ONE SEVEN
FAST. EFFECTIVE. SAFE.
ENVIRONMENTALLY FRIENDLY
SAVE AND SURE

For over 2 decades, the Dutch company BMT Fire & Rescue has been the no. 1 specialist for the design, production, renovation and maintenance of fire-fighting equipment in the field of fire-fighting, breathing air and decontamination. Additionally, BMT is a big supplier and installation station for the One Seven compressed air foam (CAF) technology.

OUR APPROACH

BMT opts for a customer-oriented and practical working method: everything leaving our production workshop in the Netherlands is unique and made in close collaboration with the client. In this facility we produce, renovate, service and supply products, such as rapid intervention vehicles, compact fire-fighting vehicles and a specialist range of high-performance roll-off containers for various applications, to fire brigades, the industry, police and the armed forces, both nationally and abroad.

All of these are high-quality Dutch products, which prove their worth in practice, because they are customised to suit the user’s requirements and wishes down to the smallest detail.
FIRE-FIGHTING VEHICLES

Over the years, BMT has specialised in the development and construction of compact, rapidly deployable fire-fighting vehicles (RIV, FSU), which provide fantastic fire-fighting performance, among other things, through the use of One Seven fire-fighting technology. Additionally, BMT also takes care of installing CAF One Seven in existing or new fire-fighting vehicles of different makes. It is the only CAF system with scientifically proven smoke-cooling properties and a suitable training programme through the international One Seven Academy.

DECONTAMINATION

BMT has a lot of experience in building specialist decontamination containers, which are used both in the Netherlands and abroad. These “decon” containers make use of water decontamination and/or the active foam decontamination principle. The latter technique requires significantly less water and therefore poses almost no aerosol risk. This DeFcon foam technique is available both for the decontamination of technical gear as well as for personal (skin) decontamination, and is also available as a mobile version.

ROLL-OFF CONTAINERS

Apart from rapidly deployable fire-fighting vehicles, BMT has been producing and renovating roll-off containers for specialist tasks for years, such as Breathing Air containers, HAZMAT containers and Decontamination containers. BMT manufactures these custom-built containers at its own workshop, often based on a torsion-resistant steel main structure with sandwich and/or aluminium cladding. These containers, which are fully fitted out, combine ease of use, durability and weight reduction.
In the mid-1990s, One Seven already started the development of mobile compressed air foam systems (CAFS), many years before compressed air foam systems were officially recognised by the NFPA, giving it a clear head start in the field of research, know-how and competence. Since 2006, compressed air foam has been an integrated part of the NFPA 11 standard, in which it makes up a separate category in addition to conventional low, medium and high-expansion foam.

One Seven, which is known for its superior performance, firefighting efficiency and universal applicability of its compressed air foam systems, has by now supplied its mobile technology to more than 1700 fire brigades and other customers in over 35 countries worldwide, of which over 450 systems in The Netherlands and Germany.

To remain ahead in its sector, One Seven is constantly researching and further developing the CAF technology and producing state-of-the-art mobile systems, for which it possesses several international patents and proof of record-breaking performances.

With its unrivalled expertise and immaculate reputation, One Seven offers customised, high-performance mobile solutions in the following areas:

- Municipal fire brigades
- Industrial fire brigades
- Wildfire brigades
- Airport firefighting services

One Seven mobile systems are available in two versions, namely an extensive line of built-in systems as well as a number of stand-alone versions.
The mobile One Seven systems are not limited to the foam-producing hardware, but are complete solutions, complemented by original One Seven accessories and equipment, such as suitable foam concentrates, nozzles, monitors, hoses, all optimised for One Seven, as well as qualified training courses.

Benefits of One Seven:
- Efficient use of water
- Additional safety for fire fighters due to very fast knock-down
- Greater throw distance, so greater distance to seat of the fire
- Excellent medium for offensive deployment indoors and outdoors
- Reduced physical load for personnel
- Lower environmental impact due to drastic reduction of polluted extinguishing agent and toxic smoke

ONE SEVEN ACADEMY
One Seven can be used by any trained fire fighter with at least a similar efficiency as water by using standard tactics and procedures. Years of experience and extensive research have, however, shown that optimum results are achieved if certain changes are made to tactics and nozzle handling.

To standardise training with One Seven Systems, the One Seven Academy has been established. It offers various train-the-trainer programmes, allowing the One Seven features to be optimally used. Details can be found on: WWW.ONESEVENACADEMY.COM
One Seven foam is a highly advanced extinguishing agent. The specially developed fourth generation One Seven foam generator is used to transform each drop of water into seven foam bubbles by adding the unique One Seven foam concentrate together with compressed air. The superior efficiency of One Seven foam results from the properties of these foam bubbles. The foam adheres to all the surfaces in the vicinity of the fire, resulting in a multitude of effects.

For more than 20 years, One Seven has been developing its unique, highly effective and patented foam technology.

The result is a reliable state-of-the-art system, consisting of a number of components, which are: a centrifugal pump, a foam proportioner, a CAFS compressor, a One Seven foam generator with a mixing chamber and the mixing pressure control valve. All of these parts are designed to function in perfect harmony with the One Seven foam concentrate and the nozzles, guaranteeing an ideal extinguishing effect.

As the system is controlled by an innovative process control system, manual changes by the operator of the system have become a thing of the past. The simple “one button operating” system is used to safely and easily activate the system, even in stressful conditions.
The unique properties of One Seven extinguishing foam yield a staggering 90% utilisation of the water used, compared to only 5-25% for conventional fire-fighting methods using only water. The effectiveness of the foam ensures a fast knock-down of fires and greatly reduces the damage to property, as limited water consumption prevents excessive water damage and makes it easier to clean up. This obviously also leads to greatly increased safety levels for fire fighters, which is one of the key aspects at each fire scene. One Seven foam has an extremely long throw and penetrates deeply into the area of the fire to reach the source of the fire, resulting in the following effects.

1. **ONE SEVEN SEPARATION EFFECTS**
The foam blanket covers the surface of the solid or liquid fuel, stopping the release of flammable gases.

2. **ONE SEVEN COOLING EFFECTS**
It makes a prolonged cooling period possible, during which the foam evaporates on the fuel, rapidly cooling it down to below its ignition point.

3. **ONE SEVEN MOISTURE-PENETRATING EFFECTS**
The water-foam solution is released from the foam bubbles and efficiently penetrates any solid fuel.

4. **ONE SEVEN INSULATING EFFECTS**
By covering nearby surfaces with foam, One Seven protects operating personnel from radiation from the surrounding structures.

In short, One Seven is proud to offer complete solutions based on its unique foam extinguishing agent for maximum speed, efficiency, safety and environmental sustainability.
One Seven technology has its own, highly unique types of “synthetic” foam concentrates, which differ considerably from conventional foam types. The exceptional composition and high performance of One Seven foam, which complies with the standard classification for fire classes A and B, are made possible through optimum interaction between the One Seven foam-generating system and the chemical properties of the One Seven foam concentrate. This fine balance ensures that the fire-fighting efficiency of the foam blanket is always achieved at the right low proportioning rates.

**Class A** foam concentrate is optimised for a highly bonding and increased penetration capacity, allowing it to penetrate better into all class A fuel. It is used with a surprisingly low proportioning rate of only 0.3%. The product is fluorine-free and fully biodegradable.

- **OPTIMISED FOR ONE SEVEN SYSTEMS**
- **EXCELLENT FIRE SUPPRESSION PROPERTIES**
- **VERY LOW PROPORTIONING RATE**
- **NON-IRRITATING AND NON-TOXIC TO HUMANS AND ANIMALS**
- **GOOD BIODEGRADABILITY**
- **LONG SHELF LIFE**

**Class B (AFFF)** film-forming fluorinated foam concentrate is used with a proportioning rate of 0.5%. The foam rapidly spreads over the surface of the hydrocarbon-based liquids to form a strong and cohesive foam blanket in order to extinguish the fire and to prevent evaporation of the fuel. It is approved in Europe (Performance Class I/A according to EN 1568-3) and in the US (FM 5130).
All One Seven foam concentrates are designed with consideration for human safety and environmental friendliness, as they should not pose any danger if they come into contact with the skin and/or eyes. Especially the Class B (FF) foam concentrates introduce a new generation of extinguishing foam, free from fluorinated products yet without any loss of performance. The latter foam concentrate is certified as fully biodegradable within 14 days, minimising the impact on humans and the environment.
Municipal fires pose the highest risk to life and safety as a result of the dense population, as well as the danger of losing property. Material loss caused by the fire and – not to forget – the often large quantities of extinguishing water, can result in buildings being closed by the authorities, which in turn leads to reduced rental income for property owners. That is why municipalities require a rapidly deployable and effective mobile solution to control every fire immediately, especially if there are no stationary systems or if they are insufficient.

The One Seven system offers this efficient loss prevention due to the rapid knock-down of fires and the limited water damage. One Seven systems are easy to operate and offer more safety for fire fighters, especially during an offensive interior attack. The most widely used One Seven mobile system for municipal fire-fighting has 2 outlets (OS-C2 series).

Apart from a more efficient use of the water from the fire engine’s water tank, the low water consumption of the One Seven system also provides longer deployment times and a quick knock-down of fires.

Use of One Seven for a car fire. Water consumption less than 100 litres and almost no polluted waste in the municipal sewers.

One Seven “spray-paint” structural cooling makes it possible to approach the fire faster and more safely than with conventional extinguishing using water.
BENEFITS

• Reduced damage to property, resulting in reduced consequential loss, loss of rental income and insurance claims;
• Increased safety levels for fire fighters due to the more efficient attack characteristics of One Seven foam and equipment;
• High-rise capability up to 400 metres, both using hoses and dry risers if present;
• Universally applicable on (almost) all types of municipal fires.

Offensive exterior attack using One Seven.

Hardly any water damage after using One Seven on interior fires.
One Seven technology is successfully used in various industrial sectors based on its flexibility and excellent fire-fighting properties, especially if large surfaces have to be covered or if sensitive equipment is present.

One Seven mobile systems can be used in industrial environments, such as:

- Chemical industry
- Petrochemical industry
- Automotive industry
- Waste processing companies
- Power stations
- Transformer stations

Furthermore, when applied correctly, a One Seven system can be safely used on live installations up to 100kV, even at short distances, plus it can be used for fighting metal fires (aluminium, magnesium, zirconium).

- Optimum protection of strategic assets
- Maximum use of limited resources
- Low proportioning rates
- Reduced logistical effort
- Long standing times of the foam carpet
- Limited maintenance costs for equipment

A combination of mobile One Seven systems and FM-approved stationary One Seven systems provides optimum protection for industrial sites.
With an expected annual growth of 5% in air traffic over the next decade, airports will be subjected to increasingly strict requirements for passenger safety, mainly also because many of the major transport hubs are becoming more and more congested with air traffic. Rapid response and effective fire suppression are crucially important for the protection of passengers’ lives in an emergency, which is why One Seven mobile systems can also be integrated into airport fire engines and crash tenders, using the key benefits of the One Seven system:

- ICAO-certified to level “C” deployment
- Highly effective for hydrocarbon fires
- Very low application rate
- Longer fire suppression with an equally sized vehicle
- Equivalent fire suppression with smaller less expensive vehicles
- Low consumption of foam concentrate
- Long throwing distance
WILDFIRE FIGHTING APPLICATIONS WITH ONE SEVEN

Each year severe heath and forest fires all over the world, especially around major urban centres, cause indescribable suffering, widespread material losses and extensive damage to nature. Among other things due to the growing population and the fact that climate extremes lead to more droughts, these risks will only continue to increase and will urgently require new and more efficient types of fire-fighting technologies.

One Seven mobile systems meet all the right criteria to combat this development and offer many benefits when fighting wildfires:

- Highly efficient use of water ensures a longer operating period
- A compact system can be mounted to smaller 4x4 vehicles
- Efficient protection against ignition due to radiation heat in case of wildfires due to the application of a foam blanket
- Efficient wetting ability into the fuel due to the excellent properties of One Seven Class A foam.
AVAILABLE MOBILE SYSTEMS

One Seven can supply suitable systems for a wide range of applications. Three system categories are available, which can be modified in terms of size and capacity to suit the customer’s wishes.

- Built-in systems for new fire-fighting vehicles
- Built-in systems for existing fire-fighting vehicles
- Stand-alone systems for use in or on all kinds of (electrical) vehicles, trailers, containers and/or boats

Depending on the required capacity, a different type of compressor (C) is selected, which leads to the following standard supply programme:

- OS C0 - 100B 1 x 1.0” outlet
- OS C1 - 100B 1 x 1.5” outlet
- OS C2 - 200B 2 x 1.5” outlets
- OS C2 - 110B 1 x 1.5” + 1 x 2.0” outlets
- OS C3 - 120B 1 x 1.5” + 2 x 2.0” outlets

The flow rate of the pressure outlets is modified to suit the maximum capacity of the hose and the required application. This means that solutions are provided that match the hose dimensions used, based on the conditions in the service area.

For example:
- 1.5” pressure outlet – approx. 1,200 litres/min One Seven extinguishing agent
- 2.0” pressure outlet – approx. 2,200-2,800 litres/min One Seven extinguishing agent
One Seven built-in systems are based on a modular design and can be easily installed, with the CAF compressor being driven by the vehicle engine. They offer the highest level of reliability with limited maintenance requirements, always guaranteeing smooth functionality of the One Seven technology. They can be built into almost any type and make of fire-fighting vehicle.

All system functions can be controlled via the One Seven touchscreen control panel, which is either integrated in the pump control panel of the fire-fighting vehicle itself (if required and possible) or installed in a separate location.

The built-in systems are manufactured and installed in accordance with the highest quality standards. Due to the use of innovative CAN Bus technology, the One Seven system is directly connected to the chassis and pump of the vehicle and communicates through the programmable logic control unit (PLC).

The result is a "one button operating" system, providing the easiest control and preventing operating errors.

**BENEFITS:**
- HIGHEST LEVEL OF RELIABILITY
- LOW MAINTENANCE
- SPACE-SAVING INSTALLATION
- NO COMPLICATED COMPRESSOR DRIVE REQUIRED
All One Seven systems can switch directly between the wet and dry foam modes. The water and air flow for these foam types are optimised by means of factory settings and are separately controlled for each pressure outlet.

The stand-alone One Seven systems can operate fully independently without being driven by a dedicated fire-fighting vehicle, provided the water supply is sufficient. They can be easily stowed and transported using any type of vehicle and/or boat. Examples are the compact, fully autonomous OS 300 TZ system, which is driven by breathing air cylinders and can even be used in explosive environments, and the OS C1-100 S "Powerbox".
REEL HOSES

Apart from loose (extension) hoses, two rigid hoses are available for use in combination with a One Seven attack reel. The first one is the special EPDM One Seven hose. This rigid hose has a protective rubber outer layer and white identification edging. This hose is highly durable and protected against outside (mechanical) effects. In addition, a lightweight hose type, Formtex, is also available. This hose is characterised by its very low weight, but also by reduced (mechanical) protection against outside effects.

ACCESSOIRES

Compressed air foam is not water. It has its own flow and physical properties, which must be taken into account to generate the optimum extinguishing medium. One Seven has perfected the art of “Flow Engineering”, which requires a harmonious interplay between liquid water and compressed air in all the components connected to the mobile systems. Only this ensures the most efficient use of the technology and a consistent foam quality. That is why a variety of accessories especially suitable for One Seven are available, which match the performance of this unique foam-generating system.
applies a fuller layer of foam against the walls and ceilings of the room entered, increasing the safety of the operational team even more.

Furthermore, a number of specially developed application lances are available, which can be placed directly onto the bayonet catch of the OS-2003 nozzle, including the offensive and defensive application lance.

**NOZZLES AND NOZZLE ACCESSORIES**

There are a number of nozzles that are recommended for use with One Seven. The most important of these is the OS-2003 nozzle with a number of different One Seven attachments. As an add-on to the OS-2003 nozzle, a deflector (also called a “flap”) is also available. This deflector can be attached directly to the end of the nozzle. Use of this deflector during an offensive interior attack, makes it possible to change the One Seven jet into a flat spray jet, which sprays upwards and to the sides. This

FIRE MONITORS

One Seven is also highly suitable for use in combination with a monitor. Several monitors are available for this. Not only can they be installed on the roof or bumper of a fire-fighting vehicle, but for example also on an access platform. These monitors can be controlled with a joystick or a wireless remote.