

Application Bulletin 12

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Application Bulletin: **Pump Rooms** • Technology: **FirePro Condensed Aerosol**

Application
Pump Rooms

The Risk
Electric motors, pumps, starters and control panels, often handling oils, fuels or process liquids that can leak onto hot or electrical equipment.

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

Mandatory Message to End Users
"Following discharge, all motors, control panels and electrical equipment must be inspected, cleaned where necessary, and tested before pumps are restarted."

Condensed Aerosol Fire Suppression in Pump Rooms

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

1. Introduction

Pump rooms house electric motors, pumps, starters, control panels, pipework and cabling, and in many cases handle oils, fuels or other process liquids.

These spaces present a fire risk due to motor and bearing overheating, electrical faults, and leaks of flammable liquids onto hot or electrical equipment. A fire in a pump room can stop critical services such as water supply, fuel transfer or process operations.

FirePro condensed aerosol (CA) technology provides an effective, LPCB-certified suppression solution for pump rooms, particularly where water-based systems pose 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 pump room applications.

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2. Purpose of FirePro in Pump Rooms

FirePro is designed to:

- Rapidly suppress fire at an early stage
- Protect pumps, motors and control equipment
- Control fires involving leaked oils and fuels
- Reduce downtime and protect essential services

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

- Prevent mechanical, bearing or seal failures
- Stop leaks or contain spilled liquids
- Provide cooling of overheated motors or pumps

> **Therefore:**
> *FirePro must form part of an overall pump room safety strategy, including leak detection, spill containment and routine maintenance.*

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

3. Important Note on Residue and Pump 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 cooling fans
- Control panels and starters
- Pipework, valves and cable trays

> **Mandatory message to end users:**
> *"Following discharge, all motors, control panels and electrical equipment must be inspected, cleaned where necessary, and tested before pumps are restarted."*

This is a mandatory operational requirement.

4. Why Sprinklers and Water-Based Systems Are Unsuitable for Many Pump Rooms

Water-based systems present significant risks in pump rooms.

4.1 Electrical Damage

- Water can short-circuit motors, starters and control panels
- Increased risk to personnel and equipment

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4.2 Spread of Flammable Liquids

- Water can spread burning oil or fuel across the floor
- Ineffective on pressurised liquid spray fires

4.3 Contaminated Run-Off

- Firewater mixed with oils or process liquids must be contained
- Requires drainage and environmental controls

4.4 Extended Downtime

- Wet motors and controls need drying, testing or replacement
- Loss of critical pumping services

4.5 Water Mist Limitations

- Still introduces moisture onto electrical equipment
- Can promote corrosion on motors and controls

5. Why FirePro Is Well Suited for Pump Room Protection

FirePro offers significant advantages in pump rooms.

5.1 No Water or Moisture

Eliminates risks of:

- Electrical failure
- Spreading burning liquids
- Contaminated firewater run-off

5.2 Effective on Typical Pump Room Fire Risks

- Suitable for:
  - Oil and fuel fires (Class B)
  - Electrical fires in motors and controls
  - Cable and insulation fires

5.3 Rapid Flame Suppression

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

5.4 No Cylinders or Pipework

- Compact, self-contained, wall-mounted units
- Ideal for crowded rooms with extensive pipework

5.5 Minimal Pressure Rise

- No requirement for pressure relief venting

5.6 High Leakage Tolerance

- Performs effectively in rooms with pipe and cable penetrations

5.7 Long 15-Year Life

- Reduced maintenance and lifecycle costs

6. Pump Room Protection Requirements (Mandatory)

6.1 Pump and Electrical Shutdown

- Pumps handling flammable liquids should stop on fire detection where the process allows
- Electrical supplies should be isolated on discharge where safe to do so

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6.2 Leak Detection and Containment

- Bunding or drip trays must be provided for oils and fuels
- Leaks must be repaired immediately

6.3 Equipment Maintenance

- Regular inspection of:
  - Motors and bearings
  - Pump seals and glands
  - Control panels and starters

6.4 Ventilation Control

- Ventilation systems must shut down on activation
- Prevents aerosol dilution

6.5 Fire Pump Rooms

- Where pumps serve fire protection systems, the design must not compromise their operation
- Consult the fire system designer and the relevant standards

7. Environmental Conditions

Maintaining stable conditions enhances system performance:

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

8. Design Considerations for Pump Rooms

8.1 Fire Load Assessment

- Include:
  - Liquids pumped or stored in the room
  - Motor and cable insulation
  - Lubricating oils

8.2 Enclosure Volume and Leakage

- Calculate full room volume
- Apply leakage compensation for penetrations and openings

8.3 Aerosol Generator Placement

- Ensure even distribution along pump lines

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- Avoid obstruction by pipework and cable trays

8.4 Detection and Control Integration

- Early detection is critical (heat, flame or smoke detection as appropriate)
- Integration with:
  - Fire alarm system
  - Pump and electrical shutdown
  - Ventilation shutdown

8.5 Hazardous Area Considerations

- Where flammable vapours may be present, confirm the hazardous area classification
- All equipment must be suitable for the zone (ATEX/DSEAR)

9. Post-Discharge Procedure

1. Confirm pumps and electrical supplies are isolated
2. Ventilate the room within 10–15 minutes
3. Check for leaks or spilled liquids
4. Clean:
   - Motor housings and fans
   - Control panels
   - Accessible surfaces
5. Inspect and test motors and controls
6. Confirm no risk of re-ignition
7. Recommission FirePro system

10. Common Myths & Factual Counterpoints

Myth 1: "Aerosol systems damage pump motors."

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

Myth 2: "Water is the best way to protect pump rooms."

Fact: Water creates electrical hazards, spreads burning liquids and produces contaminated run-off.

Myth 3: "Pump rooms are too crowded with pipework for suppression."

Fact: FirePro units are compact and wall-mounted, with no distribution pipework, making them easy to fit around existing plant.

11. Transparency Statement

FirePro UK maintains full transparency:

- FirePro is designed to suppress fire, not prevent mechanical failure

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- FirePro is not a zero-residue agent; a light particulate is produced
- Post-discharge inspection, cleaning and testing are mandatory
- FirePro does not stop leaks or cool overheated equipment
- FirePro is not certificated for deep-seated fires
- FirePro introduces no water, avoiding electrical hazards and contaminated run-off
- 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 pump rooms, where water-based systems create electrical and liquid-spread risks and gaseous systems may be difficult to install.

Its compact, pipework-free units are easy to fit in crowded plant spaces, and it suppresses fire rapidly without introducing water.

However, successful protection depends on:

- Proper system design and placement
- Leak detection and spill containment
- Integration with pump and electrical shutdown
- Mandatory post-discharge inspection and testing

> **Key operational requirement:**
> *All motors and electrical equipment must be inspected, cleaned and tested before pumps are restarted after any FirePro activation.*

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

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