

## JARGON BUSTER



### ACTIVE FIRE PROTECTION (AFP)

“equipment, systems and methods which, following initiation, may be used to control, mitigate and extinguish fires” (BS EN ISO 13702:1999)

### PASSIVE FIRE PROTECTION (PFP)

“coating or cladding arrangement or free-standing system which, in the event of fire, will provide thermal protection to restrict the rate at which heat is transmitted to the object or area being protected” (BS EN ISO 13702:1999)

## ACTIVE FIRE PROTECTION

Active fire protection (AFP) is any measure which, on detection of a fire, is activated to extinguish it or mitigate its effects. Systems can be fixed installations (e.g. sprinkler or deluge systems) or portable (e.g. extinguishers). Commonly, activation of fixed installations is automatic (linked to a detector), with a manual backup (e.g. opening of a valve or manual activation of a linked alarm call point).

### Water-Based and Foam-Based Fire Protection Systems

A typical water-based fixed (i.e. not portable) installation comprises:

#### A FIRE-WATER SOURCE

For example, sea water or a large water storage tank (this may need to be treated against algal growth and filtered to remove debris that might damage the pump).

#### A FIRE-WATER PUMP

This must deliver to the required pressure and flow rate. Pumps need to activate quickly (and automatically, unless running constantly) and their continued availability must be ensured (e.g. available backup for when maintenance is undertaken).

#### FIRE-WATER MAINS

These are pipes transporting the water from the pump to where it is needed – they may be normally dry (i.e. empty) or, for speedier response (but prone to freezing), wet (i.e. continuously charged with water and often kept pressurised with a ‘jockey pump’). Sea water is not used to keep wet systems charged because of corrosion and salt blockage of the discharge heads.

## DISCHARGE POINT

For example, nozzles, sprinkler heads, monitors, hoses.

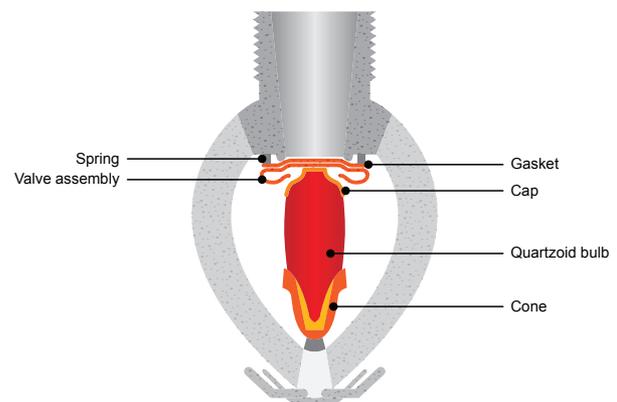
Water systems principally work by cooling the fire. Although water-based systems are effective against cellulosic (also called ‘Class A’) fires, they can be ineffective and actually dangerous if used to try and extinguish hydrocarbon fires (causing it to float and spread). The exception is water mist (see later).

For fixed foam systems, the above installation design (source, pump, etc.) is basically the same, except a foam concentrate is injected into the fire-water system from a separate storage vessel using a metering pump. Foam-based systems are generally very effective for hydrocarbon pool fires, but not for hydrocarbon jet fires. Foam systems work by smothering the fire – creating a layer of foam on the surface which excludes the air; the foam also stops the liquid beneath from forming more vapour.

The common types of water-based and foam-based AFPs are:

## SPRINKLER SYSTEMS

Here the discharge points are high-level mounted sprinkler heads and each sprinkler head can be activated independently (e.g. by fusible element), discharging onto the area below. These generally use water spray and are used mainly for cellulosic fires, such as may occur in accommodation blocks and general office and storage areas.



Schematic of a Fixed Installation Water Sprinkler