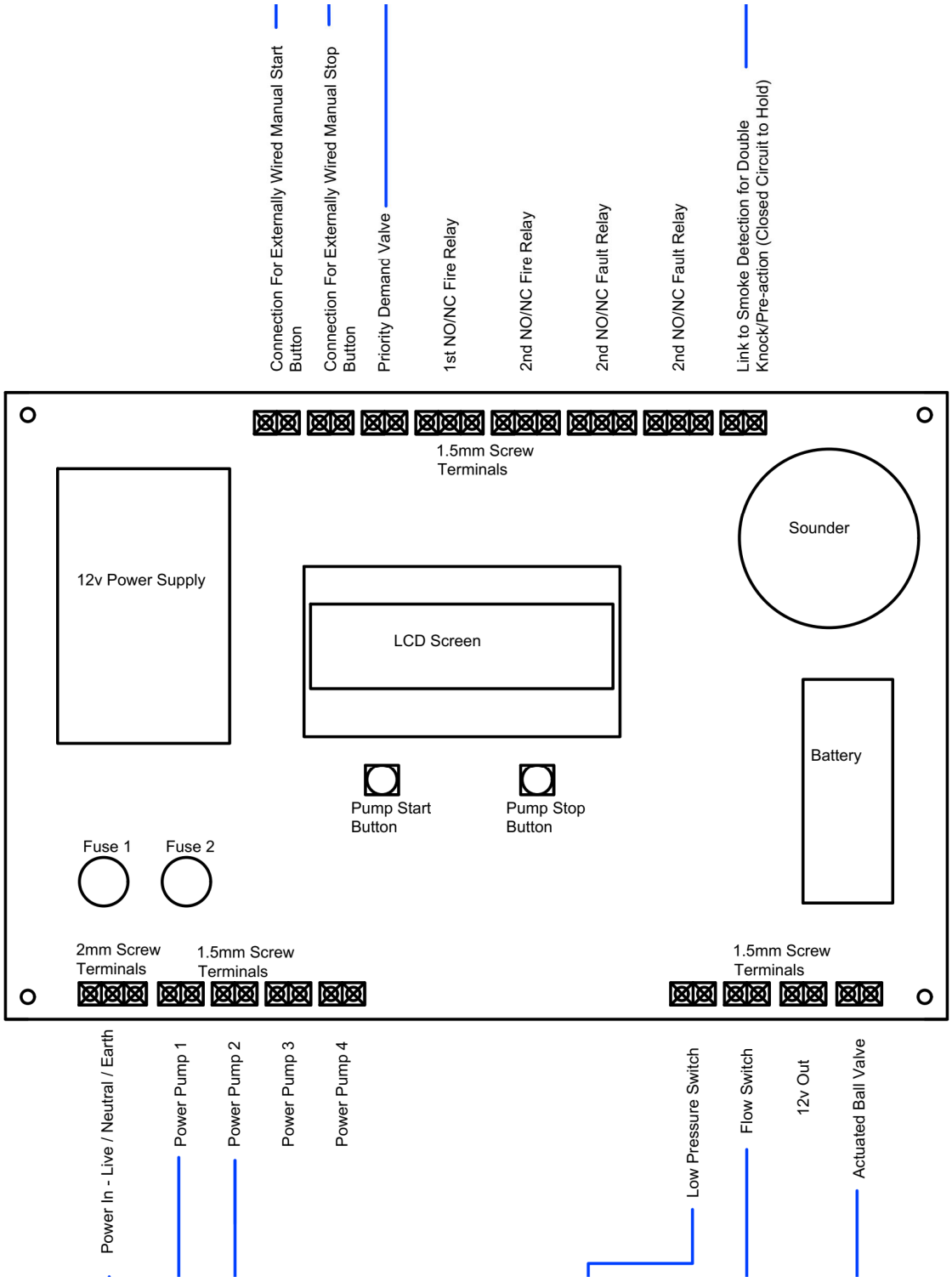
Technical Data
Pump Unit



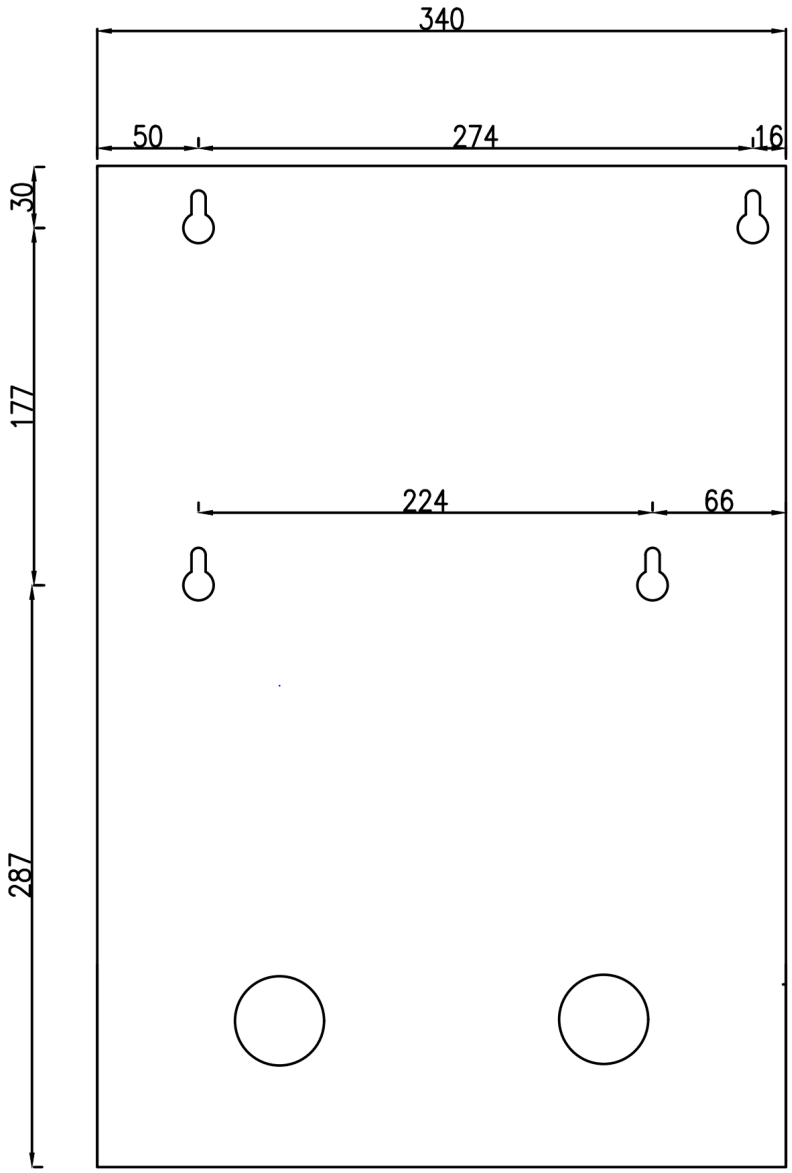
Part No:	PU001-00
Dimensions:	342mm (W)x 342mm (D) x 495mm
Clearance requirement	100mm of clear space required around on each side for ventilation.
Voltage rating:	240V
Current rating:	13A
Power Supply Connection:	Dedicated 16A fused supply from the NON RCD side of the board. Fire rated cable required.
Inlet connection:	1/2” BSP
Outlet connection:	3/8” BSP 60° Cone
Water requirement:	12 lpm @ 1 bar Minimum
Pump run sound pressure level:	79db @ 1 m
Pump run Flow switch:	0.5lpm
Weight:	24kg
Serviceability Access:	Removable front cover with security screws
Internal Components:	Corrosion resistant brass and stainless steel
Mounting:	Floor or wall mount

Standing Pressure:	Mains water pressure 1-10bar
Running Pressure:	Adjustable 10-100bar
Mains low pressure monitoring:	Set at 0.5 bar
Mains water over pressure protection:	Pressure relief set at 20bar
Pump run time:	10min or 30min adjustable with pump and actuated ball valve shut off
Operation:	Wet type or pre-action linked to smoke detection
Self-test:	Monthly self-test
Heat protection:	Thermal fuse set at 100degC
Fire relay:	2x NO / NC volt free 30vDC 1 A
Fault relay:	2x NO / NC volt free 30vDC 1 A
Priority demand valve output:	12v 1A
Power out:	12v 1A
Power monitoring:	Battery backed up audible alarm for fault monitoring
Battery monitoring:	Check every 8mins if battery is detached
System indication:	Internal LCD display
Control valve:	Integral Isolation valve, drain valve & Pressure gauge
Strainer:	Internal 500 micron filter
IP Rating:	IP53
Manual controls:	Internal and optional external manual start and stop button


Priority
Demand Valve.
WRAS approved
actuated ball valve
/ solenoid valve
S
Tee off water supply
before first domestic
alliance
Water Supply to the
rest of property
Water Supply into
Property
WRAS
Check
Valve
Fire Suppression Nozzle
Optional
External Manual Start
Button / Call Point
Optional
Manual Stop
Button
Connection to fire alarm
Aico relay base or similar
Connect to Normally Closed
terminals
System
Isolation
Valve
Connection For Externally Wired Manual Start
Button
Connection For Externally Wired Manual Stop
Button
Priority Demand Valve
1st NO/NC Fire Relay
2nd NO/NC Fire Relay
2nd NO/NC Fault Relay
2nd NO/NC Fault Relay
Link to Smoke Detection for Double
Knock/Pre-action (Closed Circuit tc Hold)
1.5mm Screw
Terminals
12v Power Supply
Sounder
LCD Screen
Battery
Pump Start
Button
Pump Stop
Button
Fuse 1
Fuse 2
2mm Screw
Terminals
1.5mm Screw
Terminals
1.5mm Screw
Terminals
Power In - Live / Neutral / Earth
Power Pump 1
Power Pump 2
Power Pump 3
Power Pump 4
Low Pressure Switch
Flow Switch
12v Out
Actuated Ball Valve
Lockable isolator
Straight from the board non RCD side.
No MCD, Cartridge fuse only
Dedicated supply
Fire rated cable
Pump 2
Supply mains over
pressure protection
Set 18bar
A
Pressure
Gauge
Unloader &
Non return
Valve
Pump 1
Water
Low Pressure
Switch
Flow Switch
/Transducer
Actuated
ball valve
(NC Power
open)
Strainer
Isolation Valve
Drain Valve
ICO PUMP SCHEMATIC



Chassis Wall Mounting Fixing Details



Patents granted: United Kingdom, USA, Australia, Europe

Patents pending: UAE