Dry Barrel Fire Hydrant
Model No.: LF-FM1510A / LF-FM1510B

Installation, Operation & Maintenance

In line with our policy of continuous product improvement LIFECO reserves the right to modify specifications without prior notice.

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1. PRODUCT INTRODUCTION

The LF-FM1510 dry barrel fire hydrant is a dedicated fixed water supply facility for fire protection systems. It is applicable to all fire water supply systems in frigid and cold zones where ambient temperature is lower than 4°C and freezing risks exist.

The product is mainly installed on both sides of municipal roads, residential quarters, commercial buildings, industrial parks and public sites in low-temperature icing-prone areas, as well as special low-temperature locations such as urban tunnels and unheated garages. It integrates dual functions of direct fire suppression and water intake for fire engines.

An automatic anti-freeze drainage structure is built inside the hydrant. Under normal standby status, no water is retained inside the hydrant body and upper pipelines. Once a fire breaks out, the valve can be opened to fill water rapidly and deliver high-pressure fire water. After fire fighting finishes and the valve is closed, residual internal water will drain automatically, fundamentally avoiding equipment cracking and failure caused by low-temperature freezing. It can provide stable continuous water supply for initial fire suppression and subsequent fire fighting, and is an indispensable core component of outdoor fire water supply systems in cold and frigid regions.

The nominal pressure of the LF-FM1510A / LF-FM1510B dry barrel fire hydrant is 250 PSI. Inlet connection type: Flange & mechanical joint, nominal pipe size 6-inch. Applicable flange standards: ASME B16.1 Class 125, ASME B16.42 Class 150, EN1092-2 PN10, EN1092-2 PN16, ANSI/AWWA C111/21.11, ANSI/AWWA C153/C21.53.

2. TRANSPORT AND STORAGE

2.1 Transport

2.1.1 Packed Hydrants

Forklifts shall be used to handle packed hydrants; proper lifting hooks shall be adopted for hoisting work.

Hoisting operations shall only be carried out at marked lifting points and the gravity center of the product.

Packaging must remain intact during transportation to prevent hydrant damage.

2.1.2 Unpacked Hydrants

Appropriate protective handling methods shall be adopted for unpacked hydrants. All unpacked hydrants must be transported on pallets to avoid damage to machined surfaces and anti-corrosion coating.

2.2 Storage

2.2.1 Short-Term Storage

Short-term storage refers to temporary storage before on-site installation, generally lasting 1 to 3 months. Comply with the following requirements:

Clean and dry warehouses are preferred storage locations.

Keep the original packaging intact to prevent dust, debris, insects and animals from entering the hydrant interior.

Open-air storage is allowed, but reliable protective measures shall be equipped against harsh weather such as intense sunlight and thunderstorms.

Products must be placed on pallets or special racks instead of directly on the ground, and tightly covered with waterproof tarpaulins.

2.2.2 Long-Term Storage

Long-term storage is defined as storage period exceeding 3 months. The following requirements shall be met:

Store products in clean, dry warehouses; never expose them to extreme temperature environments.

Retain original packaging to isolate dust and foreign contaminants.

Manually fully open then slightly close the hydrant once every six months to release compressive stress of rubber parts; clean sealing surfaces before opening valve plates.

Ambient relative humidity shall be controlled below 75%.

Avoid direct ultraviolet radiation and sunlight exposure.

Keep away from ozone-generating equipment, flammable gas and volatile vapor.

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Storage temperature shall be maintained below 38°C (100°F), far away from direct heat sources. Optimal storage temperature range: 4°C ~ 29°C (40°F ~ 85°F).

3. INSTALLATION GUIDE

3.1 Pre-Installation Inspection

3.1.1 Check packaging boxes for breakage or water seepage; conduct thorough inspection of internal products if packaging is damaged.

3.1.2 The coating on hydrant body shall be complete without obvious collision dents, scratches, cracks and rust.

3.1.3 Flange sealing faces and outlet threads shall be smooth and flat, free of burrs, deformation and impact damage.

3.1.4 Rotate each outlet valve with a dedicated hydrant wrench; all valves shall open and close flexibly without jamming.

3.2 Pipeline Pre-Treatment

3.2.1 Hydrants shall not bear pipeline weight, thrust or bending moment. Sufficient fixing and supporting structures shall be installed for pipelines before hydrant installation.

3.2.2 Clean pipeline sealing faces to ensure flat and smooth end faces. Pipelines shall be coaxial with the hydrant; radial misalignment and flatness deviation of connected pipes shall comply with standard limits.

3.2.3 Hydrants shall be directly connected to rigid pipelines. Do not install hydrants between flexible joints, rubber-lined flanges and expansion joints.

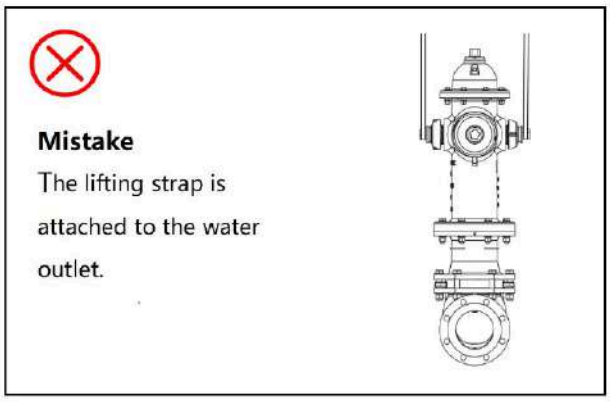
3.3 Lifting Requirements

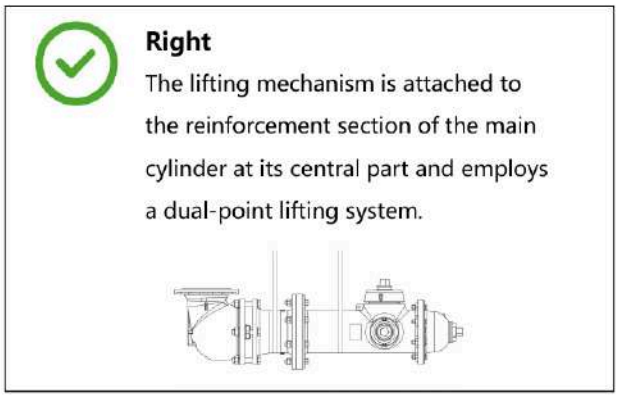
3.3.1 Lifting operations are only allowed on the central main barrel reinforcement section and dedicated lifting holes of the hydrant body. Binding slings on valve stems or outlet ports is strictly prohibited.

3.3.2 Wrap hoisting points with soft slings to prevent scratches on the hydrant anti-corrosion coating.

3.3.3 Single-point lifting and lateral lifting are forbidden.

3.3.4 Overload lifting is strictly prohibited.





3.4 Safety Protection

Operators shall wear safety goggles and protective gloves; fasten safety harnesses for high-altitude work and take fire prevention measures during welding. The pipeline system must be fully depressurized and drained before installation.

3.5 Installation Orientation (Confirm Application)

3.5.1 The fire hydrant shall be installed in accordance with local municipal regulations and design standards.

3.5.2 Connect the hydrant to matched fire water supply pipelines.

3.5.3 Unless otherwise stipulated by local codes, maintain a minimum distance of 2 feet from road edge to the hydrant.

3.5.4 Orient fire engine nozzles toward the roadway to realize quick connection with fire engine water pumps.

3.5.5 Hose outlet ports shall be installed at least 18 inches (46 cm) above ground, to provide enough operating space for hydrant wrenches to remove nozzle caps and operate valves.

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3.5.6 Install isolating gate valves on pipelines to separate hydrants from main pipelines for maintenance or emergency shutoff. Set end caps or supporting structures at pipeline joints to allow hydrant disassembly without closing the main water supply.

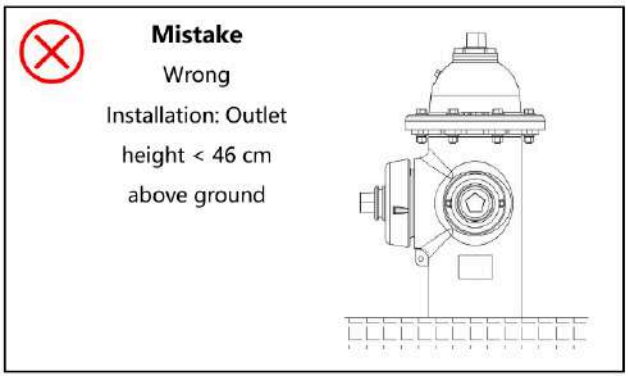
3.5.7 Mount isolating gate valves as close to the main pipeline as possible.

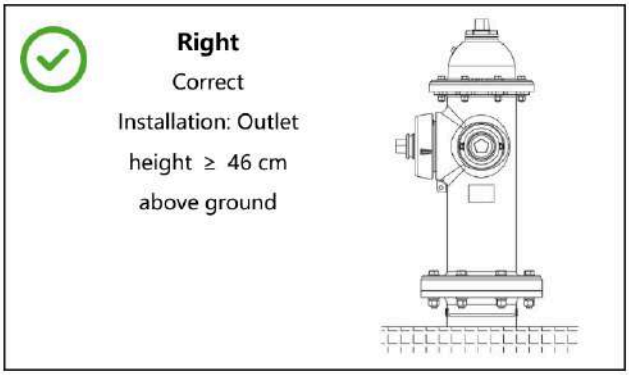
3.5.8 Install the hydrant on solid stone or concrete bases to prevent settlement and deformation of hydrant pipelines and vertical risers. Equip supporting end caps at pipe joints.

3.5.9 Do not block hydrant drain holes when constructing supporting foundations.

3.5.10 Drain outlets shall be arranged at areas with high groundwater levels. After each use, mark the hydrant properly and drain all residual water to avoid freezing.

3.5.11 Drain outlets shall not be connected to domestic water sewers or rainwater drainage systems.





3.6 Installation Procedures

3.6.1 Pre-installation Preparation

Flush pipelines thoroughly to remove internal impurities.

Clean hydrant sealing faces to eliminate surface contaminants.

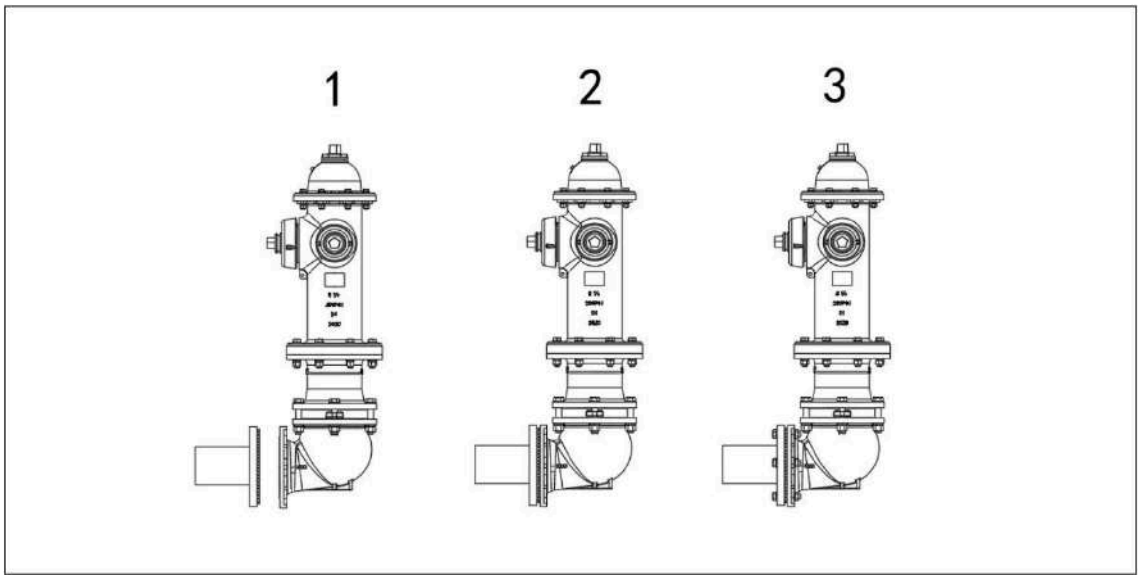
Confirm hydrant model and nominal size match pipeline parameters.

3.6.2 Hydrant Positioning & Flange Connection

Place matched flange gaskets centered on pipeline sealing faces, then lower the dry hydrant steadily above the pipeline.

Align pipeline and hydrant flanges concentrically and match all bolt holes; adjust gaskets to fully cover sealing surfaces without offset.

Thread all flange bolts, pre-tighten loosely in diagonal sequence, then fasten bolts step by step.



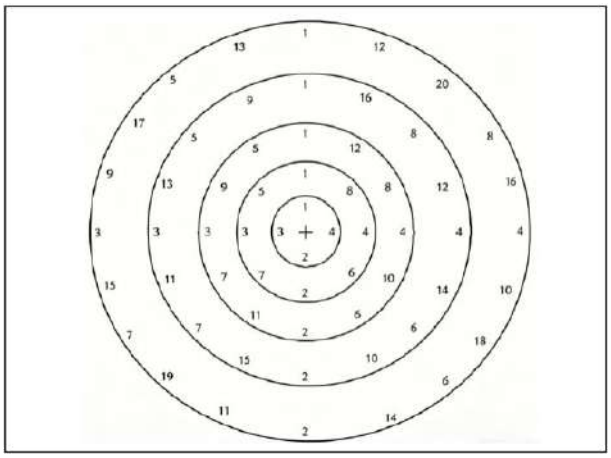
3.6.3 Diagonal Staged Bolt Tightening

Tighten bolts in four torque stages: 30% → 50% → 70% → 100% rated torque.

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Do not fully tighten a single bolt at one time. Follow the diagonal tightening sequence shown in drawings to avoid flange tilt, uneven gasket stress, seal failure and bolt fracture.

Ensure two flanges fit in parallel completely; gaskets are centered without wrinkles or offset; 2~3 threads of bolts shall be exposed outside nuts after tightening.

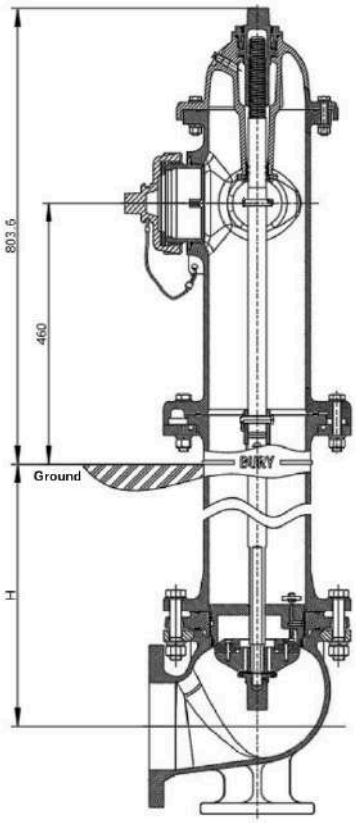


3.6.4 Post-installation Inspection

Open and close valves repeatedly to confirm normal full-open / full-close positions and smooth rotation of valve stems.

Inspect flange joints and valve seat sealing surfaces for medium leakage.

Verify valve stems and operating components are installed in correct positions without misalignment.



Depth	H (mm)
1′	326
2′	543
3′	848
3′-6″	1001
4′-0″	1153
4′-6″	1306
5′-0″	1458
5′-6″	1611
6′-0″	1763
6′-6″	1916
7′-0″	2068

4. OPERATING INSTRUCTIONS

4.1 Pipeline Flushing

Keep hydrant valves fully open during pipeline flushing to prevent impurities from jamming valve plates or scratching sealing surfaces.

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4.2 Pressure Testing

Boost pressure gradually in stages during hydrostatic testing. Inspect hydrant bodies, flange joints and shaft end seals for external leakage after pressure stabilization.

4.3 Functional Test

Conduct valve opening and closing test; no abnormal noise or jamming shall occur during the whole operation process.

4.4 Documentation & Filing

Record complete installation data and commissioning parameters and archive into equipment files. Actuate valve stems regularly during long-term shutdown to prevent valve seizure.

5. MAINTENANCE AND SERVICING

5.1 Routine Inspection

5.1.1 Visual Inspection

Check hydrant bodies, flanges and bolts for rust, cracks and deformation;

valve stems and operating nuts shall be intact and operate flexibly without jamming;

no leakage shall exist at stem packing, and hydrant coating shall remain complete.

5.2 Opening & Closing Inspection

Manually open and close valves 1~2 times to verify accurate full-open and full-close positions.

5.3 Seal & Leakage Inspection

Fully close valves and check downstream sides for water seepage and dripping;

inspect flange joints for leakage and loose bolts.

5.4 Quarterly Maintenance

5.4.1 Check chains and nozzle caps for binding; ensure nozzle caps can rotate freely.

5.4.2 Remove nozzle caps and visually inspect inlet flanges, outlet nozzles, valve seats and valve stem holes for leakage. Tighten loose fittings for minor leakage; mark defective hydrants for subsequent repair if leakage cannot be eliminated.

5.4.3 Inspect outlet threads for damage and foreign accumulation; clean threads timely to ensure smooth thread engagement.

5.4.4 Check hydrant surfaces for exposed bare metal; touch up paint timely to prevent rust.

5.4.5 Inspect anti-freeze drain holes for unobstructed flow, free of sediment and debris blockage.

5.4.6 Close the main valve and observe automatic drainage from hydrant drain holes to ensure complete evacuation of internal residual water. If drainage is blocked, clear holes gently with thin wire; do not poke forcefully with hard tools to avoid damaging sealing parts. Confirm no standing water inside the hydrant to prevent low-temperature cracking.

5.4.7 Repeat the above drainage operation for each outlet port and properly dispose of drained water.

5.4.8 Fully close all valves and tighten nozzle caps to prevent manual removal.

5.4.9 Confirm isolating gate valves are kept fully open.

5.4.10 Record all inspection results and required follow-up maintenance items.

5.4.11 Restore the hydrant to normal service status after maintenance.

5.4.12 Record detailed information of each inspection, maintenance and repair including date, inspection items, test results and operator information.

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6. TROUBLESHOOTING

Fault Phenomenon	Root Cause	Solution	Precautions
Valve seat sealing leakage	Damaged sealing faces of hydrant body / valve disc	Grind slightly scratched sealing surfaces; replace valve disc for severe damage	Mark all disassembled parts to avoid assembly misalignment
	Foreign debris trapped between sealing pairs	Disassemble valve and clear internal impurities	
	Aged sealing components	Replace deteriorated sealing parts	
Valve stem end leakage	Worn and deformed valve disc shaft	Replace worn valve disc or shaft assembly	Apply special fire-water-compatible sealing grease on valve stems and shaft holes after seal replacement
	Aged / cracked O-rings	Replace failed O-rings	
Leakage between hydrant and pipeline	Uneven tightening of flange bolts	Retighten all bolts evenly according to standard torque in diagonal sequence	One-sided bolt tightening is forbidden to prevent flange surface deformation
	Damaged or offset flange gaskets	Replace damaged gaskets and re-center gaskets	
	Impurities on flange sealing surfaces	Clean sealing surfaces and reinstall flanges	
Valve opening and closing jamming	Pipeline impurities jamming valve disc	Clear impurities inside pipeline and hydrant	Only use fire water compatible lubricant; mixed use of different grease is prohibited
	Shaft sleeve wear leading to shaft system offset	Replace valve stems and disc nuts, re-align shaft system	

7. SAFETY PRECAUTIONS

7.1 Safety Warnings

7.1.1 This hydrant is only applicable to specified fire water medium and working conditions. Overpressure, overtemperature and mismatched medium use are forbidden, which may cause hydrant rupture, medium leakage and serious safety accidents.

7.1.2 Installation, commissioning and maintenance work must be operated by professional certified personnel. Cut off pipeline pressure and take complete safety protection measures before all operations.

7.1.3 Do not close isolating valves arbitrarily during fire protection system operation. Formulate emergency response plans for fire protection system before maintenance shutdown.

7.1.4 Mark and clean components during hydrant disassembly, and reassemble strictly according to original factory requirements. Non-original accessories are not allowed to replace original parts randomly.

7.1.5 If hydrants need to be installed at pipeline ends, please inform the manufacturer in advance for special matching solutions. Unauthorized modification of products is prohibited.

7.2 Daily Operation Guidelines

7.2.1 Inspect valve operation status, sealing performance and signal feedback function regularly to ensure normal standby state of hydrants.

7.2.2 Operate idle valves at least once every 3 months.

7.2.3 Inspect shaft sealing parts every 6 months, and replace aged and damaged seals timely.

7.2.4 Restore all valves to normal working position after system pressure test and routine inspection, and confirm normal signal feedback.

7.2.5 Keep complete inspection, maintenance and debugging records to establish perfect equipment archives for traceability.

7.2.6 Carry out comprehensive performance detection after products reach design service life. Replace unqualified products immediately, and over-age service is prohibited.

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8. DECOMMISSIONING AND DISPOSAL

8.1 Mandatory Scrap Standards

8.1.1 Hydrant Body Defects

Hydrant body cracks, sand holes and penetrating corrosion;

body deformation, flange or interface breakage leading to sealing failure;

serious rust and wall thickness reduction of cast iron hydrants with burst risk.

8.1.2 Permanent Sealing Failure

Aging, cracking, peeling and hardening of valve disc rubber seals;

deep scratch and deformation of sealing surfaces with serious leakage after replacing seals.

8.1.3 Damaged Valve Shaft and Transmission Structure

Bending, rust and thread damage of valve shafts;

valve shaft fracture and excessive wear leading to opening/closing failure;

deformation, corrosion and excessive concentric offset of sealing seats.

8.1.4 Failed Flange Connection Structure

Flange deformation, deep indentation and cracks;

flange cracks, bolt sliding thread or fracture;

damaged sealing groove unable to form effective seal.

8.1.5 Other Mandatory Scrap Conditions

Service life exceeds 10~12 years (recommended by fire protection specifications);

hydrants used in fire accidents, impacted violently or deformed by pipeline water hammer.

8.2 Scrap Disposal Safety Process

8.2.1 Pressure Relief and Water Drainage: Close front and rear control valves, release pipeline pressure completely and drain residual water. Never disassemble hydrants with pressure to avoid water hammer and high-pressure water spray injury.

8.2.2 Marking and Isolation: Hang "Scrapped, Forbidden to Use" warning tags on waste hydrants; isolate scrapped products from qualified products, and prohibit reconditioning and reuse.

8.2.3 Flange Disassembly: Loosen flange bolts reversely according to fastening sequence to prevent sudden flange popping; avoid scratching pipeline flange surfaces when removing residual gaskets.

8.2.4 Final Disposal: Break or cut cast iron hydrants to prevent illegal refurbishment and resale. Do not sell complete waste hydrants to waste recycling stations. Cut valve shafts or damage hydrant bodies before recycling disposal.

8.3 Prohibited Actions

- ✕ Welding repair, glue repair and makeshift use of scrapped hydrants are prohibited
- ✕ Reusing scrapped hydrants on non-fire pipelines is prohibited
- ✕ Only replacing seals while retaining defective hydrant body for continuous use is prohibited
- ✕ Replacing special fire isolation valves with non-standard industrial valves is prohibited

For information about this product and other LIFECO products, please contact Lichfield Fire & Safety Equipment Co. Ltd (LIFECO) — www.lifeco-uk.com, sales@lifeco-uk.com.

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