3.9. Foam Sprinkler/Deluge/Discharge Systems

3.9.1. The requirements for Foam Sprinkler/ Deluge/ Discharge System material, design, installation shall be as per **Table 9.11.,** Applicable Sprinkler requirements of **Table 9.7.** and the General Requirements of **Table 9.3.**

Table 9.11: Foam Sprinkler/ Deluge/ Pourer System Requirements

ITEMS	REQUIREMENTS
1. DEFINITION	i. Foam is produced by mixing a foam concentrate with water at the appropriate concentration, and then aerating and agitating the solution to form the bubble structure. Some foams are thick and viscous and form tough and, heat-resistant blankets over burning liquid surfaces and vertical areas. Other foams are thinner and spread more rapidly. Some foams are capable of producing a vapor-sealing film of surface-active water solution on a liquid surface. Some, such as medium- or high-expansion foam, are meant to be used as large volumes of wet gas cells for inundating surfaces and filling cavities. ii. The process of producing and applying fire-fighting air-foams to hazards requires three separate operations, each of which consumes energy. a. The proportioning process b. The foam generation phase c. The distribution method. iii. Foam agent can be discharged through various arrangement of Systems such as Foam-water Sprinkler Systems, Foam-water Deluge Spray Systems, Foam pouring System, Foam monitor Systems etc. See **Section 1.5** for definitions.
2. COMPONENTS	i. Fire Pumps, Controller, Foam concentrate pumps, Fire Water Tank, Foam concentrate Bladder Tank, Foam proportioning System, Pipes, Fittings, Sprinklers/ Spray Nozzles, Isolation valves, Deluge Valve, Pressure gauge, Flow Switch, Test connection, Drains, Breeching inlet and Signs. ii. All the components of Foam Systems including the used water shall be compatible with the foam concentrate and foam solution and listed and approved by Civil Defence. iii. All foam solutions and type of systems applied to hazard shall be as per the manufacturer's specifications and Material Safety Data Sheet. iv. The System components shall be rated for the maximum working pressure to which they are exposed, but not less than 12.1 bar (175 psi).
3. FIRE PUMPS	i. The fire Pump set shall consist of 1 Electric driven pump, 1 diesel driven pump and 1 electric Jockey pump, complete with controllers. ii. The pump capacity shall be as per **Section 4.**
4. FOAM CONCENTRATE	i. Foam concentrates shall be from single manufacturer and single composition. Foam concentrates from different manufacturers, or different brands of the same manufacturer shall not be mixed. ii. Storage tanks material, methods, storage temperature and other specifications shall be as per the manufacturer's instructions. iii. Water-soluble and certain flammable and combustible liquids and polar solvents that are destructive to nonalcohol-resistant foams shall require the use of alcohol-resistant foams.
5. FOAM SYSTEM LOCATION	i. Foam equipment, proportioner, pumps, control valves shall be as close to hazard they are protecting as possible, without compromising the safety of the equipment and of the personnel operating such systems.
6. FOAM STRAINERS	i. Civil Defence listed strainers, having perforations not larger than the smallest spray orifice and not less than 3.2 mm shall be installed , so as to be accessible for cleaning and flushing while maintaining the system discharge during activation.