3.7. Automatic Pre-action System Sprinkler Systems

3.7.1. The requirements for Pre-action Automatic Sprinkler System material, design, installation shall be as per **Table 9.9.,** Applicable Sprinkler requirements of **Table 9.7.** and the General Requirements of **Table 9.3.**

Table 9.9: Automatic Pre-action Sprinkler System Requirements

ITEMS	REQUIREMENTS
1. DEFINITION	i. A Pre-action System is a system which employs automatic and closed-type sprinkler heads connected to a piping system that contains air (either pressurized or non-pressurized), with a supplemental system of detection serving the same area as the sprinklers. ii. These systems are typically used in applications where the accidental discharge of water would be catastrophic to the usage occupancy (for example; computer servers, lift machine rooms, telecommunications equipment, and high voltage electrical components). iii. Pre-action systems shall be any of the following types. a. A single interlock system, which admits water to a sprinkler piping upon operation of detection devices. b. A double interlock system, which admits water to a sprinkler piping upon operation of both detection devices and automatic sprinklers.
2. COMPONENTS	i. Fire Pumps, Fire Water Tank, Pipes, Fittings, Nitrogen/Air Supply , Sprinkler Heads, Isolation valves, Pre-action Valve, Pressure gauge, Flow Switch, Test connection, Drains, Breeching inlet, Signs. ii. All components of pneumatic, hydraulic, or electrical systems shall be compatible.
3. FIRE PUMP CAPACITY	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. PIPES	i. Where the sprinkler pipe passes through a wall or floor into the refrigerated space, a section of the pipe arranged for the removal shall be provided immediately inside the space. The removable length of the required pipe shall be a minimum of 762 mm. ii. The connection pipe from the air supply to the dry pipe valve shall not be less than 15 mm in diameter and shall enter the system above the priming water level of the dry pipe valve. iii. The air supply piping shall be equipped with two easily removable supply lines at least 1.9 m long and at least 25.4 mm in diameter.
5. VALVES	i. The automatic water control valve shall be provided with hydraulic, pneumatic, or mechanical manual means for an operation that is independent of the detection devices and of the sprinklers.
6. PRESSURE GAUGES	i. The approved and Civil Defence listed Pressure gauges shall be installed a. Above and below the pre-action valve. b. On air supply to the pre-action valve.
7. SPRINKLERS	i. Sprinklers shall be either listed dry type sprinklers or Upright Sprinklers and Horizontal sprinklers.
8. SIZE OF THE SYSTEM	i. Not more than 1000 automatic sprinklers shall be controlled by one Single interlocked pre-action valve. ii. Double interlocked System size shall be designed to deliver water to test the connection in no more than 60 seconds.