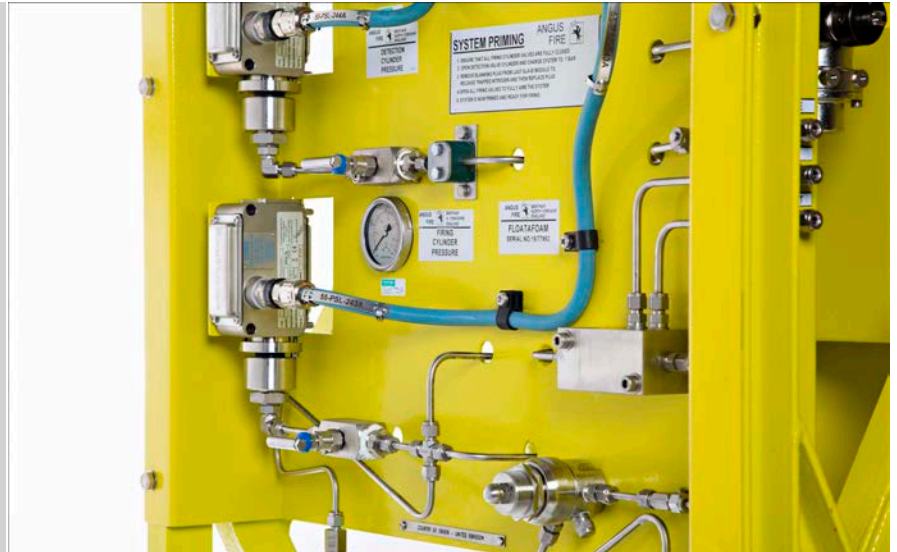


Floatafoam

- Designed to detect and extinguish floating roof tank rimseal fires in their infancy
- Highly versatile
- Self-contained or integrated systems available
- Quick and easy installation with a minimal maintenance



The Angus Floatafoam System comprises a number of fully automatic foam delivery modules designed to detect and extinguish floating roof tank rimseal fires in their infancy.

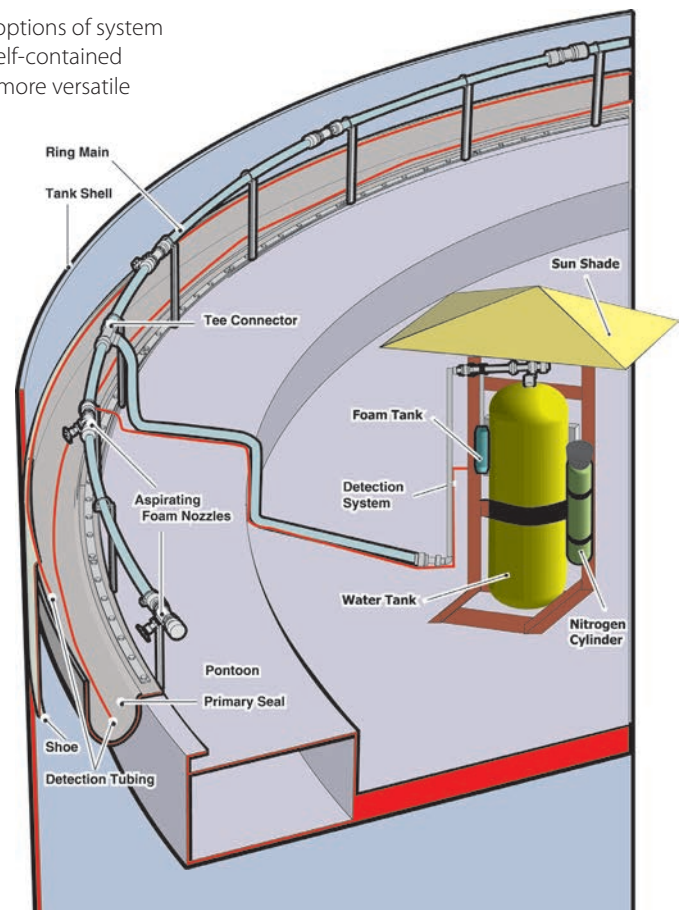
A number of Floatafoam modules together comprise a full system to protect the whole circumferential rimseal of a floating roof tank. Each module protects 40 metres of tank perimeter and consists of two vessels, one containing 135 litres of water, and the second FFFP foam concentrate.

A special inductor combines the two in the correct proportion and feeds foam solution to 16 equally spaced aspirating foam nozzles. The foam system is charged with nitrogen and on discharge applies foam for 30 to 40 seconds at a high application rate into the rimseal area.

Primarily designed to replace halon systems which are now considered environmentally unacceptable, the Angus Floatafoam is equally suited to new tanks being built and tanks which currently have no such protection. Floatafoam is a versatile system which can be tailored to suit your preferred operating philosophy and specification requirements.

Detection is normally by means of a looped line of thermoplastic tubing permanently charged with Nitrogen and positioned to detect fires in the seal area and shoe gap (a double loop may be required depending on seal arrangement). When fire ruptures the detection tubing, the pressure drop triggers the foam discharge and rapid extinguishment results. Electrical linear heat detection is available as an alternative option.

There are two basic options of system activation, either a Self-contained System, or a slightly more versatile Integrated System.



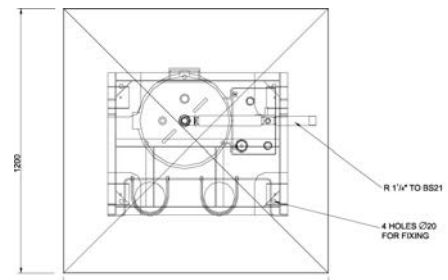
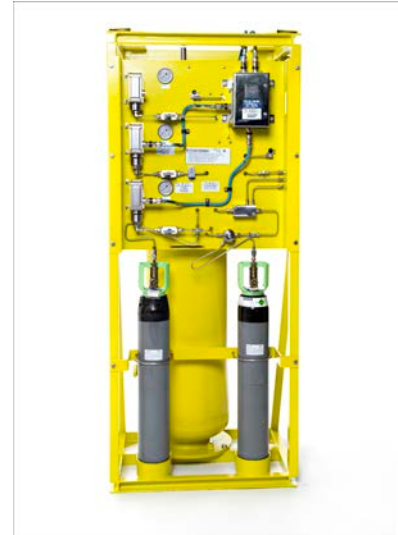
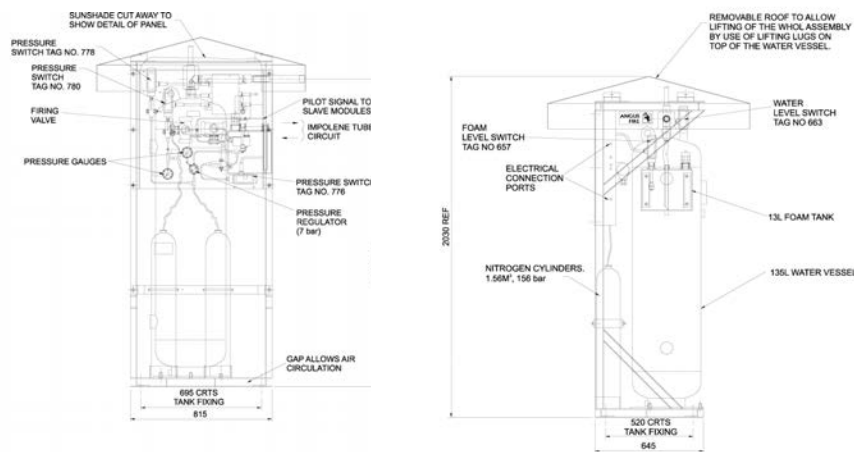


Floatafoam

SELF-CONTAINED SYSTEM

Each module in this system is identical and self-contained to detect and extinguish a fire in the particular 40metre segment of seal area on the tank roof that it is set up to protect.

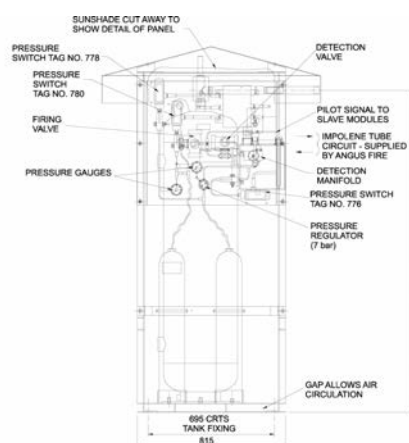
Detail of self-contained module



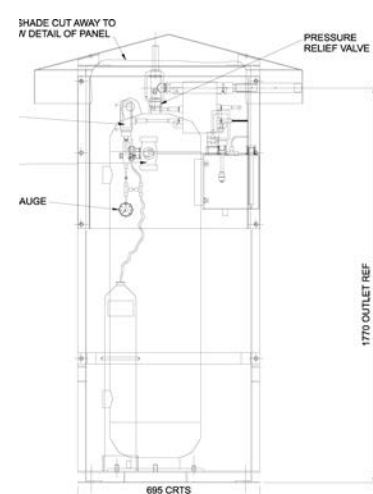
INTEGRATED SYSTEM

Although slightly more complicated, this integrated system option releases foam into the entire seal area once a fire has been detected for maximum protection against spreading or risk of re-ignition. The detecting is all controlled by a Master Detection Module which also protects its own 40m segment with aspirated foam. Once a fire is detected, this Master Detection Module then activates several Slave Firing Modules which each protect a 40metre segment of rimseal, so that the whole seal area is flooded with aspirated foam as soon as any fire is detected, anywhere in the tank's rimseal area. A single Master Detection Module will control and activate up to six Slave Firing Modules. This system can also be adapted to provide cost-effective individual segment detection and firing, so that only the segment detecting the fire activates (as per the self-contained principle).

Detail of master module



Detail of slave module



Floatafoam

Basic Floatafoam Specification

Within either the Self-contained or Integrated system (Master Detection Module), there is a basic unit specification which comprises:-

| Specification Data | |
|--------------------|--|
| ✓ | 135 litre mild steel water vessel, generally in accordance with BS5500:1991 Cat. 2, thermoplastic lined and coated (yellow), fitted with pressure delay valve. |
| ✓ | 13 litre mild steel vented foam concentrate container, thermoplastic lined and coated (yellow). |
| ✓ | N.B. Alcoseal/Petroseal FFFP foam at extra cost. |
| ✓ | Special 316 stainless steel foam micro-inductor with non-return valve fitted. |
| ✓ | Positioning and supports/straps for 2x Nitrogen cylinders detection and firing lines (each nominal 1.56cu.m. capacity 156 bar max. pressure with 5/8"outlet connection)*. N.B. Nitrogen cylinders normally supplied by others. |
| ✓ | Pressure regulator and 2x pressure gauges (detection and firing lines)* |
| ✓ | Detection valve with special UV stabilised impolene polyallomer detection tubing and in/outlet connection ports. ◆ N.B. 6mm OD tube connecting all Slave firing modules supplied by others. |
| ✓ | Firing valve in 316 stainless steel. |
| ✓ | 16x floatafoam nozzles in 316 stainless steel. (Distribution pipework extra) |
| ✓ | System emergency vent valve. |
| ✓ | All items mounted on welded steel channel section skid frame with removeable roof/sunshade, all finished in thermoplastic coating (yellow). |
| ✓ | Pair lifting lugs on water vessel (under sunshade) for lifting whole skid assembly into position. |

| Typical Performance | |
|---|--|
| Floatafoam Module segment length | 40metres |
| Quantity aspirating foam nozzles per Module | 16 |
| Nozzle spacing | 2.5metres |
| Floatafoam pressure vessel size | 185 litres containing 135 litres water |
| Foam concentrate vessel size | 15 litres containing 13 litres 6% foam (FFFP) |
| Foam discharge time | 30-40 secs (nominal) |
| Individual nozzle flow rate | 15 litre/min (nominal) |
| Foam application rate | 18 litre/min/m2 nominal (300mm flexible seal area) |
| Nozzle height above floating roof (typical) | ~ 0.5m to centre line stainless steel pipe |
| Nozzles distance from tank shell (typical) | ~ 0.25m to centre line stainless steel pipe |
| Approx. assembled Module weight (typical) | 500kg (wet - filled with water and foam) |

* Slave Firing Module of the Integrated system has no detection element so only a single pressure gauge and single Nitrogen cylinder are required/provided.

◆ Slave Firing Module of the Integrated system does not require these component assemblies.

● Required for integrated system only.

❖ Intrinsically Safe (is) electrical systems with volt free contacts.

Floatafoam

Optional extras to meet your specific needs

Angus engineers can provide a high degree of flexibility to custom engineer the Floatafoam system to meet your specific requirements. There are a number of extra module options suitable for specifying on either Self-Contained or Integrated systems, customising the Floatafoam system to meet your specific needs.

Optional extras to meet your specific needs are available at extra cost and include:

- Water pressure vessel manufactured in 316 stainless steel.
- Foam container manufactured in 316 stainless steel.
- Skid frame fabricated in 316 stainless steel.
- All interconnecting pipework and fittings 316 stainless steel.
- Nitrogen cylinder(s) to BS5045 Part 1 supplied.*
- Pressure switch low on detection nitrogen line (senses fire detected). ◆ ❖
- Pressure switch low on detection nitrogen cylinder (senses leak/fault). ◆ ❖
- Pressure switch low on firing nitrogen cylinder (firing line activated or leak/fault). ❖
- Low level alarm switch on water pressure vessel. ❖
- Low level alarm switch on foam concentrate container. ❖
- Distribution pipework in 1 1/4" nominal bore 316 stainless steel.
- Alternative electrical Linear Heat Detection System. ❖

- 316 Stainless steel marshalling junction box for all modules on tank. ● ❖
- 316 stainless steel junction box with volt-free electrical connection ports to clients own systems ❖ (connection by others).
- Supply of 6mm OD 316 stainless steel tubing to connect Slave Firing Modules to Master Detection Module. ●
- Full BS5500 certification package.
- Your other specific customised requirements.

Floatafoam proven by test

Extensive testwork at Angus has developed a unique Floatafoam aspirating nozzle used on all options of Floatafoam. This nozzle is designed to deliver a well formed free flowing low expansion foam blanket which successfully extinguishes the three most common rimseal fire types. These are:

1. A seal hole fire.
2. A hydrocarbon pool fire on the seal.
3. A fire in the shoe gap between seal and tank wall.

The rapid detection and extinction of all 3 fire scenarios above by the self-contained/Master Detection module of Floatafoam has been independently witness tested by Lloyds Register.

Aspirated Alcolseal/Petroseal FFFP foam offers significant benefits over detergent based non-aspirated spray systems in 6 key areas:

- Longer lasting foam blanket protects for longer against risk of re-ignition.
- Deeper foam blanket produced to help cover and extinguish seal material.
- Inherent heat resistance reduces risk of incandescent material causing re-ignition.
- Alcolseal/Petroseal FFFP are not prone to flashbacks like detergent AFFFs.
- If fire not quite fully extinguished, aspirated Alcolseal/Petroseal FFFP prevents escalation longer, buying you time to activate conventional Rimseal Pourer systems.
- Superior environmental performance avoiding emulsification with hydrocarbons.

The Angus Floatafoam has been designed for quick and easy installation with a minimal maintenance requirement.



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Angus Fire operates a continuous programme of product development. The right is therefore reserved to modify any specification without prior notice and Angus Fire should be contacted to ensure that the current issues of all technical data sheets are used.