FROZENFIRE®
INDUSTRIES LLP
Mfg. of Fire Fighting Equipments

"KAVACH"
REMOTE OPERATED HVLR FOAM MONITOR

FROZENFIRE "KAVACH" UL LISTED REMOTE OPERATED HVLR FOAM MONITOR

Frozenfire "KAVACH" SERIES UL Listed Remote Operated HVLR (High Volume Low Range) Foam Monitor shall be a heavy-duty, electrically remote-controlled foam discharge monitor designed for rapid and effective protection of large-risk areas such as **oil & gas installations, petroleum refineries, tank farms, chemical plants, loading/unloading terminals, aircraft hangars, process plants and other high-hazard industrial applications**.

The monitor shall be designed for **high-volume foam discharge with long-range coverage**, enabling the operator to direct the foam stream accurately onto the fire from a safe distance. The complete monitor assembly shall be **UL Listed** and suitable for fixed fire-fighting installations.



1. Monitor Construction

- Heavy-duty monitor body manufactured from **high-quality corrosion-resistant material**, suitable for continuous industrial fire-fighting service.
- Monitor shall incorporate a robust **swivel arrangement for horizontal and vertical movement**.
- Smooth internal water/foam passages shall be provided to minimize pressure loss and ensure efficient discharge.
- All critical mechanical components shall be designed for reliable operation under demanding fire-fighting conditions.
- Suitable surface treatment and protective coating shall be provided for resistance against corrosion and environmental exposure.

2. Remote Operation

The monitor shall be A/C Powered 3 Phase **electrically remote operated**, allowing the operator to control the monitor from a safe location away from the hazardous area.

Remote operation shall include:

- **Horizontal movement – 360° or as specified**
- **Vertical elevation/depression movement as required**
- Independent electric actuators/geared drives for horizontal and vertical positioning.
- Remote control arrangement for precise aiming of the foam stream.
- Robust limit switches shall be incorporated to prevent over-travel of the monitor.
- Manual override arrangement may be provided for operation during electrical failure, as applicable.

3. HVLR Foam Discharge

The monitor shall be suitable for **High Volume Low Range (HVLR) foam application**, producing a large-volume foam discharge at comparatively low discharge velocity to provide effective surface coverage.

The HVLR arrangement shall provide:

- High foam output.
- Uniform and stable foam pattern.
- Effective surface coverage over large fire-risk areas.
- Reduced turbulence at the point of foam application.
- Suitable long-distance foam projection depending upon flow rate, pressure and nozzle configuration.

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4. Foam Nozzle

The monitor shall be fitted with a **dedicated HVLR foam nozzle** designed to generate an effective aspirated foam blanket.

The nozzle shall provide:

- High-volume foam discharge.
- Uniform foam expansion.
- Stable foam stream/pattern.
- Effective foam blanket formation.
- Low-pressure-drop construction.
- Corrosion-resistant construction suitable for foam solution service.

5. Foam Induction

Where applicable, the monitor/nozzle assembly shall be suitable for connection to a **foam proportioning/induction system** to receive the required concentration of foam solution.

The system may be configured for compatible foam concentrates such as **AFFF, AR-AFFF or other approved foam concentrates**, subject to the foam concentrate manufacturer's approval and system design.

6. Electric Actuation System

The remote-operated monitor shall be provided with suitably rated **electric geared actuators** for directional movement.

The actuator assembly shall include:

- High-torque geared drive.
- Suitable motor enclosure for the specified installation environment.
- Horizontal and vertical drive mechanisms.
- Limit switches.
- Mechanical protection.
- Local/manual override, where specified.
- Suitable electrical termination arrangement.

7. Remote Control Panel

A suitable remote control arrangement shall be provided for operation of the monitor from a safe location.

The control system may include:

- **UP / DOWN control**
- **LEFT / RIGHT control**
- **Nozzle JET / FOG control**
- Monitor positioning controls.
- Emergency stop facility.
- Power ON indication.
- Fault/trip indication.
- Local/remote selection, where applicable.
- Suitable joystick or push-button control arrangement.
- Interface provision for integration with the site's fire & gas/DCS/PLC system, if required

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Remote Control Panel Specification

Power supply	415V 3Ph. 50Hz/ 230V 1Ph. 50Hz
Motors	PPh/1 Ph squirrel cage induction type, Flameproof, WP IPSE HVLR MONITOR ELEC. PANEL
Proximity/ Limit switches	24 V DC/230 V AC, IS/ Flameproof, IP68
Junction boxes	Flameproof, Weatherprotection IP65
Interconnecting cables	4 mm² Cu, 1100 V grade PVC insulated, PVC Sheathed, Armoured, FRLS type
Control Panel	Flameproof, PLC based/ Solid state based, WP IP65
Controls and Indications	Horizontal & Vertical movement of Monitor - Jet/ Spray indication of nozzle) - Power available indication - Open/Close of MOV





Wireless Remote

Typical project-specific parameters shall include:

Parameter	Specification
Equipment	"KAVACH" Remote Operated HVLR Foam Monitor
Approval	**UL-162**
Operation	A/C Electrically Remote Operated
Horizontal Rotation	As per approved design
Vertical Movement	As per approved design
Foam Nozzle	HVLR Type
Flow Rate	500 US GPM – 1000 US GPM
Operating Pressure	As per hydraulic calculation
Discharge Range	As per approved performance data
Foam Type	As per approved foam system
Construction	S.S-304 / 316 / 316 L
Control	Remote Electrical Control Wireless Remote Control -35 Mtr Range
Manual Override	As applicable
Installation	Fixed Fire-Fighting System

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Available Models

The Frozenfire KAVACH SERIES HVLR Monitor is available in various inlet sizes including:

Model Number	Monitor Size (MM)	Flow in GPM	Water Jet in Meters	Horizontal Throw (Foam) in meters
FIL-KAVACH-HVLR-500F	75	500	55	50
FIL-KAVACH-HVLR-750F	75	750	60	65
FIL-KAVACH-1000F	100	1000	65	60
FIL-KAVACH-500-750V	75	500	55	50
		750	60	55
FIL-KAVACH-500-750-1000V	100	500	55	50
		750	60	55
		1000	65	60

9. Bearings & Sealing

The monitor shall incorporate heavy-duty bearings/bushes and suitable sealing arrangements to ensure smooth movement and prevent leakage during operation.

The swivel joints shall be designed to withstand the operating pressure and mechanical loads generated during monitor movement.

10. Corrosion Protection

All external carbon-steel components, where used, shall be suitably treated and coated for protection against corrosion. Stainless-steel/brass components shall be provided wherever required for critical wetted or exposed parts.

The finished equipment shall be suitable for the environmental conditions specified for the installation.

11. UL Listed Compliance

The complete monitor assembly shall be (UL-162) **UL Listed for the applicable fire protection service**, with the supplied configuration complying with the applicable listing requirements.

The manufacturer shall provide relevant **UL Listing documentation/certification** and approved technical data along with the equipment.

12. Installation

The monitor shall be suitable for mounting on a suitable **flanged inlet connection/piping arrangement** as per approved engineering **drawings.**

Installation shall include:

- Properly rated inlet flange.
- Adequate structural support.
- Electrical connection to the remote control system.
- Accessible maintenance provisions.
- Proper alignment of horizontal and vertical actuators.
- Commissioning and functional testing after installation.

13. Testing

Each monitor shall be subjected to appropriate factory inspection and testing, including:

- Hydrostatic pressure testing of pressure-containing components.
- Leakage testing.
- Horizontal and vertical movement testing.
- Electric actuator functional testing.
- Limit-switch operation testing.
- Nozzle performance verification, where applicable.
- Visual and dimensional inspection.
- Verification of UL Listed configuration.

14. Scope of Supply

The complete assembly shall comprise, as applicable:

UL Listed HVLR Foam Monitor + HVLR Foam Nozzle + Electric Horizontal Actuator + Electric Vertical Actuator + Gear Drives + Limit Switches + Manual Override Arrangement + Flanged Inlet + Remote Control Arrangement + Required Mounting/Fixing Accessories.

The monitor shall be supplied as a complete factory-assembled, tested and ready-for-installation unit suitable for fixed high-hazard fire protection applications.