



## Free Fall Fire Valves, Supplied by FEL Valves



The FEL Valves range of Free Fall Fire Valves are suitable for installation in either horizontal or vertical pipe work, and are designed to provide a positive, 100% shut off when used as a fuel isolating valve. Free Fall Valves may also be used as a fuel 'dump' valve, whereby the valve will open on actuation.

A standard Free Fall Valve assembly comprises of a valve, lever and weight, together with a fitting kit.

All standard valves are manufactured in cast iron to ASTM A126 Gr B and are approved by both the American Gas Association and Canadian Gas Association, as well as being 'UL' Listed. All valves are suitable for use with fuel oils and gases at pressures up to 14 bar. Valves with screwed connections have bsp parallel threads, whilst flanged valves are available with either BS 4504 PN 16 flange drillings or to ANSI 125.

FEL Free Fall Fire Valves are also available with carbon or stainless steel body and plug materials.

Standard Fire Valves are supplied with a '650 Lubricating Compound', which is a general purpose sealant, suitable for hydrocarbons, other [Lubricating Compounds](#) are available, if you are unsure of the suitability of the 650 Compound for your specific application, please contact us for further details.

Free Fall Valves may be actuated mechanically or electrically. The majority of installations use mechanical actuation by fusible link, therefore each Fire Valve is supplied with a [Fire Valve Kit](#), available in three sizes, Small (15 to 50mm nb valves), Medium (65 to 100mm nb valves) and Large (125 to 200mm nb valves). Kits contain varying numbers of [Pulley Wheels](#), [Stainless Steel Cable](#), [Fusible Links](#), [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, however an electrical [Release System](#) is used, essentially, allowing actuation by making or breaking an electrical circuit. 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.

Data Sheets: [Screwed Valves](#)      [Flanged Valves](#)      [Price List](#)      [Fire Valve Solution Centre](#)

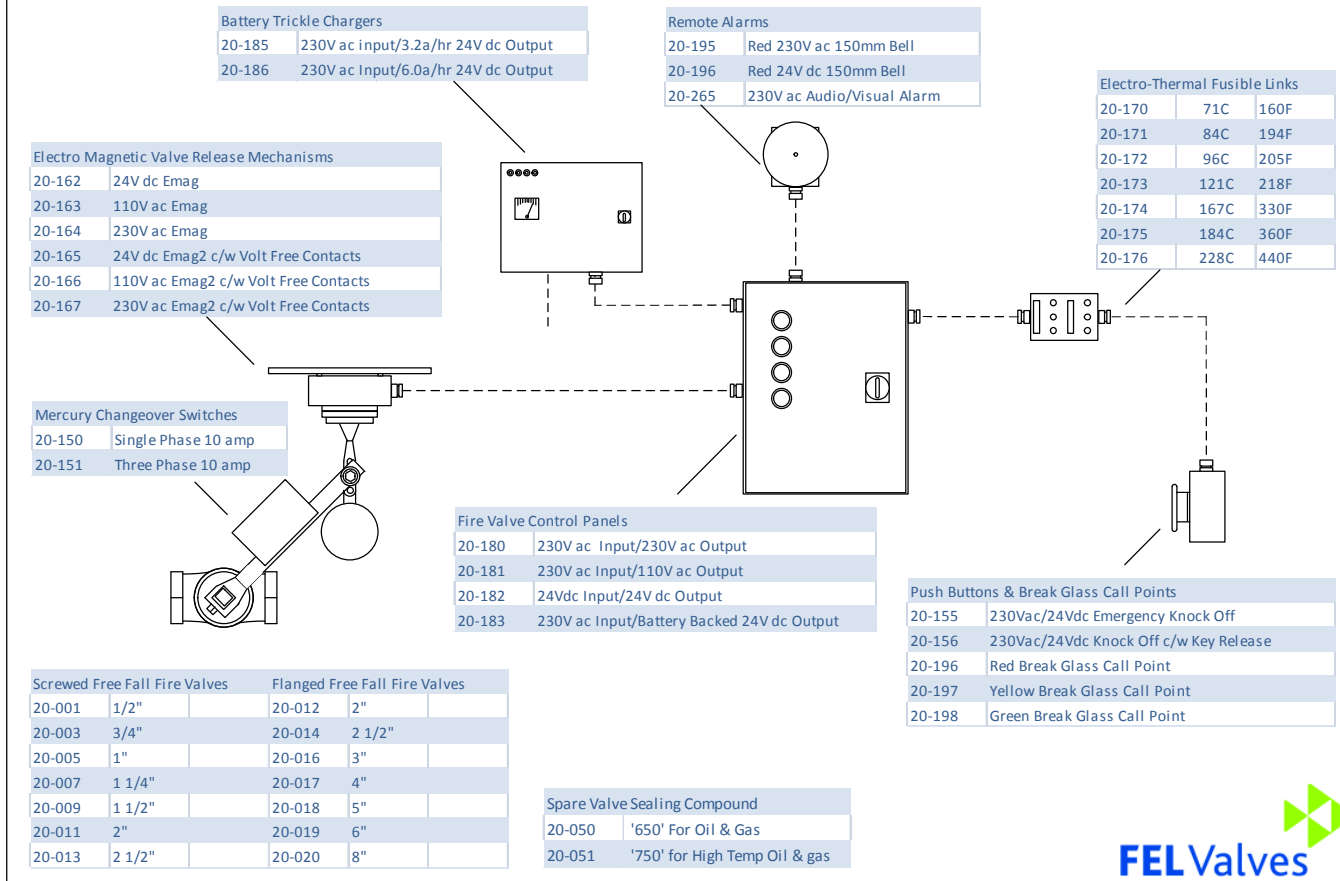
Double click on any of the highlighted '[Key Words](#)' for additional information.

### Ordering Information

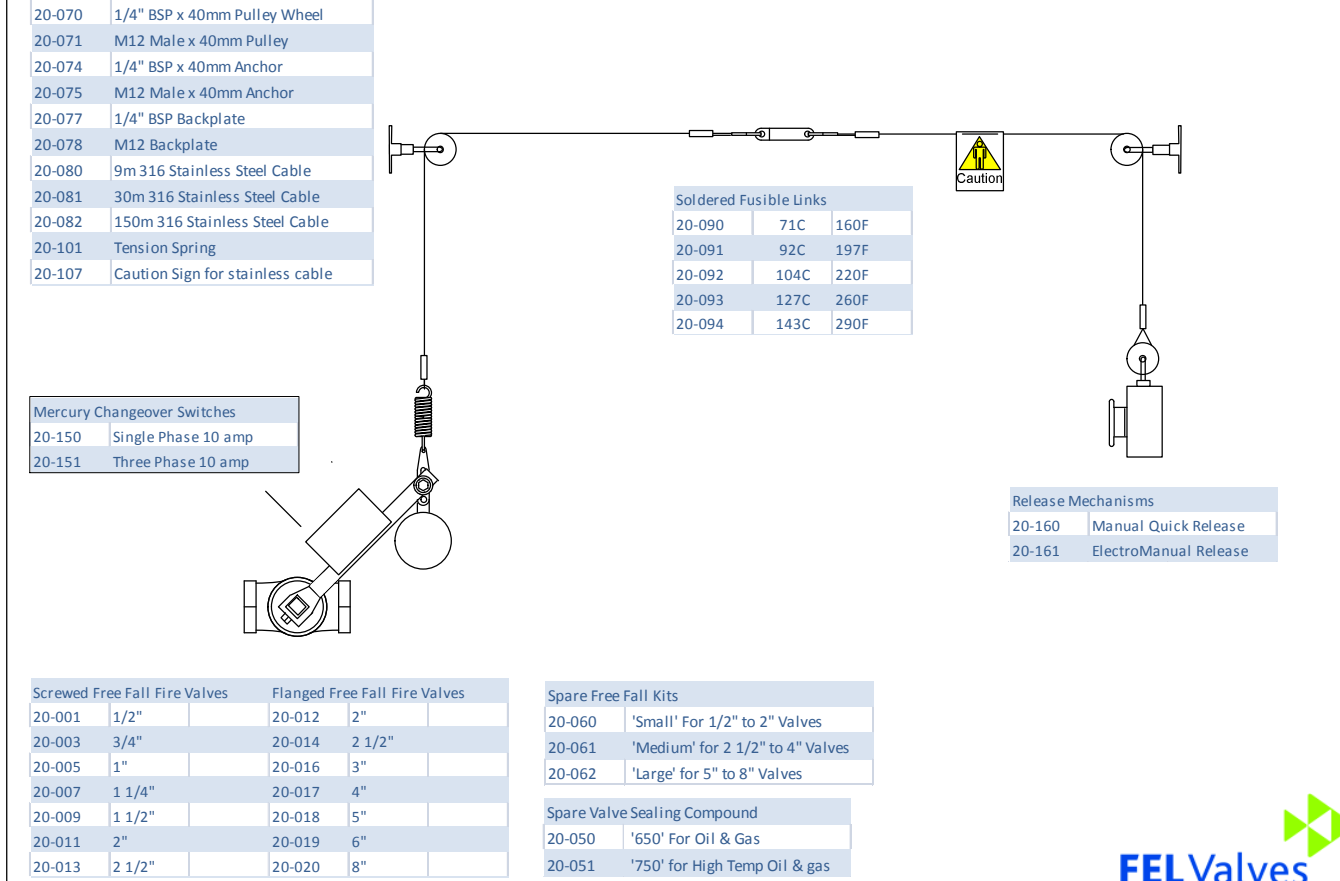
Tel: 01565 733137. Fax 01565 733841. E-mail: [sales@felvalves.com](mailto:sales@felvalves.com) Web: [www.felvalves.com](http://www.felvalves.com)

Valves Ltd., 96 Pickmere Lane, Wincham, Northwich, Cheshire, UK. CW9 6EB

## Electro-Mechanical Free Fall System Components

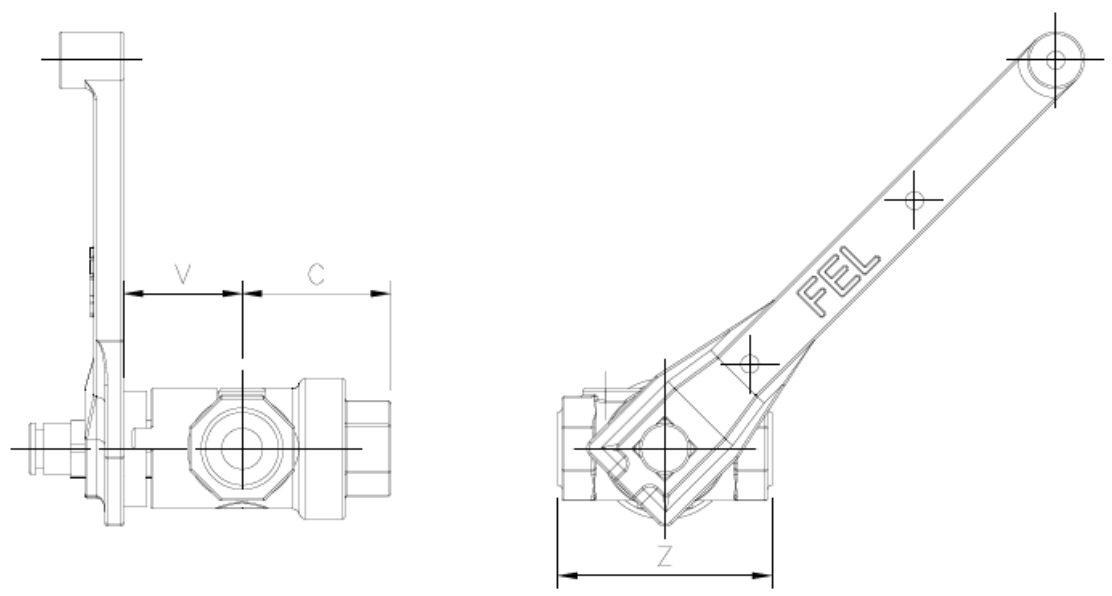


## Mechanical Free Fall System Components



DRG No: A0005/1

DO NOT SCALE (FIRST ANGLE PROJECTION BS 308)



KG = WEIGHT

Product No	Valve Size (MM)	Valve Dimension			
		C	V	Z	KG
20-001	15		88	95	
20-003	20		88	95	
20-005	25	59.5	88	108	2
20-007	32	58.7	124	127	3.3
20-009	40	58.7	124	127	3.3
20-011	50	79.4	141	152	6
20-013	65	99.2	194	171	8.8
20-015	80	106.4	201	194	15.4

MOD	DESCRIPTION	DATE	SIG
	<p>TITLE: FREE FALL VALVE ASSEMBLY (SCREWED)</p> <p>GENERAL TOLERANCES            0-PLACE DEC [0] ±0.5mm            1-PLACE DEC [0.0] ±0.2mm            2-PLACE DEC [0.00] ±0.05mm            ANGULAR ± 0° 30'</p> <p>REMOVE ALL BURRS &amp; SHARP EDGES UNLESS OTHERWISE STATED</p>	<h1>F.E.L Valves Ltd.</h1>	
		<p>DRAWN: DATE: 4.02</p> <p>FILE NAME: A0005_FREE-FALL</p> <p>SCALE: NTS [A4]</p>	<p>96, PICKMERE LANE, WINCHAM, NORTHWICH, CHESHIRE, UK. CW9 6EB. TEL: 01565 733137</p>
			<p>DRG No: A0005/1</p>

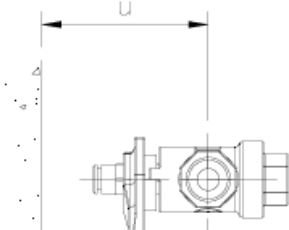
DRG No: A0005/2

DO NOT SCALE

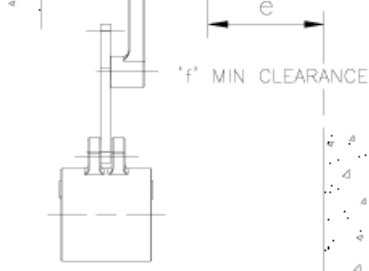


(FIRST ANGLE PROJECTION BS 308)

CLEARANCE TO REMOVE LUBRICATION SCREW



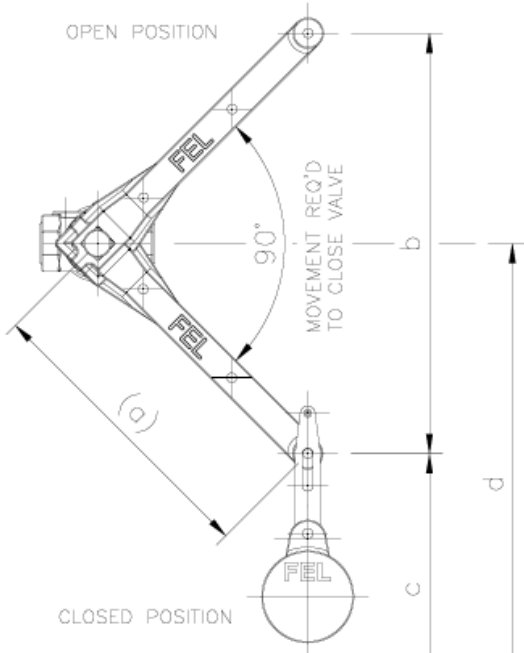
CLEARANCE REQUIRED TO REMOVE PLUG VALVE IN LINE



'f' MIN CLEARANCE

FLOOR LEVEL

OPEN POSITION



MOVEMENT REQ'D TO CLOSE VALVE

CLOSED POSITION

Product No	Valve Size (MM)	Working Dimension						
		a	b	c	d	e	f	u
20-001	15	245	346	185	358	203	80	50
20-003	20	245	346	185	358	203	80	50
20-005	25	245	346	185	358	203	80	50
20-007	32	305	432	220	435	260	100	50
20-009	40	305	432	220	435	260	100	50
20-011	50	400	566	245	528	260	125	50
20-013	65	400	566	245	528	308	145	75
20-015	80	400	566	245	528	308	145	75

MOD	DESCRIPTION	DATE	SIG

TITLE:  
FREE FALL VALVE ASSEMBLY (SCREWED)

# F.E.L Valves Ltd.

GENERAL TOLERANCES

- 0-PLACE DEC [0] ±0.5mm
- 1-PLACE DEC [0.0] ±0.2mm
- 2-PLACE DEC [0.00] ±0.05mm
- ANGULAR ± 0° 30'

REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED

DRAWN: J.WILLIAMS DATE: 22.04.02

FILE NAME: A0005\_FREE-FALL

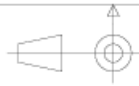
SCALE: NTS [A4]

96, PICKMERE LANE,  
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CHESHIRE, UK. CW9 6EB.  
TEL: 01565 733137

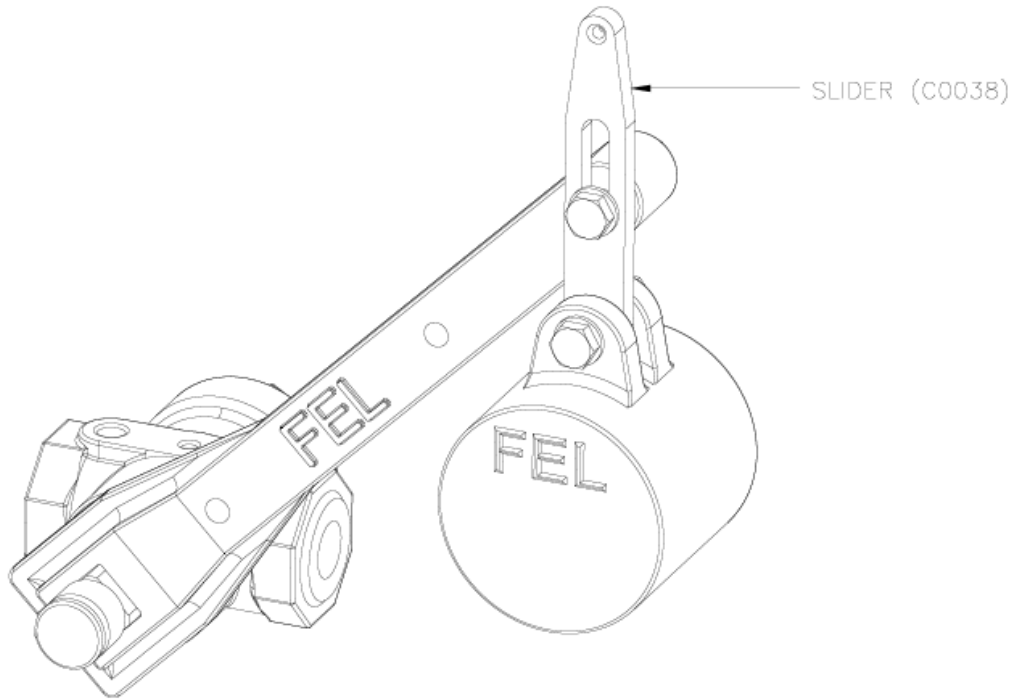
DRG No: A0005/2

DRG No: A0005/3

DO NOT SCALE



(FIRST ANGLE PROJECTION BS 308)



ANCILLARY COMPONENTS

- 2-OFF M8 x 45 HEX BOLTS
- 2-OFF M8 NUTS
- 4-OFF Ø8.0 WASHERS

Product No	Valve Size (MM)	Weight Size	Lever Size
20-001	15	2.5 (C0035)	2
20-003	20	2.5 (C0035)	2
20-005	25	2.5 (C0035)	2
20-007	32	5 (C0036)	3
20-009	40	5 (C0036)	3
20-011	50	7.5 (C0037)	4
20-013	65	7.5 (C0037)	5
20-015	80	7.5 (C0037)	5

MOD	DESCRIPTION	DATE	SIG

TITLE:  
FREE FALL VALVE ASSEMBLY (SCREWED)

# F.E.L Valves Ltd.

GENERAL TOLERANCES

- 0-PLACE DEC [0] ±0.5mm
- 1-PLACE DEC [0.0] ±0.2mm
- 2-PLACE DEC [0.00] ±0.05mm
- ANGULAR ± 0° 30'

REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED

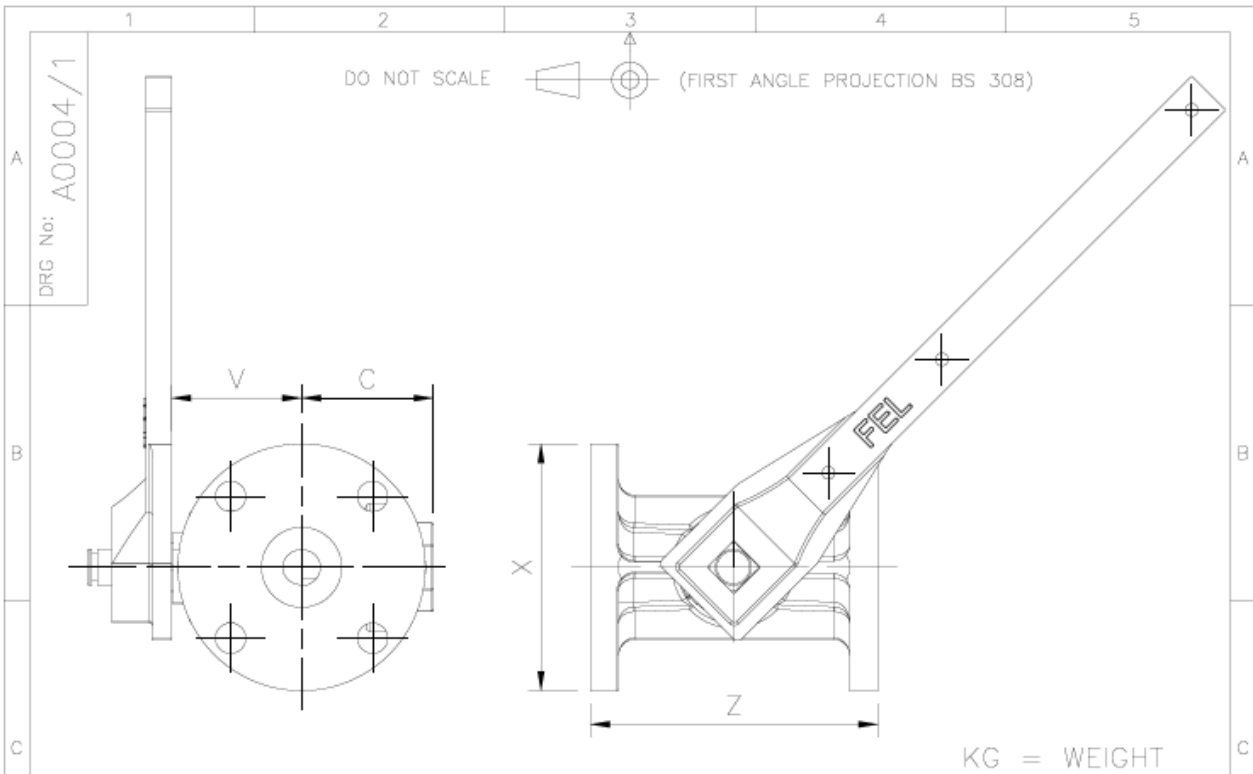
DRAWN: J.WILLIAMS DATE: 22.04.02

FILE NAME: A0005\_FREE-FALL

SCALE: NTS [A4]

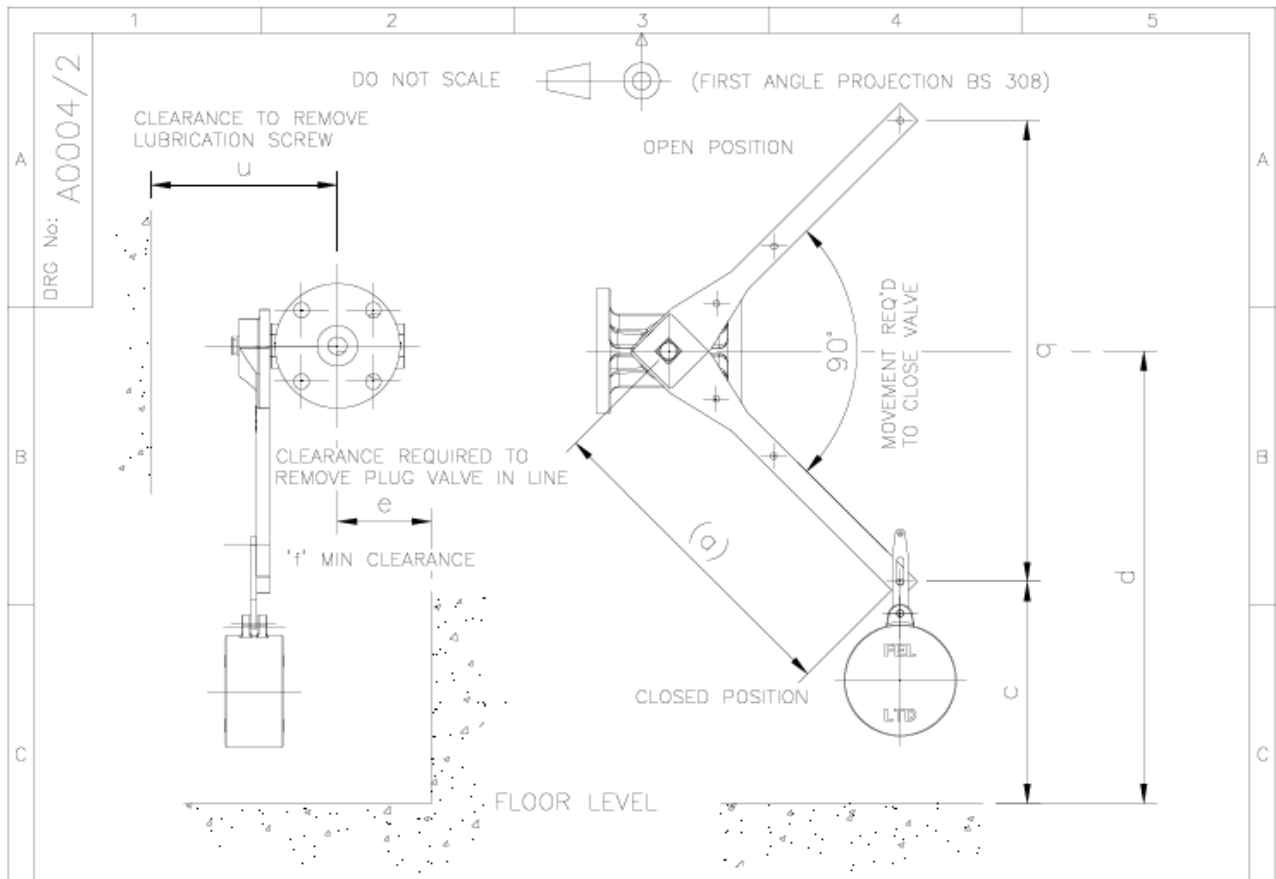
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WINCHAM, NORTHWICH,  
CHESHIRE, UK. CW9 6EB.  
TEL: 01565 733137

DRG No: A0005/3



Product No	Valve Size (MM)	Valve Dimension				
		C	V	Z	X	KG
20-002	15		88	106	95	
20-004	20		88	115	105	
20-006	25	59.5	88	121	115	3.4
20-008	32	58.7	124	111	140	4.8
20-010	40	58.7	124	116	150	4.8
20-012	50	79.4	141	176	165	8.6
20-014	65	99.2	194	191	185	13.4
20-016	80	106.4	201	203	200	17.7
20-017	100	124.6	230	229	220	28
20-018	125	153.2	290	267	250	40
20-019	150	153.2	290	267	285	45
20-020	200	165.1	325	292	340	78

MOD	DESCRIPTION	DATE	SIG
TITLE: FREE FALL VALVE ASSEMBLY (FLANGED)			
<h1>F.E.L Valves Ltd.</h1>			
GENERAL TOLERANCES 0-PLACE DEC [0] ±0.5mm 1-PLACE DEC [0.0] ±0.2mm 2-PLACE DEC [0.00] ±0.05mm ANGULAR ± 0° 30'		DRAWN: J.WILLIAMS	DATE: 15.04.02
REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED		FILE NAME: A0004_FREE FALL VALVE	96, PICKMERE LANE, WINCHAM, NORTHWICH, CHESHIRE, UK. CW9 6EB. TEL: 01565 733137
		SCALE: NTS [A4]	DRG No: A0004/1

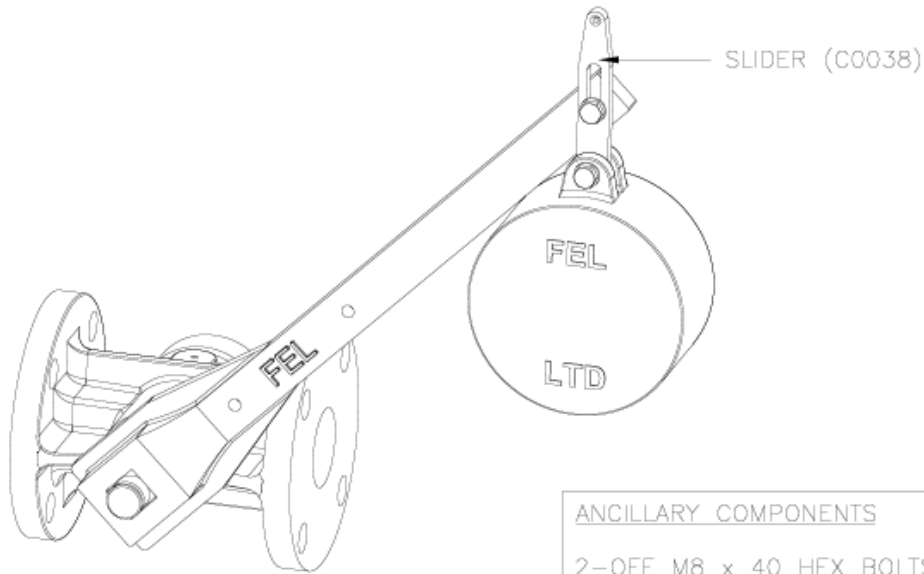


Product No	Valve Size (MM)	Working Dimension						
		a	b	c	d	e	f	u
20-002	15	245	346	185	358	203	80	50
20-004	20	245	346	185	358	203	80	50
20-006	25	245	346	185	358	203	80	50
20-008	32	305	432	220	435	260	100	50
20-010	40	305	432	220	435	260	100	50
20-012	50	400	566	245	528	260	125	50
20-014	65	400	566	245	528	308	145	75
20-016	80	400	566	245	528	308	145	75
20-017	100	760	1075	245	782	416	160	75
20-018	125	760	1075	245	782	503	185	110
20-019	150	760	1075	245	782	503	190	110
20-020	200	760	1075	245	782	565	260	110

MOD	DESCRIPTION	DATE	SIG
TITLE: FREE FALL VALVE ASSEMBLY (FLANGED)			
GENERAL TOLERANCES		DRAWN: J.WILLIAMS	DATE: 15.04.02
0-PLACE DEC [0] ±0.5mm		96, PICKMERE LANE, WINCHAM, NORTHWICH, CHESHIRE, UK. CW9 6EB. TEL: 01565 733137	
1-PLACE DEC [0.0] ±0.2mm			
2-PLACE DEC [0.00] ±0.05mm		FILE NAME: A0004_FREE FALL VALVE	
ANGULAR ± 0° 30'		SCALE: NTS [A4]	DRG No: A0004/2
REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED			

DRG No: A0004/3

DO NOT SCALE (FIRST ANGLE PROJECTION BS 308)



- ANCILLARY COMPONENTS**
- 2-OFF M8 x 40 HEX BOLTS
  - 2-OFF M8 NUTS
  - 4-OFF ø8.0 WASHERS

Product No	Valve Size (MM)	Weight Size	Lever Size
20-002	15	2.5 (C0035)	2 (C0024)
20-004	20	2.5 (C0035)	2 (C0024)
20-006	25	2.5 (C0035)	2 (C0024)
20-008	32	5 (C0036)	3 (C0025)
20-010	40	5 (C0036)	3 (C0025)
20-012	50	7.5 (C0037)	4 (C0026)
20-014	65	7.5 (C0037)	5 (C0027)
20-016	80	7.5 (C0037)	5 (C0027)
20-017	100	7.5 (C0037)	6 (C0028)
20-018	125	2 x 7.5 (C0037)	7 (C0029)
20-019	150	2 x 7.5 (C0037)	7 (C0029)
20-020	200	4 x 7.5 (C0037)	7 (C0029)

FOR FURTHER DETAILS OF 20-018 & 019 REFER TO A0011

MOD	DESCRIPTION	DATE	SIG

TITLE: FREE FALL VALVE ASSEMBLY (FLANGED)

# F.E.L Valves Ltd.

**GENERAL TOLERANCES**  
 0-PLACE DEC [0] ±0.5mm  
 1-PLACE DEC [0.0] ±0.2mm  
 2-PLACE DEC [0.00] ±0.05mm  
 ANGULAR ± 0° 30'

REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED

DRAWN: J.WILLIAMS      DATE: 23.04.02  
 FILE NAME: A0004\_FREE FALL VALVE  
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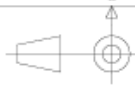
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 WINCHAM, NORTHWICH,  
 CHESHIRE, UK. CW9 6EB.  
 TEL: 01565 733137

DRG No: A0004/3



DRG No: A0004/4

DO NOT SCALE



(FIRST ANGLE PROJECTION BS 308)

STANDARD FLANGE SIZES RATING PN16 (BS 4504)

Valve Size (MM)	Flange Dia	P.C.D	No of Holes	Dia of Holes
15	95	65	4	14
20	105	75	4	14
25	115	85	4	14
32	140	100	4	18
40	150	110	4	18
50	165	125	4	18
65	185	145	4	18
80	200	160	8	18
100	220	180	8	18
125	250	210	8	18
150	285	240	8	22
200	340	295	12	22

MOD	DESCRIPTION	DATE	SIG

TITLE:  
FREE FALL VALVE ASSEMBLY (FLANGED)

# F.E.L Valves Ltd.

GENERAL TOLERANCES  
 0-PLACE DEC [0] ±0.5mm  
 1-PLACE DEC [0.0] ±0.2mm  
 2-PLACE DEC [0.00] ±0.05mm  
 ANGULAR ± 0° 30'

DRAWN: J.WILLIAMS  
 DATE: 26.04.02  
 FILE NAME: A0004\_FREE FALL VALVE

96, PICKMERE LANE,  
 WINCHAM, NORTHWICH,  
 CHESHIRE, UK. CW9 6EB.  
 TEL: 01565 733137

REMOVE ALL BURRS & SHARP EDGES UNLESS OTHERWISE STATED

SCALE: NTS [A4] DRG No: A0004/4

## **Free Fall Valve Operating and Maintenance Instructions**

### **INSTALLATION.**

- 1/ Secure the lever to square on valve plug using the fixing screw provided and ensure that the valve operates freely prior to installation.
- 2) Ensure that the chosen position will allow full valve closure and access for in situ installation.
- 3) Attach the weight and slider assembly to the front face of the lever using the 8mm bolt provided.
- 4) Determine the cable route and overall distance, such that the fusible link is sited within 1 metre directly above the firing point of the burner/exhaust etc
- 5) Install anchor and pulleywheels, fix cable to anchors and to fusible link using cable connectors provided. Run cable from the fusible link through the pulley wheels and attach to the valve tension spring. This should be extended before fixing to the slider. Also ensure that the warning notice is placed in a prominent position.  
Ensure that the angular deflection of the cable is no more than 20 degrees from vertical on run from the valve to the first pulley wheel.
- 6) Test the operation of the valve by releasing the cable from the anchor fixing point and observe the closing action of the valve. The valve is fully closed when the lug on the valve plug is hard against the finger stop.  
The cable must run freely and be free from kinks. The fusible link and caution sign must not restrict the closing operation.

### **ROUTINE MAINTENANCE.**

Where the service permits, the valve should be partially or fully operated once to ensure free operation and to determine the effort required.

For frequently operated valves maintenance merely consists of two or three turns of the combination screw or, if gun injection, several strokes of the lever and opening and shutting of the valve a minimum of three times to distribute the sealing compound evenly around the plug at three monthly intervals. It is difficult to be specific how often the valve should be recharged with sealing compound, since this is determined by the frequency of operation, type of service, pressure and temperature.

### **INJECTION OF COMPOUND**

When the combination screw has reached its limit (screwed down fully), this indicates that the valve needs recharging with sealing compound. When using sticks or lightweight compound gun, remove the combination screw, insert a stick or partially fill the compound reservoir in the plug, replace the combination screw and screw down.

This operation may need repeating several times. When using the high-pressure gun, attach the nozzle to the injection nipple and give several steady strokes of the lever.

Valves must be either fully open or fully closed whilst they are being charged.

### **INDICATION OF FULL CHARGING**

The first indication of the valve becoming fully charged is an increase in the effort required to rotate the combination screw or with the high-pressure gun, an increase on the effort required on the lever.

### **METHOD OF INJECTION**

Where the number of valves to be charged is small i.e. 1-15 valves, especially if they are in smaller sizes, stick or lightweight gun injection can be successfully used. For larger sizes use of the high-pressure gun is recommended.

### **VALVE LEAKAGE**

Leakage through the valve indicates that the valve requires injection of sealing compound or that it needs opening and closing a minimum of three times to distribute the compound evenly.

### **OPERATING TORQUE**

Should a valve become jammed or unusually stiff to operate, this can be cured by the injection of sealing compound. If this is ineffective it will be necessary to dismantle the valve, clean the components and recharge with sealing compound. Details and diagrammatic information regarding valve strip and rebuild procedures are available upon request.

## Free Fall Fire Valve Fitting Kits.



	Individual Kit Component	Small Kit contents <a href="#">20-060</a>	Medium Kit contents <a href="#">20-061</a>	Large Kit contents <a href="#">20-062</a>
Contents	Product Code	15 to 50mm Valves	65 to 100mm Valves	125 to 200mm Valves
40mm diam.x 1/4" BSP Pulley	<a href="#">20-070</a>	2	4	8
Double Pulley Arrangement.	<a href="#">20-073</a>	0	0	1
1/4" BSP Malleable Backplate	<a href="#">20-077</a>	3	5	9
Brass Anchor, 1/4" BSP Thread.	<a href="#">20-079</a>	1	1	1
9m Stainless Cable	<a href="#">20-080</a>	1	2	0
30m Stainless Cable	<a href="#">20-081</a>	0	0	1
71C Fusible Link	<a href="#">20-090</a>	1	2	3
Tension Spring	<a href="#">20-101</a>	1	0	0
Cable Turnbuckle	<a href="#">20-102</a>	0	1	1
Caution Sign	<a href="#">20-107</a>	1	2	3
Cable Connectors	<a href="#">20-110</a>	8	10	16

Small Kit, 20-060 for 15 to 50mm Valve

Medium Kit, 20-061 for 65 to 100mm Valve Sizes

Large Kit, 20-062 for 125 to 200mm Valve Sizes

### Ordering Information

Tel: 01565 733137. Fax 01565 733841. E-mail: [fel.valves@virgin.net](mailto:fel.valves@virgin.net) Web: [www.felvalves.com](http://www.felvalves.com)  
 FEL Valves Ltd., 96 Pickmere Lane, Wincham, Northwich, Cheshire, UK. CW9 6EB



## Free Fall Fire Valve Lubricating Compounds

Fire Valve sealants are specifically formulated for various service applications. Selection of sealants in accordance with the sealant recommendation chart below is essential for the maximum performance and efficiency of a Free Fall Fire Valve. The sealant chart designates the applicable service conditions for which the various sealants are suitable.

Sealant Stick	Numbers FEL Code	Temperature Range C		Colour	Principle Usage	Solvent
		From	To			
6	<a href="#">20-046</a>	0	135	Grey	Hot Water Service	Naptha
400	<a href="#">20-047</a>	-8	60	Red	Acids & Alkalis	Naptha
450	<a href="#">20-048</a>	-8	60	White	Food products	Naptha
600	<a href="#">20-049</a>	-20	60	Brown	General Hydrocarbon Services	Perchloroethylene
650	<a href="#">20-050</a>	-30	85	Green	Hydrocarbons, LPG & Natural Gas	Chlorethane
711	<a href="#">20-055</a>	-25	85	Clear	Internal Combustion Fuels	Chlorethane
750	<a href="#">20-051</a>	-8	205	Black	Asphalt & Hot Oil Services	Naptha
800	<a href="#">20-056</a>	-25	122	White	Hydrocarbons & Aromatics	Perchloroethylene
900	<a href="#">20-057</a>	-20	122	Black	Hydrocarbons, Aromatics & Asphalt	Perchloroethylene

The above temperature ranges are quoted at maximum pressure, i.e. 14 bar, temperatures exceeding these values are permissible. Please contact FEL Valves for applications that may fall outside of the designated temperature range.

### Valve and Sealant Sizes/Quantities

Valve Sizes, nb.	Sealant Stick Diameter	Number of Sticks per Box
15mm to 50mm	3/8"	12
50mm to 200mm	1/2"	12

### Ordering Information

Tel: 01565 733137. Fax 01565 733841. E-mail: [sales@felvalves.com](mailto:sales@felvalves.com) Web: [www.felvalves.com](http://www.felvalves.com)