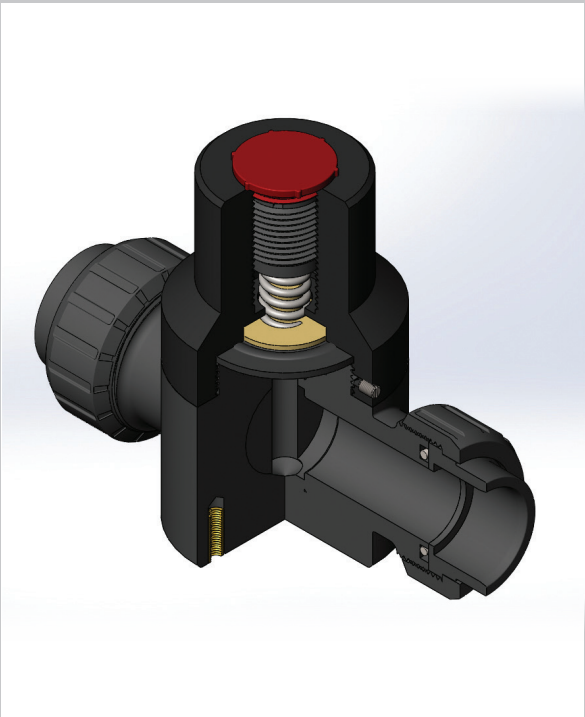


LR Pressure Loading/Relief Valve

- The innovative LR Valve offers a unique design enabling the valve to be installed in two orientations: Pressure Loading or Pressure Relief. Eliminating the requirement for dual valve stocking
- The adjuster screw, situated beneath the red cap on top of the valve can be used to set the desired working pressure
- A broad bladed driver or adjuster device should be used to set the valve pressure to avoid damage to the adjuster screw
- Pressure Relief Mode: 0 - 10 Bar
- Pressure Loading Mode: 0 - 3 Bar
- Available in both PVC-U and ABS materials
- Ductile PP-GR black valve bonnet
- EPDM, FPM and PTFE diaphragm options available
- Size range: 1/2" up to 2" or 16mm up to 63mm
- 3D CAD Models are available upon request
- Valve orientation video available on our YouTube channel 'Durapipe UK'
- For more information, please visit our website **www.durapipe.co.uk**

Legend

d	Nominal outside diameter
DN	Nominal internal diameter in mm
PN	Nominal pressure in bar (max.working Pressure at 20°C - (water)
gms	Weight in grams
PVC-U	Un-plasticised Polyvinyl Chloride
ABS	Acrylonitrile Butadiene Styrene
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
FPM	Fluorocarbon Rubber
PTFE	Polytetrafluoroethylene
LR	Loading/Relief



Dimensions and Standards

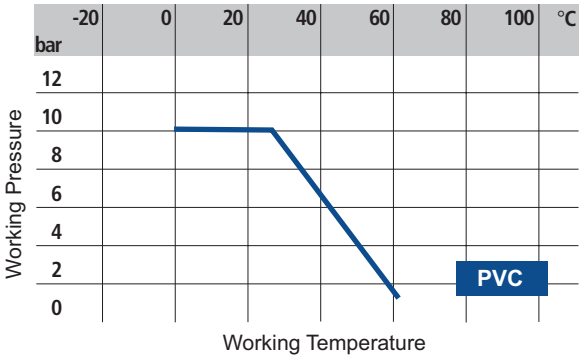
Metric
The Metric System is manufactured generally in accordance with the relevant International Standards: ISO 15493, KIWA 49 and 549, DIN 8062 and 8063.

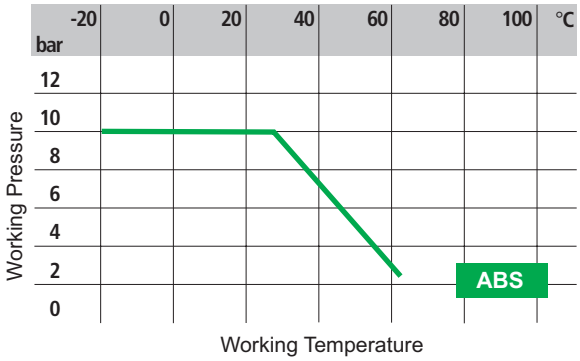
Imperial
The Imperial System is manufactured in accordance with the relevant British Standards: BS 5392 Fittings.

Interchangeability
Components in the imperial and metric ranges are not interchangeable.

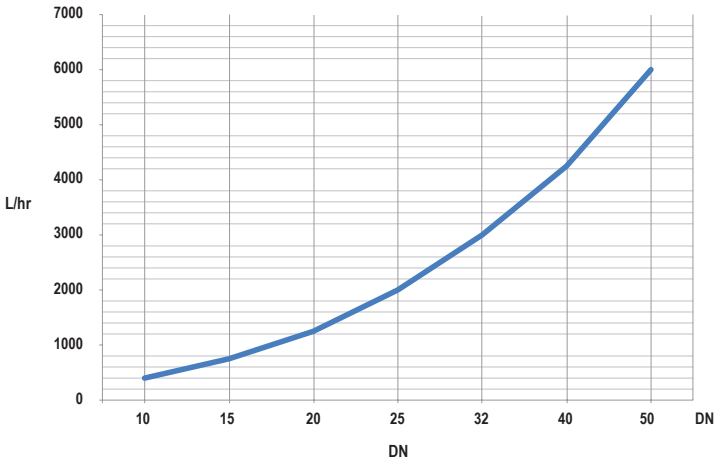
Compliance
Pressure Equipment Regulations: SI-1999 No.2001
Pressure Equipment Directive: PED 97/23/EC (Module B)

Technical Data





Max Flow Rate (Valve Fully Open)

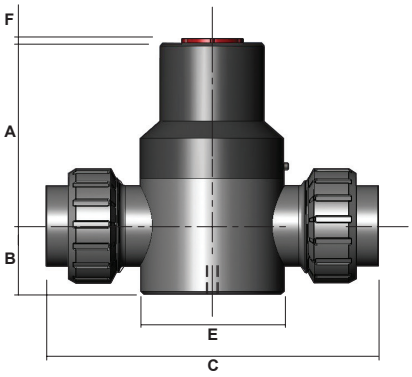


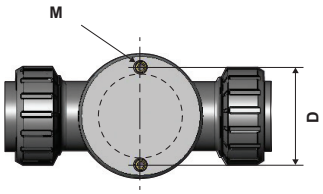
Maximum flow rates through the valve body at maximum relief valve outlet (10 bar) represented as litres per hour

DN	Metric	Imperial	Flow Rate (L/hr)
10	16	N/A	400
15	20	1/2”	750
20	25	3/4”	1250
25	32	1”	2000
32	40	1 1/4”	3000
40	50	1 1/2”	4000
50	63	2”	6000

Material	System Pressure	Relief Max	Loading Max
PVC-U	16 Bar	10 Bar	3 Bar
ABS	10 Bar	10 Bar	3 Bar

BS Series Female Ends



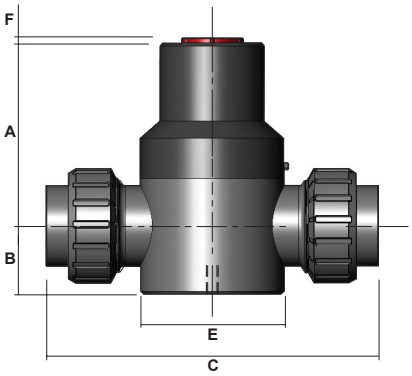


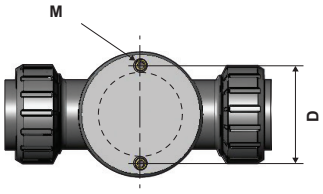
LR VALVE PVC-U
LR VALVE ABS

Pressure Loading/Relief Valve with BS Imperial Ends (for solvent welding)

									PVC-U					ABS				
d	DN	PN	A	B	D	E	F	M	C	gms	EPDM Code	FPM Code	PTFE Code	C	gms	EPDM Code	FPM Code	PTFE Code
½	15	10	85	27	40	54	3	M5	133	222	H0 LRE 102	H0 LRF 102	H0 LRG 102	133	101	H0 LRA 102	H0 LRB 102	H0 LRC 102
¾	20	10	102	33	50	64	3	M5	153	464	H0 LRE 103	H0 LRF 103	H0 LRG 103	153	257	H0 LRA 103	H0 LRB 103	H0 LRC 103
1	25	10	106	34	60	79	3	M6	174	756	H0 LRE 104	H0 LRF 104	H0 LRG 104	184	425	H0 LRA 104	H0 LRB 104	H0 LRC 104
1¼	32	10	113	42	70	89	3	M6	204	1118	H0 LRE 105	H0 LRF 105	H0 LRG 105	220	607	H0 LRA 105	H0 LRB 105	H0 LRC 105
1½	40	10	142	46	80	109	6	M6	233	1813	H0 LRE 106	H0 LRF 106	H0 LRG 106	254	1005	H0 LRA 106	H0 LRB 106	H0 LRC 106
2	50	10	156	57	100	128	6	M6	291	2775	H0 LRE 107	H0 LRF 107	H0 LRG 107	315	1444	H0 LRA 107	H0 LRB 107	H0 LRC 107

Metric Series Female Ends





LR VALVE PVC-U
LR VALVE ABS

Pressure Loading/Relief Valve with Metric series female ends (for solvent welding)

									PVC-U					ABS				
d	DN	PN	A	B	D	E	F	M	C	gms	EPDM Code	FPM Code	PTFE Code	C	gms	EPDM Code	FPM Code	PTFE Code
16	10	10	85	27	40	54	3	M5	133	222	H0 LRE 305	H0 LRF 305	H0 LRG 305	133	101	H0 LRA 305	H0 LRB 305	H0 LRC 305
20	15	10	85	27	40	52	3	M5	133	222	H0 LRE 306	H0 LRF 306	H0 LRG 306	133	101	H0 LRA 306	H0 LRB 306	H0 LRC 306
25	20	10	102	33	50	64	3	M5	153	464	H0 LRE 307	H0 LRF 307	H0 LRG 307	153	257	H0 LRA 307	H0 LRB 307	H0 LRC 307
32	25	10	106	34	60	79	3	M6	174	756	H0 LRE 308	H0 LRF 308	H0 LRG 308	184	425	H0 LRA 308	H0 LRB 308	H0 LRC 308
40	32	10	113	42	70	89	3	M6	204	1118	H0 LRE 309	H0 LRF 309	H0 LRG 309	220	607	H0 LRA 309	H0 LRB 309	H0 LRC 309
50	40	10	142	46	80	109	6	M6	233	1813	H0 LRE 310	H0 LRF 310	H0 LRG 310	254	1005	H0 LRA 310	H0 LRB 310	H0 LRC 310
63	50	10	156	57	100	128	6	M6	291	2775	H0 LRE 311	H0 LRF 311	H0 LRG 311	315	1444	H0 LRA 311	H0 LRB 311	H0 LRC 311

Loading/Relief Functions

The LR valve can be installed as either a pressure loading or pressure relief valve. The valve operates on the spring loaded diaphragm principle with the load on the diaphragm being varied by means of a screw adjuster.

The valve can be installed in two orientations, **(Fig 1.1)** shows the direction in which the valve must be installed into the pipeline to operate using the pressure loading function. The valve can provide loading valve requirements from 0 – 3 bar.

The valve can also be installed as a pressure relief valve by rotating the valve 180 degrees, offering pressure relief from 0 – 10 bar. **(FIG 1.1)** shows the direction in which the valve should be installed to operate using the pressure relief function.

(Fig 1.2) indicates the direction of flow that the valve must convey for either the loading or relief function in order to ensure correct installation takes place.

Setting The Valve

1. Check the valve is installed in either the loading or relief orientation, ensuring the flow direction arrows indicate the correct direction of flow.
2. Remove the red adjuster cap on top of the valve by twisting anti-clockwise by hand. Avoid using any additional tooling to eliminate the risk of damage to the cap thread **(Fig 1.3)**.
3. The valve adjuster screw will now be visible as shown in **(Fig 1.4)**.
4. In order to set the valve, we recommend our LR valve adjuster tool for this operation, although a broad-bladed driver can be used, place the tool into the slot on the adjuster screw ensuring that the tool fits securely.
5. The adjuster screw should then be twisted clockwise to increase the pressure setting (Max 3 Bar Loading) (Max 10 Bar Relief). The adjuster screw should be twisted anti-clockwise to reduce the pressure setting.

Please note: The valve even at the lowest pre-set pressure will never fully isolate. An alternative valve may be considered for this type of process.

6. Replace the red adjuster cap on top of the valve.



Fig.1.1

Fig 1.2







Fig 1.3


Fig 1.4


Fig 1.5

LR Valve Adjuster Tool:
Product Code LRVA0001




Fig 1.6

Tel: 0844 800 5509 Fax: 01543 273248

Connection to the System

The LR Pressure Loading/Relief valve is designed for direct mounting into the pipeline. It is not recommended to install the valve in the inverted position due to the possibility of air or gas pockets forming in the pipework and causing erratic operation.

The pipeline leading to the valve should be flushed clear of any construction debris prior to installation as particles of swarf or grit could damage the valve diaphragm. If debris is anticipated during normal operation then a RV sediment strainer should be installed upstream in order to counter this problem.

Disassembly

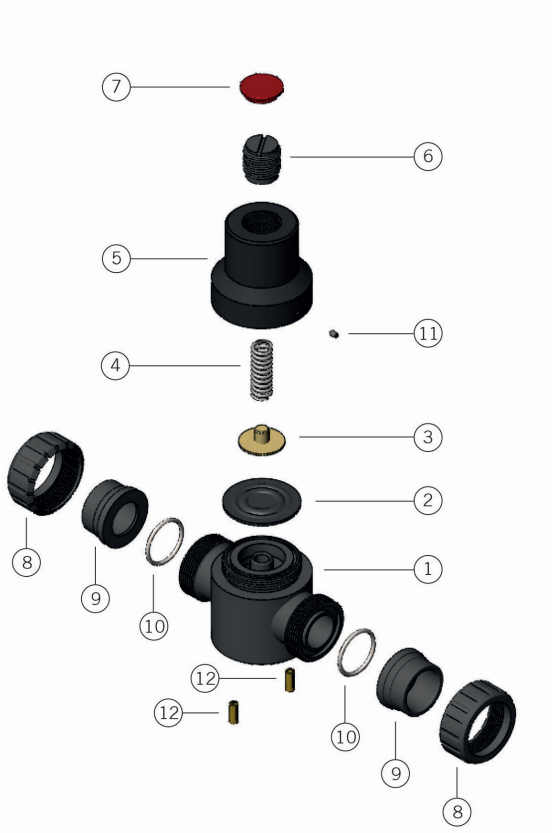
1. Isolate the valve from the flow and drain down the pipeline.
2. Unscrew the valve union nuts (8) from either side of the valve to remove the valve body (1)
3. Unscrew the red adjuster cap (7) on top of the valve to reveal the adjuster screw (6). Turn the adjuster screw anti- clockwise until removable from the valve body. Remove the adjuster screw (6) and remove the spring (4) that will now be visible.
4. Release the locking screw (11) from the valve bonnet (5), the bonnet can now be removed from the top of the valve by turning anti-clockwise
5. Push down on the now visible pressure pad (3) to release the diaphragm (2) and internal o-ring (this is a singular item)

Assembly

1. Replace the pressure pad (3) in the recess of the valve bonnet (5)
2. Place the diaphragm (2) into the threaded area of the valve bonnet (5) ensuring that all diaphragm edges are seated within the bonnet recess (a blunt tool may be used to ease this into position)
3. Thread the valve bonnet (5) clockwise back onto the valve body (1) ensuring no debris is located within the thread. Some resistance may be felt as the internal o-ring is compressed into the valve body
4. The locking screw (11) should now be screwed into the bonnet in order to lock in position (ensure this is not overtightened)
5. The spring (4) can now be re-inserted into the top of the valve bonnet, followed by the adjuster screw (6)
6. Replace the red bonnet cap (7) on the top of the valve
7. Re-install the valve back into the pipe line by tightening the union nuts by hand either side of the valve until a resistance is felt, ensure that the valve is secured within the correct orientation (Loading or Relief).

It is recommended that the valve should be disassembled and checked for signs of wear or damage annually. Diaphragms and Springs are recommended to be replaced every 24 months.

Note: When assembling the valve components, it is advisable to lubricate the o-rings. Do not use mineral oils as they attack EPDM rubber.



Position	Components	Material
1	Valve Body	PVC-U/ABS
2*	Diaphragm	EPDM/FPM/PTFE
3	Pressure Pad	Steel
4*	Spring	Steel
5	Valve Bonnet	PP-GR
6	Adjuster Screw	PVC-U
7*	Adjuster Cap	PP
8*	Valve Nut	PVC-U/ABS
9*	End Connector	PVC-U/ABS
10*	O-Ring	EPDM/FPM
11	Locking Screw	SS
12	Mounting Screw	Brass

*Spare Parts are available upon request