



FOAM SYSTEMS

CAFSystems™

FIRE PUMPS

FOAM PROPORTIONERS

# AQUIS™ 1.5

## BENEFITS OF FOAM

- 50% more effective than plain water
- Improved firefighter safety
- Faster knockdown time
- Less property damage
- Less water used



It's not easy to properly proportion fire-suppressing foam. To get the ratios right, you need to compensate for a number of variables. Doing so demands world-class engineering coupled with dependable flow meter technology. In other words, you need The Aquis™ Foam Proportioner from Waterous. It delivers a level of performance and reliability typically reserved for more expensive foam proportioner systems.

## PERFORMANCE

- 1.5 GPM @ 150 PSI
- 5.7 l/min @ 10 bar



# **SPECIFICATIONS: FOAM SYSTEMS: AQUIS™ 1.5**

## **PERFECT BLEND OF PERFORMANCE AND VALUE**

### **Each System Includes:**

#### **Foam Pump**

Consists of an electric motor, positive displacement triplex plunger pump and control box mounted on a bracket.

##### *Electric Motor:*

1/3 HP (.25 kW) 12 or 24 volt. Protected with an electrical load circuit breaker of 80 amps for 12 VDC and 50 amps for 24 VDC.

##### *Pump Rating:*

1.5 GPM @ 150 psi (5.68 L/min @ 10 bar) with intermittent operating pressures up to 450 psi (31 bar).

##### *Pump Construction:*

Equipped with an anodized aluminum crankcase, oversized ball bearings, forged brass pump body and manifold, solid ceramic plungers, stainless steel inlet and delivery valves and piston guides. Buna packing and preset pressure regulating valve.

##### *Control Box:*

###### *Microprocessor Controller:*

A 16-bit mixed signal microcontroller with a 60 kB flash memory, 2kB RAM and 12-bit analog to digital convertor. Receives flowmeter flow rate and operator specifications through the OIT and provides the necessary voltage to the pump motor driver.

###### *Pump Motor Driver:*

Receives signals from the microprocessor controller and powers the electric motor in a variable speed duty cycle to ensure the correct amount of foam concentrate set by the operator is injected into the water stream.

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## **AQUIS™ 1.5 FOAM PROPORTIONING SYSTEM**

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### **Operator Interface Terminal (OIT) Manual Operation**

Installed on the pump operator's panel and provides the following functions:

Rotary dial control of foam proportioning rates:

Class A concentrate: .1% to 1% in infinite increments.

Class B concentrate: Not available

Calibration of water flow rate.

Warning of low foam concentrate supply:

*Flashes and the displays a steady "low concentrate" warning when the concentrate tank runs low. Note that system will shut down after two minutes.*

*Flashes a "no concentrate" warning when the concentrate tank is empty.*

Warning of an electronic malfunction, flashes an error warning.

OIT Panel includes operation instructions.

### **Remote Activation**

Allows Foam Pump to be activated from an external 12 or 24 volt electrical source such as pump-in gear circuit or engine ignition power which eliminates a step in the foam system operation sequence.

### **Flowmeter and Tee**

Installed in the water line from the fire pump.

Consists of a paddlewheel type flowmeter installed a brass tee which communicates water flow rate to the microprocessor in the foam pump control box.

The brass tees have an external Victaulic groove connection and internal female NPT connection on each end and are available in the following sizes:

1.50 in. Inside Diameter (300 GPM / 1135 L/min)

2.00 in. Inside Diameter (500 GPM / 1893 L/min)

2.50 in. Inside Diameter (750 GPM / 2800 L/min)

3.00 in. Inside Diameter (1250 GPM / 4700 L/min)

### **Cables and Wires**

Separate industry standard M12 connectors for connection of OIT and flowmeter to foam pump control box. Consists of shielded cables to prevent radio frequency or electro-mechanical interference. Furnished as follows:

OIT connection to control box: 6 meters long

Flowmeter connection to control box: 3 meters long

Foam concentrate tank level switch to foam pump control box: 4 meters long

*Note that foam tank level switches are optional from Waterous*

### **Foam Concentrate Supply Line Strainer**

Installed in the foam concentrate supply line and screens out any concentrate contamination which may harm the foam pump.

Consists of a 3/4 in. inline wye type brass strainer with a removable screen.

### **Foam Concentrate Inject Line Check Valve**

Installed in the foam concentrate inject line and prevents water from flowing back into the foam pump.

Consists of a 3/8 in. inline brass and stainless steel check valve.

### **Warranty**

All systems have a two-year limited manufacturer's warranty.

### **Foam System Support**

AQUIS is equipped with a USB interface for PC-connectivity which allows a qualified technician to perform upgrades, diagnostics and monitor system functions in real time. The system can also be remotely monitored through the USB interface using any PC with internet access, allowing technicians to easily connect to the Waterous dedicated website to assure proper operation and to update the foam system hardware by uploading new features and functions as they become available.

## Additional Components to Complete System Installation

The Aquis system includes the major components required for installation with the exception of those listed below which are to be supplied by the installer. **Note that some of the components listed below are available as optional add-on items from Waterous.**

### Waterway Check Valve (Optional)

Installed in water line from the fire pump and prevents foam solution (concentrate and water) from contaminating the fire pump and water supply. Use a full bodied brass check valve with an appropriate pressure rating. Note that foam concentrate injection must occur downstream of this valve.  
**Available from Waterous as an optional add-on, see optional items.**

Note that Waterous offers a 2.5 in. iron manifold with integral check valve and flowmeter. This simplifies installation as flowmeter and waterway check valve installation is accomplished with one component. When ordered, a *Flowmeter and Tee* is not furnished and a separate *Waterway Check Valve* is not needed. See *Manifold with Flowmeter and Check Valve* listed in optional items.

### Foam Concentrate Tank

Foam concentrate tank shall be supplied that suits the application and meets the needs of the end user. The tank shall meet the minimum requirements as published in applicable NFPA apparatus standards. Tank should have a valve which allows the foam supply to be shut off for maintenance of the foam pump and cleaning of supply line screen.

**Tank is not available from Waterous.**

**Note that the optional Waterous Foam Concentrate Supply Line kit includes a foam tank shut off valve.**

### Foam Concentrate Tank Level Switch

Installed in on-board foam concentrate tank to communicate low concentrate level to foam pump.

**Available from Waterous as an optional add-on, see optional items.**

### Foam Concentrate Supply Line

Hoses and fittings that run from the foam tank to the foam pump inlet should be a minimum of 3/4 in. inside diameter hose. Hose and fittings must be rated for a minimum of 23 in. Hg (0.78 bar) vacuum and 50 psi (3.45 bar) of pressure. The hose and fittings must be made of corrosion resistant material and be compatible with the foam concentrates to be used. Foam supply hose shall have a reinforced clear wall as required by NFPA to allow viewing of foam pump priming operations.

**Available from Waterous as an optional Foam Concentrate Supply Line kit, see optional items.**

**Note that this kit also includes a foam tank shut-off valve.**

### Foam Concentrate Inject Line

Hose and fittings that run from the foam pump to the foam injection point in the water line from the fire pump should be a minimum of 3/8 in. inside diameter hose. Hose and fittings must be rated for a minimum of 450 psi (31 bar). The hose and fittings must be made of corrosion resistant material and be compatible with the foam concentrates to be used. The injection point must be on the downstream side of the check valve installed in the water line from the fire to prevent foam contamination of the fire pump and water supply. The 3/8 in. check valve supplied with the foam pump must be installed in this line to prevent water flowing back into the foam pump.

**Available from Waterous optional Foam Concentrate Inject/Bypass Hose kit, see optional items.**

### Bypass Line

This hose is used for pumping concentrate into a container to empty the foam tank or to assist in priming the foam pump. The hose and fittings may have a lower pressure rating since the end of the hose is left open to the atmosphere and will not receive high pressures.

**Available from Waterous as part of optional Foam Concentrate Inject/Bypass Hose kit, see optional items.**

### Electrical Supply

Electrical wiring and circuit protection must be supplied and connected to the apparatus master electrical system. See the AQUIS Installation, Operation and Maintenance Instruction for requirements.

**Wiring not available from Waterous.**

## Optional Items Available from Waterous

**Operator Interface Terminal (OIT) Digital Operation** Used in place of Manual OIT and provides the following functions:

Push button control of foam proportioning rates:

Class A concentrate: .1% to 1% in infinite increments.

Calibration of water flow rate.

Adjustable units of measure.

Simulated water flow.

Optional lockout.

Warning of low foam concentrate supply:

*Flashes and the displays a steady "low concentrate" warning when the concentrate tank runs low. Note that system will shut down after two minutes.*

*Flashes a "no concentrate" warning when the concentrate tank is empty.*

Warning of an electronic malfunction:

*Flashes an "error" warning with associated error code.*

Operation in manual mode as a back-up.

A separate panel plate with operation instructions is furnished.

### Foam Tank Switch

Installed in on-board foam tank to communicate low concentrate level to foam pump, has a 24 in. long wire. **Note that multiple quantities may be ordered.**

Available for the following mounting positions:

Side Mount in Tank

Top or Bottom Mount in Tank

### Master Waterway Check Valve

Full bodied brass check valve, includes a foam concentrate injection port on the downstream side.

Available in the following sizes and end connections:

1.5 in. Victaulic Inlet x FNPT/Victaulic Outlet

1.5 in. FNPT Inlet x FNPT/Victaulic Outlet

2.0 in. Victaulic Inlet x Victaulic Outlet

2.0 in. Victaulic Inlet x FNPT Outlet

2.5 in. Victaulic Inlet x Victaulic Outlet

2.5 in. Victaulic Inlet x FNPT Outlet

3.0 in. Victaulic Inlet x Victaulic Outlet

3.0 in. Victaulic Inlet x FNPT Outlet

### Manifold with Flowmeter and Check Valve

Simplifies installation as flowmeter and waterway check valve installation is accomplished with one component.

Consists of 2.5 in. inside diameter iron manifold with built-in check valve and flowmeter.

When ordered, Flowmeter Tee is not furnished and a separate Waterway Check Valve is not needed.

Available in the following sizes and end connections:

1.5 in. FNPT / 2.0 in. Victaulic Inlet and Outlet

2.0 in. FNPT / 2.5 in. Victaulic Inlet and Outlet

2.5 in. 4-Bolt Flange Inlet and Outlet

2.5 in. 4-Bolt Flange Inlet and 2.0 in. FNPT / 2.5 in. Victaulic Outlet

2.5 in. 4-Bolt Flange Inlet and 2.5 in. FNPT / 3.0 in. Victaulic Outlet

### Foam Concentrate Supply Hose Kit

Provides hoses and fittings to bring foam concentrate from an on-board tank to the foam pump.

*Note that a foam concentrate tank shut-off valve is also included.*

### Foam Concentrate Inject/Bypass Hose Kit

Provides hoses and fittings to bring foam concentrate from the foam pump to injection point, and hose and fittings from foam pump to atmosphere (bypass).

### OIT/HMI Extension Cable

3 meter or 6 meter lengths available

### Flowmeter Extension Cable

3 meter length available

**Tank Level Switch Cable Extension**

4 meter length available

**Foam System Rating Panel Plate**

Meets requirements of NFPA 1901 and 1906

**Foam System Schematic Panel Plate**

Meets requirements of NFPA 1901 and 1906

**Foam Fill System**

Used for filling an on-board foam concentrate tank from an overboard pail or tank.

Consists of a pump, panels, two tank level switches and an overboard pick-up hose with a stainless steel wand.

**Dual OIT Kit**

Provides an additional OIT and cables if foam pump is to be operated from two locations. All functions are available at both locations.

**Overboard Foam Pick-up Kit**

Allows foam concentrate to be drawn from an external overboard pail/tank.

Includes a pump, panel connection, fittings and hoses including a Foam pick-up hose.

Note that if used in conjunction with an on-board tank, a Dual Tank Selector Kit is also required.

**Foam Pick-up Hose**

Used to transfer foam concentrate from external containers to the foam pump or an on-board tank.

The following sizes are available:

3/4 in. x 10-foot hose with stainless steel wand

1 in. x 10-foot hose with stainless steel wand

**Dual Foam Injection Kit**

Allows for foam concentrate to be injected at two locations.

Consists of an electric 3-way valve, control panel and fittings.

**Run Logic Module**

If *Remote Activation* feature of foam pump is being used and dual OIT panels are not being used, allows OEM to install a switch to activate the foam pump and a light to indicate it is operational.

**Panel Mounted Foam Concentrate Strainer**

Used in place of foam supply line in-line strainer furnished with system. Moves strainer to the operator's panel which allows easier access for maintenance.