3. Details of Fire Protection Systems

3.6. Automatic Dry Sprinkler Systems

3.6.1. The requirements for Automatic Dry Sprinkler System material, design, installation shall be as per **Table 9.8.,** Applicable Sprinkler requirements of **Table 9.7.** and the General Requirements of **Table 9.3.**

Table 9.8: Automatic Dry Sprinkler System Requirements

ITEMS	REQUIREMENTS
1. DEFINITION	i. A sprinkler system employing automatic sprinklers that are attached to a piping system containing air or nitrogen under pressure, the release of which (as from the opening of a sprinkler) permits the water pressure to open a valve known as a dry pipe valve, and the water then flows into the piping system and out the opened sprinklers. ii. Freezers and Refrigerated spaces having an ambient temperature less than 4°C shall be provided with Dry Sprinkler Systems.
2. COMPO-NENTS	i. Fire Pumps, Controller, Fire Water Tank, Pipes, Fittings, Nitrogen/Air Supply , Sprinkler Heads, Isolation valves, Alarm Check valves (ACV), Floor Zone Control Valve (ZCV), Pressure gauge, Flow Switch, Test connection, Drains, Breeching inlet and Signs.
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 pipe arranged for 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. PRESSURE GAUGES	i. The approved and Civil Defence listed Pressure gauges shall be installed a. On the water side and air side of the dry pipe valve. b. At the air receiver where one is provided. c. In each independent pipe from air supply to dry pipe system. d. At quick-opening devices
6. SPRINKLERS	i. Sprinklers shall be either listed dry type sprinklers or Upright Sprinklers. Standard or pendent sprinklers shall not be installed in Dry Systems.
7. DESIGN AREA AND DESIGN DENSITY.	i. The dry Sprinkler System Design area and the design densities shall be as per **Table 9.6.A.**

Table 9.8.A.: Design Area and Design Densities for Dry Sprinklers based on Occupancy Hazard

HAZARD	DESIGN DENSITY (mm/min) gpm/ft^2	AREA OF OPERATION (m^2) Ft^2	WATER DEMAND ONLY FOR SPRINKLERS gpm
1. Light Hazard	(4.1) 0.10	(181) 1950	195
2. Ordinary 1 Hazard	(6.1) 0.15	(181) 1950	290
3. Ordinary 2 Hazard	(8.1.1) 0.20	(181) 1950	390
4. Extra Hazard Group 1	(12.2) 0.30	(300) 3250	975
5. Extra Hazard Group 2	(16.3) 0.40	(300) 3250	1300