

SUPREME-X

CLEAN AGENT FIRE EXTINGUISHING SYSTEM



LIFECO-FK5112





LIFECO-FK5112 Suppression Agent

Our robust LIFECO-FK5112 Engineered Fire Suppression system is Underwriters Laboratories Inc. UL listed and FM Approved. Designed for total flooding, our system is built in full compliance with the NFPA 2001 "Standard on Clean Agent Fire Extinguishing Systems" and UL 2166 Standard for Halocarbon Clean Agent Extinguishing System Units.

LIFECO-FK5112 Agent is:

- Listed under National Fire Protection Agency (NFPA) 2001, Standard on Clean AgentFire Extinguishing Systems
- ▶ Listed under Underwriters Laboratories (UL)
- ► Factory Mutual (FM) approved

Cylinder Assembly

LIFECO-FK5112 cylinder assembly consists of a cylinder factory fitted with a valve and syphon tube. Available in various sizes, the cylinder is filled with LIFECO-FK5112 and super-pressurised with dry nitrogen to 25 bar @ 21°C (360 psi @ 70°F).

All cylinders are manufactured, tested, and labelled in accordance with DOT 4BW500.

LIFECO-FK5112 CYLINDER ASSEMBLY

DOT Cylinders Dimensions & Fill Range

Size (L)	Part Number	Valve Size (in)	Height (mm), A	Height (mm), B	Cylinder Diameter (mm), C	Min Fill (kg)	Max Fill (kg)	Nominal Tare Weight (kg)
16.7	LF -16FKD-25	1	653 (25.7")	564 (22.2")	228.6 (9")	8.4	20	17.3
28.3	LF -28FKD-25	1	954 (37.6")	865 (34")	228.6 (9")	14.2	33.9	24.9
52	LF -52FKD-25	2	721 (28.4")	597 (23.5")	406 (16")	26.1	62.4	52.4
106	LF -106FKD-25	2	1159 (45.6")	1029 (40.5")	406 (16")	53.1	127.2	78.6
147	LF -147FKD-25	2	1494 (58.8")	1364 (53.7")	406 (16")	73.6	176.4	100.1
180	LF -180FKD-25	2	1774 (69.8")	1644 (64.7")	406 (16")	90.1	216	116.3
240	LF -240FKD-25	2	1860 (73.2")	1729 (68.1")	462 (18.2")	120.1	288	156.5
270	LF -270FKD-25	3	1390(54.7")	1227 (48.3")	610 (24")	135.1	324	200.9
369	LF -369FKD-25	3	1734 (68.3")	1569 (61.8")	610 (24")	184.6	442.8	241.3
453	LF -453FKD-25	3	1595(62.8")	1437 (56.6")	762 (30")	226.6	453	323.9

A B

Note: Cylinders sizes 240L, 270L, and 453L are UL listed (FM approval is under process)



Valve Assembly

These three types of valves operate (1 inch, 2 inch and 3 inch) by means of pressure differential piston. The valves incorporated with the features to enable it to be connected with removable electrical, manual and pneumatic actuator for actuation purpose.



Valve Assembly

Description	Valve Size			
Size	25mm (1 inch)	50mm (2 inch)	80mm (3 inch)	
Part Number	LF -VA 25	LF -VA 50	LF -VA 80	
Outlet	1 inch BSPP	2 inch BSPP	3.5 inch - 12UN-2A	
Material	Brass Brass Brass			
Safety Disc Pressure	53.4 bar (774psi)			
Working Pressure	33.4 bar (484 psi)			
Gauge Port	1/8 inch NPT 1/8 inch NPT 1/8 inch NPT			
Equivalent Length 6.10 m		10.6 7 m	25.91 m	
Weight	3.3 kg	7.8kg	16.8kg	



Pressure Gauge

There are two types of pressure gauge to be used in the LIFECO-FK5112 system namely:

1) Pressure gauge complete with Contact Switch (Part Number: LF-PGLPS2),

Pressure gauges with contact switch will give signal if pressure drops below 19.9 Bar (290psi).



Pressure Gauge Complete With Contact Switch

Pressure Gauge complete with Contact Switch Technical Information

Description	Specification
Part Number	LF-PGLPS2
Body	Stainless Steel Case
Mechanical	Stainless Steel Spiral Wound
Gauge Materials	Bourdon Tube
Gauge Size	41 mm (1.6 inch)
Pressure Range	0 – 48.3 Bar (0 – 700 psi)
Std Output	18 AWG type SXL wire
Cable	
Std Connection	1/8 inch NPT
Approval	UL

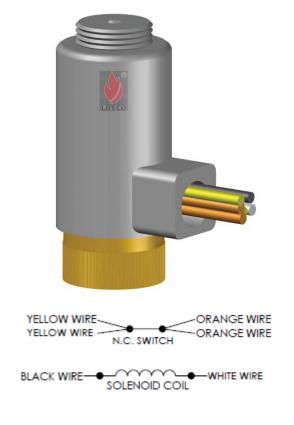


Supervised Latching Solenoid Actuator

This device is functioned the same as the electrical actuator complete with supervision switch and with the additional feature to be connected with conduit.

Solenoid Actuator Technical Information

Description	Specification		
Part Number	LF-EASV-LS		
Body Material	Mild Steel, Electroless Nickel Plated		
Actuation Pin	Stainless Steel		
Base nut	Brass CZ121		
Actuation Type	Latching		
Reset Method	Via Reset Tool Supplied		
Connection	1" BSPP (Brass End Fitting)		
Nominal Voltage	24 Volts DC		
Min Actuation Voltage	65% of nominal voltage		
IP Rating	Tested to meet IP54		
Nominal Current	0.5 A		
Max Monitoring Current	<30 mA		
Manual Actuation Force	50N (11.24 lbf)		
Nominal Pin Travel	6.36 mm (0.25 inch)		
Electrical Connection	1/2" NPT Female Conduit with		
	inbuilt bridge rectifier		
Back EMF Protection	Bridge Rectifier		
Approval	EN12094-4, UL Recognized		
	Component		
Size	124.2mm (L) x 88mm (W)		
	4.89 inch(L) x 3.46 inch(W)		
Weight	1.0kg		



Electrical Actuator Complete with Supervision Switch & Wiring Diagram



Manual Actuator

The manual actuator features a push button that used to depress the valve core and releases pressure from the cylinder discharge valve. This hardware is designed to be fitted on the top of the cylinder valve assembly or electrical actuator by hand tight only.



Manual Actuator

Manual Actuator Technical Information

Description	Specification		
Part Number	LF-MA		
Body	Brass C3604BD		
Push Button	Brass C3604BD		
Safety Pin	Stainless Steel		
Piston Rod	Brass C3604BD		
Overall Size	69 mm (L) x 41mm (Diameter)		
	2.72 inch (L) x 1.61 inch (Diameter)		
Min Actuation Force	40 N (8.99 lbf)		
Working temperature range	0°C to 50°C (0° F to 122° F)		
Weight	0.42 kg		



1 Inch and 2 Inch Discharge Hose

The discharge hose is equipped with a female swivel fitting at the inlet and enable to connect the cylinders to the manifold in multiple cylinder arrangements. This facility has enables cylinder to be disconnected during maintenance without any effort to remove other manifold connection and pipework.

1 inch Discharge Hose Technical Information

Description	Specification		
Part Number	LF-DH25		
Hose Material	Single braided high tensile steel wire oil resistant		
	synthetic rubber core to EN 853 Type 1SN		
Connection	1 inch NPT Male (Carbon steel)		
	1 inch BSPP Female 90° Swivel (Carbon steel)		
Min Bend Radius	140mm (5.5 inch)		
Max Working Pressure	90 Bar (1300 psi)		
Temperature Range	-40°C to + 100°C (-40° F to 212° F)		
Overall Size	405mm (L) x 92mm (W)		
	15.9 inch (L) x 3.6 inch (W)		
Equivalent Length	3.14 m		
Weight	1.25 kg		



1 inch Discharge Hose

2 inch Discharge Hose Technical Information

Description	Specification	
Part Number	LF-DH50	
Hose Material	Double braided high tensile steel wire oil resistant synthetic rubber core to EN 853 Type 2SN	
Connection	2 inch NPT Male (Carbon steel)	
	2 inch BSPP Female 90° Swivel (Carbon steel)	
Min Bend Radius	600mm (23.6 inch)	
Max Working Pressure	90 Bar (1300 psi)	
Temperature Range	-40°C to + 100°C (-40° F to 212° F)	
Overall Size	530mm (L) x 155mm (W)	
	20.9 inch (L) x 6.1 inch (W)	
Equivalent Length	5.36 m	
Weight	5.05 kg	



2 inch Discharge Hose



3 Inch Discharge Hose

The discharge hose is used to connect the 3 inch cylinder discharge valve outlet and manifold



3 inch Discharge Hose

3 inch Discharge Hose Technical Information

Description	Specification
Part Number	LF-DH80
Hose Material	Double braid 304 stainless steel
	corrugated hoses
Connection	3 inch NPT Male
	3 inch BSPP Female 90° Tube Bend
Min Bend Radius	750 mm (29.5 inch)
Max Working Pressure	35 Bar (508 psi)
Overall Size	530 mm (L) x 280 mm (W)
	20.9 inch (L) x 11 inch (W)
Equivalent Length	15.85 m
Weight	6.0 kg



Pneumatic Actuator

The pneumatic actuator features a pneumatically driven piston that used to depress the valve core and releases pressure from the cylinder discharge valve. This hardware is designed to be fitted on the top of the cylinder valve assembly by hand tight only. The pressure from the master cylinder is used to actuate the cylinder discharge valve of slave cylinder via flexible hose.

Pneumatic Actuator Technical Information

Description	Specification		
Part Number	LF-PA		
Body	Brass C3604BD		
Actuation Pin	Brass C3604BD		
Pneumatic Connection	1/4 inch NPT Female		
Overall Size	48mm (L) x 41mm (Diameter)		
	1.89 inch (L) x 1.61 inch (Diameter)		
Min Actuation Pressure	0.7 Bar (10.15 psi)		
Working temperature range	0°C to 50°C (0° F to 122° F)		
Weight	0.38 kg		



Pneumatic Actuator

Flexible Hose

The flexible hose is used to connect between the master cylinder valve port and slave cylinder pneumatic actuator and slave to slave cylinder pneumatic actuator. This flexible hose is act as a pressure connector.

Flexible Hose Technical Information

Description	Specification
Part Number	LF-FH710
Hose Material	Single braided high tensile steel wire oil resistant
	synthetic rubber core to EN 853 Type 1SN
Connection	1/4 inch BSPP Female Swivel
Min Bend Radius	38 mm (1-1/2 inch)
Max Working Pressure	225bar (3250psi)
Min. Burst Pressure	900 Bar (13000 psi)
Length	710 mm (28 inch)
Diameter	6.3 mm (1/4" inch)
Weight	0.25 kg





Actuation Components

The following fittings are used for the actuation system and not limit to other acceptable fittings

Picture			
Part Number	LF-025N	LF-025T	LF-025E
Description	1/4" Nipple -Connect flexible hose (LF-FH710) to discharge valve assembly.	1/4" Tee -Connect flexible hose (LF-FH710) to pneumatic actuator (LFPA)	1/4" Elbow -Connect flexible hose (LF-FH710) to pneumatic actuator (LFPA)
Technical	Material: Steel zinc passivated	Material: Steel zinc passivated	Material: Steel zinc passivated
Information	Connection: 1/4" BSP x 1/4" BSP	Connection: 1/4" BSP x 1/4" BSP x 1/4" NPT	Connection: 1/4" BSP x 1/4" NPT
	Max. Working Pressure: 350Bar	Max. Working Pressure: 350Bar	Max. Working Pressure: 350Bar



Valve Outlet Adapter

Valve outlet adaptor is available in various size and thread to connect cylinder valve outlet to the distribution pipe.





Valve Outlet Adapter

Description	Specification					
	1" NPT	2" NPT	3" NPT	3" BSP	3" Groove	
Part Number	LF-1ADNPT	LF-2ADNPT	LF-3ADNPT	LF-3ADBSP	LF-3ADG	
Material	Brass		Mild steel			
Connection	1"BSP X 1"	2"BSP X 2"	3.5 inch – 12UN	3.5 inch – 12UN	3.5 inch – 12UN	
Connection	NPT	NPT	X 3" NPT	X 3" BSP	X 3" Groove	
	68mm (L) x	79mm (L) x				
	45mm (W)	76mm (W)	108mm (L) x 118mm (W)			
Overall Size						
	2.67 inch (L) x	3.11 inch (L)	4.25 inch (L) x 4.65 inch (W)		(VV)	
	1.77 inch (W)	x 3 inch (W)				



Check Valves

Check Valves are hardware specially designed to be used when two or more cylinders are manifolded together with one common discharge piping configuration. The purpose of the check valve is to prevent loss of agent through manifold when any of the cylinder are not connected at the time of system discharge.







1 inch Check Valve

2 inch Check Valve

3 inch Check Valve

1 inch, 2 inch & 3 inch Check Valve Technical Information

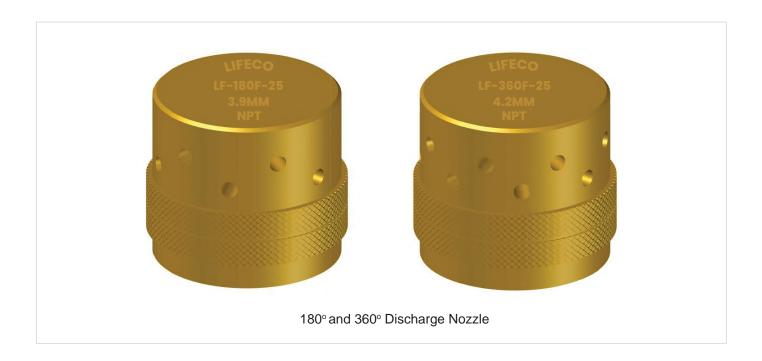
Description	Specification			
	25mm (1 inch)	50mm (2 inch)	80mm (3 inch)	
Part Number	LF-CV25	LF-CV50	LF-CV80	
Body	Brass C3604BD			
Spring	Stainless Steel 304			
Stem	Stainless Steel 304			
Seal	O- Ring (NBR)	Teflon		
Piston Plate	Brass C3604 BD			
Overall Size	73mm (L) x 55mm (W)	92mm (L) x 76mm (W)	150mm(L) x 112mm(W)	
Overall Size	2.9 inch (L) x 2.2 inch (W)	3.6 inch (L) x 3 inch (W)	5.9inch(L) x 4.4inch(W)	
Inlet Thread	1 inch NPT Female	2 inch NPT Female	3 inch NPT Female	
Outlet Thread	1-1/2 inch NPT / BSPT	2 inch NPT / BSPT Male	3 inch NPT Male	
	Male	2 Inch NPT / BSPT Male	3 Inch NPT Male	
Equivalent Length	0.4 m	6.7 m	15.85m	
Weight	0.72 kg	1.00 kg	4.80 kg	



Discharge Nozzles

Nozzles are devices through which the agent is discharged within the protected enclosure. Nozzles are made of brass with female NPT threads.

Nozzles are supplied in 180° and 360° and available in size ½ inch, ¾ inch, 1 inch, 1 ¼ inch, 1 ½ inch and 2 inch. The nozzle can be installed either pendent or upright.



Discharge Nozzle Technical Information

Nozzle Size	Part Number	Nozzle	Port	Nozzle	Type of	Drill Size Range
		Туре		Material	Thread	
15 mm (½ inch)	LF -180F-15	180°	7	Brass	NPT / BSPT	2.4 – 5.3 mm
20 mm (¾ inch)	LF-180F-20	180°	7	Brass	NPT / BSPT	3.1 – 7.0 mm
25 mm (1 inch)	LF -180F-25	180°	7	Brass	NPT / BSPT	3.9 – 9.0 mm
32 mm (1 ¼ inch)	LF-180F-32	180°	7	Brass	NPT / BSPT	5.2 – 11.8 mm
40 mm (1 ½ inch)	LF-180F-40	180°	7	Brass	NPT / BSPT	6.0 – 13.8 mm
50 mm (2 inch)	LF-180F-50	180°	7	Brass	NPT / BSPT	7.7 – 17.7 mm
15 mm (½ inch)	LF -360F-15	360°	16	Brass	NPT / BSPT	1.6 – 3.5 mm
20 mm (¾ inch)	LF-360F-20	360°	16	Brass	NPT /BSPT	2.1 – 4.6 mm
25 mm (1 inch)	LF -360F-25	360°	16	Brass	NPT / BSPT	2.6 – 5.9 mm
32 mm (1 ¼ inch)	LF-360F-32	360°	16	Brass	NPT / BSPT	3.4 – 7.8 mm
40 mm (1 ½ inch)	LF-360F-40	360°	16	Brass	NPT / BSPT	4.0 – 9.1 mm
50 mm (2 inch)	LF-360F-50	360°	16	Brass	NPT / BSPT	5.1 – 11.7 mm





Cylinder Label

The cylinder label consists of cylinder part number, cylinder serial number, filling date, tare weight, charge weight, gross weight, fill density and fill location

FK5-1-12 Label - UL / FM (Part No: LF-CL1)

RECYCLING PROTECTS THE ENVIRONMENT DO NOT DISPOSE DISCHARGE ONLY IN CASE OF FIRE.

IF CONTAINER CONTENTS MUST BE IF CONTAINER CONTENTS MUST BE REMOVED FOR SERVICE, MAINTENANCE OR DISMANTLING OF THE CLEAN AGENT SYSTEM PRIOR TO REMOVAL, CONTACT YOUR LOCAL INSTALLER OR MANUFACTURER FOR MANUFACTURE OF THE CONTACT OF THE CONTENT OF MANUFACTURER FOR INSTRUCTIONS ON HANDLING EQUIPMENT AND RECLAIMING OR RECYCLING CLEAN AGENT





CLEAN AGENT EXTINGUISHING SYSTEM UNIT

Perform the following steps prior to removing cylinder assembly from system piping:

- Remove Electrical Actuator
 Disconnect discharge pipe from cylinder
- valve's outlet.
 3. Attach valve outlet safety cap.



Edmund House 12-22 Newhall Street Birmingham, B3 3AS Tel: +44 (0) 1902 798 706 Fax: +44 (0) 1902 798 679 Email: sales@lifeco-uk.com



LIFECO-FK5112 FK-5-1-12 CLEAN AGENT

Extinguishing System Unit

Inspection and Maintenance

- · Piping and nozzle shall be examined to determine that they are unobstructed.
- Cylinder shall be inspected at least semiannually or more frequently when circumstance required.
 Check agent quantity and pressure in cylinder.
- Refill and replace the cylinder when agent weight less 5% or loss of pressure of more than 10 percent (refer to Gross Weight), contact system supplier. Please refer to manual for detailed instructions on correct system handling usage and maintenance.

Additional Information

- Refer to Design, Installation, Operation and Maintenance Manual. (P/N: LF5112MAL-0001) and Standard on Clean Agent Fire Extinguishing System, NFPA 2001 for detailed instructions for correct System handling usage and
- Transferance.

 Contents: 1, 1, 1, 2, 2, 4, 5, 5, 5, -Nonafluoro-4-(trifluoromethyl)-3-pentanone, FK-5-1-12.

 CYLINDERS SHALL BE TRANSPORTED AND STORED IN THE VERTICAL POSITION.
- CYLINDER IS FILLED WITH FK-5-1-12 AND IS SUPER PRESSURIZED TO 25 BAR AT 21°C (360 PSI AT 70°F) WITH DRY NITROGEN
- WITH DRY NITROGEN.

 DOT WELDED CYLINDERS TESTED TWO TIMES DOT SERVICE PRESSURE STAMPED ON THE CYLINDER. SEANLESS, WELDED CYLINDERS AND TPED WELDED CYLINDERS FACTORY TESTED TO TEST PRESSURE STAMPED ON THE CYLINDER.
- OPERATING TEMPERATURE CYLINDER/STORAGE RANGE 0°C TO 50°C (32°F TO 122°F).

DO NOT COVER, REMOVE, OR DEFACE THIS LABEL

CAUTION:

Pressurized Cylinder. Capable of violent discharge

- · Extremely hazardous and can cause severe injury or
- Do not remove valve from cylinder.
- Do not incinerate cylinder.
- Valve outlet safety cap must be securely attached during transportation and only remove when cylinder is ready for connection to system's discharge pipe.

⚠ WARNING:

THE DISCHARGE OF CLEAN AGENT SYSTEMS TO EXTINGUISH A FIRE CAN RESULT IN A POTENTIAL HAZARD ΤO PERSONNEL FROM THE NATURAL FORM OF THE CLEAN AGENT OR FROM THE PRODUCTS OF COMBUSTION THAT RESULT FROM EXPOSURE OF THE AGENT TO THE FIRE OR HOT SURFACES. UNNECESSARY EXPOSURE OF PERSONNEL EITHER TO THE NATURAL AGENT OR TO THE PRODUCTS OF DECOMPOSITION SHALL BE AVOIDED.

	CYLINDER PART NO:
_	CTERDERTARI NO.
	CYLINDER SERIAL NO:
_	CYLINDER SERIAL NO:
	77.7.3/3/557
	AGENT WEIGHT:
	TARE WEIGHT:
	GROSS WEIGHT:
_	
	FILLING PRESSURE/TEMP:
	Bar/ °C
	Bai
	FILLING LOCATION:
_	
	CHARGE DATE:
_	~

Label Part No: LF-CL1

Cylinder Label



Cylinder Bracket

The cylinder bracket assembly is made of mild steel. It consists of one Unistrut channel, M10 stud, wing nuts and half strap bracket. It is used to hold the cylinder securely in position against the reaction force of the LIFECO-FK5112 cylinder discharge. The cylinder must be mounted vertically and resting firmly on the floor. Cylinder required two set of bracket assemblies for this safety purpose.



Cylinder Bracket

Cylinder Bracket Technical Information

Description	Specification	
Material	Mild Steel	
Paint	Epoxy Powder Coating (Black)	
Mounting	Unistrut Channel	

Part Number	Cylinder Size	
LF - CB1	16.6L, 16.7 L, 28.3L	
LF - CB2	52L, 106L, 147L, 150L, 180 L	
LF - CB4	270L, 369L	
LF - CB6	52L (TPED)	
LF - CB3	180L (TPED), 240L	
LF - CB5	453L	



Liquid Level Indicator

Liquid level indicator is used to measure the level of the FK5112 fluid in 106L, 147L, 180L and 369L cylinders. The liquid level can be found by lifting the measuring tape from the tube and slowly pulled the tape until a magnetic interlock with the float is felt. The tape will remain in the lock position which it can read the measurement from the top of the housing. Weight of the FK5112 fluid in the cylinders then can be determined by converting the level measurement to the weight measurement by referring to the liquid level indicator chart (Appendix D). Cylinder with liquid level indicator can be easily determine the fluid weight without removing the cylinder from the fire suppression system. Optional item as per request.



Liquid level indicator

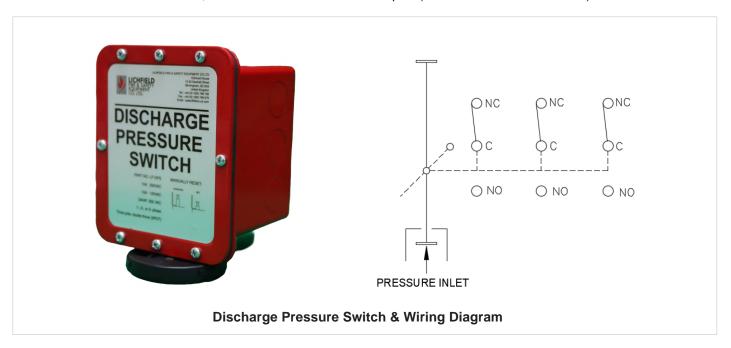
Liquid level indicator Technical Information

Description	Specification	
Part Number	LF-LLI1	LF-LLI2
Thread	1.3125 – 12UN	
Material	Stainless Steel	
Length	885mm (34.85 inch)	1155mm (45.47 inch)
Working Temperature	0°C - 50°C	
Cylinder size	106L	147L, 180L, 369L



Discharge Pressure Switch

The discharge pressure switch function by sending signal to a control panel during a system discharged. It activates by the agent pressure during discharged and can be reset manually by pushing the top stem after activation. To connect with actuation line hose, use a 1/4" BSP x 1/2" NPT adaptor (Part Number: LF-05ADNPT).



Discharge Pressure Switch Technical Information

Description	Specification	
Part Number	LF-DPS	
Body Material	Brass	
Cover Plate	Mild Steel	
Connection	1/2" NPT	
Switch Configuration	3PDT, Three Pole Double Throw	
Minimum Actuation Pressure	4 bar (58psi)	
Maximum Operating Pressure	60 bar (870psi)	
Electrical Rating	10A 250VAC	
	15A 125VAC	
	3/4HP, 250VAC	
	1,2, or 3 phase	
Overall Size	100 mm (L) x 92mm (W) x 123mm(H)	
	3.94 inch(L) x 3.62 inch(W) x 4.84 inch(H)	



DOWNLOAD e-CATALOGUE



www.lifeco-uk.com



LICHFIELD FIRE & SAFETY EQUIPMENT CO. LTD.

✓ UNITED KINGDOM

Unit 8, Calibre Industrial Park, Laches Close, Four Ashes, Wolverhampton T - +44 1902 798 706

F - +44 1902 798 679

E - sales@lifeco-uk.com

BRANCH OF LICHFIELD FIRE & SAFETY EQUIPMENT CO. LTD.

▼ KINGDOM OF SAUDI ARABIA

2383 Salah Al Din Al Ayoubi Rd, Al Malaz Dist., Unit 3, Riyadh - 12841 - 8310

E - sales@lifeco-uk.com

LICHFIELD FIRE & SAFETY EQUIPMENT CO. FZE.

▼ UNITED ARAB EMIRATES

PO Box. 18605, 822nd Street Jabel Ali Free Zone, Dubai T - +971 4 883 4070 F - +971 4 883 4071

E - sales@lifeco-uk.com







