



**ANGUS
FIRE**



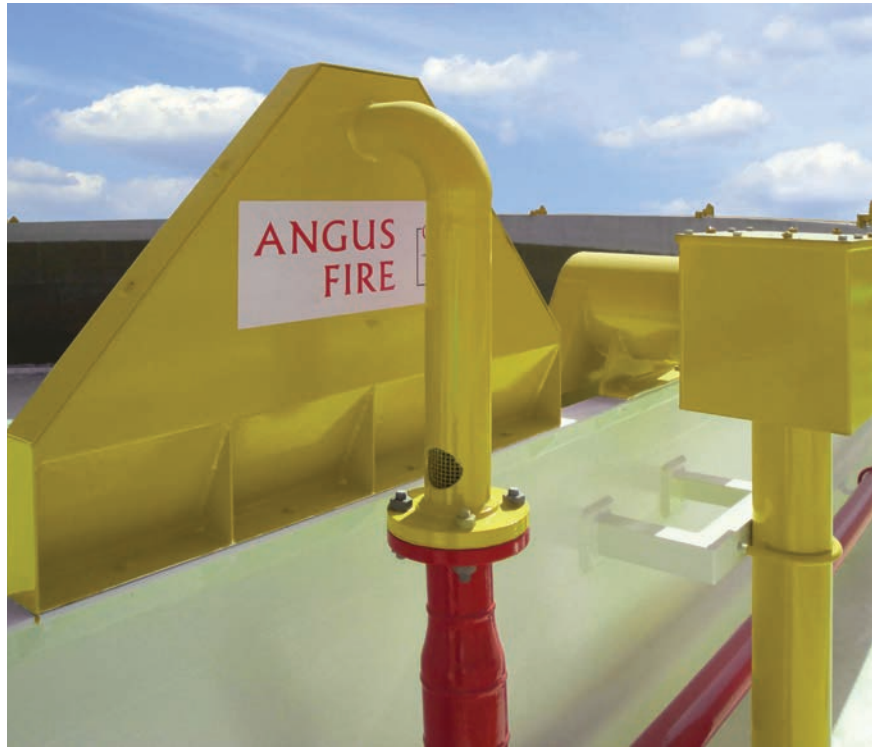
Fixed Foam Equipment

Fixed Foam Equipment

Angus Fire manufactures an extensive range of Fixed Foam Equipment for Tank Protection and other applications. When it comes to fire protection you can count on Angus Fire's long standing expertise in supplying reliable, superior quality products, which are durable and low maintenance.

The Fixed Foam Equipment range includes both foam delivery and proportioning devices. From a range of foam pourers to foam generators, bag tanks and inline inductors, Angus Fire offers you a great choice for your fire protection requirements.

For further information on tank fire protection please refer to the Angus Tank Protection Brochure.



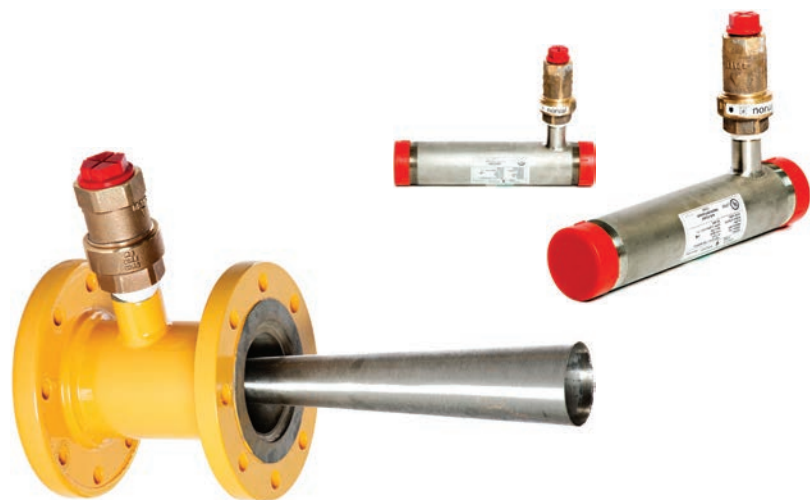
Foam Proportioning – essential for firefighting performance

Foam proportioning is the heart of a fire protection system. The selection of the correct proportioning system is of paramount importance to ensure foam is delivered at the required application rate to extinguish the fire. Not enough foam can lead to unsatisfactory performance, too much foam will waste resources and money. The foam solution demand can be constant or variable depending on the type of risk or the system design. Generally foam proportioning products include the following:

- Fixed In-line Inductors.
- Bag Tanks.
- Balanced Pressure Foam Proportioners.
- Balanced Valves.
- Helijector.

Fixed In-line Inductors

- Provide a simple and reliable method of proportioning foam concentrate in constant flow applications.
- Mostly used to supply foam solution to fixed installations such as tank and bund protection foam water nozzle systems.
- Deliver the required performance when calibrated to provide a specific flow that does not fluctuate.
- Suitable for use in extreme environments.



Foam Delivery

Top Pourer Sets – TPS MK4 /TPS MK5

Top Pourer Sets are used to protect storage tanks with fixed roofs. They are installed on the outside of the tank, with the nozzle penetrating through the tank wall to deliver foam above the high fuel level.

- Combine vapour sealing (to keep the tank contents from escaping) with foam generation via a uniquely engineered nozzle that pulls the finished foam back onto the internal tank wall in a butterfly pattern.
- Calibrated with the available pressure to match the specific flow demanded by the individual tank.
- Two types available, each in 4 sizes with flow rates from 75lpm up to 3,300lpm at operating pressures between 3 bar and 10bar.
- MK5 for tanks with internal pressure not exceeding 1.5psi.
- MK4 for tanks having nitrogen or other inert gas blankets.



Rimseal Pourers

Rimseal Pourers are installed on the edge of the tank wall to protect the rimseal area of floating roof tanks. The unique design of the Angus rimseal pourers produces well-formed free flowing foam.

- Low profile ensuring the foam flow is not affected by high wind.
- Foam always reaches the rimseal even if the roof is at its lowest level in the tank.
- Consists of two elements – the Rimseal Foam Generator (RFG) which produces expanded foam when supplied with foam solution, and the Rimseal Foam Pourer (RFP) which delivers the foam gently into the rimseal area.
- Flow rates from 54 litres/minute at 4 bar to 250 litres/minute at 10 bar g.
- Fixing kit to allow Angus Rimseal Pourers to be retrofitted to tanks without the need for hot work.
- One piece unit (combining the RFG and RFP) is available with a flanged inlet.



Full Surface Top Pourers (FSTP)

Used with floating roof tanks of a diameter greater than 60m, where the fire fighting system must be designed for the worst case scenario of a full surface fire. The Full Surface Pourer will deliver the higher flow rates required to extinguish a fire that has spread from the rimseal to the full surface of the roof. Compared with Rimseal Pourers the Full Surface Pourer will deliver up to 4 times as much foam.

- Specially designed outlet delivers foam on to the tank wall so that it 'flows' on to the burning fuel providing gentle foam application.
- 4 sizes with flows from 75lpm up to 3,300lpm at operating pressures between 3 bar and 10 bar.
- Live fire tested.

Full Surface Nozzle

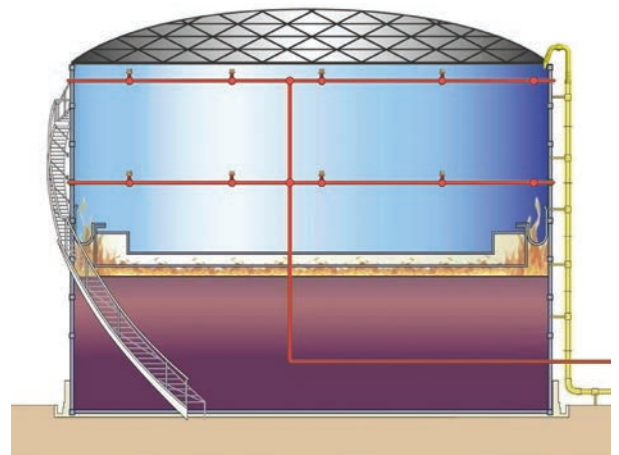
Used in conjunction with the FSTP on large diameter floating roof tanks. Good fire system design estimates that foam will typically flow a maximum of 30m, leaving a doughnut ring in the centre of a large diameter tank that cannot be reached with conventional pourers.

- Features a long throw – up to 50 metres, which will deliver finished foam to the "dead spot" in the centre of the tank.
- The combination of a Full Surface Pourer and Full Surface Nozzle will give complete coverage of the roof area in the event of a major incident or collapse of the floating roof.

Geodesic Foam Pourers

Installed through the geodesic dome roof on floating roof tanks. The unit is a slim profile, low expansion pourer that uses self-supporting pipework without being attached to either the roof or the tank wall.

- Comprises of a RFG (foam generator) and Low level foam pourer (LLP) as standard, with the interconnecting pipe work designed as a bespoke fitting for each tank.
- Produces well-formed free flowing foam that always reaches the rimseal even if the roof is at its lowest level in the tank.
- Operating pressure between 3 and 10 bar.
- Flows from 75lpm through to 250lpm.



High Back Pressure Foam Generators



Used in subsurface foam injection systems, (often referred to as base injection) which are primarily designed for the protection of fixed roof storage tanks containing hydrocarbon fuels. They are particularly favoured for use in Aviation Tank Farms.

- Designed to operate against a 35% back pressure from the tank liquid.
- Available in six models, with foam solution capacities from 225 litres/minute to 3400 litres/minute.

Foam Water Nozzles



The K40 and K20 Foam/Water nozzles are air aspirating discharge heads. They are installed in fire protection systems where a low expansion foam application is needed.

- used in high risk situations where mixed risk flammable liquids are stored.
- Suitable for water cooling application.
- The K40 meets the 6.5 litres/m²/min application rates of NFPA.
- The K20 delivers an application rate of 4.1 litres/m²/min.
- Both designs produce finished foam with an expansion ratio 5:1 to 7:1 over a 1 - 7 bar (15 - 100 psi) operating range.
- Manufactured from 316 stainless steel.



Medium Expansion Bund Pourers



Medium Expansion Bund Pourers are designed for fire protection systems and vapour suppression on banded or diked areas surrounding flammable liquid or toxic chemical storage tanks.

- Corrosion resistant high grade stainless steel, and fitted with bronze nozzles.
- Operating at low pressure minimises both pumping capacities and water requirements, making the units ideal for retrospective installation.
- Once installed, the MEX Bund pourer needs little maintenance.

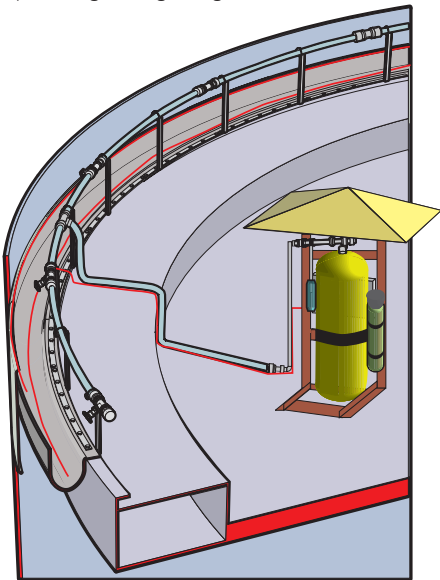
Turbex LNG Systems & Skids

- Used to protect LNG/LPG collection pits in liquefaction plants, and storage and loading plant facilities.
- Meets the demanding performance requirements of the NFPA 11A LNG Fire test, where performance must be unaffected after exposure to extreme temperature up to 1000°C during a 5 minute preburn period.
- Available as self-inducing units
- Can be Skid mounted and supplied with stainless steel discharge hood.
- Versions for industrial applications available.



Floatafoam

The Floatafoam System comprises a number of fully automatic, self-contained foam delivery modules that will detect and extinguish floating roof tank rimseal fires in their infancy. Each module protects 40m of tank perimeter. They can be set up to operate independently, with each protecting its own 40m segment of roof. Alternatively they can be linked with other Floatafoam units to fire off simultaneously to provide maximum protection against the risk of the fire spreading or reigniting.



Floatafoam systems are designed by Angus Fire's engineering department (AFE). They can be tailored to suit your specification. Optional extras include:

- Vessels, foam container, skid and pipes manufactured in 316 stainless steel.
- Low level alarm switches on foam and water containers.
- Option of either electrical Linear Heat Detection or Nitrogen charged thermoplastic tubing.
- Full BS5500 certification package.



Helijector

Developed primarily for offshore helideck monitor protection, Helijector is a self contained skid-mounted foam proportioning system, comprising a foam storage tank, water turbine, foam pump and all interconnecting pipework. All components are manufactured from materials accepted for offshore use and are mounted within a robust steel framed skid.

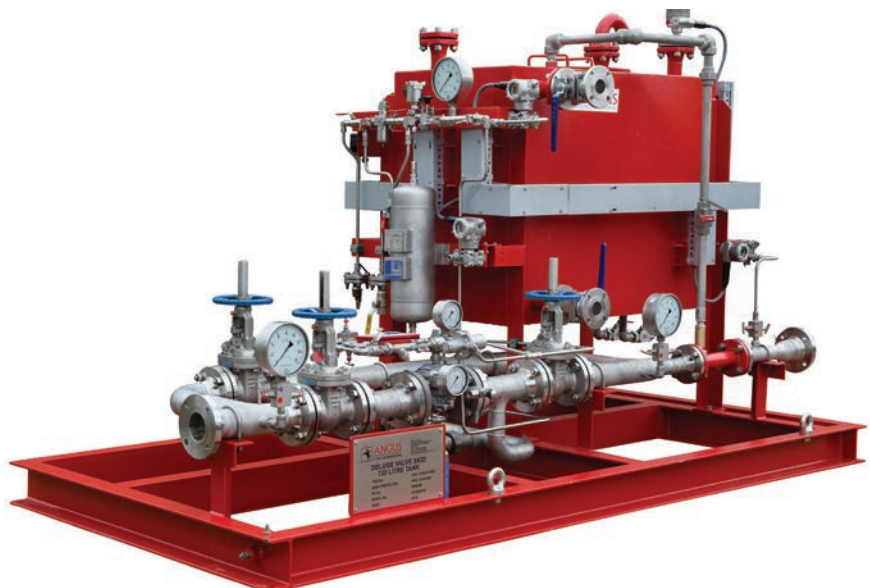
- Available in three sizes to match constant flow rates of 900, 1800 and 2700 litres/minute at 7 bar.
- Complete Helijector systems for offshore helideck protection are designed and supplied by Angus Fire Engineering, (AFE).



Angus Fire can help you to design bespoke fire protection systems. Angus Fire Engineering, (AFE) is a leading fire engineering contractor and specialises in high fire risk industries such as oil, gas, petrochemical, marine, aviation and power generation.

Fully qualified design engineers have a wealth of technical and hands-on experience, and all systems are designed in compliance with the latest standards including NFPA.

AFE offers surveys, consultancy, project management, design and engineering, documentation, procurement, equipment supply, fire testing, installation, commissioning and maintenance.





Bag Tanks

Bag Tanks, often referred to as Bladder Tanks, are free-standing pressure vessels fitted with an internal bladder to hold foam concentrate. They are operated by water pressure, which fills the void between the bladder and tank, to squeeze the foam concentrate into the foam proportioning device.

Bag Tanks should be used with balanced pressure proportioners which will balance the foam concentrate supply with the water pressure.

- Self-contained, no external power source required for operation.
- Accurate foam proportioning over a wide range of foam solution demands.
- Supplied with interconnecting pipework terminating at valved connections for water inlet and foam concentrate outlet.
- Available in capacities up to 15000 ltr.
- Vertical and horizontal options.
- Can be supplied pre-piped with a proportioner.



Balanced Pressure Foam Proportioners

Balanced Pressure Foam Proportioners (BPPs) are used extensively in fixed systems to introduce foam concentrate at a predetermined rate into the firewater supply.

The advantage of Balanced Pressure Proportioners over fixed inductors is that they can induce foam over a varying range of foam solution demands where a number of discharge outlets may be required to operate individually or simultaneously. All models can be calibrated to proportion at rates of 1%, 2%, 3% or 6%.

Balance Valves

Balance Valves are used with Balanced Pressure Proportioners (BPPs). They provide a reliable and cost-effective way of ensuring balanced pressure foam proportioners perform accurately over a range of flows and pressures. They do this by balancing the pressure of the foam concentrate entering the proportioner with the pressure of the water at the inlet.

- Fitted with a duplex pressure gauge, as standard, to give a visual confirmation that the unit is functioning correctly.
- Available in three sizes to match the flow of Angus BPPs.
- Made from gunmetal with stainless steel components for maximum corrosion resistance.



Foam Concentrates

The choice of foam concentrate goes hand in hand with the selection of fixed foam equipment. Choosing the correct foam concentrate will provide the maximum performance from the fixed equipment. Differing applications demand different types of fixed foam devices, and put different demands on the foam concentrate to be used. Therefore, selecting the correct foam type along with the equipment is vital.

- Fuel Type – whether the risks to be protected are solely hydrocarbons, or Polar Solvents, or a mixture of both.
- Fuel Tolerance – the ability of the foam to resist fuel pick-up – when applied forcefully through Type II and Type III devices (as defined by NFPA), or using High Back Pressure Generators.
- Burnback and reignition resistance – the stability of the foam blanket against direct heat and flame impingement, and its life determined by the drainage time - both properties influenced by, firstly the choice of a slow draining foam concentrate, and secondly, the fixed foam delivery device expanding (or aerating) the foam solution sufficiently to make a well formed stable foam blanket.

The Physical properties of foam also play a part in the choice of fixed foam induction equipment, particularly the foam's viscosity, especially in low temperature environments where the concentrate can become viscous making it difficult to induce accurately. Where mixed risks exist and the selection of Alcohol Resistance foam is required care should be taken to ensure that the fixed foam induction device can perform with the selected foam. The consistency of this class of foam concentrate can be anything from "runny honey" to the equivalent of "wall paper paste" which can make foam proportioning more difficult and less accurate. In these cases a high fluidity Newtonian type foam concentrate should be used coupled with a Balanced Pressure Proportioner rather than a fixed inductor.



Approvals

The relevant International approvals should be factored in to the marrying of equipment with foam concentrate, as having the correct approvals can influence the cost of insuring a facility. UL in particular is sought after by many major international companies involved in the production, refining and/or storage of fuel and petrochemicals. It is very specific about approving the equipment and foam concentrate together, to provide an evidenced based minimum level of performance for the system as a whole.



Angus Fire

Angus Fire is a global leader in firefighting technology. In more than 100 countries Angus Fire supplies fire safety products and services to customers operating in a wide range of industries such as oil companies, international airports, harbours, ports, military bases, power stations, and of course to fire and rescue services. Angus is a global name with an impressive history of over 220 years in the firefighting industry. It is this rich heritage and associated expertise, which put Angus Fire at the forefront of the fire industry and makes the company the preferred partner with firefighters worldwide.





**ANGUS
FIRE**



Hi-Combat Portable Foam Equipment The Complete Solution

HI-COMBAT

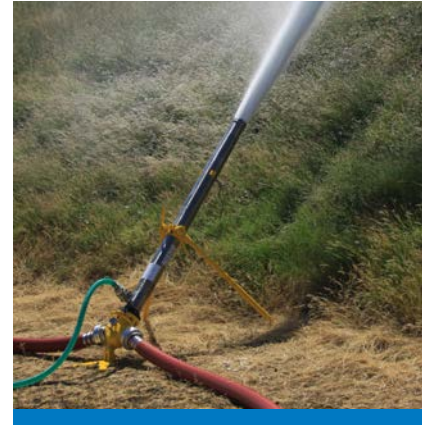
Protecting lives, the environment and critical assets

Hi-Combat Portable Monitors

Angus Hi-Combat Portable Monitors are lightweight, self-inducing portable low expansion foam monitors, which are easily deployed by two firemen. They offer entry level fire fighting for protecting hydrocarbon and other risks that require finished foam applied from a safe distance.

They are ideal for volunteer fire teams looking after small tank farms, as well as professional firefighters with storage tank responsibilities. Once set up the units can be left to operate unattended, provided that an adequate supply of foam concentrate is available.

Typical applications include bund and small tank protection, rail and truck loading gantries, waste and oily pits.



Titan Monitor

- High performance low expansion monitor system for fighting fires in large diameter storage tanks.
- Complete package comprises the standard Titan monitor, two lengths of 4" hose, 15m of induction hose and two collecting heads for conversion of 2½" hose to 4" hose.
- Two 4" inlets maximises the energy input into the monitor and the output matches a typical vehicle mounted pump.
- Titan will put foam onto the top of a tank 20m high from a distance of 30m.
- The solution throughput is 4,500 l/min at 10 bar and the foam is expanded to 5:1.



HI-COMBAT



Bipod Foam Monitor

- Lightweight and portable.
- Available in two models; FC18B and FC27B, with flows of 1800 and 2700 l/min at 7 bar inlet pressure respectively.
- Features a sturdy stainless steel barrel which is connected to a light alloy collecting head with four inlets.
- Each inlet has a integral non return valve to ensure continuous operation in the event of a hose failure.

Hi-Combat Portable Foam Equipment

The Complete Solution

A complete range of Portable Foam Equipment for Municipal & Industrial Firefighters

As a leading manufacturer of firefighting products Angus Fire has been supplying the fire industry with a comprehensive range of high quality, long lasting, low maintenance Portable Foam Equipment for many decades.

Angus Fire's foam equipment range offers rapid and reliable fire protection for sites where flammable and hazardous liquids are stored and processed. Suitable for use with any type of foam, this equipment is not only efficient at foam induction, but also produces top quality foam.

Hi-Combat portable equipment is ideal back-up for fixed foam systems, as required by NFPA 11 and BSEN13565.

The Hi-Combat products are renowned for:

- Safe and simple operation.
- Low maintenance.
- Lightweight and easy handling.
- Compact so as to fit neatly into fire appliance lockers.
- Colour-coded for rapid assembly.
- Tough and corrosion-resistant for long operating life.

For further information please refer to the individual product datasheets available to download from the Angus Fire website.

HI-COMBAT



Hi-Combat Low Expansion Foam Branchpipes

- Designed for long range performance.
- Nominal flow rates of 225, 450 and 900 l/min at 7 bar g.
- Offer well formed, free flowing low expansion foam suitable for fighting spill fires from a safe distance.
- Self-inducting versions of F225/SI and F450/SI models supplied with foam pick-up tube and piercer.
- All models produce finished foam at nominal expansion of 10:1 with a throw of up to 24m.
- Oil resistant, synthetic rubber ring protects against accidental damage.
- For best results use with either Tankmaster, Alcoseal or Tridol Ultra.



Hi-Combat Medium Expansion Foam Branchpipes

Angus Fire's Medium Expansion Foam Branchpipes provide fast and efficient delivery of highest quality, medium expansion foam which is effective in a wide range of fires involving flammable liquid fires.

- Nominal flow rates of 135 and 285 l/min at 2.5 bar g.
- Low operating pressures for maximum efficiency.
- Minimal water consumption and subsequently reduced water damage.
- Stainless steel finish with brass nozzles makes them suitable for harsh environments and sea water use.
- For best results use with Angus Tankmaster, Alcolseal or Tridol Ultra.



Hi-Combat Medium Expansion Anderson Pourers



- A semi fixed solution to bund protection.
- Used in larger banded areas where greater volumes of foam are needed.
- Nominal flow rates of 600, 1200 and 1800 l/min.
- Correct operating pressures are achieved by a pressure gauge.
- Matched MEX (medium expansion) foam inductors available for each model, pictured right.



HI-COMBAT

Hi-Combat Foam Uniductors

The Angus Fire Hi-Combat uniductors are the simplest and most accurate means of inducing foam into a water stream. Five models are available: Uni-225 (1-3) – Uni-225 (3-6) – Uni-450 (1-3) – Uni-450 (3-6) – Uni-900 (1-6)

Specifically designed to accurately induce both Newtonian and non Newtonian foam concentrates.

- Flow rates: 225, 450 and 900 l/min at 7 bar g to match the model numbers.
- Venturi-type inductor devices, designed to be used with Low and Medium Expansion Foam Branchpipes.
- Colour-coding ensures rapid and trouble free assembly.
- Simple TWIST control knob prevents accidental change of induction rate during operation.
- Special energy recovery system limits pressure loss to 35-40%, retaining max pressure for foam projection.



Hi-Combat Mobile Foam Units

Angus Fire Hi-Combat Mobile Foam Units are fully self-contained foam carts developed to provide rapid deployment of foam to fires and chemical spills.

Typical applications include boiler rooms, oil storage and loading terminals, paint or spirit stores, airfields, industrial sites, generator rooms and other high risk areas. They are easily manoeuvred and operated by one person.

HI-COMBAT



Hi-Combat AF120

- To operate simply connect to a pressurised water supply.
- Designed to fit through a standard door.
- Low centre of gravity for maximum stability on difficult terrain.
- Large diameter filler cap allows unit to be refilled during operation.
- Option of medium expansion foam branchpipe for vapour suppression and bund firefighting.
- 120 litre capacity keeps weight suitable for off road use, no need for stabilisers or third wheel.
- Full range of couplings and fittings to suit local fire brigade requirements.

Hi-Combat Responder 140

- Self-contained mobile unit, specifically developed for fast response by a single person.
- Features a monitor with a throw of up to 40m allowing the firefighter to remain at a safe distance.
- Delivers unaspirated foam using a film forming foam concentrate such as Angus Alcolseal, Petroseal, Tridol S or Tridol Ultra.
- Suitable for use with foam or water alone.
- Large diameter filler cap allows easy top up of the 140 litre tank whilst in use.
- Screw shaft prop outriggers provide stability whilst monitor is in action.
- Bronze monitor and nozzle for maximum corrosion resistance.



Hi-Combat Hi Expansion Foam Generators

The Angus Hi-Combat Hi Expansion foam generators are designed to produce large quantities of high expansion foam, for fast and effective flooding of inaccessible spaces (e.g. basements, mines, tunnels, cable ducts, warehouses) with minimal water consumption and subsequent minimal water damage. The units utilise forced air technology and are powered by water turbines driving aerofoil fans, so that only a pressurised water supply is required for operation.



Hi-Combat Turbex

- Produces up to 200m³ of expanded foam per minute.
- 30m of expandable polythene ducting ensures accurate foam delivery as any access is burnt off by the fire.
- Can also be used for rapid smoke extraction and positive pressure ventilation.
- Unique water by-pass system allows performance to be maintained while working against high back pressures.
- Enclosed maintenance free water turbine.
- Self inducing facility.
- For best results use with Angus Expandol High Expansion foam concentrate.

Hi-Combat Mini Turbex

- Produces up to 100m³ of expanded foam per minute.
- Fast response high expansion foam generator and smoke extractor, matched to 225 Uniductor.
- Easily manoeuvred and operated by one person as only a single 2.5" hose supply line needed to operate.
- Designed to fit into a standard fire vehicle locker.



Angus Fire Profile

Angus Fire is a global leader in firefighting technology. In more than 100 countries Angus Fire supplies fire safety products and services to customers operating in a wide range of industries such as oil companies, international airports, harbours, ports, to military bases, power stations, and of course to fire and rescue services. Angus is a global name with an impressive history of over 220 years in the firefighting industry. It is this rich heritage and associated expertise, which put Angus Fire at the forefront of the fire industry and makes the company the preferred partner with firefighters worldwide.





Firefighting Monitors

Angus Fire offers an extensive range of firefighting monitors, which set new standards of performance for high risk environments. The range includes Fixed Monitors, Portable Monitors, Nozzles and Cannons. Bespoke monitors for specific needs can be supplied on request.

Firefighting monitors are installed in harsh environments and will normally remain unused for many years and then be required to operate at peak performance in an emergency. As a result Angus Fire pays particular attention to design for long term reliability and resilience.



The choice of material is key to achieving high levels of performance. The most corrosion resistant ones, such as bronze, are used in extreme environments like offshore oil rigs, where the punishing saltwater environment can severely limit the life of a monitor. Stainless steel is also used extensively for foam cannons and fittings to further the life of the monitors.

In Angus Fire's wide ranging portfolio, from a ground monitor delivering 900lpm at 7 bar to a trailer mounted system throwing 30,000lpm of foam solution there is a suitable monitor to protect your risk.

Applications

Fixed monitors are found where there are substantial Class B fire risks whilst portable monitors are often used to protect multiple risks by moving the monitors around the site. Nearly all industrial fire hazards are candidates for monitor protection, but some of the more common applications are:

- Refineries
- Fuel distribution depots
- Chemical plants
- Warehouses
- Helicopter landing pads
- Aircraft hangars
- Loading jetties
- Process plants
- Industrial process areas
- Shipping
- Vehicle-mounted



Fixed Monitors

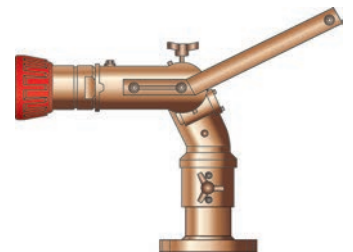
Fixed monitors are used with foam for firefighting or with water for cooling of structures. Simple in principle they are the result of complex engineering, designed to deliver high performance after long periods of inactivity.

Angus Fire's range of fixed monitors is predominantly installed in purpose built fire protection systems. Alternatively they can be mounted on trailers to offer the flexibility of a mobile solution. Options include 1000l, 2000l foam tanks or 1000l tote trailers as pictured below.



Hand Monitors

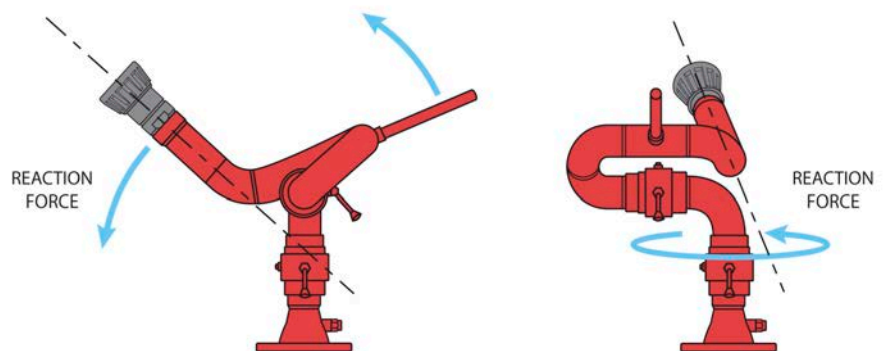
Hand Monitors are chosen for their simplicity and cost effectiveness. Lever operated, hand control monitors are ideal for protecting risks where the monitor angle and trajectory can be adjusted and locked before use. Once in operation, manoeuvring the steering arm (handle) can be hard - as the reaction forces created by the jet, particularly at operating pressures over 7 bar can make the load on the handle difficult for a single operator to manage. For this reason a counter weight is often fitted to manual monitors to help balance the load of the reaction forces, particularly when a foam cannon is fitted.



* LMB40



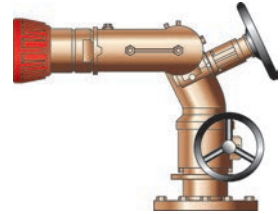
The Angus LMB40 bronze fire monitor features a simple and reliable design using a hand lever to control horizontal and vertical movement. The monitor can be fastened in position by engaging the locking nuts. The picture shows the LMB40 with a self-inducing nozzle.



For operator safety, we would recommend manually operated monitors featuring screw down locking nuts to control the rotational and vertical movements are limited in size to a max of 4" barrel or flows up to 8,000lpm.

Geared Monitors

Geared monitors are used for a number of applications, and in particular for trailer mounting. The gears make the horizontal and vertical movement of the monitor easy to change. Geared monitors are therefore ideal for protecting a variety of small, high risk areas in a terminal at different heights and distances (small fuel storage tanks and bunds for example). In fixed monitor applications, geared monitors can be used on risks demanding high application rates of water or foam. As the geared hand wheels make it easy to control the monitor precisely.



* FWM

The Angus FWM (Foam Water Monitor) is a geared monitor featuring separate foam and water cannons for maximum performance.

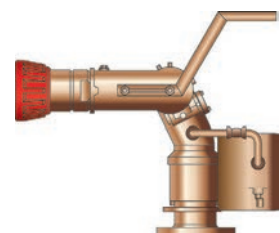
The water jet barrel throws water up to 50m making it ideal for cooling of small tanks.

The foam jet barrel delivers expanded foam up to a range of 40m. Changing the application from water to foam is easily achieved with a flick of the lever on the selection valve.

- Available in 4 models, giving foam solution flow rates of 1300lpm to 3600lpm at 7bar.
- Each unit has a separate standard water barrel giving a flow of 1500lpm.
- Built-in foam induction system with variable settings.
- Stainless steel foam and water barrels.
- Fixed or trailer mounting options available.

Oscillating Monitors

Oscillating monitors are often found protecting the most hazardous area of a site or platform. They can be turned on remotely via a water valve allowing the user to remain at a safe distance. The automated sweeping action enables the monitor to cover a wide risk area. Angus Oscillating monitors are supplied with a permanent pelton wheel water driven motor, which provides the power for the horizontal oscillation movement. No outside power source is needed.





* OM80

Born from the need for a high specification, rugged monitor suitable for use in the harsh conditions of the North Sea oil fields, the Angus OM80 is engineered to the highest standards to provide exceptional operational reliability.

- Features a sealed for life gearbox with adjustable sweep angle between 45° and 120° in 15° intervals and oscillating speed control.
- Compact low profile configuration particularly suitable for installation on towers, aircraft hangars, offshore platforms for helideck protection and other areas where space is limited.
- Dry and wet test kits are available for periodic testing of the oscillating function of the monitor.

Remote Control Monitors

Remote control monitors are specified to protect high hazard areas where access for personnel is obstructed. They are widely used at Jetty Terminals and Marine Docks to protect the means of escape from the jetty, control room or loading arm areas. As a result, RCMs are designed so that the monitor and the controls are located separately at significant distances from each other. The monitor will be located in the hazard zone, whilst the panel controlling the movement and the nozzle function will be located at a safe distance.

The choice of power to operate remote control monitors includes hydraulic power (provided by either a water driven pelton wheel motor, or electric pump), or all electric power.



* RCM 1

The Angus Hydraulic Remote Control Monitor system comprises a monitor and control panel with built in power pack. A solid system featuring advanced engineering especially designed to offer reliable and safe remote control operation at up to 300 metres away from the risk. The RCM is manufactured using state of the art techniques and is rigorously tested at Angus Fire's production facility before shipment.

- Totally independent water turbine driven or electric prime mover options
- Control panels are available to operate either one or two monitors
- Nominal maximum throughput 4,500lpm at 16 bar
- Bronze & stainless steel construction – ideally suited for marine applications
- Can be fitted with the LTN nozzle for water or non-aspirated foam or the FMC cannons, with or without blabbermouth.

Portable Monitors

Sometimes it is more convenient to provide a rapid response by moving a portable monitor from hazard to hazard. Portable Monitors are generally lightweight, self-inducing using either low expansion foam or water. They offer entry level fire fighting for protecting hydrocarbon and other risks that require either finished foam or water applied from a safe distance. The choice depends on the size and type of risk and the application rate recommended to achieve extinguishment.

Typical applications for a foam bipod include bund and small tank protection, rail and truck loading gantries, waste and oily pits. Whereas Ground Monitors are ideal for water cooling.



* Titan/Bipod Monitor

Angus manufactures a range of bipod monitors, that are portable and easy to set up. They are designed to deliver either a well expanded foam blanket for fire extinguishment or a water jet for cooling. Bipod monitors are often deployed to protect small fuel tanks – (NFPA 11 permits foam monitors to be the primary means of protection on tanks under 18m diameter). The range includes the Titan, FC18B and FC27B.

- The largest monitor Titan will put foam onto the top of a 20m high tank from a distance of 30m.
- The flow rate of each monitor is :
 - Titan - 4500lpm @ 10bar
 - FC18B - 1800lpm @ 7bar
 - FC27B - 2700lpm @ 7bar
- FC18B & FC27B feature a four inlet light alloy collecting head for use with 2.5" hose.
- Titan monitor has two 4" inlet for use with 4" hose.



* PGM

The Angus Portable Ground Monitor is a compact, light weight but robust monitor with excellent stability and low maintenance. Ideal for rapid deployment by one person. It is intended for use in the medium output range, typically up to 1800lpm. With its folding stainless steel ground frame it can easily be stowed in a vehicle locker.



- Two valved inlets
- Option to use foam branchpipe
- Screw down collar allows adjustment in use
- Jet spray nozzles capacity 900l or 1800l a minute
- Swinging flap valve permits use of a single hose if required
- Weighs only 7kg

Monitor Nozzles

The most common type of nozzles fitted to monitors are the Fog/Jet style, which are manufactured from a variety of materials including brass and gunmetal. They can be adjusted to throw either a straight jet or a wide spray of water or a non-aspirated foam fan. Fog/Jet Nozzles can be used with either water or foam solution. Due to the limited entrainment of air in the stream it is recommended that a film forming foam is always used.

The Angus LTN nozzles in gunmetal, pictured on the right, are available with four different flows ranging from 900 to 3300lpm. A self inducing version with a flow rate of 1900lpm is also available.

- Each nozzle provides a constant flow rate
- Particularly suited for use in coastal and offshore environments

Angus Fire also manufactures higher capacity nozzles that can be used on trailer mounted monitors with flows up to 20,000lpm in jet/spray options. These can throw water 90m or more.



LTN Nozzles



Monitor Cannons

Foam cannons are used to produce a well expanded foam for fighting hot deep seated tank fires. They are also used for vapour suppression on fuel spills at loading terminals and in bunds surrounding fuel storage tanks. Made of stainless steel, Angus monitor cannons start at a flow of 800lpm and max out at 15,000lpm. Self-inducing options are also available.

A useful extra, is the availability of a blabbermouth or spreader over the mouth of the cannon which allows the discharge rope of foam to be flattened into a wider pattern for broader coverage.

The Angus LTC range in stainless steel, pictured on the left, is available in 5 different flows ranging from 1800 to 7500lpm. All versions are available as a self inducing option.

Monitors fitted with Angus LTC cannons are also provided with a counter weight for ease of use.

Selecting the right monitor

Angus Fire has developed a special computer modelling software package to calculate the most appropriate monitor solution for your application. To select the right monitor, nozzle or cannon for your requirements contact us with your details and we will run the software to provide you with the best option.

Big Flow System

Big Flow is a mobile, pumping system that is capable of feeding large volumes of water over extremely long distances. The system comprises a high flow monitor, a number of large capacity water/foam pumping options, large diameter hose and hose deployment devices, which in combination, provide versatility and superior range to attack hazards from a safe and effective distance.

At the heart of the Big Flow System is the Iron Man high capacity monitor. The Iron Man is a foam and water monitor mounted on a trailer, capable of delivering various flows with interchangeable tips up to 40,000lpm, which can throw water or foam in excess of 120m depending on conditions. The Iron Man monitor can achieve the high application rates and throws needed to fight a full surface tank fire. This makes the Iron Man an essential back up to the fixed foam systems for protecting large open floating roof tanks.



In addition to fire protection the Big Flow system can also be used in flood relief as it is capable of moving large volumes of water away from flooded residential and critical infrastructure areas.



Angus Fire Profile

Angus Fire is a global leader in firefighting technology. In more than 100 countries Angus Fire supplies fire safety products and services to customers operating in a wide range of industries such as oil companies, international airports, harbours, ports, military bases, power stations, and of course to fire and rescue services. Angus is a global name with an impressive history of over 220 years in the firefighting industry. It is this rich heritage and associated expertise, which put Angus Fire at the forefront of the fire industry and makes the company the preferred partner with firefighters worldwide.

