



# FIRELAB

**TITLE** : Routine Sample Testing of Automatic Sprinkler Installations –  
Sprinkler Head Inspection and Activation,  
Inspection and Pressure Testing of Pipe/s

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## 1. INTRODUCTION

Sprinkler heads and pipes have to be tested and visually inspected according to **SANS 10287** and **NFPA 25**.

**SANS 10287** stipulates that a sprinkler installation (heads and pipes) must be tested and inspected every 20 years. However, **NFPA 25** requires sprinkler heads to be tested according to Table 1.1.

### Requirements for Testing of Existing Sprinkler Installations according to NFPA 25

Sprinkler / Environment Type	Service Life Cycle	Action Required	Subsequent Test Intervals
Solder-type (Extra High Temperature)	N/A	Submit specimens for testing	5 years
Fast-response Sprinklers	20 years	Submit specimens for testing	10 years
All Sprinklers	50 years	Submit specimens for testing or replace	10 years
All Sprinklers	75 years	Submit specimens for testing or replace	5 years
Dry Sprinklers	10 years	Submit specimens for testing or replace	10 years
Harsh Environment	5 years	Submit specimens for testing or replace	5 years
Pre-1920 Sprinklers	N/A	Replace	N/A

Table 1.1: Testing requirements according to **NFPA 25**

The sprinkler heads undergo a test to determine the operating temperature of the sprinkler heads in accordance with **ISO 6182 – 1:2014; Fire protection – Automatic sprinkler systems – Part 1: Requirements and test methods for sprinklers**.

The pipes undergo a static pressure Test (Hydrostatic Test) to check for leakage. Pipes less than or equal to 150 mm diameter are tested in accordance with **SANS 62 – 1:2013; Pipes suitable for threaded and of nominal size not exceeding 150 mm**. Pipes larger than 150 mm are tested in accordance with **SANS 719:2011; Electric welded low carbon steel pipes for aqueous fluids (large bore)**.

The pipes are visually inspected before and after the tests.

## 2. SAMPLES REQUIREMENTS

### Sprinkler Heads

The sprinkler heads removed for testing should represent each sampling installation (single control valve, occupancy within a division or area). The following number of sprinklers must be removed and submitted for testing:

- 🔥 10 sprinklers from within the installation (single control valve), or
- 🔥 Should the installation (single control valve) feed different occupancy classification areas/environments within the building, 10 sprinklers from each occupancy classification area/environment should be submitted
- 🔥 Should any of the occupancy classification areas have 10 or less sprinklers, then a minimum of 5 sprinklers should be submitted per occupancy area
- 🔥 Should there be multiple control valves within a building; the above criteria are applicable for each control valve.

### Sprinkler Pipes

Pipes sent for testing must represent the installation (single control valve, occupancy within a division or area); therefore, **all the different diameters** used in the installation must be sent for testing in order to represent the entire installation.

Example per each installation/single control valve:

🔥 Range pipe:	25 - 50 mm	x 2
🔥 Distribution pipe:	65 - 80 mm	x 1
🔥 Main valve pipe:	100 - 150 mm	x 1

Where installations/buildings consist of a large number of pipes of the same diameter, it is recommended that additional range and distribution pipes be submitted for testing, with at least one fitting untampered.

In order to make a conclusive evaluation of the pipe installation, the client should submit pipes (only applicable for 25 mm to 80 mm diameter pipes) with the pipe's **original threaded fitting**. Threaded fittings are the “weakest” point in a pipe work installation. **FIRELAB** will also be able to give a better conclusion/recommendation with regard to the condition of the pipe and the thread.

Long lengths of pipes may be cut for easy handling but should still contain at least one fitting.

In the event that pipe/s have been cut on either one or both ends, they will need to be **welded, grooved** or **threaded** depending on the type of pipe, in order to conduct the pressure test. Pipe/s that have been cut must have a minimum length of 1.5 m.

The welding, grooving or threading can be done by **FIRELAB** at an additional cost per pipe/s.

The client can groove or thread the specimen pipes, provided that the grooving and threading is done properly to enable **FIRELAB** to conduct the pressure tests, if this is not the case and **FIRELAB** needs to redo the grooving or threading; this will be done at an additional cost.

### 3. LOCATION IDENTIFICATION

According to **SANS 10287**, specimens have to be submitted with identification (an indication of the area where the specific specimen was removed). In the event of numbered specimens, the location must be identified on a block plan for reference.

Should the sprinkler heads and/or pipes be removed from a control valve within a multi storey building with multiple control valves, it is highly recommended that a block plan be provided, this will enable us to supply you with informed recommendations. For example: In the event of a positive outcome, no recommendation can be given if the area identification of the samples were not provided.

The specimen locations determine whether or not an entire installation of sprinklers/pipes within a specific area or occupancy needs to be removed/replaced. Further specimens may be submitted before removal to confirm overall condition of the entire installation.

### 4. DURATION AND SCHEDULE

The tests will be conducted as samples are received (first in, first out). Should there be no test line-up; a test report should be available within 3 weeks (15 working days) after receipt of the samples, provided there was no delay in payment. Samples will not be placed in queue until all the required documentation has been submitted.

**Note:** For pipes that are required to be welded, an additional 5 working days will be required.

### 5. TERMS AND CONDITIONS

All samples are to be delivered to **FIRELAB**, Building 28, CSIR Pretoria Campus, Meiring Naudé Road, **BRUMMERIA**, Pretoria, 0184.

Samples received will only be placed in queue for testing once **all** of the requested documentation including the purchase order, has been received.

You will be invoiced once the report is being finalised, the report will only be released after full payment has been received.

- Notes:**
- » According to the **SANS 10287**, sprinkler heads and pipes may not be reused when removed from its original location. Therefore, all specimens will be discarded after testing.
  - » Irrespective of which Standard the client wishes to use for the evaluation of the sprinkler installation, it is the client's responsibility to ensure that the correct number of sprinkler heads and/or pipes are randomly selected, in order to ensure the samples to be representative of the installation within the building, occupancy, area or division.