



Free Fall Fire Valve Range & Accessories

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Free Fall Fire Valves (Screwed)

- ▶ Suitable for installation in either horizontal or vertical pipe work.
- ▶ Designed to provide a 100% shut off when used as a fuel isolating valve.
- ▶ May also be used as a fuel 'dump' valve, whereby the valve will open on actuation.
- ▶ Standard Free Fall Valve assembly comprises of a valve, lever and weight, together with a fitting kit.
- ▶ Standard valves are manufactured in cast iron to ASTM A126 Gr B.
- ▶ Suitable for use with fuel oils at pressures up to 14 bar.
- ▶ Valves with screwed connections have BSP parallel threads
- ▶ Standard Fire Valves are supplied with a 'Lubricating Compound', which is a general-purpose sealant, suitable for hydrocarbons.
- ▶ May be actuated mechanically or electrically.
- ▶ Supplied with a Fire Valve Kit, available in sizes, Small (15 to 50mm NB valves), Medium (65 to 100mm NB valves) and Large (125 to 200mm NB valves).
- ▶ Kits contain Pulley Wheels, Stainless Steel Cable, Fusible Links (Standard 72 Degrees), Warning Signs, Cable Connectors and Tension Springs, any of which may be purchased as individual products.
- ▶ Electrically actuated Fire Valve systems utilise a standard valve, lever and weight and use an E-MAG Electro-Magnetic Release System, allowing actuation by making or breaking an electrical circuit, usually 24V DC or 230V AC.
- ▶ The installation of a valve mounted Mercury Switch, Electro Mechanical Release or Wall Mounted Changeover Switch may provide remote signalling of the Fire Valve status or allow direct switching of electrical equipment where applicable.
- ▶ Competitively priced with a full range of ancillaries.



Available Sizes are below –

Free Fall Fire Valves (Screwed)	
20-001	½"
20-003	¾"
20-005	1"
20-007	1 ¼"
20-009	1 ½"
20-011	2"

Maintenance - Free Fall Fire Valves (Screwed)

- ▶ Frequent maintenance of your Free Fall Fire Valve is strongly advised. We recommend that the valve is inspected every 3 months. The Fire Valve will need to be 're-charged with lubricating grease' throughout its life. Frequency of re-charging depends on several aspects: flow rate, valve usage, pressure and temperature. FEL Lubricating Grease is supplied in 'Stick Form' and can be inserted into the valve spindle without a grease gun.
- ▶ During inspection, attention should be paid to the 'Combination Screw' and how far it is screwed into the valve spindle. The Combination Screw is fitted into the valve spindle and is used to insert lubricating grease into the aperture between the valve body and plug valve by turning until resistance is felt.
- ▶ If the Combination Screw is fully screwed into the valve spindle, this indicates that the valve needs to be re-charged with lubricating grease.
- ▶ Lack of lubricating grease may be the cause of fuel leakage, or, if the valve is fitted to the suction side of a fuel pump, it may allow air to enter your fuel system.
- ▶ Each FEL Free Fall Fire Valve is supplied complete with a **Maintenance Record Card** at the time of purchase.



The Maintenance Card will provide a record of the installation date and ongoing routine maintenance as well the original FEL Order Reference. This is an important record for the end customer and will help to keep the valve in a serviceable condition throughout its life.

Achieving an Even Operating Torque

Should a valve become jammed or unusually stiff to operate, this can usually be cured by the injection of lubricant. If this is ineffective it will be necessary to dismantle the valve, clean the components and recharge with lubricant. Please contact us for more information.

Maintenance Steps

1. Visually inspect the valve for damage and leakage.
2. Release the stainless-steel cable and work the valve lever for several strokes, the valve plug should rotate evenly backward and forward.
3. The combination screw is used to force lubricating grease into the valve body.
Before it has reached its limit (Fully Screwed Down), the Combination Screw should be removed, a grease stick should then be inserted into the aperture in the valve spindle.
Replace the combination screw, remember to re-attach the Maintenance Record Card.

				
FELValves		www.felvalves.com		
Tel: 0044(1)565733137				
VALVES FOR POWER GENERATION APPLICATION, BSP FITTINGS.				
MAINTENANCE RECORD				
PLEASE DO NOT REMOVE FROM VALVE BODY				
DATE OF INSTALLATION: _____			REF: <table border="1" data-bbox="1273 1527 1369 1608"><tr><td> </td></tr></table>	
DATE	INSPECTED BY?	LUBRICATED?	SIGNATURE	

**Maintenance Card (Always leave attached to the valve Body)*

4. Tighten the Combination Screw until some resistance is felt. Give several steady strokes of the lever to distribute the lubricant. Ensure the lever moves evenly. This may need repeating.
5. The first indication of the valve becoming fully charged is an increase in rotate the combination screw and/or an increase in effort required to rotate the lever.
6. Should grease appear between the valve body and plug, this indicates the valve is overcharged.
7. When the correct even operation of the valve is achieved, re-attached the stainless-steel cable.
8. Inspection and re-charging should be carried out every 3 months to ensure correct operation of the valve.

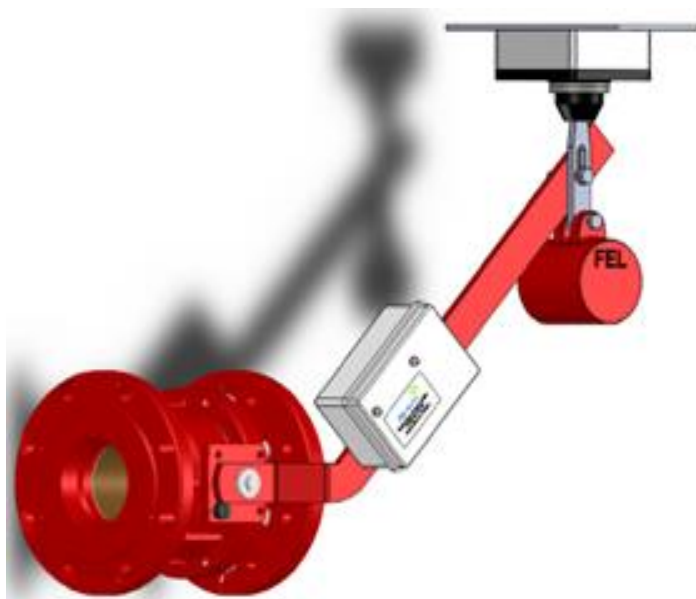
Re-Order Codes for FEL Free Fall Valve Lubricating Grease

To re-order the lubricant, you can use code number – **20-050** followed by the quantity of grease sticks you require –

Lubricant for Free Fall Fire Valves	
20-050/4	Lubricant, Diesel fuel x 4 Sticks
20-050/8	Lubricant, Diesel fuel x 8 Sticks
20-050/12	Lubricant, Diesel fuel x 12 Sticks
20-050/16	Lubricant, Diesel fuel x 16 Sticks
20-050/24	Lubricant, Diesel fuel x 24 Sticks
20-050/32	Lubricant, Diesel fuel x 32 Sticks

Free Fall Fire Valves (Flanged)

- ▶ Suitable for installation in either horizontal or vertical pipe work.
- ▶ Designed to provide a 100% shut off when used as a fuel isolating valve.
- ▶ May also be used as a fuel 'dump' valve, whereby the valve will open on actuation.
- ▶ Standard Free Fall Valve assembly comprises of a valve, lever and weight all finished in RAL 3000 Flame Red, together with a fitting kit.
- ▶ Suitable for use with fuel oils and gases at pressures up to 14 bar.
- ▶ The double Viton O ring stem seals make the valve ideal for pump suction lines.
- ▶ Valve connections are flanged to BS 4504 PN16 or ANSI CL. 150
- ▶ Valves may be actuated mechanically or electrically.
- ▶ Fire Valve Open/Close status signals are available for all valves. We have a wide range of ancillary signalling switches.

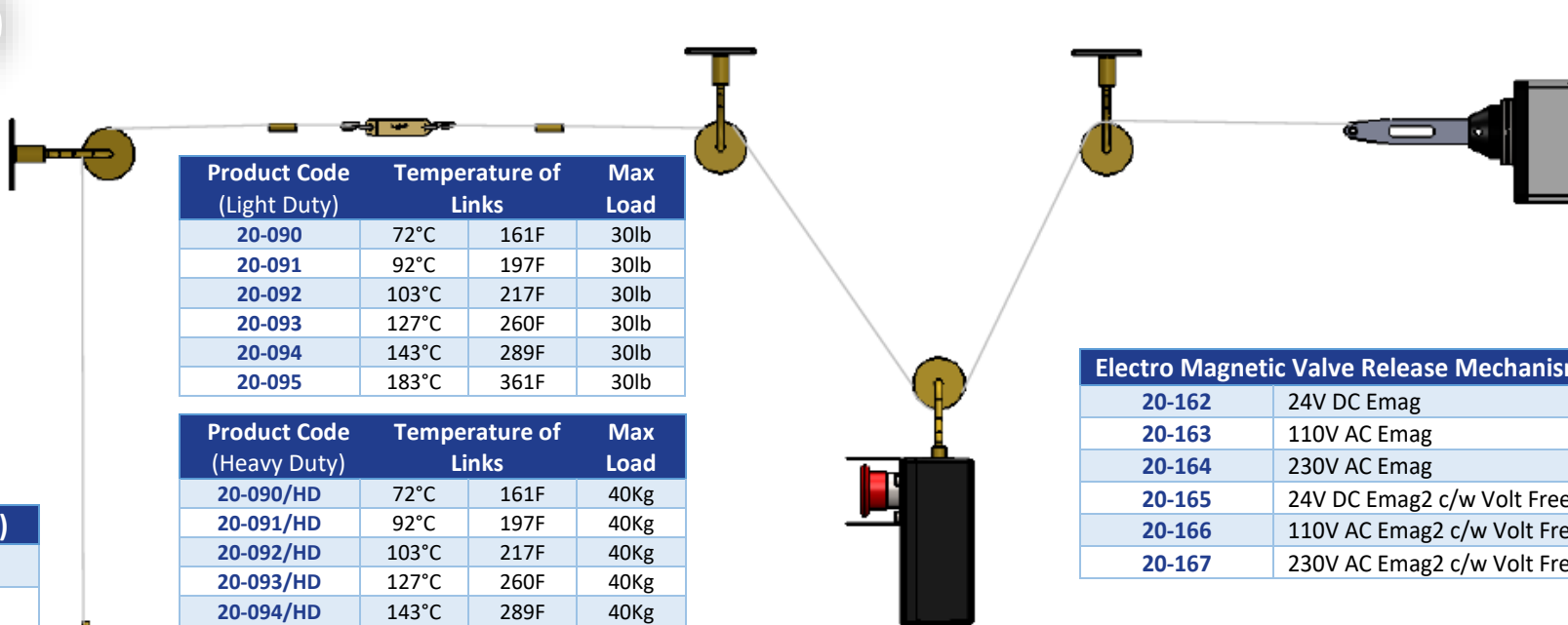


Free Fall Fire Valves (Flanged)				
Size (Inches)	"B" Range <i>Suitable for Diesel</i>	"G" Range <i>Gas Approved</i>	"CS" Range <i>Carbon Steel</i>	"SS" Range <i>Stainless Steel</i>
	<i>Product Code</i>	<i>Product Code</i>	<i>Product Code</i>	<i>Product Code</i>
½"	20-002/B	20-002/G	20-002/CS	20-002/SS
¾"	20-004/B	20-004/G	20-004/CS	20-004/SS
1"	20-006/B	20-006/G	20-006/CS	20-006/SS
1 ¼"	20-008/B	20-008/G	20-008/CS	20-008/SS
1 ½"	20-010/B	20-010/G	20-010/CS	20-010/SS
2"	20-012/B	20-012/G	20-012/CS	20-012/SS
2 ½"	20-014/B	20-014/G	20-014/CS	20-014/SS
3"	20-016/B	20-016/G	20-016/CS	20-016/SS
4"	20-018/B	20-018/G	20-018/CS	20-018/SS
5"	20-020/B	20-020/G	20-020/CS	Not Available
6"	20-022/B	20-022/G	20-022/CS	20-022/SS
8"	20-024/B	20-024/G	Not Available	20-024/SS



Free Fall Fire Valve Set Up (Mechanical)

Release Mechanisms	
20-160	Manual Quick Release
20-161	Electro-Manual Quick Release



Product Code (Light Duty)	Temperature of Links		Max Load
20-090	72°C	161F	30lb
20-091	92°C	197F	30lb
20-092	103°C	217F	30lb
20-093	127°C	260F	30lb
20-094	143°C	289F	30lb
20-095	183°C	361F	30lb

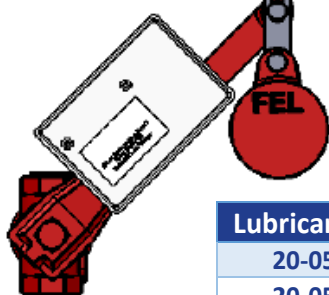
Product Code (Heavy Duty)	Temperature of Links		Max Load
20-090/HD	72°C	161F	40Kg
20-091/HD	92°C	197F	40Kg
20-092/HD	103°C	217F	40Kg
20-093/HD	127°C	260F	40Kg
20-094/HD	143°C	289F	40Kg
20-095/HD	183°C	361F	40Kg

Electro Magnetic Valve Release Mechanisms	
20-162	24V DC Emag
20-163	110V AC Emag
20-164	230V AC Emag
20-165	24V DC Emag2 c/w Volt Free Contacts
20-166	110V AC Emag2 c/w Volt Free Contacts
20-167	230V AC Emag2 c/w Volt Free Contacts

Free Fall Fire Valves (Screwed)	
20-001	½"
20-003	¾"
20-005	1"
20-007	1 ¼"
20-009	1 ½"
20-011	2"

Mercury/Non-Mercury Changeover Switches	
20-150	Mercury Switch - Single Phase 10 amp
20-151	Mercury Switch - Three Phase 10 amp
20-150/NM/AC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (AC)
20-150/NM/DC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (DC)

Spare Free Fall Fire Valve Kits	
20-060	"Small" for ½" to 2" Valves
20-061	"Medium" for 2 ½" to 4" Valves
20-062	"Large" for 5" to 8" Valves



Lubricant for Free Fall Fire Valves	
20-050/4	Lubricant, Diesel fuel x 4 Sticks
20-050/8	Lubricant, Diesel fuel x 8 Sticks
20-050/12	Lubricant, Diesel fuel x 12 Sticks
20-050/16	Lubricant, Diesel fuel x 16 Sticks
20-050/24	Lubricant, Diesel fuel x 24 Sticks
20-050/32	Lubricant, Diesel fuel x 32 Sticks

Free Fall Fire Valve – Kit Components	
20-107	Caution Sign & Maintenance Card
20-101	Tension Spring
20-080	316 Stainless Steel Cable
20-110	Cable Connectors
20-070/M6	M6 Pulley Assembly, 40mm Diameter c/w Backplate
20-074/M6	M6 Brass Anchor c/w Backplate
20-077/M6	M6 Backplate
20-110	Cable Connectors

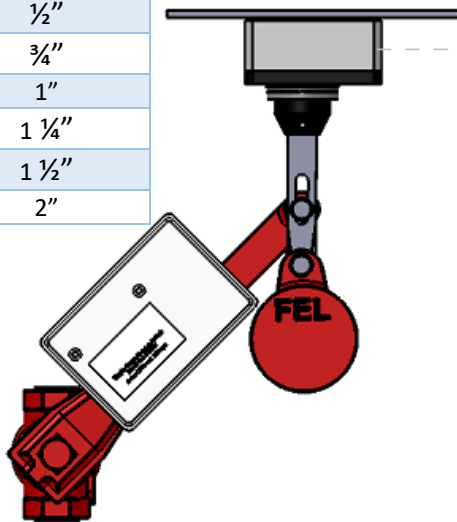
Free Fall Fire Valve Set Up (Electrical)



Electro Magnetic Valve Release Mechanisms	
20-162	24V DC Emag
20-163	110V AC Emag
20-164	230V AC Emag
20-165	24V DC Emag2 c/w Volt Free Contacts
20-166	110V AC Emag2 c/w Volt Free Contacts
20-167	230V AC Emag2 c/w Volt Free Contacts

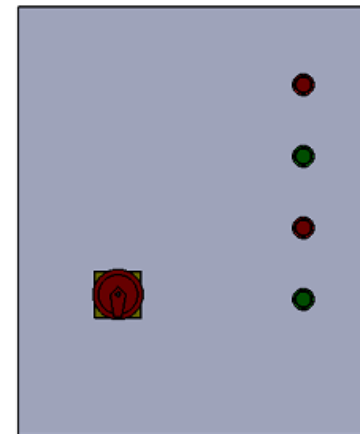
Electro-Thermal Fusible Link		
20-170	72°C	161F
20-171	84°C	183F
20-172	96°C	204F
20-173	121°C	249F
20-174	167°C	332F
20-175	184°C	363F
20-176	228°C	442F

Free Fall Fire Valves (Screwed)	
20-001	1/2"
20-003	3/4"
20-005	1"
20-007	1 1/4"
20-009	1 1/2"
20-011	2"



Mercury/Non-Mercury Changeover Switches	
20-150	Mercury Switch - Single Phase 10 amp
20-151	Mercury Switch - Three Phase 10 amp
20-150/NM/AC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (AC)
20-150/NM/DC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (DC)

Lubricant for Free Fall Fire Valves	
20-050/4	Lubricant, Diesel fuel x 4 Sticks
20-050/8	Lubricant, Diesel fuel x 8 Sticks
20-050/12	Lubricant, Diesel fuel x 12 Sticks
20-050/16	Lubricant, Diesel fuel x 16 Sticks
20-050/24	Lubricant, Diesel fuel x 24 Sticks
20-050/32	Lubricant, Diesel fuel x 32 Sticks



Fire Valve Control Panels	
20-180	240V AC Fire Valve Control Panel with Changeover and Facility
20-181	24V DC Fire Valve Control Panel with Changeover and Facility
20-182	110V AC Fire Valve Control Panel with Changeover and Facility
20-183	240V AC Fire Valve Control Panel with 24V DC Outputs & charger

Push Buttons	
20-155	Man. Changeover Switch 240V AC With N/O and N/C contacts (Wall Mounted)

Accessories - Free Fall Fire Valves

Fitting Kits

Each Free Fall Fire Valve purchased comes with a fitting kit.

- ▶ Small Kit, **20-060** for 15 to 50mm Valve Sizes
- ▶ Medium Kit, **20-061** for 65 to 100mm Valve Sizes
- ▶ Large Kit, **20-062** for 125 to 200mm Valve Sizes



Fitting Kits - Free Fall Fire Valves

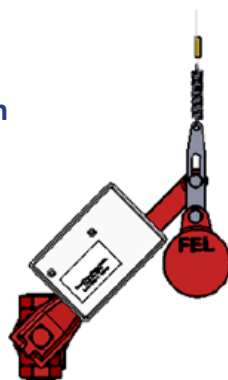
Contents	Individual Kit Components <i>Product Code</i>	Small Kit Contents 20-060 <i>15mm to 50mm Valves</i>	Small Kit Contents 20-061 <i>65mm to 100mm Valves</i>	Small Kit Contents 20-062 <i>200mm to 500mm Valves</i>
Caution Sign & Maintenance Card	20-107	1	2	3
Tension Spring	20-101	1	0	0
316 Stainless Steel Cable (10m)	20-080	1	2	0
316 Stainless Steel Cable (30m)	20-081	0	0	1
Cable Connectors	20-110	8	10	16
72°C Fusible Link (Standard)	20-090	1	2	3
"S" Hook	20-111	2	4	6
M6 Pulley Assembly, 40mm Diameter c/w Backplate	20-070/M6	2	4	8
M6 Brass Anchor c/w Backplate	20-074/M6	1	1	1
Cable Turnbuckle	20-102	0	1	1

Mercury and Non-Mercury Switches

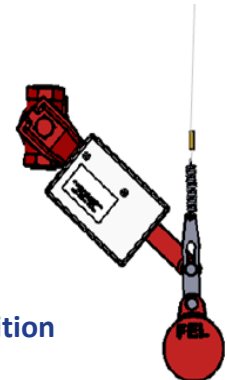
- ▶ Valve mounted changeover switches provide position status via a robust volt free changeover switch, rated to 230V 10 amps, allowing direct switching of pumps or relays upon valve actuation or 0.75 amp rated non-mercury normally open switches.
- ▶ Single phase mercury switch assemblies house one single pole changeover switch, whilst three phase installations have three SPCO switches, housed within one enclosure.
- ▶ The SPCO switch is a steel encased mercury switch, potted within a dielectric resin and encapsulated within a sealed terminal enclosure, which in turn, is fixed within a grey ABS valve mounted housing. The switching action is generated by valve closure. As the valve lever travels from 45 degrees above the horizontal plane of the pipe to 45 degrees below the pipe, although both single and three phase versions can also be used with vertically mounted Free Fall Fire Valves.
- ▶ An alternative, NM non-mercury switch assembly is also available, rated at 230V AC 0.25 amp, SPST configuration, and ideal for water industry applications or where the use of mercury as a switching media is not authorised.
- ▶ All Free Fall Fire Valves manufactured by FEL have pre-drilled levers to accept retrofitted mercury changeover switches.



Open Position



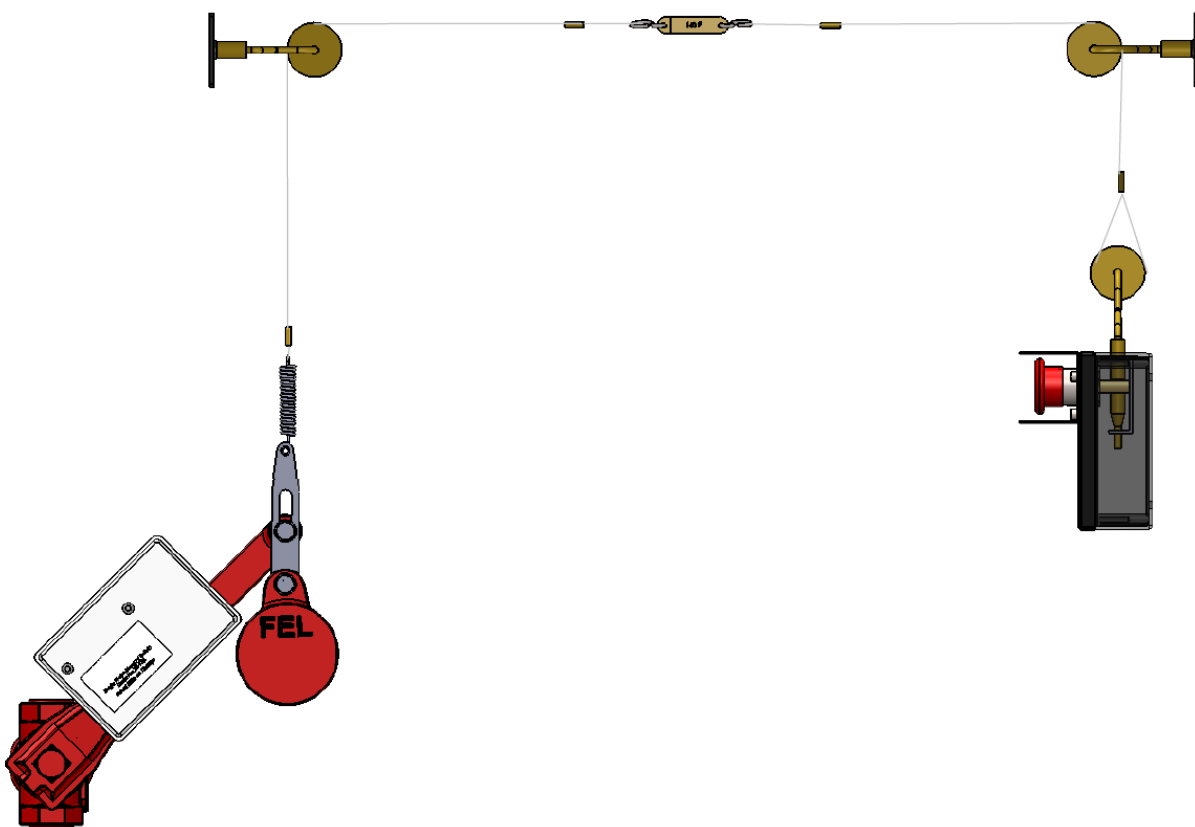
Closed Position



Mercury/Non-Mercury Changeover Switches	
20-150	Mercury Switch - Single Phase 10 amp
20-151	Mercury Switch - Three Phase 10 amp
20-150/NM/AC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (AC)
20-150/NM/DC	Single Phase: 230V ac 0.25-amp SPST Non-Mercury (DC)

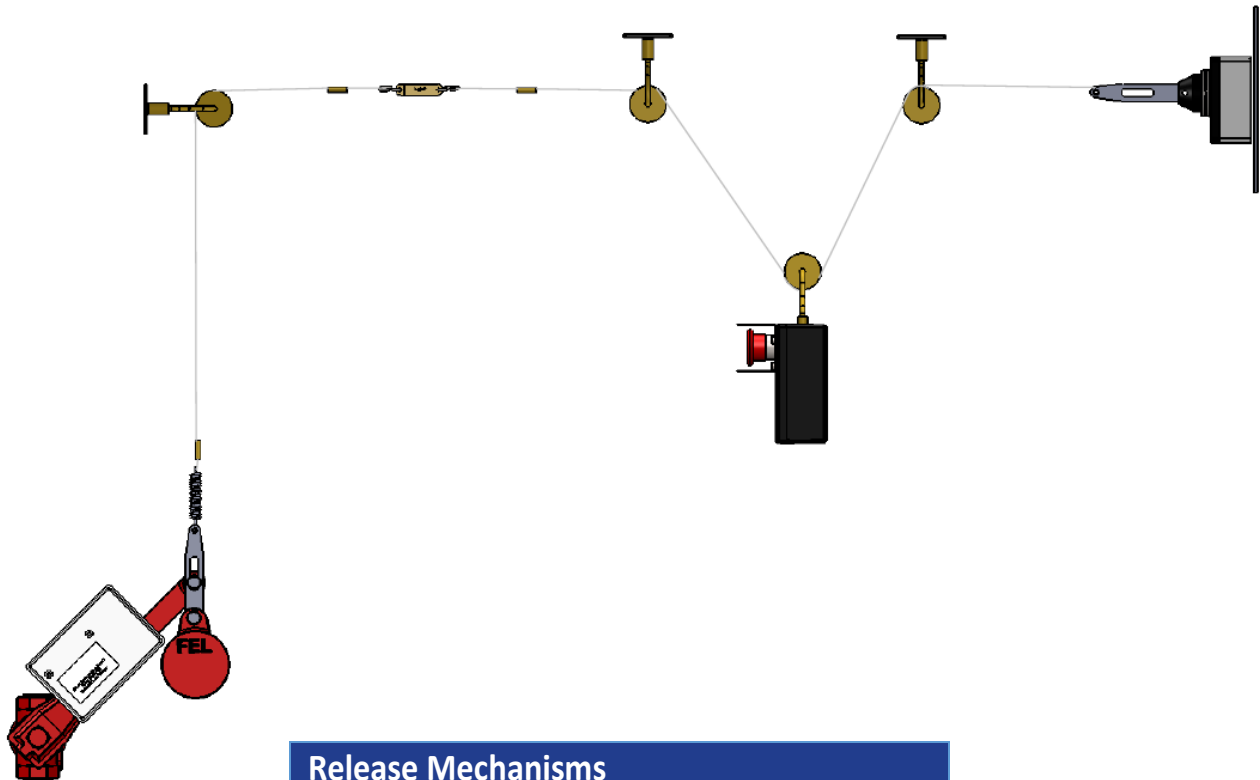
Manual Quick Release (MQR)

- ▶ Designed for use with 'fusible link operated free fall fire valve' systems
- ▶ Provides manual release of fire valve system
- ▶ Can be used with electro-mechanical fire valve Systems
- ▶ 40mm red push button operation
- ▶ Integral shroud to prevent accidental operation
- ▶ Brass release spindle and 40mm pulley wheel assembly
- ▶ Wall or generator enclosure mounting
- ▶ Optional 24v DC volt free changeover switch
- ▶ Option Red/Green LED's for status indication



- ▶ The Manual Quick Release (MQR) is designed for use with fusible link actuated fire valves.
- ▶ In operation, the MQR provides manual activation of the fire valve system. Pressing the red push button will release the fire valve cable tension, allowing the valve to close by gravity.

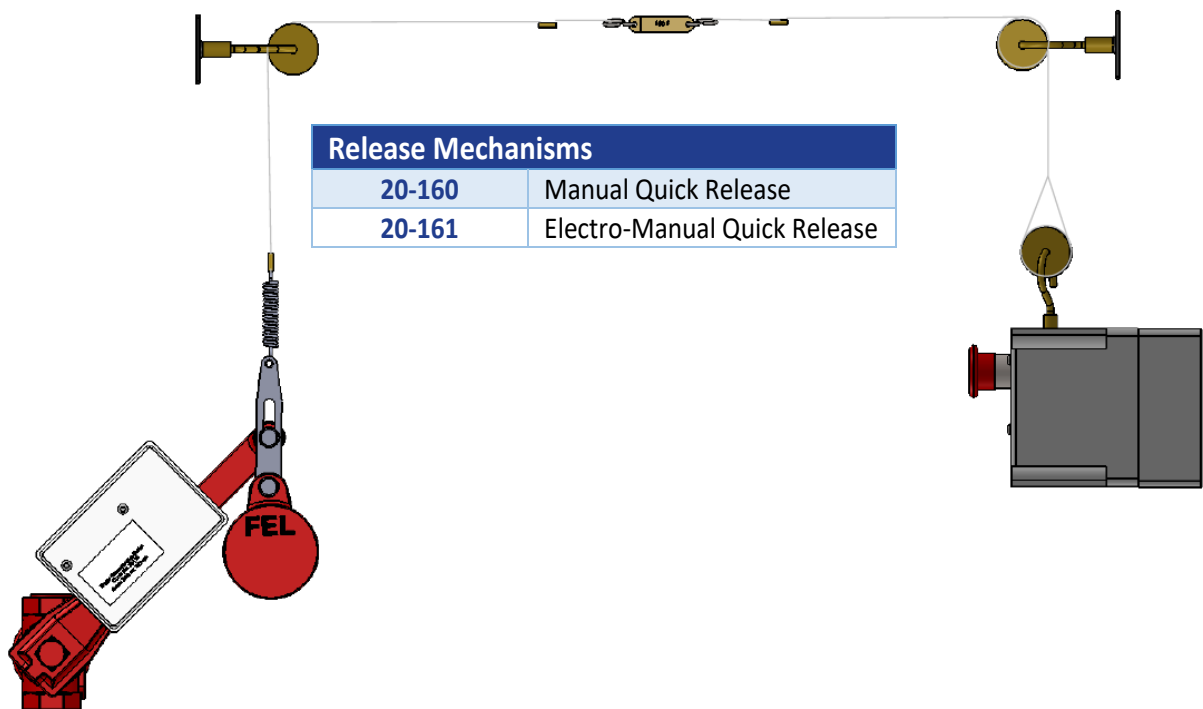
- ▶ The MQR is usually sited adjacent to an 'Exit' doorway in a plant room or generator enclosure and is particularly useful for testing fire valve systems as well as providing manual fire valve closure in an event whereby an operator observes something of concern and does not want to wait for a fusible link to melt, triggering valve closure.
- ▶ The MQR can also be used in conjunction with a wall mounted FEL E-Mag or E-Mag2 electromagnetic fire valve release. This combination provides fire valve release options by fusible link, MQR manual operation and also electrically using an E-Mag via a fire alarm interface.



Release Mechanisms	
20-160	Manual Quick Release
20-161	Electro-Manual Quick Release

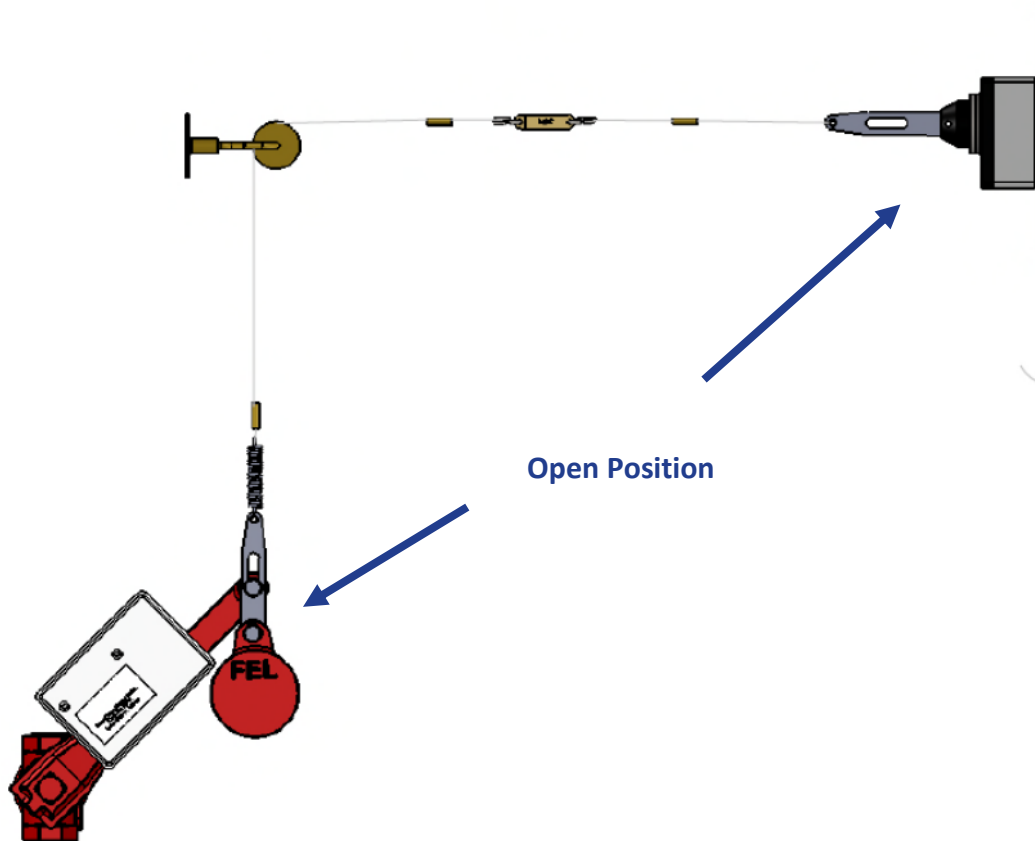
Electro-Manual Quick Release (EMQR)

- ▶ Designed for use with fusible link actuated fire valves.
- ▶ Provides manual activation of the fire valve system by pressing the red push button.
- ▶ Automatically senses the release of tension on the stainless-steel fire valve cable.
- ▶ Internal volt free change over switch changes status, de-energising the 'Load' terminal energising the 'Alarm' output terminal.
- ▶ Safety shroud included.
- ▶ In operation, the EMQR provides manual activation of fire valve system by pressing the red push button, or, it can automatically detect when a fusible link has melted by sensing the release of tension on the stainless-steel fire valve cable. In either event, an internal volt free changeover switches changes status, de-energising the 'Load' terminal energizing the 'Alarm' output terminal.
- ▶ When tension is applied to the stainless-steel fire valve cable, this will upwardly extend the spring loaded, removable spindle housed within the EMQR. By doing this, the 'Load' terminal is energised and the Green 'Load Circuit' lamp is illuminated. Release of tension or pressing the red push button will contract or release the spring-loaded spindle and the Red 'Alarm Circuit' lamp is illuminated whilst turning off the 'Load' lamp.



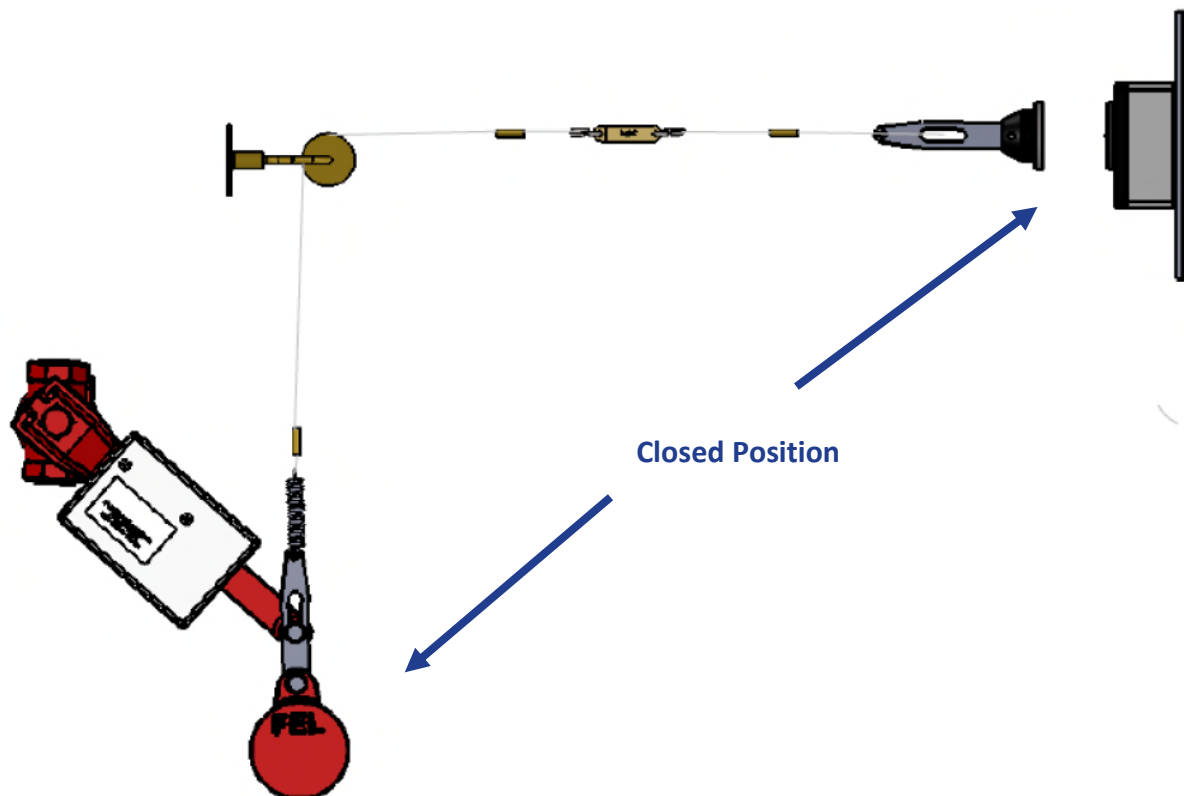
E-Mag & E-Mag 2 – Electro-Magnetic Quick Release (SQR Type Device)

- ▶ The E-Mag and E-Mag2 Electromagnetic quick release mechanisms are for use with electrically actuated fire valve systems. They provide instant release of Free Fall Fire Valves when de-energised, making them the ideal method for remote fire valve closure.
- ▶ The E-Mag is a standard electromagnet, which will de-magnetise on loss of power, the E-Mag2 version has inbuilt auxiliary volt free changeover contacts, which signal valve status.
- ▶ Both E-Mag and E-Mag2 may be installed as 'wall mounted' or 'direct mounted'.
- ▶ Wall mounted E-Mag or E-Mag2 installations can be designed to release a stainless steel fire valve cable, which can be used in the normal way with pulley wheels and fusible link, by using an interface which will isolate a fuel supply in the event of a Fire Alarm or other means of control input by de-energising the electromagnet. Similar to the way in which an automatic fire door closes in the event of a building fire alarm. However, the system still incorporates a fusible link, providing a mechanical means of fire valve shut off as well as electrical control.



- ▶ Direct mounting installations have the E-Mag or E-Mag2 sited directly above the fire valve and do not incorporate a fusible link in the system, but rely upon electrical control only.
- ▶ Both E-Mag & E-Mag2 version include a 'Push to test' facility and have 40Kg electromagnetic holding power as standard.

Wall mounted E-Mag or E-Mag 2 Electromagnetic Release used with soldered fusible link for electrical control with mechanical fusible link local fire protection



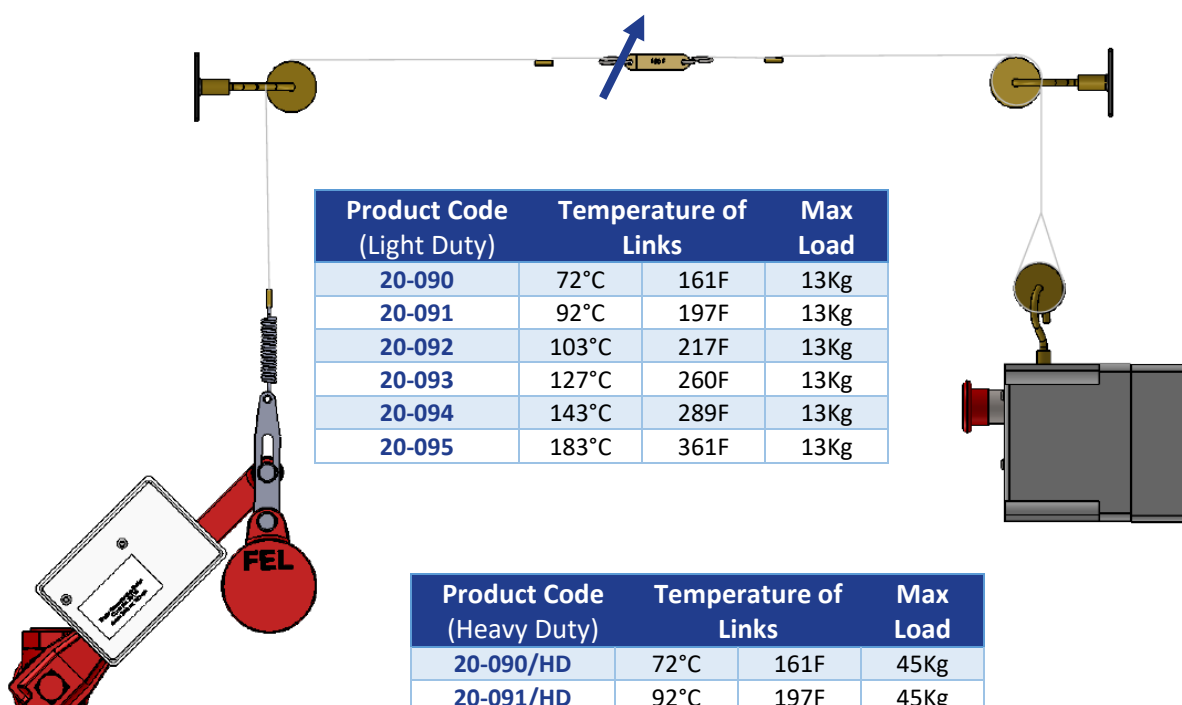
Electro Magnetic Valve Release Mechanisms	
20-162	24V DC Emag
20-163	110V AC Emag
20-164	230V AC Emag
20-165	24V DC Emag2 c/w Volt Free Contacts
20-166	110V AC Emag2 c/w Volt Free Contacts
20-167	230V AC Emag2 c/w Volt Free Contacts

Fusible Links

Fusible links are made in a range of sizes and temperatures using high quality brass pressings and low melting point alloys.



- ▶ A range of fusible links, manufactured from formed brass leaves, soldered using eutectic solder, each fitted with zinc plated steel 'S' hooks for ease of installation within a fire valve system.
- ▶ The use of eutectic solder, as opposed to a ranged solder, gives rise to greater accuracy at the actual fuse temperature.
- ▶ Available as a "Light Duty Link", with static loading up to **13Kg**
- ▶ Available as a 'Heavy Duty Link', with **45Kg** maximum weight strain rating.
- ▶ Customised versions also available.



Product Code (Light Duty)	Temperature of Links		Max Load
20-090	72°C	161F	13Kg
20-091	92°C	197F	13Kg
20-092	103°C	217F	13Kg
20-093	127°C	260F	13Kg
20-094	143°C	289F	13Kg
20-095	183°C	361F	13Kg

Product Code (Heavy Duty)	Temperature of Links		Max Load
20-090/HD	72°C	161F	45Kg
20-091/HD	92°C	197F	45Kg
20-092/HD	103°C	217F	45Kg
20-093/HD	127°C	260F	45Kg
20-094/HD	143°C	289F	45Kg
20-095/HD	183°C	361F	45Kg

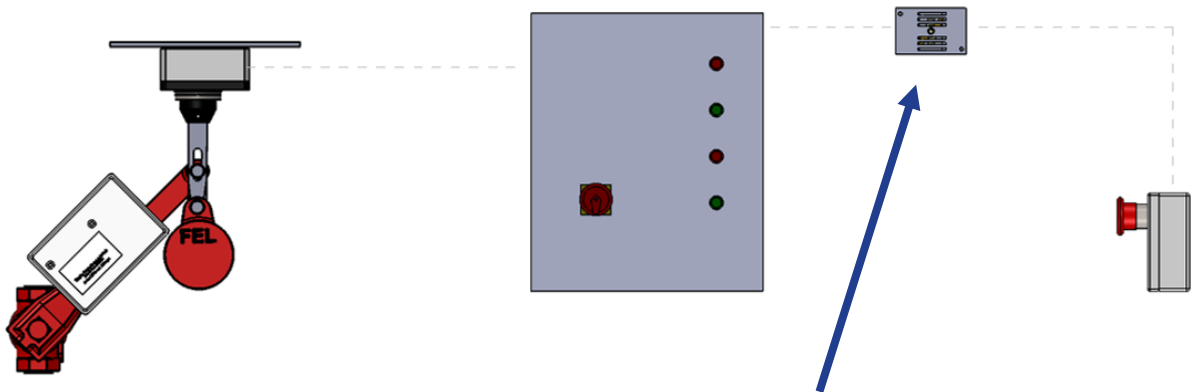
Electro-Thermal Fusible Links

- ▶ Electro Thermal Link contains a fuse which melts when excessive ambient temperature is detected breaking the power supply to safety valves.
- ▶ Electrical Rating: 10A, 230VAC
- ▶ Fuse melts at desi
- ▶ Enclosure: IP30



Installation - Electro-Thermal Fusible Links

- ▶ The unit should be fitted between 0.3 to 1.3m directly above the potential fire hazard with the slotted lid facing downwards.
- ▶ Can be suspended by metal conduit.
- ▶ The ventilation holes in the box must not be covered.
- ▶ Allow free unrestricted airflow through the enclosure.

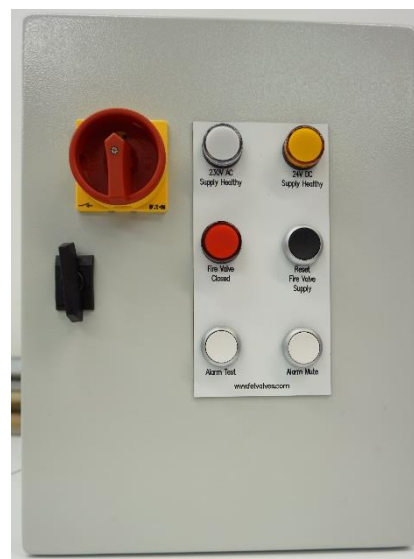


Electro Thermal Fusible Links	Temperature of Links	
20-170	72°C	161F
20-171	84°C	183F
20-172	96°C	204F
20-173	121°C	249F
20-174	167°C	332F
20-175	184°C	363F

Free Fall Fire Valve Control Panel

The FEL Fire Valve Control Panel is used to maintain power to an E-MAG or SQR type device.

- ▶ Power Output is 24V DC, with 230V Input
- ▶ 24V DC Units are battery backed and designed to maintain power output in the event of mains failure whilst continuing to provide fire detection through electro-thermal links or normally closed emergency push buttons wired in series
- ▶ Battery backup time and battery size is calculated on the required load to maintain multiple E-Mag, Motorised Valves or SQR type devices
- ▶ BMS connectivity via volt free contacts



Inside the Panel



Inside of the Panel
(Door)



Fire Valve Control Panels	
20-180	240V AC Fire Valve Control Panel with Changeover and Facility
20-181	24V DC Fire Valve Control Panel with Changeover and Facility
20-182	110V AC Fire Valve Control Panel with Changeover and Facility
20-183	240V AC Fire Valve Control Panel with 24V DC Outputs & charger

Did you know the following...?

We also supply -

- ▶ Float Switches
- ▶ Fill Point, Level Gauges, Controls
- ▶ Motorised Valves (Fail Safe)
- ▶ Pumps & Panels
- ▶ Fuel Polishers

