

SPECIFICATIONS: 150-OS CAFSYSTEM PERFECT FOAM EVERYTIME

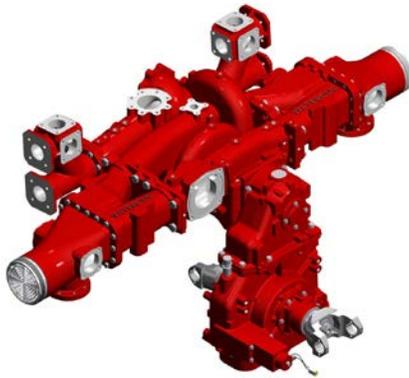
WATEROUS

When it comes to compressed air foam systems, nothing can match the ease of use of the ONE STEP™ CAFSystem. ONE STEP incorporates a powerful integrated midship-mounted air compressor system and revolutionary compact foam generators to provide a reproducible homogenous, micro-cellular, continuous bubble stream. A characteristic of each ONE STEP™ CAFSystem is the pre-set flow rate and pre-set pressure for water and air. The operator does not have to adjust flows and pressures during operation.

BENEFITS OF COMPRESSED AIR FOAM

- 80% of water content in the foam is effectively used for fire fighting
- Improved firefighter safety
 - Faster knockdown time
 - Less property damage
 - Less water used

150-OS ONE STEP™ CAFSYSTEM



WATEROUS SPLIT-SHAFT PUMP

The ONE STEP™ CAFSystem is currently available on Waterous CS, CSU, CX and CMU midship pumps with split-shaft transmissions.

CS Flow Specs:

750, 1000 and 1250 GPM @ 150 psi
(3000, 4000, 5000 l/min @ 10 bar)

CSU Flow Specs:

1250 to 2250 GPM @ 150 psi
(5000 to 9000 l/min @ 10 bar)

CMU Flow Specs:

1250 to 2250 GPM @ 150 psi
(5000 to 9000 l/min @ 10 bar)

CX Flow Specs

750 to 1500 GPM @ 150 psi
(3000 to 6000 l/min @ 10 bar)

150-OS GHH RAND AIR COMPRESSOR

- Quiet, efficient and dependable rotary screw compressor
- 150 sCFM (4.25 m³/min)
- Toothed-belt drive requires no lubrication or maintenance

AQUIS™ 2.5 FOAM PROPORTIONER

- 2.5 GPM (9.5 l/min) @ 150 PSI (10 bar)
- Exceeds NFPA 1901 requirements for proportioning accuracy
- Pre-plumbed and pre-mounted



ONE STEP™ COMPACT FOAM GENERATOR

A characteristic of each ONE STEP™ CAFSystem is the pre-set flow rate and pre-set pressure for water and air. The operator does not have to adjust flows and pressures during operation.

ONE STEP™ CAFSystem uses a stand-alone "Compact Foam Generator" (CFG) for each simultaneously operated discharge outlet. Three 2" Foam Generators are standard. These are specially developed and patented devices in which the ONE STEP extinguishing agent will be generated. These foam generators include all necessary elements such as:

- Volume flow regulation of water and air
- Volume flow limitations of water and air
- Non-return valves for water and air
- Mixing chamber
- Mixing pressure control valve
- Wet-dry changeover



TELLURUS™ DIGITAL CONTROL SYSTEM

- 7" Tellurus Control System
 - Engages Pump and Compressor
 - Engages the ONE STEP™ CAFSystem
 - Select from Dry or Wet Foam
 - Monitor Discharges
 - Monitor Compressor Performance



WATEROUS

RAISING THE BAR ON INNOVATION, RELIABILITY AND SERVICE.

SPECIFICATIONS: ONE STEP™ CAFSYSTEM

Mixing Pressure Control Valve

The ONE STEP™ CAFSystem uses an independent, patented pressure regulation, which keeps constant mixing pressure in the mixing chamber of the foam generator. This pressure regulation allows a variation of pump discharge pressure above the minimum working pressure of the ONE STEP without disrupting the function of the ONE STEP systems or changing the consistency of the extinguishing agent.

Air Compressor

GHH-Rand air end with tapered roller bearings and triple lip shaft seal, oil-flooded, rotary screw type, sized to supply 150 scfm (4.25 m³/min) at a minimum of 125 P.S.I.G (8.6 bar).

Pneumatic Modulating Inlet Valve

The air compressor is controlled by the pneumatic modulation inlet valve mounted on the air end. The pneumatic modulating inlet valve controls air delivery while maintaining constant pressure.

Fixed Air Pressure Operation

The compressor supplies a fixed air pressure supply to the foam generators at 120 PSI (8 Bar). Pressure balancing systems are NOT used or required.

- Fixed - Air pressure defaults to manual setting on compressor mounted control valve.
- Unload - Air pressure reduced to 40 P.S.I.G. (2.75 bar) for standby operations or when water only from the pump is required

Air Compressor Drive

The compressor is driven off the back of a standard Waterous pump transmission. The compressor drive is direct. The compressor shall be run in unload mode for pump testing and high pressure pump use. Power is transferred via a synchronous drive "toothed belt" with an adjustable tensioner. The system is designated to operate the air end at rated capacity when the fire pump is developing 130 to 140 P.S.I.G. (9 to 9.7 bar) in a "no flow" state.

Air Compressor Oil System

A spin-on, full-flow oil filter unit is part of the system to control oil flow to the cooler. All oil lines are routed in braided hose conforming to SAE 100R1 standards for hydraulic hose.

Modular Air/Oil Separator Unit

Replacement elements for the oil filter and separator are available.

Air Compressor Cooling System

The air compressor is cooled by the Waterous fire pump¹, utilizing an all copper and brass shell and tube heat exchanger. When the fire pump is operating, water flows through the heat exchanger while an in-line removable strainer, on the water inlet side, prevents clogging. The system maintains oil temperature within 160° to 225°F (71° to 107° C).

Foam Concentrate Piping

All concentrate piping is stainless steel, brass or high pressure wire braid reinforced hose with stainless steel or brass fittings.

Foam Manifolds

Foam manifolds are constructed of cast iron. The manifold is a fully integrated assembly with foam injector port, flow meter mount and high-flow, low-loss, spring-assisted brass swing check valve to prevent back-flow of foam concentrate or foam solution into the pump.

Foam Management System

Aquis 2.5™ (Standard)

Microprocessor Controller

AQUIS™ is equipped with a 16-bit, mixed-signal microcontroller with a 60kB flash memory, 2 kB RAM and 12-bit analog to digital converter. This allows the AQUIS™ to receive input from the flowmeter and temperature sensor, controlling the foam pump motor to provide accurate injection into the foam manifold.

Operator Interface Terminal

The Operator Interface Terminal (OIT), mounted on the pump operator's panel allows the operator to perform the following functions:

- Provide rotary dial control of foam proportioning rates from 0.1% to 1%, in infinite increments
- Calibrate flow rate
- Flashes and then displays a steady "low concentrate" warning when the foam concentrate tank runs low - system shuts off after two minutes
- Flash a "no concentrate" warning when the foam concentrate tank is empty
- Flash an "error" warning with associated code in the event of an electronic malfunction
- Provide a manual back-up mode, controlled by the operator

Foam Pump

The 12 or 24-volt, electric motor driven, positive displacement triplex plunger foam pump is equipped with an aluminum crankcase, ball bearings, forged brass pump body and manifold, solid ceramic plungers, stainless steel check valves and piston guides, Buna packing and preset thermal and pressure relief valves.

The foam pump is rated at 2.5 GPM @ 150 psi (9.46 l/min @ 10 bar) with operating pressures up to 450 psi (32 bar). Maximum electrical load of 40 amps @ 12 VDC and 21 amps @ 24 VDC.

A pump motor electronic driver, located inside the controller housing, receives signals from the microcontroller and powers the 1/2 hp (.4 kW) electric motor in a variable speed duty cycle to ensure that the correct amount of foam concentrate set by the pump operator is injected into the water stream.

Optional Advantus® 3E or 6E

A fully automatic electronic direct foam injection system is furnished and installed. The system is capable of Class A foam concentrates and most Class B foam concentrates. The system includes the following:

Digital Electronic Control Display

Located on the pump operator's panel, the electronic control display enables the operator to perform the following functions:

- Provide push-button control of foam proportioning rates from 0.1% to 1%, in 0.1% increments; 3% and 6%
- Show current flow-per-minute of water
- Show total volume of water discharged during and after foam operations are completed
- Show total amount of foam concentrate used
- Show which foam supply tank is in use
- Perform setup and calibrate functions for the microcontroller
- Flash a "low concentrate" warning when the foam concentrate tank(s) run(s) low
- Flash an "error" warning with associated code in the event of an electronic malfunction
- Provide a manual back-up mode, controlled by the operator

12 or 24-Volt Electric Motor

A 12 or 24-volt electric motor driven Hydra-Cell positive displacement foam concentrate pump, rated at 3 GPM @ 150 psi (11.3 l/min @ 10 bar) or 6 GPM @ 150 psi (22.6 l/min @ 10 bar) and with operating pressures up to 450 psi (32 bar).

