

Application Bulletin 10

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Application Bulletin: **Lift Motor Rooms** • Technology: **FirePro Condensed Aerosol**

Application
Lift Motor Rooms

The Risk
Traction machines, motors, controllers, drives, brakes and lubricating oils, where electrical faults or overheating can start a fire that spreads smoke into the lift shaft.

This Bulletin Covers
- Design considerations
- Environmental requirements
- End user responsibilities
- Post-discharge procedure
- Myths & comparative analysis

Mandatory Message to End Users
"Following discharge, the lift must remain out of service until all machinery, controllers and brakes have been inspected, cleaned where necessary, and tested by a competent lift engineer."

Condensed Aerosol Fire Suppression in Lift Motor Rooms

Design Considerations, Environmental Requirements, End User Responsibilities, Myths & Comparative Analysis

1. Introduction

Lift motor rooms house traction machines, electric motors, gearboxes, brakes, controllers, drive cabinets and associated cabling.

These spaces present a significant fire risk due to electrical faults, overheating motors and drives, lubricating oils and greases, and accumulated dust. A fire in a lift motor room can take lifts out of service, trap passengers, and allow smoke to travel into the lift shaft and the building it serves.

FirePro condensed aerosol (CA) technology provides an effective, LPCB-certified suppression solution for lift motor rooms, particularly where water-based systems pose unacceptable electrical risks and gaseous systems are impractical due to room size, integrity or cost.

This bulletin outlines the design considerations, environmental requirements, end user responsibilities, and common misconceptions relevant to FirePro systems in lift motor room applications.

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2. Purpose of FirePro in Lift Motor Rooms

FirePro is designed to:

- Rapidly suppress fire at an early stage
- Protect lift machinery, controllers and drives
- Limit the spread of fire and smoke towards the lift shaft
- Reduce downtime and protect building operations

However, FirePro is **not designed to**:

- Prevent electrical or mechanical faults in lift equipment
- Replace lift safety systems, controller protection or maintenance
- Provide cooling of overheated motors or brakes

> **Therefore:**
> *FirePro must form part of an overall lift safety strategy, including routine maintenance by a competent lift engineer and integration with the building fire alarm system.*

This requirement must be clearly communicated to the end user during system design, installation, and handover.

3. Important Note on Residue and Lift Equipment

FirePro is not a clean gas agent and does not claim zero-residue discharge.

A light, dry aerosol particulate may settle on surfaces after activation, including:

- Motor housings and traction sheaves
- Controller and drive cabinets
- Brake assemblies and cable trays

> **Mandatory message to end users:**
> *"Following discharge, the lift must remain out of service until all machinery, controllers and brakes have been inspected, cleaned where necessary, and tested by a competent lift engineer."*

This is a mandatory operational requirement.

4. Why Sprinklers and Water-Based Systems Are Unsuitable for Lift Motor Rooms

Water-based systems present significant risks in lift machinery spaces.

4.1 Electrical Damage and Shock Risk

- Water can short-circuit controllers, drives and motor windings
- Increased risk to engineers and building occupants

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4.2 Water Entering the Lift Shaft

- Discharge water can run through floor openings into the shaft
- Can damage lift cars, landing equipment and pit components below

4.3 Brake and Traction Effects

- Water on sheaves, ropes and brakes can affect grip and braking performance
- Lifts may require extensive inspection before safe return to service

4.4 Extended Downtime

- Wet electrical equipment often needs drying, testing or replacement
- Long outages affect building access and accessibility

4.5 Water Mist Limitations

- Still introduces conductive moisture onto electrical equipment
- Can promote corrosion on machinery and control components

5. Why FirePro Is Well Suited for Lift Motor Room Protection

FirePro offers significant advantages in lift machinery spaces.

5.1 No Water or Moisture

Eliminates risks of:

- Electrical failure
- Water entering the lift shaft
- Corrosion due to moisture

5.2 Effective on Typical Motor Room Fire Risks

- Suitable for:
  - Electrical fires in controllers and drives
  - Cable and insulation fires
  - Oil and grease fires from gearboxes and machinery

5.3 Rapid Flame Suppression

- Interrupts combustion chain reactions
- Effective on fast-developing electrical fires

5.4 No Cylinders or Pipework

- Compact, self-contained units
- Ideal for small or restricted motor rooms and retrofit installations

5.5 Minimal Pressure Rise

- No requirement for pressure relief venting

5.6 High Leakage Tolerance

- Performs effectively in rooms with rope holes and cable penetrations

5.7 Long 15-Year Life

- Reduced maintenance and lifecycle costs

6. Lift Motor Room Protection Requirements (Mandatory)

6.1 Lift Control Integration

- On fire detection, the lift should be brought to a designated floor and taken out of service in line with the lift's fire recall arrangements

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- Integration must be agreed with the lift maintenance contractor

6.2 Electrical Isolation

- Power to the lift machine and controller should be isolated on discharge where the lift design allows
- Prevents re-ignition and protects engineers

6.3 Equipment Maintenance

- Regular inspection of:
  - Motors and brakes
  - Gearbox oil levels and leaks
  - Controller and drive cabinets
- Dust, oil residue and stored materials must be removed

6.4 Ventilation Control

- Mechanical ventilation must shut down on activation
- Openings that cannot be closed must be included in the leakage assessment

6.5 Access Control

- Restricted access to authorised lift engineers only
- The room must not be used for storage

7. Environmental Conditions

Maintaining stable conditions enhances system performance:

TEMPERATURE	HUMIDITY
Within the lift equipment operating range	Controlled to avoid condensation on electrical components
AIRFLOW	**POST-DISCHARGE VENTILATION**
Ventilation fans must stop during discharge	Ventilate within 10–15 minutes

8. Design Considerations for Lift Motor Rooms

8.1 Fire Load Assessment

- Include:
  - Motor and controller materials
  - Cable insulation
  - Gearbox oils and greases

8.2 Enclosure Volume and Leakage

- Calculate full room volume
- Account for rope holes, floor openings and vents into the shaft

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8.3 Aerosol Generator Placement

- Ensure even distribution around machinery and controllers
- Avoid discharging directly onto ropes, sheaves or brake assemblies

8.4 Detection and Control Integration

- Early detection is critical (smoke or heat detection as appropriate)
- Integration with:
  - Fire alarm system
  - Lift controller and fire recall
  - Ventilation shutdown

8.5 Firefighting and Evacuation Lifts

- Firefighting and evacuation lifts are subject to additional requirements
- Confirm the design with the lift designer and the relevant lift standards

9. Post-Discharge Procedure

1. Confirm the lift is out of service and isolated
2. Ventilate the room within 10–15 minutes
3. Inspect all machinery and electrical equipment
4. Clean:
   - Motor and machine housings
   - Controller and drive cabinets
   - Brake assemblies
5. Lift engineer to test brakes, controls and safety circuits
6. Return the lift to service only once confirmed safe
7. Recommission FirePro system

10. Common Myths & Factual Counterpoints

Myth 1: "Aerosol systems damage lift machinery."

Fact: FirePro produces a dry particulate that does not harm lift equipment when the required inspection and cleaning are carried out.

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Myth 2: "Sprinklers are the safest option for motor rooms."

Fact: Water creates electrical hazards and can run into the lift shaft, causing damage and long outages.

Myth 3: "Gas systems are the only option for lift machinery."

Fact: Gas systems need sealed rooms and pressure venting, which are hard to achieve with rope holes and shaft openings. FirePro works effectively without these constraints.

11. Transparency Statement

FirePro UK maintains full transparency:

- FirePro is designed to suppress fire, not prevent equipment faults
- FirePro is not a zero-residue agent; a light particulate is produced
- Post-discharge inspection and testing by a competent lift engineer are mandatory
- FirePro does not cool overheated motors or brakes
- FirePro is not certificated for deep-seated fires within equipment
- FirePro introduces no water, avoiding electrical hazards and water entering the lift shaft
- FirePro is often the most practical solution where gas or water systems are unsuitable

12. Summary

FirePro condensed aerosol provides an effective and practical fire suppression solution for lift motor rooms, where water-based systems create electrical and shaft risks and gaseous systems may be difficult to install.

Its ability to suppress fire rapidly without introducing moisture, combined with simple installation, makes it well suited to protecting lift machinery and keeping lifts available.

However, successful protection depends on:

- Proper system design and placement
- Integration with the lift controller and fire alarm system
- Regular lift maintenance
- Mandatory post-discharge inspection and testing

Key operational requirement:
The lift must remain out of service after any FirePro activation until a competent lift engineer has inspected, cleaned and tested the installation.

If you would like to learn more about FirePro, or discuss a lift motor room application, please visit us at **www.fireprouk.com** – see contact details below.

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