COMPRESSED AIR FOAM SYSTEM (CAFS)

FIXED TYPE

DESCRIPTION

The NAFFCO CAFS 400 Gallons/500 Gallons Compressed Air Foam Fire Suppression System uses compressed air to propel firefighting foam. Thousands of tight radius bubbles quickly cool and smother a fire by providing a thick Vapor-sealing blanket of foam that virtually eliminates re-ignition. The foam will adhere to horizontal and vertical surfaces. This system allows the operator to seal a fuel spill and flammable Vapors with foam thus reducing or eliminating a potential fire. The system will discharge the foam approximately 25-30 meters in a no wind condition allowing fire-fighting personnel without protective clothing to avoid thermal injuries. Trained personnel can accomplish all maintenance except hydrostatic pressure testing of the Air Cylinders, Premix Tank, and the Discharge Hose.

SYSTEM COMPONENTS

- **PRESSURE GAUGE** for air cylinder indicates the pressure in the high cylinder when the cylinder valve is opened prior to operation of the unit.
- **PRESSURE GAUGE** for foam tank indicates the pressure inside the foam tank.
- **SELECTOR KNOB** is used to select the foam discharge mode of two options namely, Dry Foam & Wet Foam
- **AIR CYLINDERS** are high pressure air cylinders tested at 250 bar. The System has 6 Air Cylinders.
- **AIR CYLINDER VALVE** is used to adjust the air flow from the Air Cylinder for the unit. It has a special adapter to make it convenient for easy dismantling and refilling of the cylinder with compressed air.
- **FOAM DISCHARGE GUN** is 1" * 1½" suitable for wet or dry foam flow.
- **PRESSURE RELEASE CONTROLLER** is located on the control panel, used to depressurize the premix tank after use of the unit.
- **DISCHARGE CONTROLLER** is opened by operating lever in the control panel for flow of the foam towards the discharge gun.
- **FOAM DISCHARGE HOSE** is 1" & 1½" x 30 m lay flat fire hose with storz coupling
- **LEVEL INDICATOR** is located in the control panel for low or high level indication of foam solution in the tank.

TRANSPORTING

The NAFFCO CAFS 400 Gallons/500 Gallons should be thoroughly secured when transporting in trailers and vehicle. The lifting eye was fixed on the top of the skid exclusively to handle and external lift operations. Other sections of the system should not be used for these purposes.

TECHNICAL DATA

Extinguishing Agent	CAFS Special Foam	CAFS Special Foam
Capacity (gallon)	400 gallons	500 Gallons
Foam Selection	Dry/Wet	Dry/Wet
Working Pressure for foam Cylinder	8/10 bar	8/10 bar
Cylinder Material	Stainless Steel, Grade 316 L	Stainless Steel, Grade 316 L
Test Pressure	30 bars	30 bars
Filling Pressure of Air Cylinder	150 bars	150 bars
Range Of Discharge	22-25 m	22-25 m
Discharge Duration	8 min.	10min.
Hose size & Length	1" or 1½" x 30 m	
Operating temperature limits	+5° C to +60° C	+5° C to +60° C

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The activation of the system is initiated by a decrease in pressure in the control pipe. This pressure decrease can be effected by an electro-pneumatic valve, controlled by a fire detection system, or by hand valve. The pressure loss in the control pipe is releasing the pneumatic opening valves on top of the compressed-air cylinders. The forced air for the system gets into the tank by separate pressure reducers.

As soon as the needed working pressure is reached in the system, the foam agent-water mixture flows through the discharge unit at the tank bottom into the patented mixing valve and will be mixed with compressed air from the air buffer in the tank above the fluid. Now the compressed air foam will be produced in this mixing valve.

The patented mixing valve is dimensioned according to the needed flow rate. The compressed air supply for the expulsion and foam producing does not have to be composed separately. That´s only possible with the patented mixing technology which separates the air volume flow automatically.

Further the finished compressed air foam gets by corresponding distribution pipes to the corresponding sprinkler or nozzles as well. The endangered surface can be protected from here by distributing the compressed air foam.

COMPONENTS

The main component of the system is a adequate extinguishing agent tank for water, made of stainless steel or a battery of composite tanks. The dimension of the tank volume will be effected with a calculation of the existing fire load density or surfaces or is specified by the expertise.

On special customer requirements there is an optional foam agent tank on top of the water tank to allow separate storage of foam agent and water. In case of release the foam agent will be mixed in the water tank.

The propellant for the system consists of compressed air and is stored in the corresponding compressed air cylinders, max. 200 bar. Also there are pneumatic controlled valves for controlling the system. The pneumatic valves are used and established in many different varieties in fire extinguishing systems.

The significant difference to fire extinguishing systems, in which only corresponding wetting or foam agents are dosed, is, that there is no ambient air needed at the nozzles for the foaming. The foam will be already produced in the mixing valve by insertion of air and cannot be affected by external influences, for example heated smoke.

According to the optimum efficiency of the patented mixing valve a working pressure of 6.5 bar is sufficient. The definite ruling for compressed air foam systems is the EN

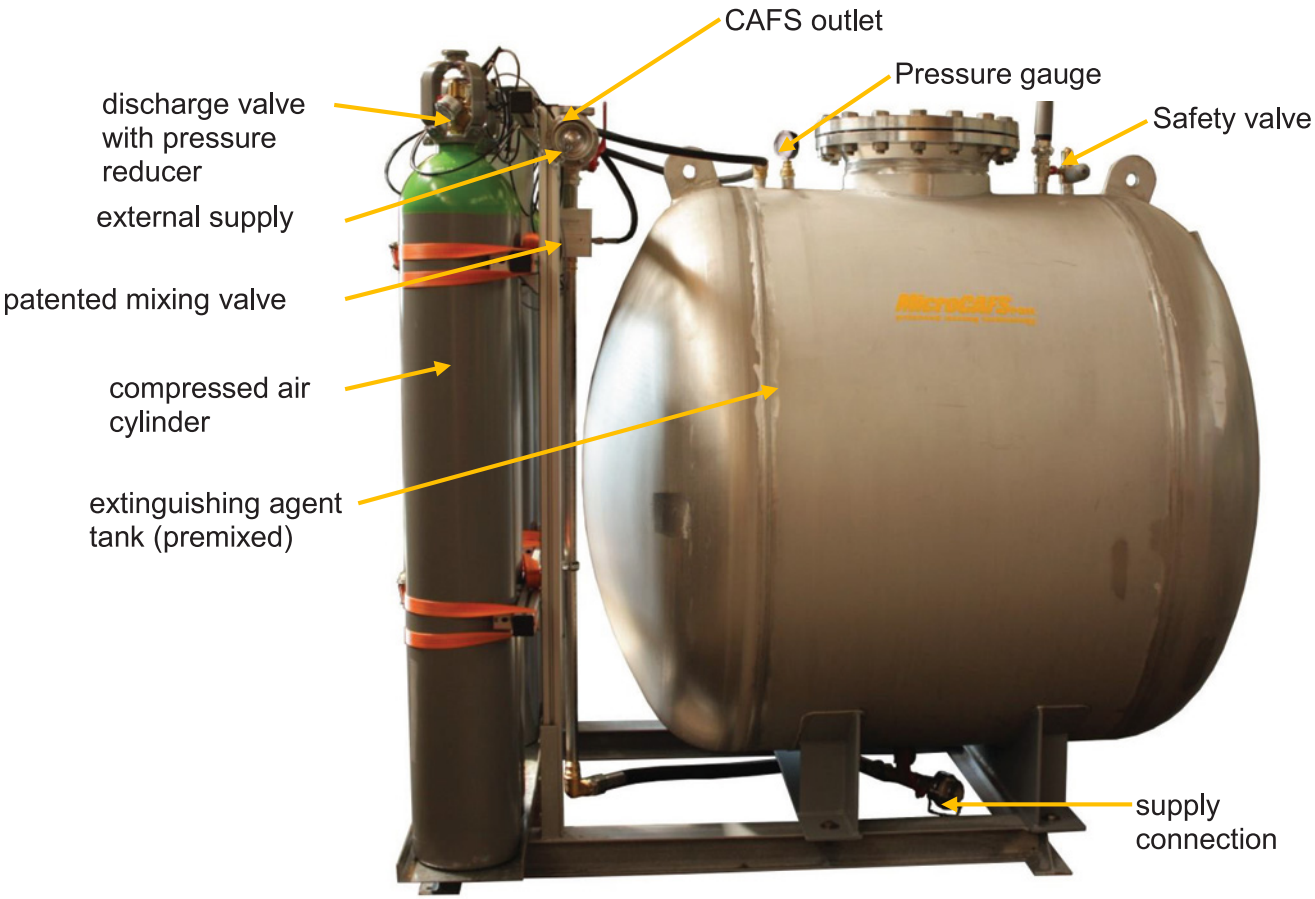
16327 (former DIN 14430). The safety requirement of this regulation for CAFS is a maximum working pressure of 10 bar, due to operators safety requirements.

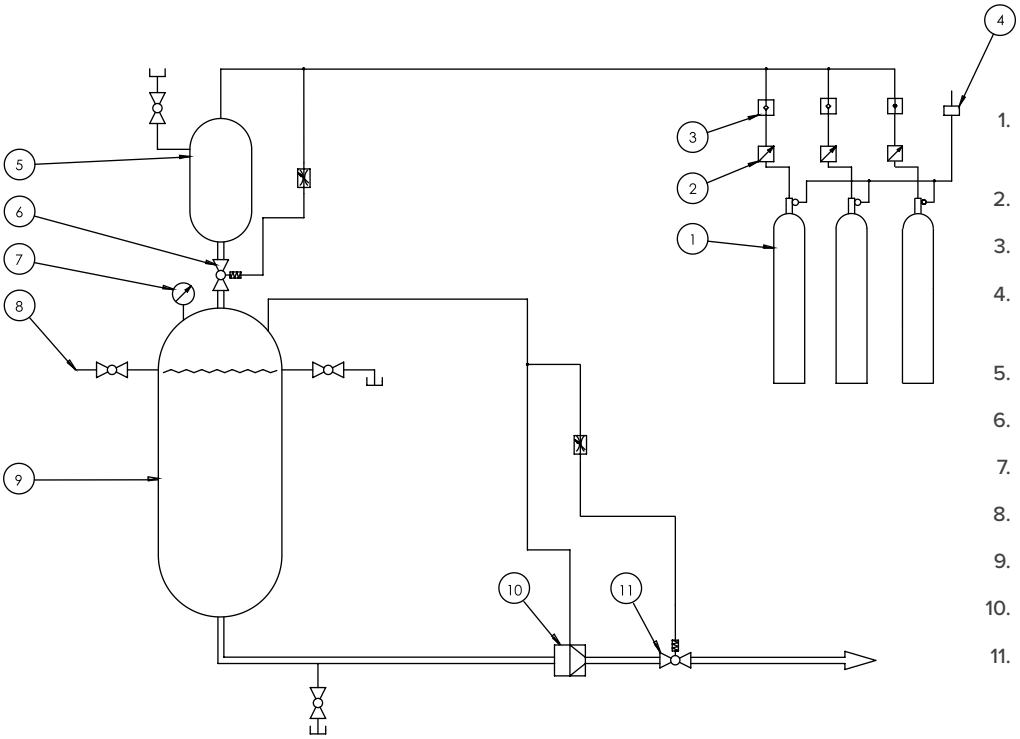
After specific agreements between the business partners and available risk estimation of the final customer, it is possible to agree a higher working pressure.

However we consider the compliance of the maximum pressure of 10 bar as absolutely necessary for the security of the operating personal, especially for systems where hand-held nozzles are in use.

TECHNICAL DATA

Extinguishing Agent Pressure Tank	10000 litres
Tank Material	Stainless Steel
Compressed Air Supply	Max. 200 bar; Compressed Air Cylinder
Operating Pressure	6.5 bar
Max. Working Pressure	10 bar
Flow Rate	400 LPM; for foam/water solution
Temperature Range	-30° C to +60° C
Operating Possibilities	• Automatically via Sensor Pipe • Mechanically via Hand Valve • Activation via Fire Detection System





1. Release Valve, Mounted In Head Of High Pressure Cylinder
2. Pressure Reducer
3. One Way Valve
4. Release Valve-Electric Or/And Manual
5. Foam Agent Storage Tank
6. Opening Valve
7. Pressure Gauge
8. Water Filling Ball Valve
9. Water /Premixed Tank
10. CAFS Mix Valve
11. Open/Close Valve-Pneumatic or Optional Electric