3.5. Automatic Wet Sprinkler Systems

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

Table 9.7: Automatic Sprinkler System Requirements

ITEMS	REQUIREMENTS
1. DEFINITION	i. Automatic sprinkler heads are individually heat activated and fixed into a piping network with water under pressure. When the heat of a fire raises the sprinkler temperature to its operating point, (a variety of temperature ratings, from 57 to 260 degrees) a liquid- filled glass bulb will shatter or a solder link will melt to open that single sprinkler, allowing water to discharge. The water is directed onto a diffuser or deflector which is designed to not only break the water into droplets of a specific size, but also to direct the spray to cover a specific floor and wall area.
2. COMPONENTS	i. The Fire Pumps, Controller, Fire Water Tank, Pipes, Fittings, 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. Pipe sizes for the automatic sprinkler System shall be established using Hydraulic calculations but shall not be less than the minimum diameters mentioned in **Table 9.7.A.** ii. However, the number of sprinklers shall be permitted to be increased when acceptable hydraulic calculations are performed and justified. iii. The minimum wall thickness shall be as per schedule 40. iv. Pipes shall be rated for a working pressure of 12 bar at the most remote point of the piping network. v. The sprinkler Piping shall be dedicated, serving only a sprinkler system. vi. Sprinkler pipes shall be supported in such a way that it allows free movement due to the expansion and contraction and the supports shall be installed near the joints, elbows and tee branches as much as possible. vii. The required special expansion joints & expansion loops shall be provided to allow the free movement of the pipe installation due to the expansion and contraction of the building structure and of the piping.

Table 9.7.A: Minimum Pipe Sizes and Maximum Number of Sprinkler allowed

NOMINAL STEEL PIPE DIAMETER	MAXIMUM NUMBER OF SPRINKLERS IN LIGHT HAZARD	MAXIMUM NUMBER OF SPRINKLERS IN ORDINARY AND STORAGE HAZARD	MAXIMUM NUMBER OF SPRINKLERS IN ABOVE FALSE CEILING AND BELOW RAISED FLOOR
1. 25 mm	2	2	2
2. 32 mm	3	3	4
3. 40 mm	5	5	7
4. 50 mm	10	10	15
5. 65 mm	30	20	30
6. 80 mm	60	40	60
7. 100 mm	100	100	100
8. 150 mm	230	275	300