

Hygienic Valves

Hygienic Valves

Hygienic Valves



# Introduction

Process Components Ltd is the only manufacturer and supplier of the Mucon product range, to the liquid, powder and bulk solids handling sectors.

## Products

- Iris Valves - The Original Mucon Valve
- Slide Valves
- Butterfly Valves, Composite Valves, Volumetric Feeder Valves, Dosing Valves, Sample Valves, Tablet Valves and other hygienic valves
- Disc Valves
- Discharge Aids
- Level Indicators

## Brands

Process Components Ltd also manufactures equipment and components under the following brands;

- KEK – Centrifugal Sifters, Universal Mills, Cone Mills
- Gardner – Blenders and Mixers
- PPS – Air Classifier Mills

Process Components guarantee exceptionally high levels of service and product quality.

## Industry Sectors

- Food Processing
- Pharmaceutical
- Chemical Processing
- Glass and Ceramics
- Plastics
- Sand and Cement
- Cosmetics

Mucon equipment has been used extensively in the bulk materials handling industries for over 60 years, during which time the company has built up an excellent reputation for both product reliability and service.

Organisations search for increased economy, efficiency and demand faster processing of bulk solids for an ever growing range of applications. This is where our specialist knowledge and proven expertise is unrivalled.

Whatever the powder or granule, there will be a suitable Mucon product that will move it, measure it, control it and keep it moving quickly and efficiently.

Building on the success of its other material handling ranges, Mucon has added a new and exciting range of Stainless Steel hygienic valves and accessories specifically for the pharmaceutical, food, cosmetics and fine chemical sectors.

### ***Mucon Oyster Compact Series Butterfly Valve***

This is a light and compact 316L Stainless Steel Butterfly Valve with a patented Clamshell™ connection allowing quick and easy cleaning.

p4

### ***Mucon Oyster VP Compact Butterfly Valve***

The Mucon VP Butterfly Valve is a hygienic fully compliant with cGMP valve which is designed to handle full vacuum in both the open and closed position.

p7

### ***Mucon Oyster Flowmaster Dosing Valve***

The Flowmaster is suited for filling, discharging and dosing applications offering a powder tight seal where the valve is intermittently used and can be utilised with a wide variety of process machinery.

p8

### ***Mucon Oyster Volumetric Feeder Valve***

The ideal valve for overcoming product build-up in the download phase and for controlling the flow of powders and granules within a wide variety of process machinery.

p11

### ***Mucon Oyster Composite Valve***

The Composite Valve is utilised to fill containers accurately and efficiently to a predetermined weight.

p13

### ***Mucon Oyster SuperClean Valve***

This is the perfect CIP valve for applications requiring frequent cleaning as it has no 'dead areas' where material can remain trapped.

p16

### ***Mucon Oyster Tablet Butterfly Valve***

The Mucon Tablet Valve with its flexible silicone disc offers a great alternative solution to traditional Stainless Steel Butterfly Valves for handling tablets, capsules and pills.

p19

### ***Mucon Oyster Monobloc Valve***

The Mucon Oyster Monobloc Valve is a robust and economic valve used for intercepting the flow of tablets and capsules with minimum risk of product damage.

p21

### ***Mucon Oyster Sample Valve***

Designed to extract powder samples from Reactors, Driers and Conveying systems without affecting vacuum, pressure or temperature inside the vessel.

p22

### ***Mucon Series K Iris Valve***

The latest in manual and powered Iris Diaphragm Valve technology. The new and innovative Series K2P offers air motor or electric motor operation for light and medium duties.

p25

### ***Flexible Modular Valve Connections***

A complete versatile and cost effective range of flexible sanitary valve connections, Tri-Clover Ferrules and accessories.

p27

# Oyster Compact Series Butterfly Valve

Mucon Oyster Compact Butterfly Valve design is derived from understanding the requirements of end users within the pharmaceutical, food, chemical, cosmetic and other sterile material handling environments.

Special attention to specific cleaning procedures, has enabled us to provide our customers with the ultimate hygienic valve solution.

Mucon stainless steel Compact Butterfly valves are manufactured from solid stainless steel plate. This minimises the risk of porosity and ovalisation (misshaping of the valve) which can be experienced with other manufacturers products. As a consequence the end user is rewarded with an all-round superior product.

The Oyster Compact Butterfly Valve has been engineered so that its overall dimensions and weight are reduced by up to 10% (Depending on valve diameter) compared with other products on the market.

The patented (Clamshell™) clamp attaches directly to the valve body via machined notches, simplifying the stripping down and re-assembly of the valve in-situ; making it ideal for where frequent cleaning is required. This innovative design helps to increase efficiency and productivity.

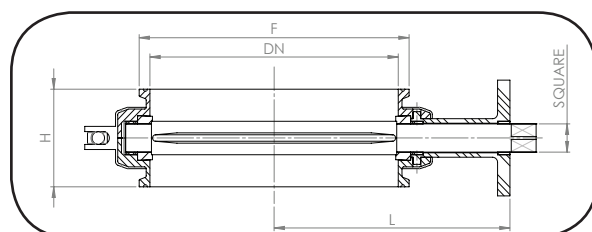
As with all Mucon Oyster branded valves, they are manufactured to cGMP standards and finished to the highest pharmaceutical requirements.

Choice of body and seal materials mean that the valve can be specified in a vast range of applications including corrosive acids and solvents.

Mucon Compact Butterfly valves can be used in any shut-off application for handling;

- Powders
- Granules
- Tablets
- Liquids
- Gels

	100	150	200	250	300
Dimensions (mm)					
DN	100	150	200	250	300
F *	4"	6"	8"	10"	12"
L	140	165	190	215	240
H	76	76	76	76	76
Square	17x17	17x17	17x17	17x17	17x17
Weight					
Kg	5.2	7.3	9.8	12.5	15.3
Lb	11.5	16.1	21.6	27.6	33.7
Pressure (Barg) **					
Up-Stream / Down-Stream	Powder Tight				
Internal / External	0.5bar	0.5bar	0.5bar	0.5bar	0.5bar
	7.3psi	7.3psi	7.3psi	7.3psi	7.3psi
Opening / Closing Torque ***					
Nm	25	30	40	50	90
Lb-Ft	18	22	29	60	100
Temperature ****	Min. / Max.		Min. / Max.		
Manual / Pneumatic	-30° / +90°C (-22°/194°F) / -20°/ +80°C (-10°/176°F)				



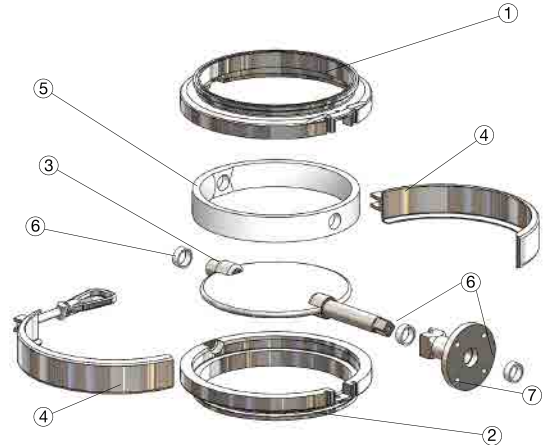
\* Tri-Clover specification is ASME/BPE unless otherwise specified. A full range of Tri-Clover specifications can be supplied.

\*\* Pressure tested valves can be supplied on request depending on seal material and process conditions.

\*\*\* Values based on using a silicone gasket. These results may vary with PTFE, FKM, MFKM and FFKM seals.

\*\*\*\* Values based on using a silicone gasket. Improved performances may be obtained using other elastomers

Materials		
1	Upper Half-Body	AISI 316L (EN 1.4404), C-22
2	Lower Half-Body	AISI 316L (EN 1.4404), C-22
3	Disc	AISI 316L (EN 1.4404), C-22
4	Clamshell™ Clamp	AISI 304 (EN 1.4301)
5	Gasket (*)	Silicone, EPDM, PTFE-lined, FFKM/MFKM
6	Bushes	PTFE, PEEK
7	Lever / Actuator Support	AISI 304 (EN 1.4301)
not shown	Hand Lever	Arm: AISI 304 (EN 1.4301) Pommel: Bakelite
not shown	Bolt	AISI 304 (EN 1.4301)



\* Material in compliance with FDA 177.2600

The Mucon Oyster Compact Butterfly valve is often used as a loading or discharging valve with various process machines such as Blenders or at the bottom of powder vessels.

All Mucon Oyster Compact valves can be manually or automatically actuated.

The standard manually actuated Butterfly valve allows the operator to turn the Disc at an angle of  $-45^\circ / 45^\circ$  or  $0^\circ / 90^\circ$  and includes a locking pin for open and closed positioning.

## Air Supply

Filtered unlubricated compressed air with a 6–8 bar (87–116 psi) working pressure.

ATEX rating for the Mucon Oyster Compact Butterfly valve range is II 2GD c IIB T4/T135°C.

ATEX requirements relate only to automated valves, which are tested, and fully compliant with the ATEX directive

Manually operated valves are specifically excluded from the scope of ATEX and MAY NOT be marked ATEX.

## Manual Actuation

- Hand Lever with Bakelite Pommel
- Orientation:  $0^\circ / 90^\circ$  and  $-45^\circ / +45^\circ$
- Stainless Steel hand lever for easy cleaning

## Manual Options

- Customised Orientation
- Lockable
- Position Sensor
- Push and Turn Lever
- Multi-Position Stops

## Pneumatic Actuation

- Spring Return (Single Action) rack and pinion type
- Air / Air (Double Action) rack and pinion type
- Actuator can be made from aluminium or stainless steel
- ATEX certified upon request
- Air supply 6 - 8bar (87 - 116psi)

## Pneumatic Actuation Options

- Solenoid Valve
- Position Sensors, Limit Switches
- 4-20mA Positioner for proportional control
- Quick Release Actuator Support
- ATEX Certification upon request

# Oyster Compact Butterfly Valve – Mounting Collar

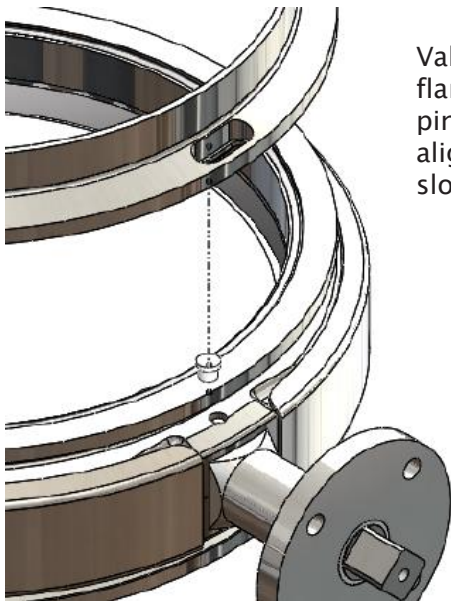
The Mounting Collar is an innovation to the standard Tri-Clover connection.

The Compact Mounting Collar allows a single operator to locate and secure the valve in position without assistance and in complete safety.

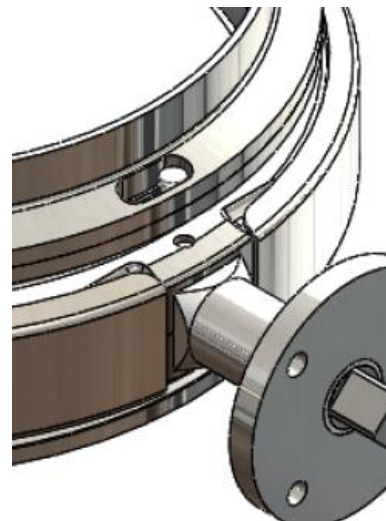
The Compact Mounting Collar is particularly suitable where valves are positioned in hard to access locations.

## Key Features

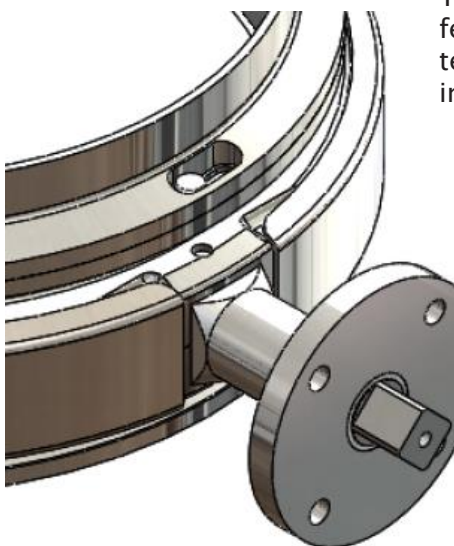
- Male / Female solution
- Can be supplied with O Ring to ensure valve tightness
- Produced in 316L or C22
- O Ring: PTFE, FEP, O-SIL, FFKM
- Sizes: DN100, DN150, DN200, DN250 and DN300



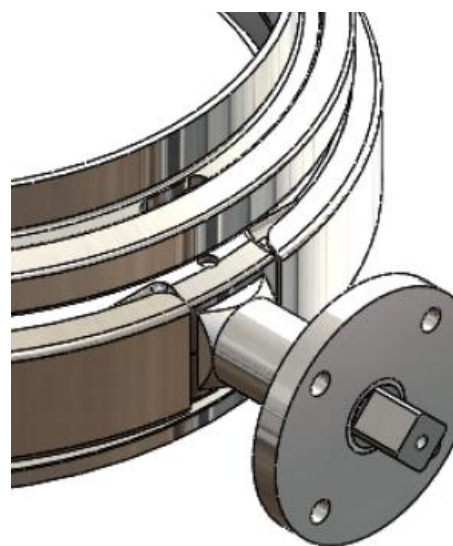
Valve is presented to the flange so that the protruding pins on the valve body are aligned with the machine slots in the flange.



Engage pins into slots.



The valve is rotated a few degrees in order to temporarily lock the valve in position on the flange.



Fit the clamp to secure the whole assembly.



# Oyster VP Compact Butterfly Valve

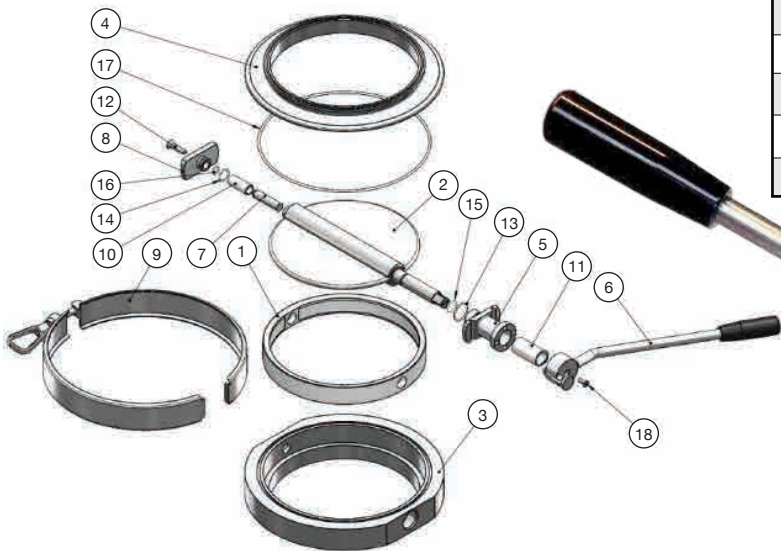
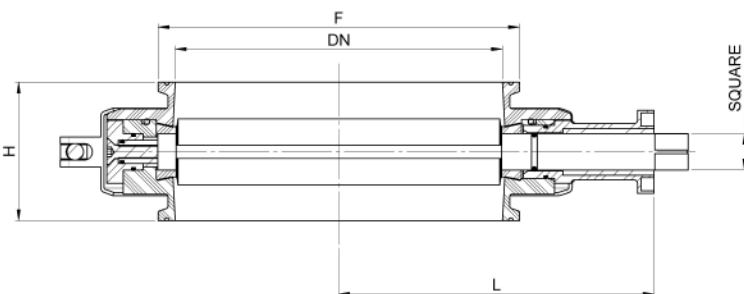
The Oyster VP Compact Butterfly valve is a hygienic Butterfly valve designed to handle a full vacuum in both the open and closed position. Unlike other process valves with comparable vacuum performance, it is fully compliant with cGMP; having no ‘dead’ zones where material can hang up.

- The VP valve can be manually or automatically actuated
- The VP valve can be ATEX certified Zone 1 / 21 upon request
- The valve is supplied for Tri-Clover mounting as standard

Other configurations maybe available if requested.

## Key Features and Benefits

- Full vacuum performance
- Simple and robust design for reduced maintenance and increased product longevity
- Easy and quick to strip down for cleaning and maintenance; no tools required make it ideal for clean room applications
- All contact parts are mirror polished



MATERIALS		
1.	Gasket	Silicone
2.	Disc	AISI 316L (EN 1.4404) C-22
3 - 4.	Half Body	AISI 316L (EN 1.4404) C-22
5.	Lever Actuator Support	AISI 304 (EN 1.4301)
6.	Hand Lever	AISI 304 (EN 1.4301)
7.	Shaft	AISI 316L (EN 1.4404) C-22
8.	Cover	AISI 304 (EN 1.4301)
9.	Clamshell	AISI 304 (EN 1.4301)
10 - 11.	Bushing	PEEK, PTFE
12.	Screw	AISI 304 (EN 1.4301)
13 - 17.	O-Ring	Silicone, FFKM
18.	Bolt	AISI 304 (EN 1.4301)

	200	250	300
Dimensions (mm)			
F	8"	10"	12"
H	84	84	84
Square	17x17	17x17	17x17
Kg	17.50	21.50	25.75
Pressure (Barg)			
Max. P (Int. / Ext.) - Disc Closed	0.49	0.49	0.49
Min. P (Int. / Ext.) - Disc Closed	-1.00	-1.00	-1.00
Min. P (Int. / Ext.) - Disc Open	-1.00	-1.00	-1.00
Max. P (Upstream / Downstream) - Disc Closed	0.49	0.49	0.49
Min. P (Upstream / Downstream) - Disc Closed	-1.00	-1.00	-1.00



# Oyster Flowmaster Dosing Valve

The Mucon Oyster Flowmaster Dosing valve is ideally suited for the filling, discharging and dosing of powders and granules in equal amounts in a controlled manner. As with all Oyster branded hygienic valves they are designed and manufactured to exacting tolerances and finished to the highest pharmaceutical and cGMP standards.

Its functional and user friendly design means that the 316L stainless steel Oyster Flowmaster valve can be used in the Pharmaceutical, Food, Chemical and Cosmetic industries as a loading or discharging valve in conjunction with process machinery or as a valve located on the bottom of vessels carrying powders.

Typical applications include for use with;

- Milling Machines
- Tablet Press
- Feeding Machines
- Sieves
- Micro-Dosing Machines

The segmented design alternates 180° back and forth as the valve gathers and deposits product into the underlying machine or process, while simultaneously preventing any uncontrolled discharge of product from the hopper above.

The 'Lobes' are designed so that in the closed position the valve is powder tight, yet giving minimal wear to the gasket during operation.

Speed of the Oyster Flowmaster Dosing valve and degree of motion can be adjusted as required via the customer's control panel. A full range of accessories is available for customer application requirements.

The Oyster Flowmaster Dosing valve shares all the advantages of quick disassembly and ease of maintenance with the Compact Series valves.

Customised volume lobe dimensions offer the end user improved product handling flexibility. This is especially important when handling sticky products or in applications where low discharge volumes need to be processed.

## ***Options***

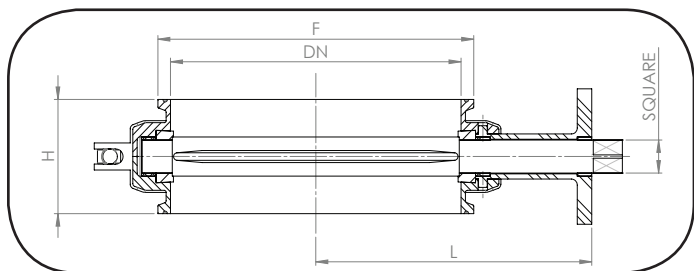
- ATEX certified upon request
- Pneumatic Actuator with 5/2 solenoid and proximity limit switches
- Compact Mounting Collar is acknowledged as superior to the standard Tri-Clover connections, especially when handling larger or heavier valves. Offers improved operator safety, reduces manpower and reduces the likelihood of damage to the valve
- Pneumatic Actuation - Aluminium or Stainless Steel construction`



## Finish / Optional Finishes

- The Oyster Flowmaster is finished to the highest pharmaceutical standards
- Contact Surfaces: Mirror Polished (Ra max. <0.4 µm)
- Ceramic sandblasting and electro-polished finishes are available upon request

	100	150	200	250	300
<b>Dimensions (mm)</b>					
<b>DN</b>	100	150	200	250	300
<b>F *</b>	4"	6"	8"	10"	12"
<b>L</b>	140	165	190	215	240
<b>H</b>	76	76	76	76	76
<b>DD Drive</b>	10mm	10mm	10mm	14mm	14mm
<b>Weight</b>					
<b>Kg</b>	6.4	9.6	13.7	18.2	23.2
<b>Pressure (Barg)</b>					
<b>Up-Stream / Down-Stream</b>	Powder Tight				
<b>Internal / External</b>	0.5bar	0.5bar	0.5bar	0.5bar	0.5bar
	7.3psi	7.3psi	7.3psi	7.3psi	7.3psi
<b>Opening / Closing Torque **</b>					
<b>Nm</b>	25	30	40	50	90
<b>Lb-Ft</b>	18	22	29	37	66
<b>Temperature</b>	Min. / Max.				
<b>Actuated</b>	- 20° / +80°C (-10° / 176°F)				



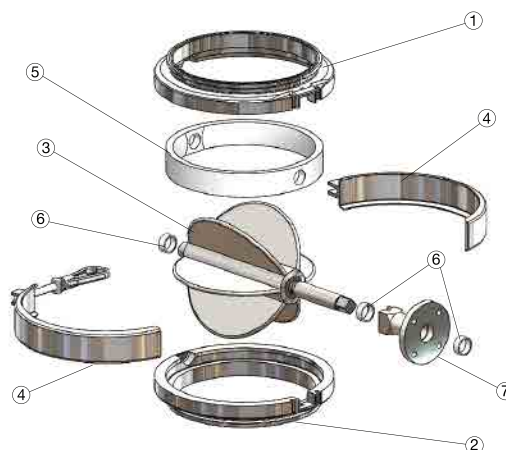
\* Tri-Clover specification is ASME/BPE unless otherwise specified. A full range of Tri-Clover types can be supplied.  
 \*\* Values based with silicone gaskets / seals. Values may vary using PTFE, FKM etc.

# Oyster Flowmaster Dosing Valve

**Table of Materials**

1	Upper Half-Body	AISI 316L, C22
2	Lower Half-Body	AISI 316L, C22
3	Rotor	AISI 316L, C22
4	Clamshell™ Clamp	AISI 304
5	Gasket (*)	Silicone EPDM, FFKM, MFKM, PTFE-Lined
6	Bushes (*)	PTFE, PEEK
7	Actuator Support	AISI 316L, AISI 304

\* Material in compliance with FDA 177.2600



**Material Flow Rate**

	100	150	200	250	300
Displaced Volume per cycle - Ltr	0.3	1.2	3.3	6.8	12.2
Max. cycles per minute*	45	35	25	20	16
Displaced Volume per hour - m³ (cu.ft)**	0.70 (24.7)	2.07 (73.0)	3.96 (139.6)	6.57 (231.6)	9.7 (341.9)

\* Recommended maximum (indicative flowrate). May vary for different process and product conditions.

## Valve Body Types

The valve body can be supplied either bolted or clamped using the painted Clamshell™ clamp design, which greatly simplifies valve strip down and re-assembly for cleaning.

The valve body can be supplied with the following Inlet and Outlet end fixings;

- Standard Clamp
- Welded end (Spigot)
- Tri-Clamp (BS4825 or DIN32676)
- Wafer - For mounting between flanges

## Pneumatic Operation and Actuator Options

- Spring return pneumatic actuator (Rack and Pinion)
- Double action pneumatic actuators (Rack and Pinion)
- Actuator covers can be supplied in aluminium or stainless steel
- Electric Actuator
- Quick Release Actuator Support
- Actuators can be fitted with NAMUR solenoid valves, limit switches or position sensors
- Filtered, unlubricated air supply required for pneumatic actuators 6 - 8 bar (87 - 116 psi)

## Documentation and Certificates

- Operator and Maintenance manual
- 3.1 Material Certificate for contact parts
- FDA Certificate for seals and gaskets
- ATEX Certification upon request
- Other documantation can be supplied upon request



The Mucon Oyster Volumetric Feeder Valve is designed for continuous operation and is the ideal product for overcoming product build-up in the download phase and for controlling the flow of powders and granules in a wide variety of process machinery within the Food, Pharmaceutical and Chemical sectors.

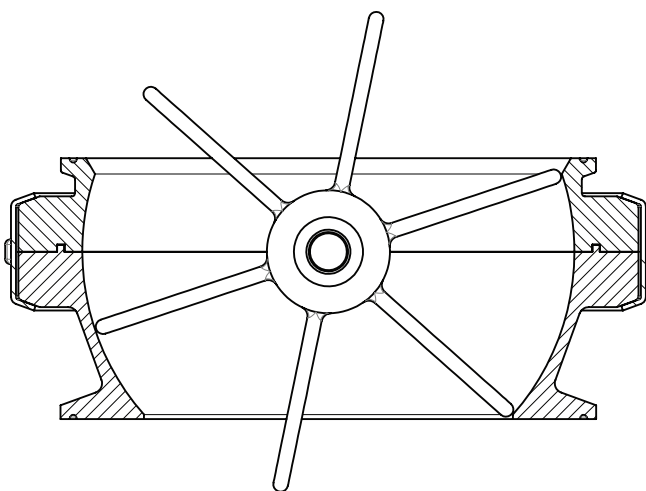
All Mucon Oyster branded 316L stainless steel hygienic valves are designed according to cGMP standards.

The design and function of the Mucon Volumetric Valve is as a direct result of listening to and understanding the specific needs of our customers with regards to their application processes and cleaning requirements.

The simple structure of the Volumetric Feeder Valve allows the operator to simply, easily and quickly disassemble and reassemble the valve whenever it needs to be cleaned or maintained.

## ***Key Features and Benefits***

- Valve body and Rotor in 316L stainless steel
- Metal to Metal valve construction makes the Oyster Feeder Valve the perfect solution for large continuous discharge applications
- Rotor can be customised to meet any specific project requirements
- Stainless Steel finish ( $Ra < 0.4 \mu m$  Internal and  $Ra < 1.2 \mu m$ )
- Patented 'Clamshell' clamp design makes it easier and faster for operators to strip the valve down for cleaning and maintenance
- Electric or pneumatic motors are suitable for continuous drive
- A full range of connector and mounting collar options are available
- In many applications the Oyster Volumetric Feeder valve is a more cost effective alternative to high specification Rotary Valves



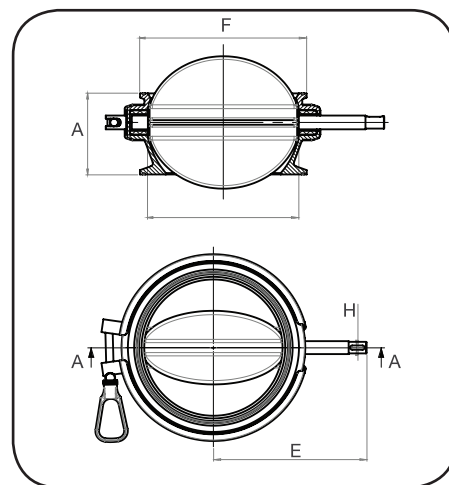
Side on view of the Non Asymmetric Volumetric Feeder valve.

The shaped inner body provides total product flow control.



# Oyster Volumetric Feeder Valve

	100	150	200	250	300
<b>Dimensions (mm)</b>					
<b>DN</b>	100	150	200	250	300
<b>F *</b>	4"	6"	8"	10"	12"
<b>E</b>	160	185	210	235	260
<b>A</b>	76	88	106	130	150
<b>H</b>	key-way				
<b>Weight</b>					
<b>Kg</b>	6.99	10.49	16.33	23.07	32.02
<b>Pressure (Barg)</b>					
<b>Up-Stream / Down-Stream</b>	N/A				
<b>Internal / External **</b>	0.5	0.5	0.5	0.5	0.5
<b>Temperature</b>	Min. Max.				
<b>C° (F°)</b>	- 30 (-22) +120 (+176)				



\* A full range of Tri-Clover specifications can be supplied.

\*\* Only Asymmetric version. Please specify if a pressure / vacuum exists from inside to outside.

Material Flow Rate for Feeder Valves					
	DN100	DN150	DN200	DN250	DN300
Displaced Volume per Cycle - Litre	0.3	1.2	3.3	6.8	12.2
Max. Cycles per Minute*	45	35	25	20	16
Displaced Volume per Hour - m <sup>3</sup> (cu.ft)**	0.70 (24.7)	2.07 (73.0)	3.96 (139.6)	6.57 (231.6)	9.70 (341.9)

\* Recommended maximum. May vary for different process and product conditions.

\*\* NB Includes a notional fill factor which assumes pockets do not fill 100% each cycle. In practice this will vary with product and process characteristics and for any given installation can only be determined by experiment.

## Documentation and Certificates

- Operator and Maintenance manual
- 3.1 Material Certificate for contact parts
- FDA Certificate for elastomers
- ATEX Certification available upon request
- Other documentation can be supplied upon request



The Mucon Oyster Composite Valve is the perfect choice for the discharge and accurate dosing by gravity of powders and granules without any risk of product contamination or of the surrounding environment. The Oyster Composite valve is used in the pharmaceutical, chemical and food processing sectors.

The Oyster Composite Valve is ideal for the filling of drums, bins or containers, where it is essential to accurately control the flow of product to achieve a target weight within a certain tolerance.

The Composite Valve consists of a main disc similar to a standard Butterfly Valve for high volume product discharge, with an 'inset' rotor dosing ball, which enables the operator to accurately dose product with the main disc closed. Both the main disc and the rotor dosing ball are independently controlled.

As with all Mucon Oyster Hygienic products they are designed according to cGMP and manufactured to exacting tolerances and finished to the highest pharmaceutical standards.

## Operation and Control

- Phase 1** The main disc is opened by means of a pneumatic actuator and a 4–20mA positioner enabling proportional opening which can be linked to weigh scales. As the target weight is approached the main disc is closed.
- Phase 2** When the main disc is closed the rotor dosing ball is operated by means of a 180° pneumatic actuator. As the rotor dosing ball alternates forward and back through 180° it dispenses product volumetrically in small quantities to enable a given target weight to be accurately reached.

Control of the main discharge disc and the fine dosing ball can be linked to automated systems.

## Documentation and Certificates

- 3.1 Material Certificate for contact parts
- FDA Certificate for seals and gaskets available upon request
- ATEX Certification available upon request
- Other documentation can be supplied where necessary



Materials	
Gasket	Silicone, EPDM, PTFE-Lined, FFKM/MFKM
Main Leaf	AISI 316L (EN 1.4404) C-22
Dosing Ball	AISI 316L (EN 1.4404) C-22
Upper Half-Body	AISI 316L (EN 1.4404) C-22
Lower Half-Body	AISI 316L (EN 1.4404) C-22
Dosing Ball Drive Shaft	AISI 316L (EN 1.4404) C-22
Dosing Ball Actuator Support	AISI 304 (EN 1.4301)
Main Leaf Actuator Support	AISI 304 (EN 1.4301)
Bushings	PTFE, PEEK, PTFE-Anti Static
O-Ring	FFKM, Silicone, EPDM

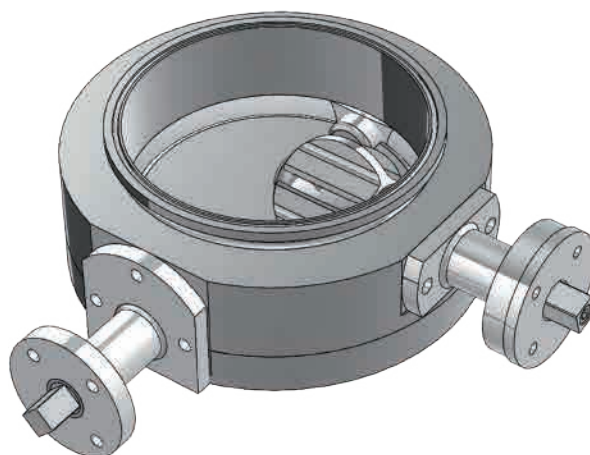
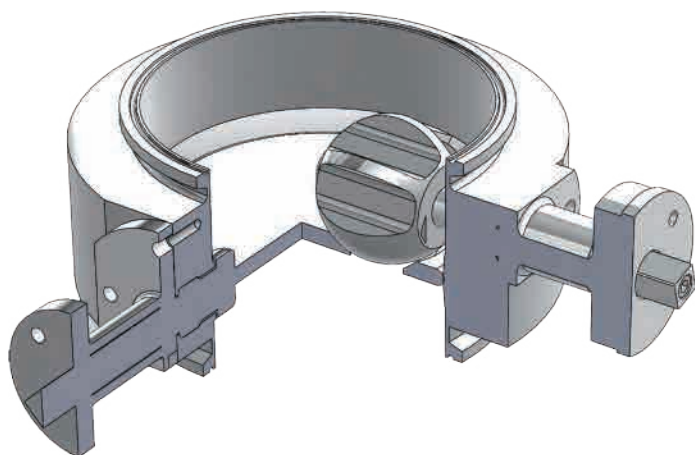
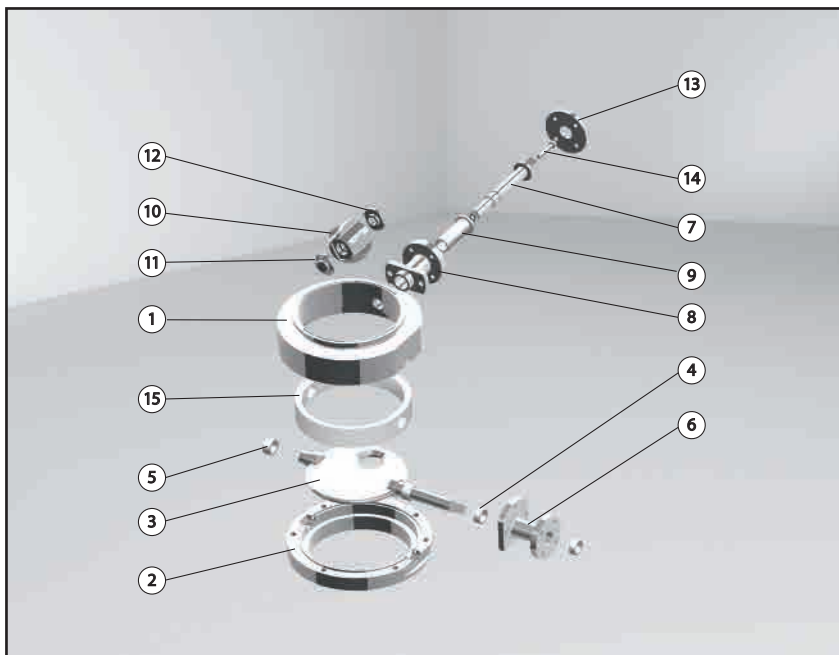
# Oyster Composite Valve

## Benefits

- Accurate discharge of materials
- Reduces the time taken to achieve the target weight
- Increases efficiency and productivity
- The layout of the Oyster Composite valve ensures that the dosing ball is immersed in product, making it easier and more reliable for powders to be deposited
- A Bridge Breaker can be included to further improve product flow
- In - Out tightness makes the valve washable with WIP

Sizes		
Size Disc / Rotor Disc Ball	Weight (Kg)	Approx Dosing Rotor Pocket Capacity (ml)
DN150 / 65	7.1	10.8
DN200 / 80	9.2	24.8
DN250 / 80	11.4	24.8
DN300 / 80	14.1	56.1

1. Upper Half Body
2. Lower Half Body
3. Main Disc
4. Bushing
5. Bushing
6. Main Disc Support
7. Dosing Ball Shaft
8. Dosing Ball Support
9. Bushing
10. Dosing Ball
11. Dosing Ball Securing Nut
12. Dosing Ball Guide Nut
13. Counter Flange
14. Bolt
15. Gasket

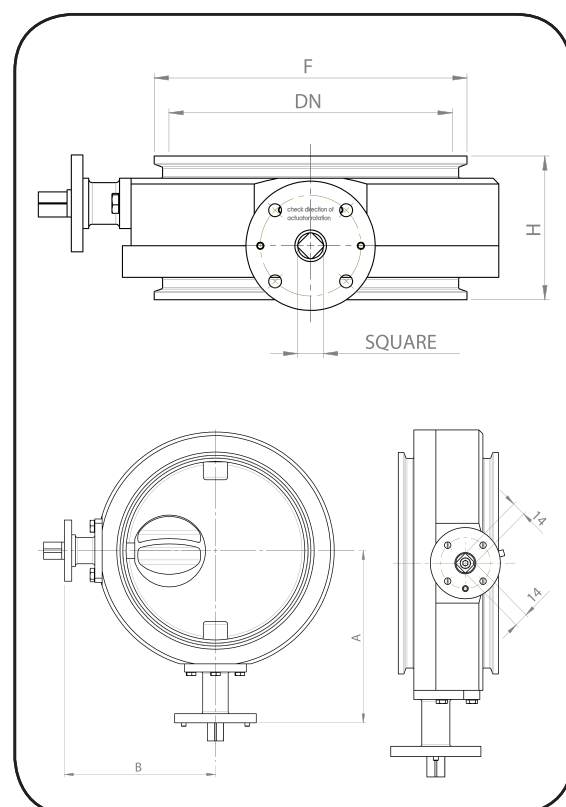




## Key Features

- Composite Valve can be equipped with a 'Bridge-Eliminator' for use with less free flowing materials
- A choice of seal materials - Silicone, EPDM, FKM, PTFE-lined. All gaskets are approved to FDA 177.2600
- Rotor Dosing Ball can be customised to meet the specific application requirements
- Stainless Steel finish ( $Ra < 0.4 \mu m$  Internal and  $Ra < 1.2 \mu m$ )
- Pneumatically actuated
- A full range of connector and mounting collar system options are available

	150	200	250	300
<b>Dimensions (mm)</b>				
<b>DN</b>	150	200	250	300
<b>F *(inches)</b>	6	8	10	12
<b>A</b>	165	190	215	240
<b>B</b>	157.5	166.5	207.5	232.5
<b>H</b>	95.5	100	100	100
<b>Drive Square Main Disc</b>	14x14	14x14	14x14	14x14
<b>Drive Square Dosing Ball</b>	14x14	14x14	14x14	14x14
<b>Weight</b>				
<b>Kg</b>	11.80	16.50	20.10	24.00
<b>Lb</b>	26.01	36.38	44.31	52.91
<b>Pressure (Barg)</b>				
<b>Up-Stream / Down-Stream</b>	n/a			
<b>Internal / External</b>	0.5	0.5	0.5	0.5
<b>Temperature ***</b>	Min.		Max.	
<b>C°</b>	- 20		+ 80	
<b>F°</b>	- 10		+ 176	



On the standard valve there is a 0.5mm gap between the dosing ball and the inside of the main disc outlet.

## Flexibility

The unique Dosing Ball design provides flexibility when dealing with difficult products, setting it apart from its competitors. The design of the Dosing Ball allows it to be tailored to suit the specific product being handled. The Mucon Oyster Composite Valve can include a built-in 'Bridge Eliminator', enabling controlled and accurate dosing of difficult products.

The Dosing Ball can be exchanged in a matter of minutes if the end user wishes to move from one product to another.

\* A full range of Tri-Clover specifications can be supplied

\*\* Values based on using a Silicone gasket. This may vary if using PTFE-Lined, EPDM, MFKM or FFKM gaskets / seals.

\*\*\* Values based on using a Silicone gasket. Performance may vary when using other elastomers.

# Oyster SuperClean Valve

The Oyster SuperClean valve is the perfect Clean In Place (CIP) solution for applications requiring frequent cleaning.

This valve differs from traditional stainless steel Butterfly valves as it has no 'dead areas' where material can remain trapped. In addition, the design of the Oyster SuperClean allows the end user to quickly and efficiently clean all contact surfaces of the valve without any need to have the valve dismantled.

The unique geometry of the Oyster SuperClean valve means that when used in a CIP location, the complete valve can be washed together with the rest of the plant as part of the customer's normal cleaning regime.

## *Disadvantage of Traditional Valves*

As with traditional Butterfly valves the valve stem which controls the movement of the Disc has to pass through a hole in the valve's gasket. As the area around this hole is constantly in tight contact with the gasket, there is no way of washing the contact surfaces without dismantling the valve.

Dismantling the valve means;

- Downtime for the plant
- Lost productivity
- Increased manpower costs
- Additional wear and tear on valve components



## *Advantages of the SuperClean Valve*

The Oyster SuperClean Valve is cleaner than traditional stainless steel Butterfly valves because;

- The valve stem is inclined and so does not need to pass through a gasket
- As the valve opens, contact between the Disc and the gasket is continuous. This movement during the cleaning process allows all the contact parts to be fully exposed to the cleaning process, therefore eliminating any chance of product contamination
- Perfect hygienic cleaning is the result, leading to improved productivity and reduced costs
- Should the valve need to be dismantled it can be done easily and quickly without the need of tools

## Materials

The materials used in the manufacture of the Oyster SuperClean valve fully conform to best practice and FDA requirements (See Table).

Material certificates 3.1B are supplied for all contact parts and Certificates of Conformity are supplied for seals and gaskets.

Materials	
Lever	AISI 304 (DIN 1.4301)
Retaining bolt	AISI 304 (DIN 1.4301)
Main Body	AISI 316L (DIN 1.4404), Hastelloy HC 22
Bushing	PTFE
Shaft Sealing O Ring	Silicone, EPDM, FEP, Perfluoroelastomer
Disc	AISI 316L (DIN 1.4404), Hastelloy HC 22
Main O Ring	Silicone, EPDM
Clamp	AISI 304 (DIN 1.4301)
Lower Body	AISI 316L (DIN 1.4404), Hastelloy HC 22

**Standard sizes are;**

- DN 100 (4")
- DN 150 (6")
- DN 200 (8")

## General Design Features

The stem of the valve is inclined at an angle to the plane of the valve disc. The degree of inclination varies with the size of the valve.

The shaft does not pass through the gasket. Tightness is achieved by means of an O Ring or similar. Flexibility to customer requirements can be achieved by using an array of different materials.

The half bodies are clamped together using a Tri-Clamp.

## Material Finish

The Oyster SuperClean valve is finished to pharmaceutical standards

- Contact surfaces are mirror polished (Ra max. <0.4µm)
- Other surfaces: Satin Finish (Ra <1.2µm)
- Full mirror finish is available upon request
- Ceramic sandblasting and electro-polished finishes are also available

## Operation

Manual Actuation Lever with locking retaining bolt mechanism is used to prevent accidental opening.

Pneumatic Actuation

- Double Action pneumatic actuators
- Fail Close Spring Type pneumatic actuators

Filtered non-lubricated air supply required for pneumatic actuators – Min. 6 bar (87 psi) Max. 8 bar (116 psi)

## Optional

- Valves can be fitted with NAMUR single or double solenoid valves, limit switches or position sensors and electro-pneumatic positioners (4–20mA)
- ATEX Certified upon request
- Stainless steel actuator cover. (Standard covers are made from anodised aluminium)

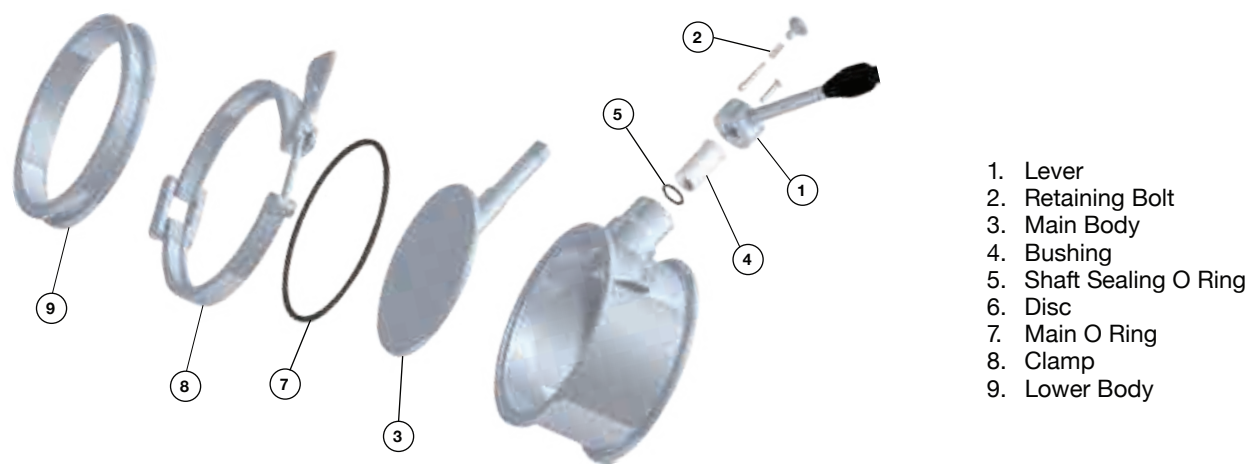
# Oyster SuperClean Valve

## Applications

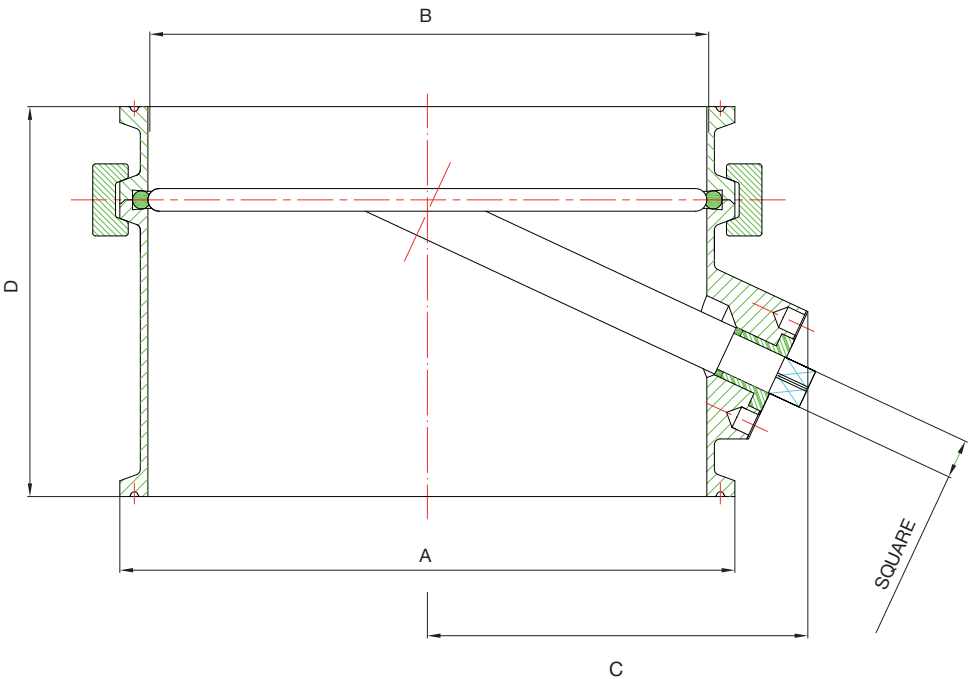
The Oyster SuperClean valve is fully FDA compliant and is suitable for handling Powders, Granules, Gels and Liquids in pharmaceutical, chemical and Food sectors.

## Standard Features

- Tri-Clover Clamp > 6" are light weight
- Tri-Clover Gaskets available in both silicone and PTFE
- Tri-Clover End Caps in 316L stainless steel
- Clamps are made in 304 stainless steel



Standard Dimensions (mm)					
Nominal Valve Size	A	B	C	D	Square
100	118.8	98	102	120	17
150	167	148	138	130	17
200	217.4	198	173.1	145	17



The Mucon Oyster Tablet valve is a great alternative solution to traditional standard stainless steel Butterfly valve for the flow control of products such as pills, capsules and tablets. To ensure products handled are not damaged, a flexible Disc is produced from co-moulded FDA compatible silicone. The flexible silicone material eliminates the possibility of damage to tablets or capsules.

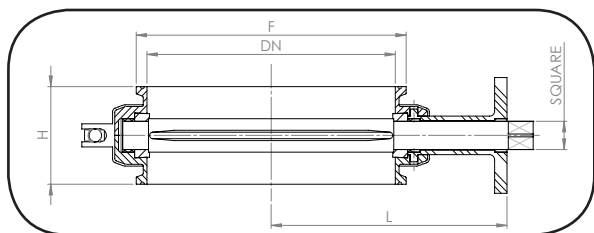
The Oyster Tablet series features the patented Clamshell™ clamp system. This simple, yet ingenious design allows the end user to quickly strip down and reassemble the valve, making the Oyster range the most compact, hygienic and user friendly valve on the market.

All Oyster branded valves are designed to cGMP standards, giving the operator trouble free operation as well as speed and ease of maintenance. Great care in the design of these valves eliminates recesses and hard to clean areas ensuring optimal hygienic and functional characteristics. All Oyster valves are manufactured as standard to exacting tolerances and finished to the highest pharmaceutical requirements.

The Tablet range can be used in a wide range of light duty applications; usually in connection with portable bins, IBC's etc

## Key Features

- Suitable for Washing In Place (WIP). Cleaning and sterilization operations are greatly simplified thanks to the 'Clamshell' clamp system which allows the valve to be easily and quickly stripped down and re-assembled.
- Operation - Manual or Pneumatic actuation
- Material Contact Parts - AISI 316L
- Disc - Co-moulded Silicone (FDA 177.2600)
- Seals - Silicone, EPDM
- Other Parts - AISI 304
- Valve Diameters - DN 100 (4"), 150 (6"), 200 (8"), and 250 (10")



	100	150	200	250
<b>Dimensions (mm)</b>				
<b>DN</b>	100	150	200	250
<b>F *</b>	4"	6"	8"	10"
<b>L</b>	140	165	190	215
<b>H</b>	76	76	76	76
<b>Square</b>	17x17	17x17	17x17	17x17
<b>Weight</b>				
<b>Kg</b>	5.2	7.3	9.8	11.3
<b>Lb</b>	11.5	16.1	21.6	24.8
<b>Temperature</b>	Min. / Max.			
<b>Manual / Pneumatic</b>	-30° / +90°C / -20° / +80°C			

\* Tri-Clover specification is ASME/BPE unless otherwise specified. A full range of Tri-Clover specifications can be supplied.

# Oyster Tablet Bolted Body Valve

The flexible Disc is co-moulded in FDA compatible silicone and gives the flexibility necessary to ensure damage to tablets and capsules being processed is avoided.

All Oyster branded hygienic valves are designed in accordance with cGMP standards making the Tablet tablet valve easy for operators to use and maintain. The Tablet valve design ensures outstanding hygienic and functional characteristics, eliminating hard to clean corners and recesses.

The exacting tolerances and high production finish makes the Oyster Tablet a great 'shut-off' valve for use in the Pharmaceutical sector.

## Connections

- Tri-Clover BS 4825-3
- Tri-Clover DIN 32676
- Tri-Clover ASME BPE
- Tri-Clover ISO 2852
- Tri-Clover OSAME A
- Weld End
- Connecting Flange
- Wafer



Quick Release Compact Tablet Valve



Bolted Tablet Valve



The Mucon Oyster Monobloc valve is a simple, robust and cost effective valve for intercepting the flow of tablets whilst preventing product damage when in the closed position.

The Monobloc valve is used for smaller volumes and lightweight applications.

The Monobloc valve body is manufactured from 316L stainless steel with a flexible elastomeric Disc which is co-moulded onto a stainless steel shaft.

As the Monobloc valve has a flexible elastomeric disc no gasket is required within the valve. The co-moulded flexible disc is held in place by a substantial PTFE Bush. This allows the whole valve to be held together by a single machine bolt.

The Oyster Monobloc valve comprises of only five components which means that it is economical to produce and extremely simple and quick to dismantle for cleaning and reassembly. Downtime and maintenance costs are kept to an absolute minimum.

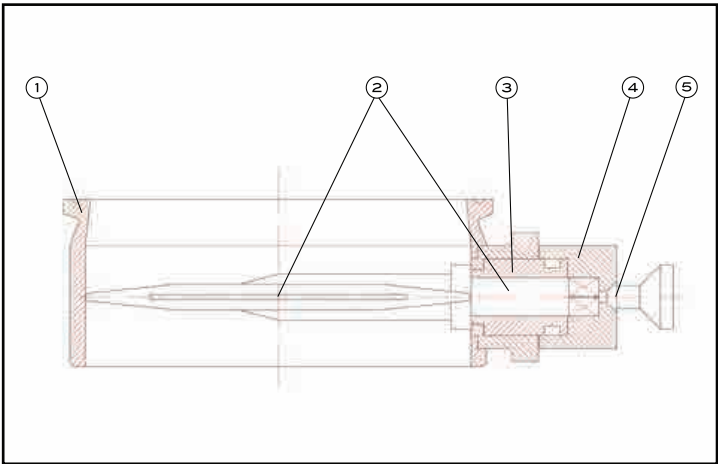
The Monobloc valve can be mounted via a standard clamp, a Tri-Clover clamp or via a customer specific flange arrangement.



## Key Features & Benefits

- Lightweight
- Simple and quick to clean and maintain
- Contact surfaces finished to pharmaceutical standards. (Mirror polished - Max. Ra <0.4µm)
- Ceramic sandblasting or electro-polished finishes can be provided upon request
- Size - Available in DN150 as standard. Other sizes available upon request
- Inexpensive alternative to other types of tablet valve

Materials	
1. Valve Body	AISI 316L (1.4404)
2. Co-Moulded Disc and Shaft	SILICONE / AISI 316L (1.44404)
3. Guide Brush	PTFE
4. Handle	AISI 304 (1.4301)
5. Machine Bolt	AISI 304 (1.4301)



## Technical Features

- Finish / Contact Surfaces
  - Finish / Non-Contact Surfaces
  - Total Net Weight (DN150 Version)
  - Operating Temperature
- Mirror Polished (Ra <0.4µ)
  - Scotchbrite
  - 2.6Kg
  - -20°C to +55°C

# Oyster Sample Valve

The Mucon Oyster Sample valve is the ultimate solution for extracting powder samples from an array of process machinery (such as listed below) without breaking the vacuum/pressure conditions in the vessel.

- Reactors
- Driers
- Conveying Systems

The benefit of using this product is that it offers end users in the food, chemical, dairy and pharmaceutical sectors with minimal disruption to their manufacturing process.

The valve is available as standard in DN50 with a 40mm Sample Port. Other sizes can be made available upon request.

## Application

The valve is available as either;

- Non-Intrusive Valve (Recommended for vacuum driers)
- Intrusive Valve (Suitable for chutes, pipes and fluid bed driers)

## Operation

Both versions are piston valves which can be either manually or pneumatically actuated. With the valve open the sample falls under gravity into the sample collector, which is located on the lower side of the valve.

The Sample Port is equipped with a purge valve allowing the user to equalise pressure once the valve is closed; allowing the sample collector to be removed safely. When the valve is closed the piston is flush with the inside of the vessel.



## Key Features & Benefits

- Easy and quick to strip down and reassemble without the need for tools
- Simple and robust design ensures low maintenance costs and product longevity
- Flexible mounting options include attachments for a Sample Bottle via DIN 11851, Tri-Clamp or Bayonet Mount
- Pressure equalising Sample valve with Tri-Clamp attachment offers improved cleaning and ease of use
- A choice of manufacturing materials is available to resist the most abrasive products, acids and solvents  
E.g. AISI 316L and C22

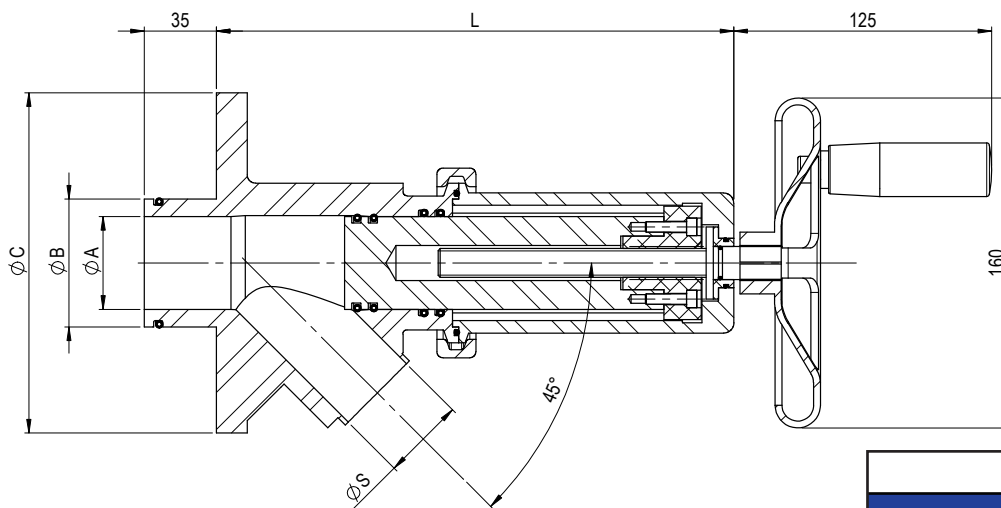
## Technical Characteristics

- Metallic Contact Parts – AISI 316 L or Hastelloy HC22
- Non-Contact Metallic Parts – AISI 304L or AISI 316L
- Piston Material – AISI 316L or Hastelloy HC22
- Piston Diameter – 45mm
- Sample Port Diameter – 40mm
- Weight – 9.4Kg (Depending on configuration)
- Operating Pressure: –1 / 3.5barg
- Operating Temperature: – 30°C to 150°C
- Design Pressure: – 10 bar

## Mounting

The following options are available for mounting the valve to the host installation:

- Tri-Clamp
- PN6 Flange
- PN10 Flange
- Customised mounting is available upon request



*Non-intrusive Sample Valve*

## Options

- Pneumatic actuation.
- CIP version
- 'Crust Breaker'
- High containment sample extraction
- Hastelloy C22 for components in product contact
- Other documentation can be supplied upon demand

## Finish

- Contact surfaces - Mirror Polished Ra. max <0.4µm
- Non-contact surfaces - Scotchbrite
- Electro-polished finish (available upon request)

	50
<b>Dimensions (mm)</b>	
DN	50
A	45
B	65
C	165
PCD	125
L	250
S	40
<b>Weight</b>	
Kg	9.4
<b>Pressure (Barg)</b>	
Operating Pressure	-1 / +3.5 barg
Design Pressure	10 barg
<b>Temperature</b>	
Manual	0° / 150°C
Actuated	- 20° / +80°C (-10° / 176°F)

# Oyster Sample Valve

Materials	
Description	Material
1. Valve Body	AISI 316L (EN 1.4404), C-22
2. Piston O-Rings	FFKM
3. Tri-Clover Gasket	PTFE
4. Piston	AISI 316L (EN 1.4404), C-22
5. Lower Body	AISI 304 (EN 1.4301)
6. Drive Screw	AISI 304 (EN 1.4301)
7. Drive Bush	Bronze
8. Hand Wheel	AISI 304 (EN 1.4301)

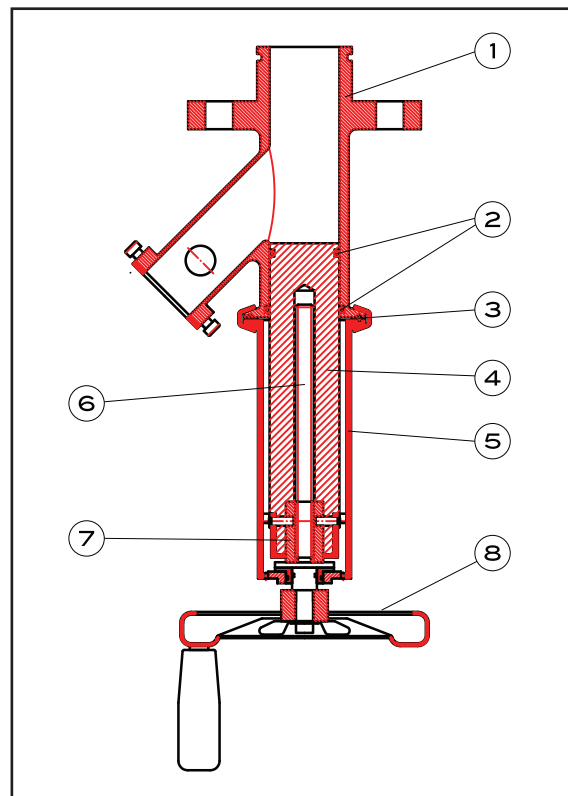
## Classification for Potentially Explosive Atmospheres

According to Article 1.3a of the 94/9/EC Directive of 23.03.1994; this product is not within the scope of the directive 94/9/EC, because it has no potential sources of ignition. This fact also relates to ATEX Guidelines 2005, point 5.2.1 concerning 'Simple' mechanical devices.

National and where necessary European rules for the installation and operation in hazardous areas of the Mucon Oyster Sample valve must be considered by the user.

## Sizes

The valve is available as standard with a 40mm Sample Port. Other sizes can be made available upon request.



## Documentation and Certificates

- Operator and Maintenance manual
- 3.1 Material Certificate for contact parts
- FDA Certificate for seals and gaskets
- ATEX Certification is available for actuated valves
- Other documentation can be supplied upon request



Now in its second generation, the new innovative Series K2 Powered Iris Valves have been specifically designed and modified for automatic and remote applications, complimenting the popular hand operated versions.

Developed for applications requiring a high level of hygiene, this valve utilises our patented, moulded diaphragm technology already employed throughout the Series K range.

Our Engineers have taken great care to balance the requirements for quick disconnect, ease of cleaning and hygienic design with the requirements for reliability and control system integration. This attention to detail has seen a quantum leap in technology compared to the first version of the K-Powered valve.

All body parts are manufactured from 316L stainless steel, as standard. White moulded diaphragms of Natural Rubber, EPDM and Silicone are all manufactured from FDA approved materials. Body seal is produced in FDA approved silicone rubber.

## Main Features

- The moulded diaphragm extends fully from inlet to outlet, doubling as the Iris Valve's gasket
- Open, Closed and an Adjustable intermediate position switch is fitted as standard
- Bore sizes from 150mm to 200mm
- Certified for ATEX 1D/2D categories

## Technical Details

**Electric Motor:** 0.25Kw, 2 Pole, IP66 Induction Motor suitable for 230/400V 3ph 50Hz Supply.

**Air Motor:** 0.56Kw, 3000rpm reversible air motor using 1000 l/m of lubricated compressed air at 5.6bar  
Port sizes for the air motor control valve must be a minimum of ½" BSP to achieve the required air flow rate

Open, Closed and Trickle position indicator sensors

**Proximity Sensors:** Nominal voltage 8.2V (Intrinsically Safe), Current consumption >3mA and < 1mA when activated. IP67

### Option for Pulse Counting Trickle positioning

Proximity sensor in conjunction with a notched 'pulse' ring on the output shaft of the gearbox.

**Proximity Sensor:** Nominal voltage 8.2V (Intrinsically Safe), Current consumption >3mA and < 1mA when activated. IP67

All switches have a two metre sensor cable that exits through a single port in the ABS switch box

## Key Benefits

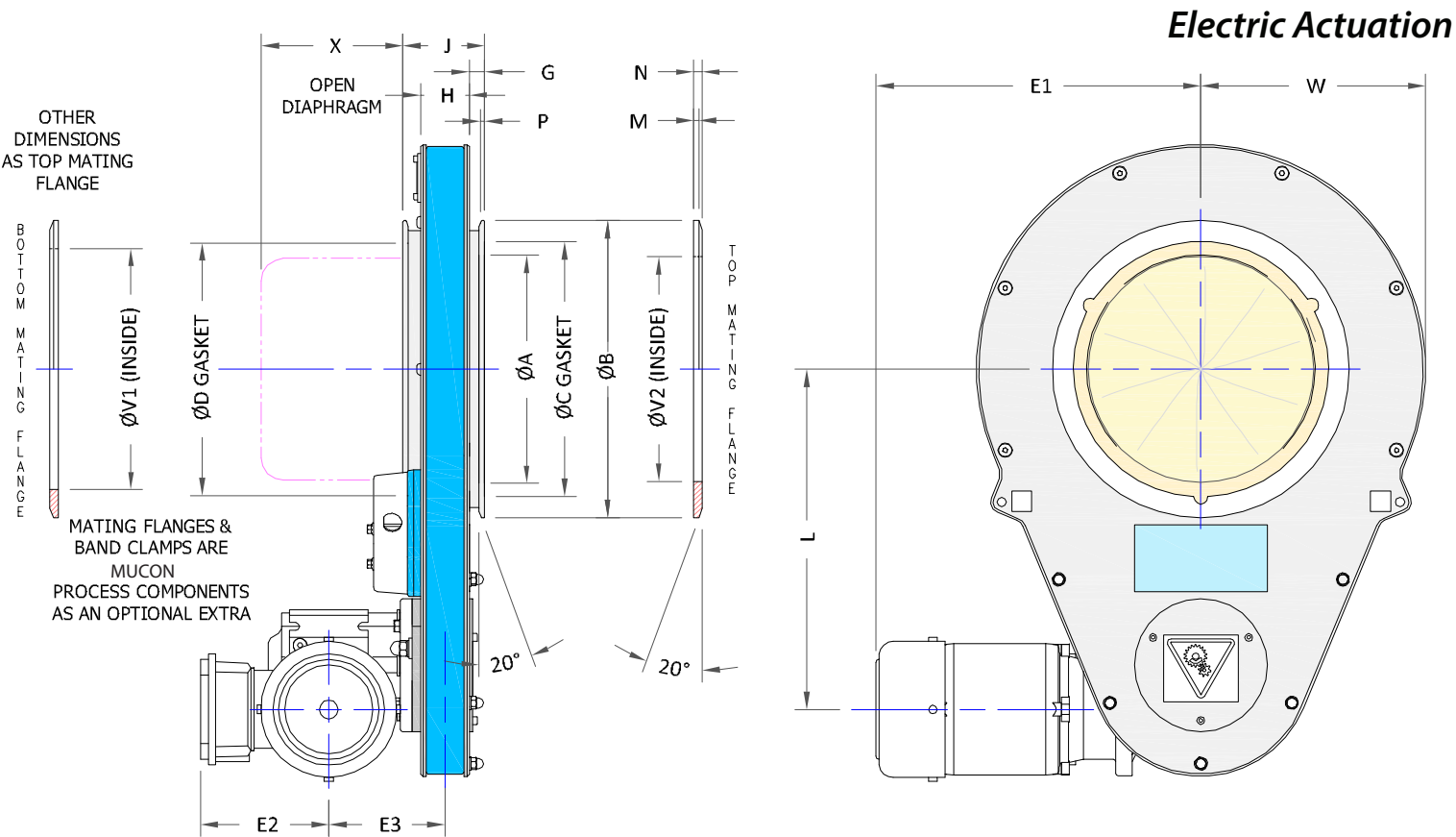
- Able to accurately control the flow of materials
- Only the diaphragm comes into contact with the product
- Strong yet gentle on product, ideal for use with tablets or capsules
- Easy to clean

## Options

- Bolt mounting and Quick Release versions
- Weldable mounting flanges with quick release clamps
- Internal pulse generation assembly or for greater accuracy a motor with encoder.
- Both options are able to provide positional feedback on the size of the diaphragm opening between fully open and fully closed. Ideal for systems requiring variable trickle feed positions or even closed loop feedback for weighing applications.
- A control module is available for full integration with the client's control systems.



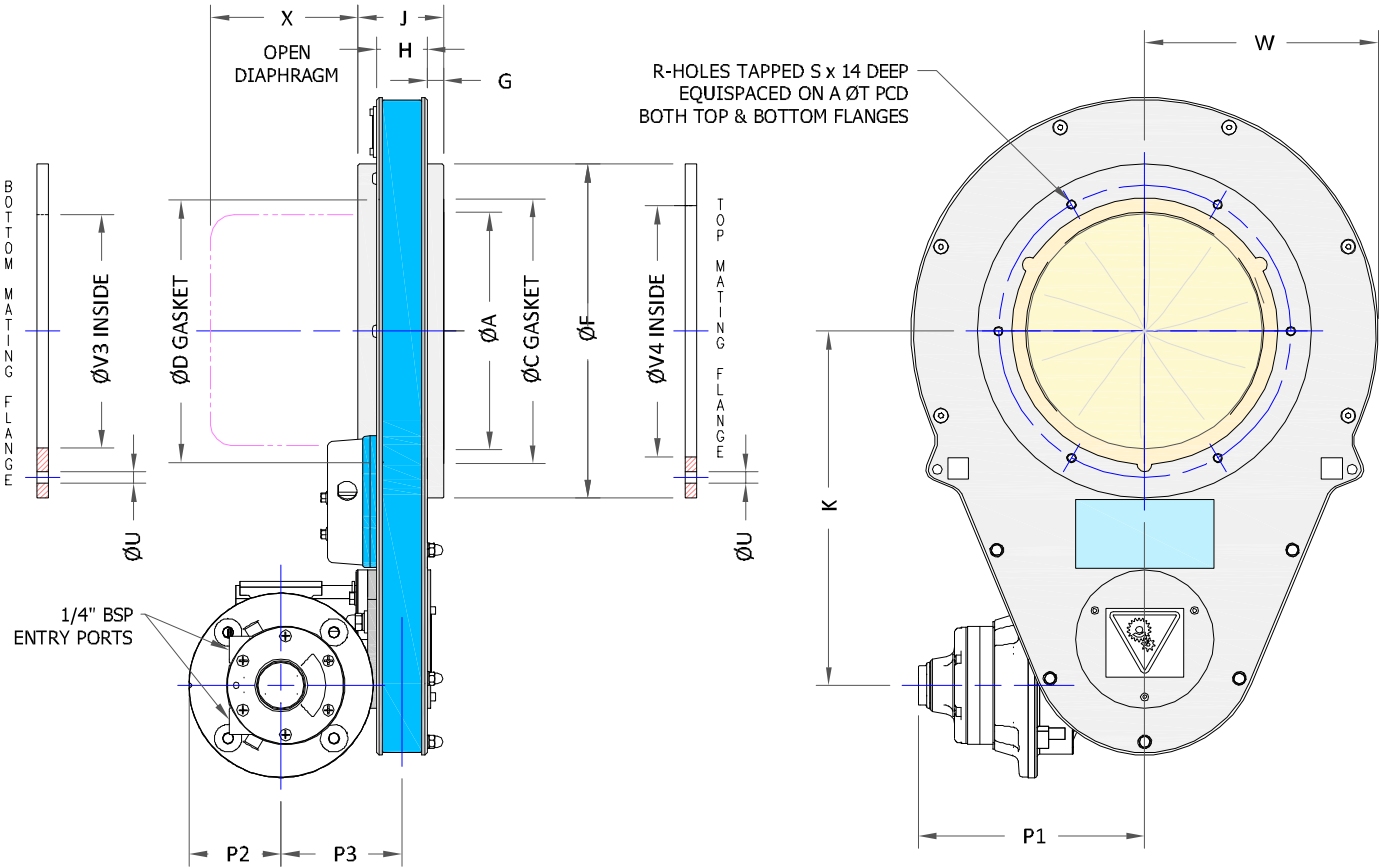
Series K Iris Valve



Valve Type	Nominal Bore	A	B	C	D	F	G	H	J	K	L	M	N	R	S	T	U	V1	V2	V3	V4	W	X	E1	E2	E3	P1	P2	P3	Nett Weight
K2P06	150	156	218	180	178	240	14	44	74	307	307	4	7.5	6	M8	203	7	168	152	168	152	178	72	295	119	105	197	80	105	30.3
K2P08	200	206	269	230	228	290	14	44	74	307	307	4.5	8	6	M8	254	7	218	203	218	203	203	77	295	119	105	197	80	105	32.1

Unless otherwise stated, all dimensions in mm / weights given for Electric Motor in kg

Pneumatic Actuation





## Flexible Joint Connection System

The flexible joint connection system is a unique and lightweight method allowing the end user to achieve a range of heights by connecting two or more flexible silicone units together.

The Joint Kit (Joint Ring and Special Clamp) is sold separately.

## Flexible Modular Valve Connections

A complete and versatile range of inexpensive hygienic flexible connections which can be attached to the host installation by means of a standard Tri-Clamp.

## Applications

- Able to compensate for any mis-alignment (left-right / up-down) between mating elements
- Absorb vibration
- Introduces flexibility into a system
- Different sized Tri-Clover ferrules can be connected
- Quick and simple method of making short term connections
- Conical adaptors are ideal where you have dissimilar outlet dimensions above or below a system
- Flexible modular connections can be connected to themselves to achieve a range of heights



## Features

- Attached to the host installation by means of a standard Tri-Clamp
- Included is a stainless steel bearing ring to protect the silicone material from damage by the clamp, but in such a way that the bearing ring can easily be removed for cleaning
- Conical adaptors are available to connect different Tri-Clover sizes
- Made from FDA 177.2600 - EN1035/2004 approved Silicone

Note: All Tri-Clover connections are manufactured to conform to ASME / BPE dimensional tables. For other specifications or customised dimensions, please contact us.

Available Heights	Straight Adaptors				Conical Adaptors		
	4" (100mm)	6" (150mm)	8" (200mm)	10" (250mm)	4" - 6"	8" - 10"	10" - 12"
	75 mm	100 mm	100 mm	100 mm	75 mm	75 mm	150 mm
	125 mm	150 mm	150 mm	150 mm			



Process Components Ltd  
Graphic House  
Bank Street  
Macclesfield  
Cheshire  
SK11 7AR  
United Kingdom

T: +44 (0) 1625 412000  
F: +44 (0) 1625 412001

[sales@mucon.com](mailto:sales@mucon.com)  
[www.mucon.com](http://www.mucon.com)

Mucon is a registered trademark of Process Components Ltd