

Class 1

Foam Proportioners & Compressed Air Foam Systems



Why should you be using a Foam Proportioning System?

Class A Fires

Water extinguishes ordinary combustible fuels, but when that water is mixed with a Class A foam it does it more effectively and faster. The finished foam wets and penetrates combustible fuels allowing the fire to be extinguished up to 3 times faster than plain water.

Class B Fires

Water is generally ineffective when the fuel source is a flammable or combustible liquid. The water sinks below the fuel source and allows the fire to continue to burn. A foam proportioning system that is capable of delivering alcohol-resistant (Class B) foams permits the finished foam to cover the fuel source's surface and starve it of oxygen.

Foam concentrate enhances the fire extinguishing properties of water.

- **Saturates** the fuel source
- **Decreases** the fuel's exposure to oxygen
- **Creates** a barrier between the fuel and fire

But water is free!

Wrong. Your department may not be charged for water usage, but using water does have a cost. Studies have shown that up to 80% of plain water used on fires fails to penetrate the fuel and is wasted. Fighting fires with plain water means your apparatus has to stay on scene up to five times longer, your fire fighters are exposed to **more** risk, the structure suffers **more** water damage, and **more** contaminated water is introduced to the environment.

But foam concentrate is expensive!

Expensive is a relative term, but there is indeed a cost associated with foam. However, it has been established that finished foam is approximately 300% more effective than plain water while only using less than 6% foam concentrate. This equals less time on scene - and saved time is money saved.

You should be using SmartFOAM!

SmartFOAM is a direct injection foam proportioning system that has been engineered to work **smarter** for you. SmartFOAM's six configurable presets eliminate the need to remember the proper foam injection rate for a specific fire ground scenario. Simply press the preset button with the text indicating your desired scenario. Each preset is fully configurable at the department level so it can be customized for your standard operating procedures.

SmartFOAM takes the guesswork out of setup and allows you to focus on fighting fire.

- Intuitive interface
- Advanced safety interlocks
- Best in class color display

SmartFOAM safeguards itself so that it is ready when you are.

- Prevents mixing of A and B foam types
- On screen maintenance minders
- Full system data logging

SmartFOAM is the most flexible foam system in the fire service.

- Six customizable presets
- Selectable user interface
- Full range of foam pump options – from 1.7 GPM to 13 GPM
- Capable of controlling two foam pumps

SmartFOAM

Easiest to use and most flexible foam proportioning system in the fire industry

SmartFOAM is a true high performance discharge-side foam proportioning system in a cost effective and compact package. SmartFOAM's full function digital control and Class1 water flow sensor provides computer controlled accurate foam proportioning in percentages from 0.1% to 9.9%. The operator presses one button for precise foam delivery every time.

- **Simple push button operation**
SmartFOAM's six configurable presets mean that perfect foam delivery is simply a single touch away.
- **Full range of pump options**
Select any of our standard foam pumps from 1.7 GPM to 6.5 GPM. Pair any two pumps together to create a multi-point injection system or increase the rate to 13 GPM.
- **Easy calibration**
On-screen tutorials walk you through the water flow and foam flow calibrations.
- **Enhanced protection and warnings**
SmartFOAM protects and warns against empty/low foam conditions and prevents mixing of A and B foam types. All warnings and information are in plain text so you don't have to decipher a cryptic code when your tension is already high enough.
- **Superior fault tolerance**
The SmartFOAM system operates in a highly accurate closed-loop mode. If the foam flow sensor malfunctions, the SmartFOAM system will continue to operate in an open-loop mode. Comprehensive operating tables are used in open-loop mode to calculate foam flow rates to keep the system functional.
- **Automatic flow based proportioning**
The SmartFOAM system measures water and foam concentrate flow and automatically self-adjusts to deliver a consistent foam concentrate injection rate. Operation is unaffected by various GPM nozzles, hose lengths, intake or discharge pressures.
- **Fully compatible**
The SmartFOAM system is recommended for use with standard and aspirating nozzles.
- **Discharge side injection**
Single or dual waterway check valve assembly options that virtually eliminate foam contamination of the fire pump and water tank.



Class A only pumps (1.7 GPM and 2.1 GPM)

The heart of the SmartFOAM 1.7 GPM and 2.1 GPM systems is an electric motor driven rotary dual piston, plunger pump. The pump is constructed of anodized aluminum and stainless steel and is compatible with most Class “A” foam concentrates. The pump is close coupled to the electric motor thereby eliminating maintenance of an oil filled gearbox. A relief valve mounted on the foam pump and constructed of brass, protects the foam pump and foam concentrate discharge hoses from over pressurization and damage.



Class A and B pumps (3.3 GPM, 5.0 GPM, and 6.5 GPM)

The heart of the SmartFOAM 3.3 GPM, 5.0 GPM, and 6.5 GPM systems is an electric motor driven rotary gear pump. The pump is constructed of bronze and stainless steel and is compatible with almost all foam concentrates. The pump is close coupled to the electric motor thereby eliminating maintenance of an oil-filled gearbox. A relief valve mounted on the foam pump and constructed of stainless steel, protects the foam pump and foam concentrate discharge hoses from over pressurization and damage.



MAXIMUM FOAM SOLUTION FLOW

Injection Rate Percentage %	Flow rate in GPM					
	1.7AHP	2.1A	3.3	5.0	6.5	Dual 6.5
0.1	1,700	2,100	3,300	5,000	6,500	13,000
0.2	850	1,050	1,650	2,500	3,250	6,500
0.3	567	700	1,100	1,667	2,167	4,333
0.5	340	420	660	1,000	1,300	2,600
1.0	170	210	330	500	650	1,300
3.0	---	---	110	167	217	433
6.0	---	---	55	83	108	217

Foam System Specifications:

Foam pump options	2.1 GPM piston pump, dual plunger / 3.3 GPM, 5.0 GPM, 6.5 GPM rotary gear positive displacement
Maximum operating pressure	400 PSI (3.3 GPM), 250 PSI (2.1, 5.0 GPM), 200 PSI (6.5 GPM)
Maximum current draw (12V)	40 Amps (2.1), 60 Amps (3.3 GPM, 5.0 GPM), 90 Amps (6.5 GPM)
Maximum current draw (24V)	20 Amps (2.1), 30 Amps (3.3 GPM, 5.0 GPM), 45 Amps (6.5 GPM)
Operating current draw (12V)	25 Amps (2.1), 30 Amps (3.3 GPM, 5.0 GPM), 40 Amps (6.5 GPM)
Operating current draw (24V)	13 Amps (2.1), 15 Amps (3.3 GPM, 5.0 GPM), 20 Amps (6.5 GPM)

Why should you be using CAFS?

A Compressed Air Foam System simultaneously attacks all sides of the fire triangle.

- **Penetrates** and soaks the fuel
- **Decreases** the fuel's exposure to oxygen
- **Adheres** to surfaces to reduce heat

Attacking a fire using CAFS reduces the amount of time to knockdown a fire by as much as 5 times over plain water. This equates to **less** fire fighter exposure, **less** water usage, **less** harmful runoff, and **less** required overhaul.

What is your primary asset?

It's your fire fighters. CAFS helps keep them safer in the hostile environment of a fire scene and **reduces** attack times, **reduces** flashover, **reduces** hose line weight, and **reduces** exposure and fatigue. Protect your biggest asset with CAFS.

You should be using SmartCAFS!

SmartCAFS is a Compressed Air Foam System that works **smarter** for you. Using a Compressed Air Foam System has traditionally been a complex and daunting task with many sequentially specialized steps. Successfully balancing the water pump, foam system, and air system so they work effectively together can be downright frustrating.

The days of intimidating CAFS are over. SmartCAFS executes all of these functions for your operator and completely simplifies the CAFS procedure. The fully programmable presets allow your department to set CAFS configurations for numerous fire scenarios making it easier than ever to operate a Compressed Air Foam System.

SmartCAFS takes the guesswork out of setup and allows you to focus on fighting fire.

- Intuitive interface
- Advanced safety interlocks
- Communicates with Class1 Sentry Governor
- Best in class color display

SmartCAFS safeguards itself so that it is ready when you are.

- Prevents mixing of A and B foam types
- On screen maintenance minders
- Full system data logging

SmartCAFS is the most flexible CAF System in the fire service.

- Ten customizable presets
- Full range of CAFS from wet (1:3) to dry (1:20)



SmartCAFS 210 SCFM Midship System

SmartCAFS takes pump operator guesswork out of delivering compressed air foam. Engage the pump, press one of the configurable SmartCAFS presets, and open the discharge to immediately start making compressed air foam. Make consistency changes with the push of a preset. Operation is virtually as simple as operating a standard “plain water” pumper.

- **High Volume**
210 SCFM twin-screw rotary air compressor provides extreme knockdown power.
- **Large range of Hale pump options**
Select one of our bullet-proof pumps: Qmax, Qmax-XS, Qtwo or DSD.
- **Fully integrated**
The system is joined to the Hale pump and fully tested to ensure quality and provide trouble-free operation.
- **All stainless steel foam manifolds**
750 and 1000 GPM manifolds with up to five CAFS discharge lines. Plus, stainless steel valves provide years of low maintenance.
- **Easy access to maintenance items**
Standard oil and air filters make service easy.
- **Easy operation**
Changes to CAFS consistency are as easy as the push of a button.
- **Optional AutoFill booster tank fill system**
Makes pump operation easy by keeping the booster tank full when supplied by a pressurized water source.

Typical SmartCAFS Firefighting Applications

- Municipal engine with single or dual foam concentrate reservoir requirements.
- Wildland engine with class “A” foam concentrate requirement.



Midship CAFS Specifications

Air System Specifications:

Maximum operating pressure	150 PSI
Minimum operating pressure	75 PSI
Nominal air flow at maximum pressure	210 SCFM
Air ratio range	1:3 (wet) to 1:20 (dry)

Foam System Specifications:

Foam pump options	3.3 GPM, 5.0 GPM, 6.5 GPM rotary gear positive displacement
Maximum operating pressure	400 PSI (3.3 GPM), 250 PSI (5.0 GPM), 200 PSI (6.5 GPM)
Maximum current draw (12V)	60 Amps (3.3 GPM, 5.0 GPM), 90 Amps (6.5 GPM)
Maximum current draw (24V)	30 Amps (3.3 GPM, 5.0 GPM), 45 Amps (6.5 GPM)
Operating current draw (12V)	30 Amps (3.3 GPM, 5.0 GPM), 40 Amps (6.5 GPM)
Operating current draw (24V)	15 Amps (3.3 GPM, 5.0 GPM), 20 Amps (6.5 GPM)

Water System Specifications:

Water pump options	Qmax, Qmax-XS, Qtwo, DSD
Water flow rate (Qmax, Qmax-XS)	1000, 1250, 1500, 1750, 2000, or 2250 GPM
Water flow rate (Qtwo)	1000, 1250, 1500, 1750, or 2000 GPM
Water flow rate (DSD)	750, 1000, 1250, or 1500 GPM
Maximum operating pressure	250 PSI (Qmax, Qmax-XS, DSD), 500 PSI (Qtwo)
Nominal operating pressure	150 PSI

SmartCAFS on Q-Series Pump



SmartCAFS Prima Rear Mount System

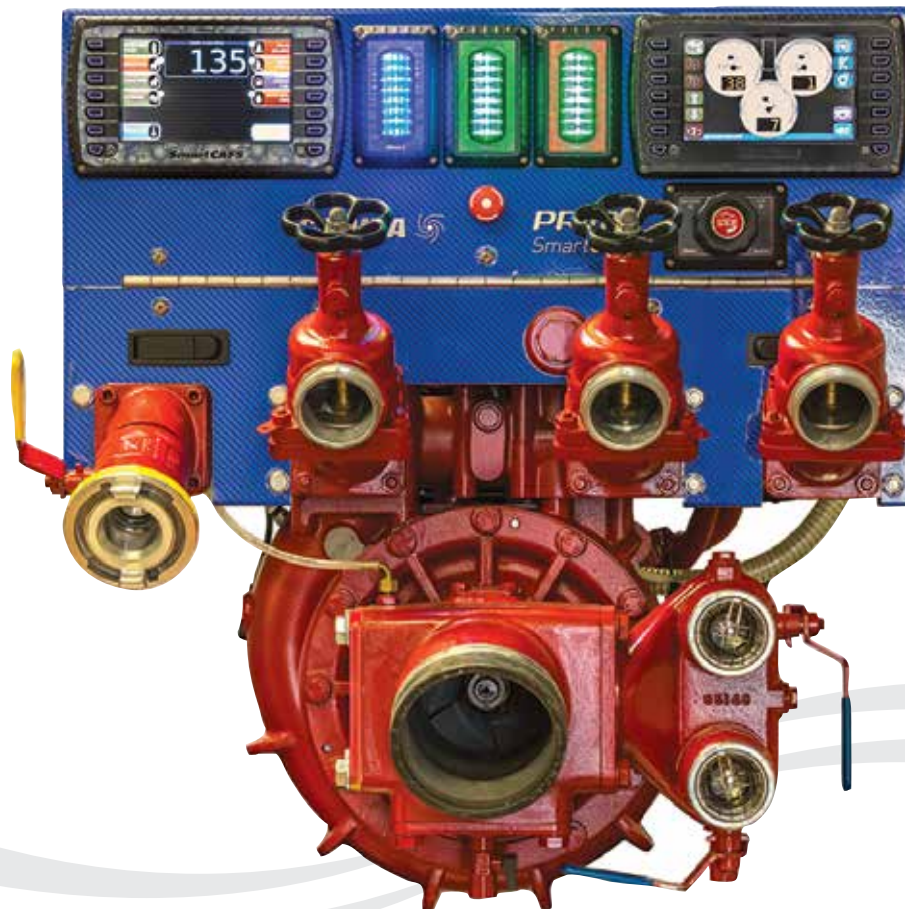
Take advantage of rear mount flexibility

The Prima SmartCAFS is a compact package designed for rear mount pump apparatus. The rear mount option provides unmatched pump operator situational awareness and allows full view of both sides of the vehicle.

- **Large range of pump options**
Select one of our PTO driven Godiva rear mount pumps: Prima 2010, 3010, 4010, or 6010.
- **Choice of air flow volumes**
50, 100, or 200 SCFM twin-screw rotary air compressors provides knockdown power to match the pump.
- **Fully integrated**
The system is joined to the Godiva pump and fully tested to ensure quality and provide trouble-free operation.
- **Compact arrangement**
Offers more transverse apparatus storage.
- **Easy Operation**
Changes to CAFS consistency are as easy as the push of a button.

Typical SmartCAFS Firefighting Applications

- Municipal engine with single or dual foam concentrate reservoir requirements.
- Wildland engine with class “A” foam concentrate requirement.



Prima Rear Mount CAFS Specifications

Air System Specifications:

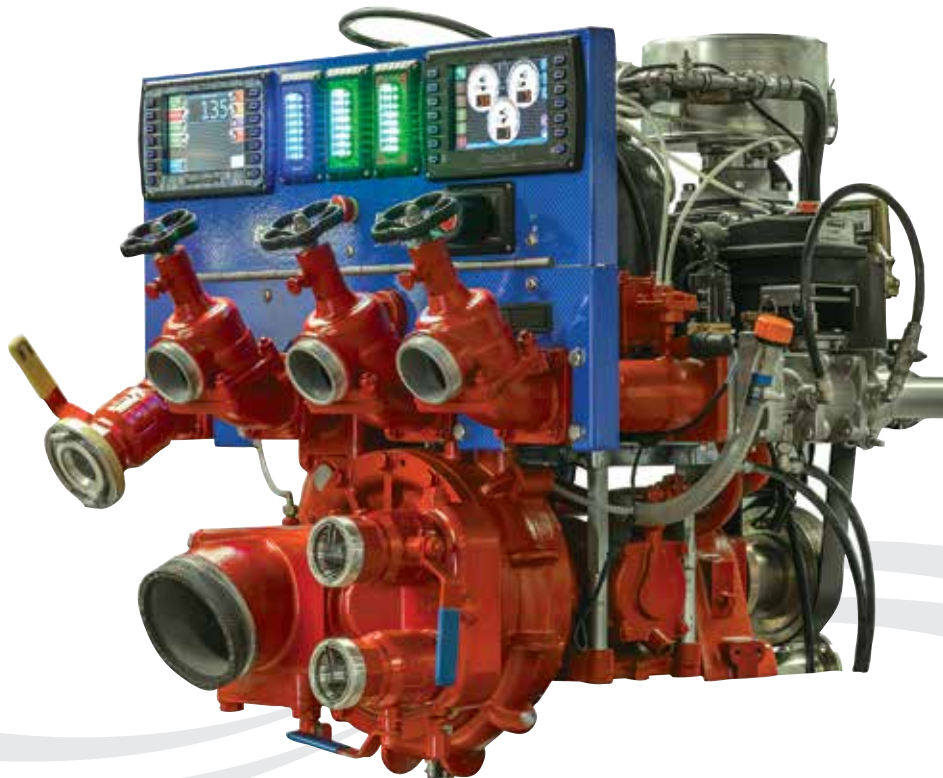
Maximum operating pressure	145 PSI
Minimum operating pressure	58 PSI
Nominal air flow at maximum pressure	50 SCFM, 100 SCFM, or 200 SCFM
Air ratio range	1:3 (wet) to 1:20 (dry)

Foam System Specifications:

Foam pump options	2.1 GPM piston pump, dual plunger 3.3 GPM, 5.0 GPM, 6.5 GPM rotary gear positive displacement
Maximum operating pressure	400 PSI (3.3 GPM), 250 PSI (2.1, 5.0 GPM), 200 PSI (6.5 GPM)
Maximum current draw (12V)	40 Amps (2.1), 60 Amps (3.3 GPM, 5.0 GPM), 90 Amps (6.5 GPM)
Maximum current draw (24V)	20 Amps (2.1), 30 Amps (3.3 GPM, 5.0 GPM), 45 Amps (6.5 GPM)
Operating current draw (12V)	25 Amps (2.1), 30 Amps (3.3 GPM, 5.0 GPM), 40 Amps (6.5 GPM)
Operating current draw (24V)	13 Amps (2.1), 15 Amps (3.3 GPM, 5.0 GPM), 20 Amps (6.5 GPM)

Water Pump Specifications:

Water pump options	Prima 2010, 3010, 4010, 6010 (single stage P1 or dual stage P2)
Water flow rate (2010) @ 10' lift	897 GPM (P1), 203 GPM (P2)
Water flow rate (3010) @ 10' lift	1109 GPM (P1), 203 GPM (P2)
Water flow rate (4010) @ 10' lift	1638 GPM (P1), 203 GPM (P2)
Water flow rate (6010) @ 10' lift	2200 GPM (P1), 203 GPM (P2)
Maximum operating pressure	247 (P1), 790 (P2)



SmartFoam/CAFS Accessories

EZ-Fill Foam Reservoir Refill System

EZ-Fill is an easy-to-operate fixed-mount 12 or 24 volt drive 5 GPM foam tank refill pump system. EZ-Fill features push-button smart-switch technology. Just press the “Fill” or “Flush” button and the unit will operate either filling the foam concentrate reservoir or running through a flush cycle. The unit is self-priming and will automatically shut off after 60 seconds or when the foam concentrate reservoir is full. The system can be ordered for either a single-tank or dual-tank foam concentrate reservoir system.

- **Electronic three-way valve** switches the system from “Fill” to the “Flush” function and back again.
- **Configured wiring harness** for easy installation.
- **Configurations include** dual foam concentrate reservoir refill for Class “A” and “B” foams.
- **Cam-lock quick connect suction hose** designed for 5 gallon pail drafting operations. Suction hose is equipped with integral strainer to prevent intake of unwanted debris.
- **Class1 Smart-Switch panel control** takes up less valuable pump panel real estate compared to other brands.
- **Push button control** Smart-Switch automatically stops foam pump after 60 seconds or when the foam reservoir is full.



Air Dual Tank Selector (ADT)

The Air Dual Tank (ADT) valve is an air operated foam tank selector valve that enables selection of foam concentrate dependent on fireground operational demands.

- The ADT is an integral part of the foam pump and provides an electrical interlock for the low tank level sensors and concentrate injection rate.
- A panel mounted selector toggle switch with indicator lights controls foam concentrate tank selection and shows which foam concentrate tank is in use.



Manual Dual Tank Selector (MDTII)

The Manual Dual Tank (MDT II) selector valve is available for the SmartCAFS and SmartFOAM systems with dual tanks. The MDT II is a panel mounted, manually operated selector that provides selection of foam concentrate dependent on fire ground operational demands. The MDT II also provides an electrical interlock for the low tank level sensors and concentrate injection rate. The MDT II is not suitable for top mount operator panel installations and some side operator panels due to gravity feed requirements of foam concentrate to the foam pump.

Manual Single Tank Selector (MST)

Single tank SmartCAFS and SmartFOAM systems can be configured with a Manual Single Tank (MST) selector, which provides a flush function connection to the foam system electronic controls.



SmartFoam/CAFS Accessories (cont.)

Fill Thief

The Fill Thief bolts on the inlet of the Hale Master Intake Valve (MIV) and makes midship pump water supply management easy. The Fill Thief is an accessory built specifically for users purchasing a midship pump and Compressed Air Foam System combination. When large diameter hose (LDH) is connected to the Fill Thief inlet and the MIV is in the “closed” position, the incoming water is directed to a direct booster tank fill valve. This direct booster tank fill can either be a “manual” valve arrangement or a Hale “Auto Fill” automatic direct booster tank fill valve assembly.

- Eliminates the need to have two supply lines connected to the apparatus (one LDH hose line to fill the fire pump inlet, and one 2-1/2 inch hose to the direct booster tank fill valve inlet).
- Requires the Hale Master Intake Valve (MIV) for installation and operation.

Note: The Fill Thief fitting extends beyond standard pump house enclosures. On typical installations, the pump panel enclosure is notched and the Fill Thief fitting is exposed.



AutoFill – Automatic direct booster tank fill system

AutoFill is an easy-to-operate system designed to automatically keep the water booster tank set to the desired level. It is a highly recommended option when purchasing a SmartCAFS midship or rear mount Compressed Air Foam System. The AutoFill system is integrated into the SmartCAFS display and works in conjunction with the water Intelli-Tank Level (ITL) display. The AutoFill direct fill system automatically maintains the desired booster tank’s water level when provided with an appropriate water supply line from a hydrant, tank, or pumper. The automatic operation of the AutoFill system reduces the level of attention needed by the pump operator.

- **Electrically operated inlet valve** 2-1/2 inch or 3 inch valve options.
- **Two operation modes** Automatic and manual.
- **Inlet pressure relief valve** Automatically opens when inlet pressure surpasses the safety level to allow excess pressure to be bled off.
- **Positive inlet pressure detection**
Safeguards against the AutoFill valve opening and allowing the booster tank to drain while a water supply is not connected.



Low Pressure Strainer

A low pressure foam concentrate strainer is mounted at the inlet of the foam pump. The strainer protects the pump from debris that might accumulate in the foam concentrate tank.

- Composite non-metallic housing with stainless steel mesh strainer element and includes a service shut-off valve.
- Offers 1/2" NPT (13 mm) threads, with a fitting to connect a 1/2" (13 mm) ID foam concentrate suction hose.
- Low pressure devices are designed for installations where the strainer IS NOT subject to HIGH pressure flushing water.

High Pressure Strainer (FS Series)

Hale FS series strainers (FS15 and FS25) are panel mounted with a 500 PSIG (34 BAR) pressure rating suitable for use where flushing water pressure must pass through the strainer.

- The FS15 strainer uses 3/4" (19mm) NPT connection ports and a 1-1/2" NST cap. It is suitable for use with Class "A" and low viscosity Class "B" foam concentrates
- The FS25 strainer uses 1" (25mm) NPT connection ports and a 2-1/2" NST cap. It is suitable for use with both Class "A" and Class "B" foam concentrates



