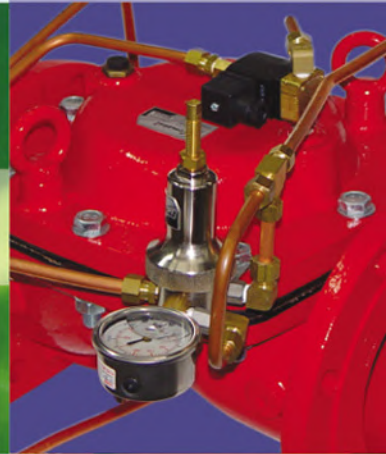




Hydraulic Control Valves





Cometal was established in Spain in 1977 as a manufacturer of irrigation hardware products. As demand for automation and better control systems increased, hydraulic control valves were added to the range of products manufactured.

It was also established that the control valves lent themselves for use in other sectors such as industrial, mining, municipal, fire services etc.

Cometal utilises the latest in house CAD/CAM technology and equipment to ensure that accuracy and quality of the products is consistently maintained throughout all stages of the manufacturing processes. All finished products are checked and tested during and after final assembly.



Cometal Hydraulic Control valves consist of 4 main components: The Valve Body, Diaphragm, Spring, and the Control Chamber Cover. The Diaphragm is the flexible moving element in the valve and is made of canvas reinforcing rubber.

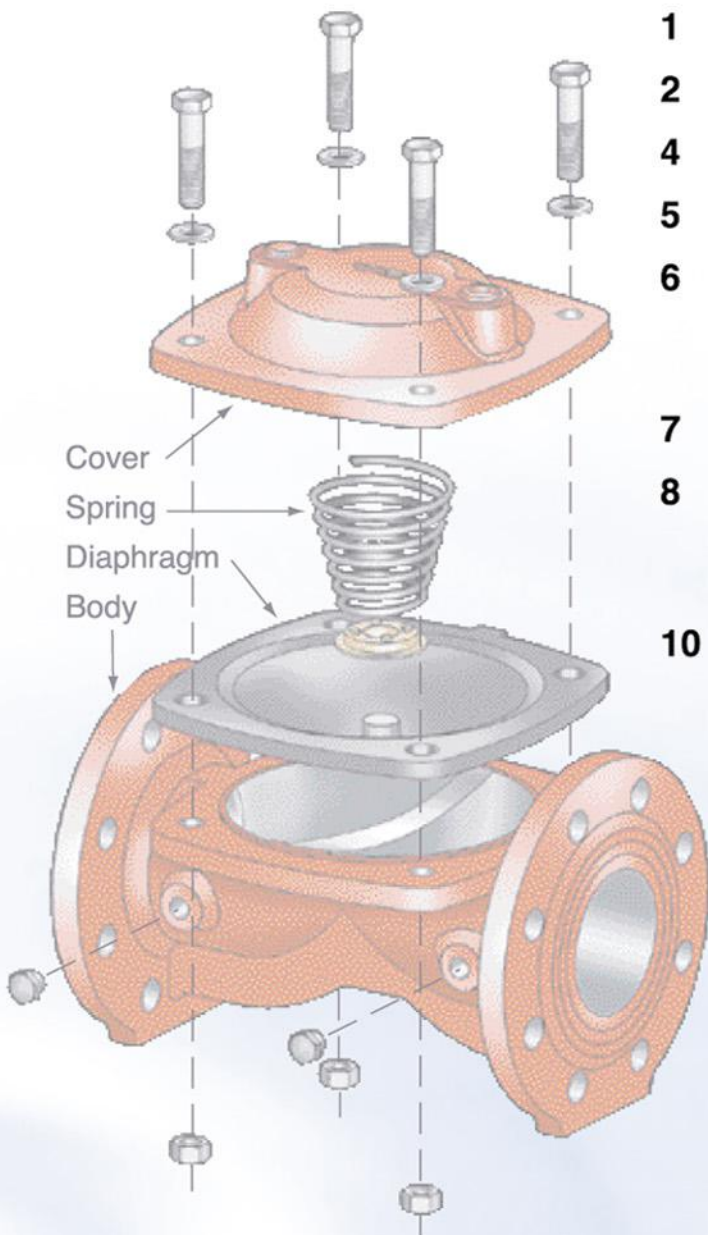
The valve can be Opened, Closed and Regulated by filling, removing or holding water in the Control Chamber, which in turn controls the position of the Diaphragm.

With the addition of a 3-Way Tap the valve can be controlled manually, with a solenoid, the valve can be controlled electronically. With the addition of a Control Pilot, the Hydraulic Valve can be regulated to control the pressure before or after the valve (Pressure Sustaining or Pressure Reducing). It can also be configured as a quick acting Pressure Relief Valve for safeguarding pump stations and pipelines.

Features and Advantages:

- All products are designed and manufactured in house by Cometal using the latest CAD/CAM technology.
- Quality Assurance certification to ISO 9001.
- Low head/friction loss design.
- All internal components can be serviced without valve removal.
- Corrosion resistant epoxy polyester coating.
- All head loss graphs are independently tested to ISO 9644-94.
- All valves are hydrostatically pressure tested to ISO 9635-90.
- All pilots comply and are independently tested to ISO 10522-93.

Contents



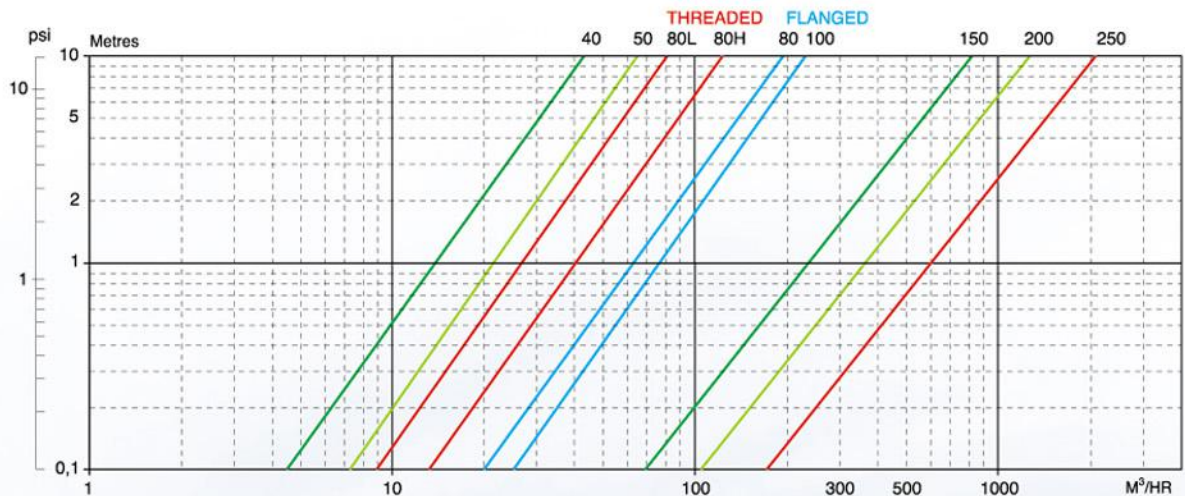
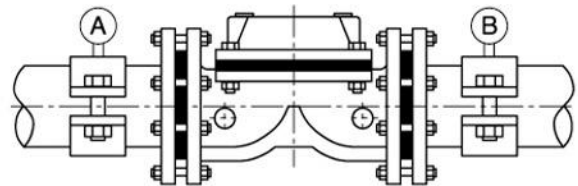
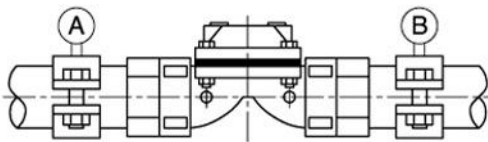
- 1** Valve Components
- 2** Cast Iron Valves
- 4** Cast Iron Angle Valves
- 5** Plastic Valves
- 6** 3 Way Manual Taps, Finger Filters, Shuttle Valves
- 7** Control Pilots
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- 10** Valve Plumbing Configurations



Cast Iron Valves



Friction Head Loss from A to B



80L=80mm Low Flow Threaded Valve
 80H = 80mm High Flow Threaded Valve

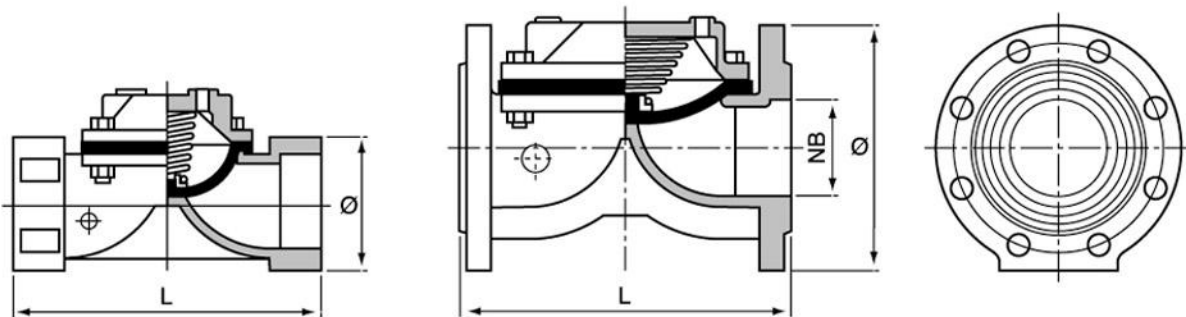


80H and 250mm Valves
 are Double Diaphragm/Bodied Units

FEATURES:

- Body and Cover: Cast Iron
- Diaphragm: Natural Rubber, Nylon Fabric Reinforced
- Spring: Stainless Steel
- Coating: Epoxy - Polyester

Cast Iron Valves - Technical Data

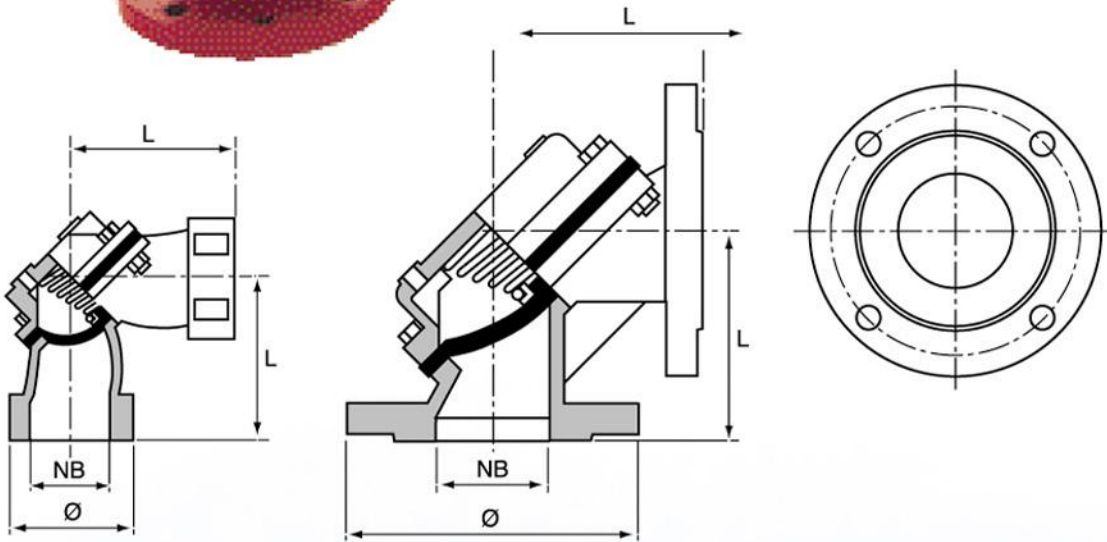
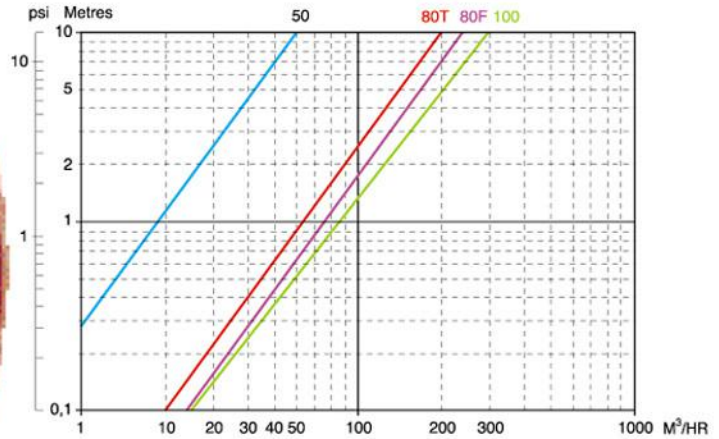


NB Size		Catalogue No.	Connections	Ø	L	Weight
mm	inch			mm	mm	kg
40	1 1/2	VH040		80	186	4
50	2	VH050	Threaded	80	186	4
80	3	VH080L (Low Flow)	BSP-FM	115	210	7
80	3	VH080H* (High Flow)		115	210	8
80	3	VH080		200	300	20
100	4	VH100	Flanged	220	305	22
150	6	VH150	Table 'D'	285	390	52
200	8	VH200		340	475	88
250	10	VH250*	Table 'E'	405	496	154

NOTES:

- All valves can be plumbed to suit your specific application.
- For plumbing configurations/options refer to pages 10, 11 & 12, or Triangle Price Book.
- Standard valves are configured for PN6 rating, or PN16 on request.
- *VH80H & VH250 valves are dual diaphragm/bodied valves.
- Pressure required to fully open diaphragm is 100 kPa for PN6, and 150 kPa for PN16 rated valves.
- Other flange standards and configurations available on request.

Cast Iron Angle Valves



NB Size		Catalogue No.	Connections	Ø mm	L mm	Weight kg
mm	inch					
50	2	VHA050	Threaded	80	86	4
80	3	VHA080T	BSP-FM	115	157	13
80	3	VHA080F	Flanged	200	147	20
100	4	VHA100	Table 'D'	220	157	22

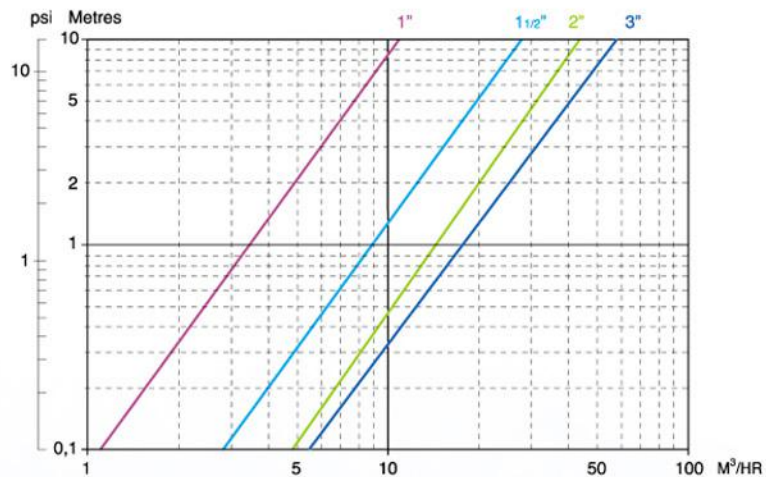
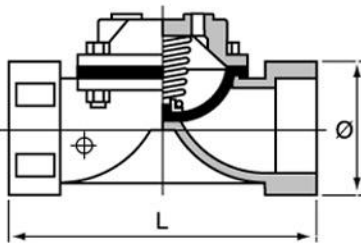
Notes:

- All valves can be plumbed to suit your specific application.
- For plumbing configurations refer to pages 10, 11 & 12 or Triangle Price Book.
- Standard valves are configured to PN6 rating, or PN16 on request.
- Pressure required to fully open diaphragm is 100 kPa for PN6, and 150 kPa for PN16 rated valves.
- Other flange standards and configurations available on request.

FEATURES:

- Body and Cover: Cast Iron
- Diaphragm: Natural Rubber, Nylon Fabric Reinforced
- Spring: Stainless Steel
- Coating: Epoxy - Polyester

Plastic Valves 25mm-80mm



NB Size		Catalogue No.	Connections	Ø	L	Weight
mm	inch			mm	mm	kg
25	1	VHP25		40	130	.20
40	1 1/2	VHP40	Threaded	65	170	.73
50	2	VHP50	BSP-FM	75	185	.76
80	3	VHP80		108	185	.88

Notes:

- All valves can be plumbed to suit your specific application.
- For plumbing configurations/options refer to pages 10, 11 & 12, or Triangle Price Book.
- Standard valves are PN10 rated.

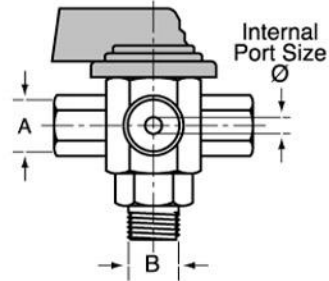
Features:

- Body and Cover: Glass Reinforced Nylon
- Diaphragm: Natural Rubber, Nylon Fabric Reinforced
- Spring: Stainless Steel
- Maximum Work Temperature: 50° C



3-Way Manual Taps

3-Way Taps are usually fitted to the top control chamber connection of a hydraulic valve for automatic, closed and open operation of the valve, or to select the source of pressure going into the top of the valve. They can also be fitted to a remote - control bar.



Cat No.	Internal Port Size mm	Common Connection 'B'	Lateral Connections 'A'
V3W-25	2.5	1/4" BSP-M	1/8" BSP-FM
V3W-25FM	2.5	1/4" BSP-FM	1/8" BSP-FM
V3W-45	4.5	1/4" BSP-M	1/4" BSP-FM



Finger Filter

Finger filters are fitted to the inlet of each valve fitted with a control pilot or solenoid. The filter protects the internal ports of pilot or solenoid from large solids that can restrict or obstruct the water flow. The mesh is 250 micron rated, and self cleans inside the valve.



Shuttle Valve

Shuttle valves are designed to pass water to a common port from the connection with the highest pressure.

Application: Remote hydraulic on/off regulating valves, Dual Purpose valves.

Control Pilots



Control Pilots are pressure sensing valves designed to modulate a diaphragm type hydraulic valve. The Control Pilot controls the line pressure before, or after the hydraulic valve. The pressure set point can be adjusted on the pilot.

Configurations available are:

- **Pressure Sustaining (PSV)**
Controls the pressure before (upstream of) the valve to a pre-set minimum point regardless of changes in the system. Applications include pump start flow restriction, and controlled line filling. The valve will open fully once the downstream pressure builds up to the set point.
- **Pressure Reducing (PRV)**
Controls the pressure after (downstream of) the valve to a pre-set point. Applications include irrigation field valve/pressure control, and over pressure limiting.
- **Quick Pressure Relief (QPR)**
Controls the maximum pressure in a pipeline or pump set to avoid over pressuring. Applications include pump station and pipeline protection.

The Pilot is fitted and connected onto the basic hydraulic valve using hydraulic control tube and fittings. The same pilot can be used for all the above operations depending on the porting connections selected on the pilot and valve. The pressures set point can be adjusted via the bolt on top of the Pilot. Control tube can be in polyethylene, nylon, copper or stainless steel.

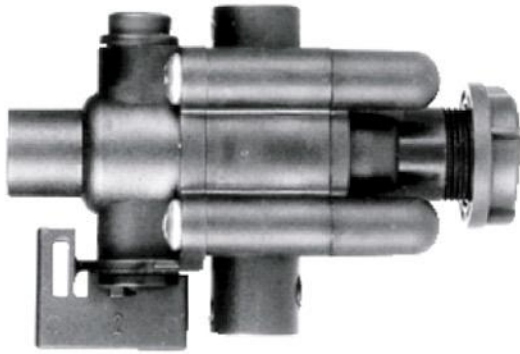
There are 4 pilots available:

Cat. No.	Description	Internal Port Size	For Size Valves	Pressure Rating	Class
VPMIL	Plastic - Mini pilot	2.5	40-100mm	PN6	B
VPPIL-45	Plastic	4.5	40-250mm	PN10	A
VPILB-25	Brass - Small	2.5	40-100mm	PN16	B
VPILB-45	Brass - Large	4.5	40-250mm	PN16	A

Features:

- Connection are 1/8" BSP-FM
- Materials of construction: Brass or glass reinforced nylon (plastic unit) body, stainless steel shaft, EPDM diaphragm.
- Conforms to ISO 10522-93 for accuracy, Class A \pm 3%, Class B = \pm 7%
- Use only filtered water via a finger filter or external strainer.

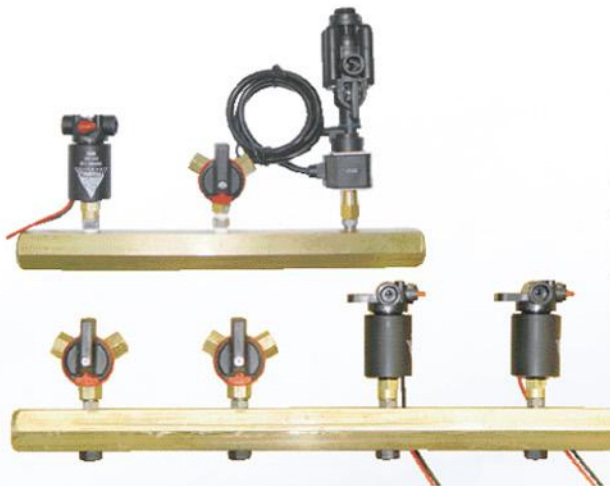




Hydraulic Relay Valves

The Hydraulic Relay Valve has a number of applications including:

- Where the remote signal available to open and close the valve is not strong enough, or too far away to effectively open and close the valve in short time.
- Where a fast action opening and closing of hydraulic valve is required
- Where a hydraulic signal needs to be reversed, eg. to change from NC to NO valve, or vice versa.
- In undulating terrain where varying head pressures can cause difficulties.



Control Bars

Control Bars are used in manual or electric control system, when all the valves are controlled from a single location, eg. pump station. The manual 3-way taps or solenoid valves are connected to each hydraulic valve by control tubes.

Solenoid Valves, 3-Way

Solenoid valves are fitted to hydraulic control valves where automatic control of the valve is required. Solenoid Valves can be fitted directly onto a valve or remotely.

Triangle uses a range of solenoid valves to suit the specific application, size of valve and operating pressure.



Configurations

Cometal hydraulic valves are available in many different configurations to suit specific applications. Some of the main configurations are as follows:



1. Manual Control

Allows the valve to be opened or closed by operating/rotating a 3-way tap fitted to the control chamber of the valve. The 3-way tap can also be located at a remote point on a Control Bar, and connected to the valve with control tube.



2. Electric Control

Allows the valve to be opened and closed with a remote electrical signal. The valve can be configured as normally open (N.O.) or normally closed (N.C.), and the solenoid can be fitted to the valve or remotely located on a Control Bar and connected to the valve with control tube.



3. Pressure Reducing (PRV)

Controls and reduces the pressure on the outlet side of the valve. The maximum outlet pressure is set on the pilot. Changes in inlet pressure have no effect.



4. Electric Pressure Reducing

Controls and reduces the pressure on the outlet side of the valve, and can be opened and closed with a remote electric signal.

Configurations



5. Pressure Sustaining (PSV)

Restricts the flow of water through the valve to maintain a minimum pressure on the inlet side of the valve. The minimum pressure is set on the pilot. Once the downstream pressure has built-up to the set pressure the valve opens fully.



6. Electric Pressure Sustaining

Restricts the flow to achieve a minimum pre-set inlet pressure, and can be opened and closed with a remote electric signal. Once the downstream pressure has built-up to the set pressure the valve opens fully.



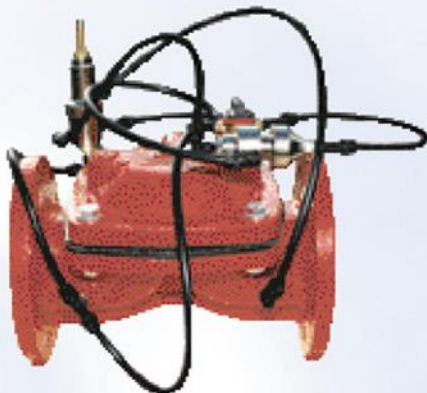
7. Pressure Reducing / Pressure Sustaining (PRV / PSV)

Reduces the pressure on the outlet side of the valve, and sets the minimum pressure on the inlet side of the valve.



8. Electric Pressure Reducing / Pressure Sustaining

Reduces the pressure after the valve, sets a minimum pressure on the inlet side of the valve, and can be opened and close with a remote electric signal.



9. Pressure Regulating, Remote Hydraulic Relay on/off

A Pressure Reducing or Sustaining Valve with long distance hydraulic control via a hydraulic relay fitted to the valve. This overcomes long distances pressure and flows loses from the hydraulic signal.

