

Applications

Bio-Chem Fluidics products are used by the world's leading analytical equipment manufacturers. They are used in a wide variety of applications; sometimes stand-alone (such as our [Chromatography Columns](#)), sometimes in many places within the same instrument.



BIO-CHEM VALVE

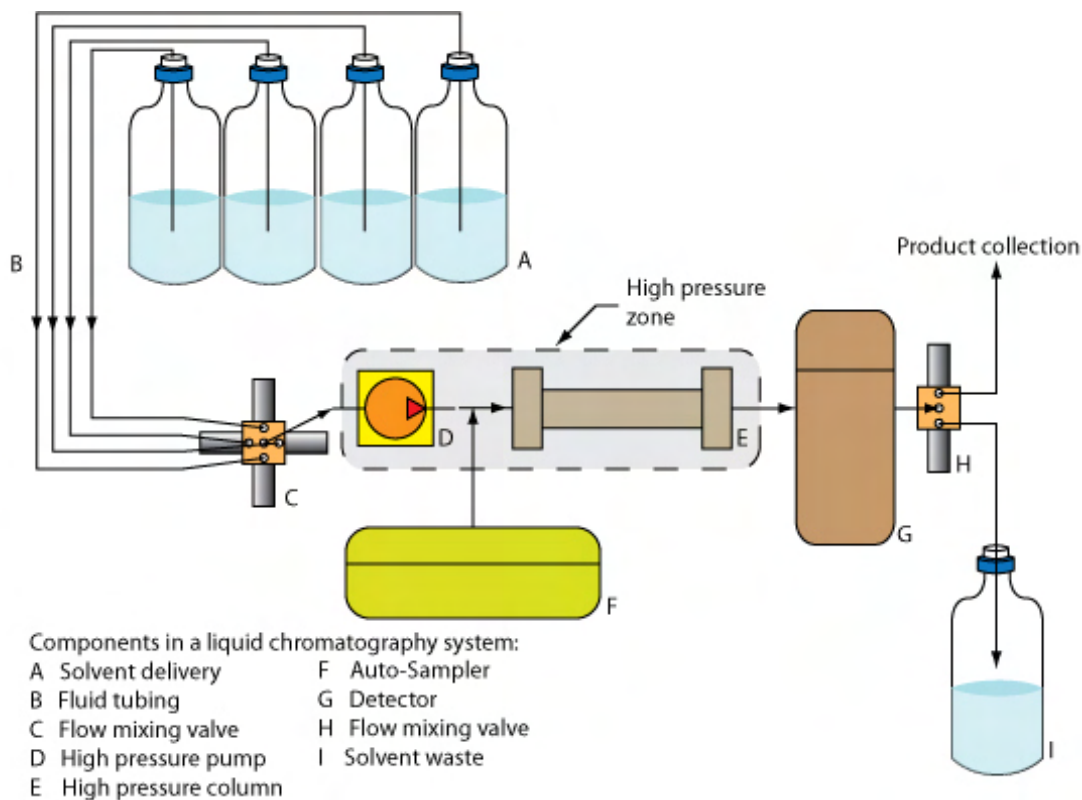
- [Solenoid Operated Micro Pumps](#)
- [Isolation Valves](#)
- [Flow Selection Valves](#)
- [Pinch Valves](#)
- [Relief Valves](#)
- [Electric Rotary Valves](#)
- [Solenoid Valve Accessories](#)

Omnifit

- [Fitting Systems](#)
- [Solvent Safety Bottle Caps](#)
- [Chromatography Columns](#)
- [Connectors & Adaptors](#)
- [Manual Rotary Valves](#)
- [Filters, Check Valves, Bubble Trap](#)

Systems approach to products and applications

The diagram below represents the layout of a "typical" liquid chromatography system. We've identified the main components of the system and list below what Bio-Chem Fluidics products can be used with or inside those components.



A. Solvent delivery

Solvent Safety Bottle Caps - used to prevent harmful solvent vapors from being released into the atmosphere. Also prevents spillage. More on [Solvent](#)

Tubing - both flexible and semi-rigid tubing is used to withdraw solvent from the bottle. More on [tubing](#) here

Omni-Lok fittings - used here to provide positive connections between the tubing and the bottle cap. More on [Omni-Lok and our other fittings systems](#) here.

COMPLETE Fluid System Solutions

BIO-CHEM FLUIDICS is a leading fluidic systems and components design and manufacturing company dedicated to providing the highest quality Precision Fluid Handling equipment and components. This includes our **BIO-CHEM VALVE™** Solenoid Operated [Micro-Pumps](#), [Isolation Valves](#) and [Pinch Valves](#) and our **OMNIFIT®** [Fittings](#), [Connectors](#), [Bottle Caps](#) and [Chromatography Columns](#).

Offering [CUSTOMIZED SOLUTIONS](#) for our OEM clients



BIO-CHEM VALVE

- [Solenoid Operated Micro Pumps](#)
- [Isolation Valves](#)
- [Flow Selection Valves](#)
- [Pinch Valves](#)
- [Relief Valves](#)
- [Electric Rotary Valves](#)
- [Solenoid Valve Accessories](#)

Our strength lies in the machining of inert materials to produce unmatched chemical resistance for a wide variety of fluid handling applications. As well as many standard products we also offer fully [Customized Solutions](#) for our OEM clients, across our full range of products. Our customized Solenoid Operated [Micro-Pumps](#), [Isolation Valves](#) and [Pinch Valves](#) are used by many of the world's leading analytical equipment manufacturers.

Bio-Chem Fluidics under our **Bio-Chem Valve™** and **Omnifit®** brands sell a wide range of engineered items including:

BIO-CHEM VALVE

Inert solenoid valves, electric rotary valves and pumps



Omnifit

- [Fitting Systems](#)
- [Solvent Safety Bottle Caps](#)
- [Chromatography Columns](#)
- [Connectors & Adaptors](#)
- [Manual Rotary Valves](#)
- [Filters, Check Valves, Bubble Trap](#)

Omnifit

Inert fluid handling components & labware



This broad range of products enables us to offer a complete fluid system

solution for a wide range of industries including analytical chemistry, clinical diagnostics and medical device manufacturers as well as a world-class labware portfolio for the scientific community.



► Fitting Systems

We offer a range of different fitting systems to suit a variety of applications. In each system, a range of different colored polypropylene nuts are available to connect 1/16" or 1/8" OD tubing into 1/4"-28 UNF, M6 or 5/16"-24 UNF flat-bottom ports. PEEK™ fitting nuts for use in higher temperatures are available in standard or compact head styles and with 1/4"-28 UNF or M6 threads.

Omni-Lok™ Type P



A chemically inert flangeless fitting with permanently attached PTFE ferrule ideal for repeat connect/disconnect

- Pressure rated up to 1000psi (69 bar)
- For 1/16", 1/8" or 3/16" OD semi-rigid tubing e.g. PTFE, ETFE, FEP
- For flat-bottom 1/4"-28 UNF, M6 or 5/16"-24 UNF ports

The Omni-Lok™ Type P fitting system uses a one-piece ferrule which fits permanently onto the outside of semi-rigid tubing. Ferrules have an inner PTFE sealing face ensuring that only PTFE is in the fluid path. The fitting nut can spin freely, eliminating tubing twist. A recess in the fitting houses the ferrule, allowing maximum thread engagement with the port. This ensures the system stays sealed up to 1000psi (69 bar) pressure, even in shallow PTFE ports. Note: Omni-Lok™ Type P for 3/16" OD tubing and 5/16"-24 UNF flat-bottom ports is pressure rated up to 200 psi (14 bar).

Omni-Lok™ Type S



A chemically inert flangeless fitting with permanently attached PEEK™ or ETFE ferrules, ideal for repeated connect/disconnect

- Pressure rated up to 500psi (34 bar)
- For 1/16", 1/8" or 3/16" OD semi-rigid tubing e.g. PTFE, ETFE, FEP

- For flat-bottom 1/4"-28 UNF, M6 or 5/16"-24 UNF ports
- PEEK™ ferrules can be used with rigid tubing, e.g. PEEK™

The Omni-Lok™ Type S fitting system uses a two-piece ferrule which fits permanently to the outside of the tubing. Two-part ferrules consist of an inner PEEK™ or ETFE sealing surface surrounded by a stainless steel lock ring with only the inner portion in the fluid path. The fitting nut can spin freely against the ferrule, eliminating tubing twist and subsequent loosening of the nut. A recess in the fitting houses the ferrule, allowing maximum thread engagement with the port ensuring the system stays sealed up to 500psi (34 bar) pressure even in shallow PTFE ports. Note: The Omni-Lok™ Type S for 3/16" OD tubing and 5/16"-24 UNF flat-bottom ports is pressure rated up to 200 psi (14 bar).



A removable and reusable system for quick and convenient low-pressure connections

- Pressure rated up to 250psi (17 bar)
- For 1/16", 1/8" or 3/16" OD and metric sizes 2.0, 2.5 or 3.0mm OD semi-rigid tubing e.g. PTFE, ETFE, FEP
- For flat-bottom 1/4"-28 UNF, M6 or 5/16"-24 UNF ports

Omni-Lok™ inverted cone fittings provide a simple, easy to use low-pressure connection. Only the ETFE cone is in the fluid path. Note: The Omni-Lok™ inverted cone and fitting nut for 3/16" OD tubing and 5/16"-24 UNF flat-bottom ports is pressure rated up to 30 psi (2 bar).



Flanged (flared) tubing system for economical low-pressure connections

- Pressure rated up to 250psi (17 bar)
- For 1/16", 1/8" or 3/16" OD semi-rigid tubing, e.g. PTFE
- For flat-bottom 1/4"-28 UNF ports
- Removeable and reusable

Omni-Lok™ flanged fittings require the end of hardwall tubing to be formed into a flange (flare). A flanging washer is placed between the flange and the fitting nut. When screwed into a flat-bottom, the flange is compressed against the bottom of the port to produce a seal. Only the tubing is in the fluid path.

Omnifit® Gripper



A chemically inert flangeless fitting with permanently attached PTFE ferrule ideal for repeat connect/disconnect

- Pressure rated up to 1000psi (69 bar)
- For 1/16" or 1/8" OD semi-rigid tubing
- For 1/4"-28 UNF or M6 flat-bottom ports

The Omnifit® Gripper fitting system uses a one-piece ferrule which fits permanently onto the outside of semi-rigid tubing. Ferrules have an inner PTFE sealing face ensuring that only PTFE is in the fluid path. The fitting nut can spin freely, eliminating tubing twist and allowing easy repeat connect/disconnect. The system is pressure rated up to 1000psi (69 bar).

Click-N-Seal™



Hand-tight fittings without the guesswork

- For Omni-Lok™ Type P & Type S ferrules or inverted cones
- For 1/16" or 1/8" OD semi-rigid tubing
- Feel and hear when the fitting is properly installed

Click-N-Seal™ offers a unique system for hand-tight fittings. As the fitting is tightened, the resistance of the cap increases until the correct torque is reached; at which point, the cap clicks. The user is able to hand-tighten the fittings without tools or guesswork and be confident that the fitting is properly seated, creating a secure seal. The fitting can be unscrewed and reused.

Related products

Fitting and Torque Tools

Tubing



Factory Assembled Custom Tubing Sets



[Download Fitting Systems brochure](#)




> Connectors and Adaptors

- All PTFE body
- Autoclavable
- For use with tube outside diameters of 1 - 11 mm

The Omnifit range of connectors is a versatile system for connecting different types of tubing instantly, including stainless steel, PTFE, glass and silicone. Tubing sizes between 1 and 11 mm can be connected using either Viton 'O'-rings or PTFE cones. Configurations include 2, 3, 4, 6 and 8-way options.



 Connectors & Connectors with Valves
 Adaptors & Couplings

Products:

- Cone fittings
- O-ring fittings
- Omnifit small variable bore 'cap-type' connectors for 0.5 to 4mm OD tube
- Omnifit large variable bore 'cap-type' connectors for 0.5 to 11mm OD tubing
- Omnifit cap adaptors
- 1/4"-28 UNF adaptors
- 1/4"-28 UNF to small variable bore adaptors for 0.5 to 4mm OD tubing
- Connection kits
- PTFE tubing
- Tube cutting and flanging



[Products](#) > [Connectors and Adaptors](#) > [Cone fittings](#)

► Cone fittings

- Chemically resistant PTFE
- Compression fitting
- Pressure rated to 50 psi (3 bar)
- Low dead volume

A PTFE cone is matched to the outside diameter of the tubing being used. This cone, once fitted, is compressed onto the tube forming a seal. PTFE is resistant to most chemicals including sulphuric acid, sodium hydroxide and all organic solvents. The cone option gives an all PTFE fluid path of very low dead volume. The typical pressure rating is 50psi (3 bar).

PTFE cones for 1/16" OD tubing are supplied as standard with all standard bore Omnifit 'Cap-type' connectors and valves. PTFE cones for 1/32" OD tubing are supplied as standard with all small bore Omnifit 'Cap-type' connectors and valves.

Omnifit offers a range of PTFE cones for different tubing sizes, both metric and Imperial, that can be used with its small and large variable bore connectors and valves.



 [Spec sheet](#)

HRMalytic +61(0)3 9762 2034 09
AUSTRALIAN Distributors **ECHnology** www.chromtech.net.au

[Store](#) | [Contact Us](#)
Bio-Chem Fluidics



O-ring fittings

- Quick, easy, instant connections
- Pressure rated to 50psi (3 bar)
- Maximum flexibility
- Connect tubing from 0.5 to 11mm OD

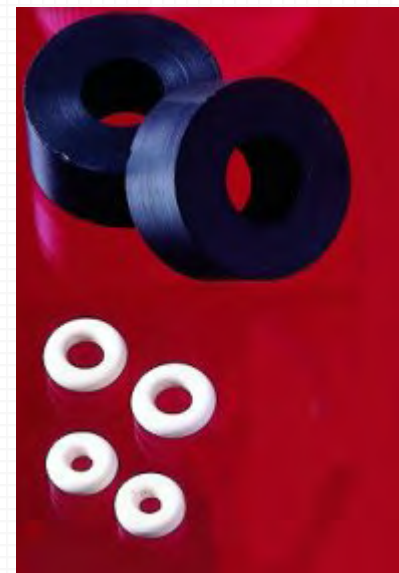
All Omnifit's 'cap-type' connectors and valves come complete with 3 Viton® O-rings, enabling instant connections to be made using a variety of tubing sizes. This is particularly advantageous when changing fluid lines of differing dimensions.

Small variable bore fittings

Up to 3 Viton® O-rings are compressed into the body which holds the tube tightly and forms the seal. The O-rings allow maximum flexibility as they seal on rigid wall tubing of any diameter between 0.5 and 4mm.

Large variable bore fittings

Viton® cylindrical seals are supplied with all Omnifit 'cap-type' large bore connectors. The seals allow maximum flexibility as they seal on rigid wall tubing of any diameter between 4 and 11mm.



 [Spec sheet](#)



➤ Omnifit small variable bore 'cap-type' connectors for 0.5 to 4mm OD tube

- Low dead volume
- Self-centering
- Chemically inert all PTFE body
- 50psi pressure rating

The Omnifit range of 'Cap-type' connectors is a versatile system for connecting different types of hardwall tubing such as PTFE, instantly. They can be used for sampling, flow-splitting, mixing and fluid line interconnection. Tubing sizes between 0.5 and 4mm OD can be connected using either Viton O-rings or PTFE cones.

O-ring option

One large and two small Viton® O-rings are supplied as standard with every connector. These allow instant connection of tubing sizes from 1mm to 4mm OD and make a compression-type fitting.

PTFE cone option

PTFE cones are supplied as standard with every connector: 1/16" (1.6mm) with standard bore connectors and 1/32" (0.8mm) with small bore connectors. A range of PTFE cones to accept other tubing sizes from 0.5mm to 4mm OD tubing are also available separately. PTFE cones also make a compression-type fitting, but ensure an all-PTFE flow path.

Standard bore connectors

Standard bore connectors are supplied with Viton O-rings, 1/16" PTFE cones and coloured polypropylene caps. They have a 1.5mm bore size and accept tubing sizes between 0.5 and 4mm OD.

Small bore connectors

Small bore connectors are supplied with Viton® O-rings, 1/32" (0.8mm) cone and natural Tefzel® caps. They have a bore size of 0.8mm and can accept tubing sizes between 0.5 and 4mm OD.

The coloured or Tefzel® caps have an internal thread that accepts 1/4"-28 UNF fittings, such as the Omnifit inverted cone or Gripper fitting. The PTFE cone supplied with the connector provides the flat bottom for the 1/4" -28 UNF fitting to give a leak-free, self-centering connection.

For detailed instructions on how to use the Omnifit 'cap-type' connection system please [click here](#).



 [Spec sheet](#)



► Omnifit large variable bore 'cap-type' connectors for 0.5 to 11mm OD tubing

- Low dead volume
- Self-centering
- Chemically inert all PTFE body
- 50psi pressure rating

The Omnifit range of 'Cap-type' connectors is a versatile system for connecting different types of hardwall tubing such as PTFE, instantly. They can be used for sampling, flow-splitting, mixing and fluid line interconnection. Tubing sizes between 0.5 and 11mm OD can be connected using either Viton seals or PTFE cones.

Large bore to large bore connector

These are supplied with Viton® seals in both ends of the connector which allow instant connection of tubing sizes from 4mm to 11mm OD and make a compression-type fitting. The connector has a nominal 4.7mm bore size.

Large to small bore reducing connectors

The large bore end has a Viton® seal suitable for 4 to 11mm OD tubing sizes and the small bore end is supplied with one large and 2 small Viton® O-rings for immediate connection of 0.5 to 4mm OD tubing sizes.

PTFE cone option

A range of PTFE cones to accept Imperial tubing sizes from 5/32" to 7/16" and metric tubing sizes from 4mm to 11mm OD are available separately. PTFE cones also make a compression-type fitting, but ensure an all-PTFE flow path.

1/4"-28 UNF fitting

The coloured or Tefzel® caps at the small bore end of the connector have an internal thread that accepts 1/4"-28 UNF fittings, such as the Omnifit inverted cone or Gripper fitting.



 [Spec sheet](#)



► Omnifit cap adaptors

- Push-on connection for softwall tubing
- Adaptors with Luer fittings
- Adaptors with Tefzel® or stainless steel pipe
- Autoclavable

Cap adaptors replace the coloured cap on any of Omnifit's small variable bore connectors and valves to give either quick push-on connections for softwall tubing or Luer connections.

Cap to Luer adaptors

Adaptors to give either male or female Luer connections are available.

Cap to pipe adaptors

Adaptors to three pipe sizes are available in Tefzel® or stainless steel to take softwall tubing of the corresponding inner diameter: ~ 1/4" OD ~ 1/8" OD ~ 1/16" OD



 [Spec sheet](#)



► 1/4"-28 UNF adaptors

- Inert Tefzel® or glass
- Autoclavable
- Fit any 1/4"-28 UNF flat bottom ports



 [Spec sheet](#)

Tefzel® adaptors

These 1/4"-28 UNF male thread adaptors fit into any 1/4"-28 UNF flat bottom ports, as used in most Omnifit valves and connectors, giving quick, push-on connections for softwall tubing. Adaptors to male and female Luer are available, as are adaptors to Tefzel® or stainless steel pipe.

Glass adaptors

These 1/4"-28 UNF male thread glass adaptors fit into any 1/4"-28 UNF flat bottom ports and are suitable for flame fusing onto other glassware.



➤ 1/4"-28 UNF to small variable bore adaptors for 0.5 to 4mm OD tubing

- Low dead volume
- 50 psi pressure rating
- 1.5mm bore size
- Chemically inert all-PTFE body
- Polypropylene or Tefzel® caps

Connection for 1/4"-28 UNF to Omnifit 'cap-type' variable bore connectors. Valved versions are available with a Tefzel® rotor.

1/4"-28 UNF connection

Each adaptor has a male 1/4"-28 UNF thread at one end. This will fit any female 1/4"-28 UNF threaded port.

Omnifit 'cap-type' connection

Each adaptor has an Omnifit 'cap-type' connection at one end, which accepts any hardwall tubing between 0.5 and 4mm outer diameter.



 Spec
sheet



Connection kits

- Inert connectors and fittings
- Omnifit Gripper fittings rated to 1000psi
- Kits for 1/16" and 1/8" OD tubing

Omnifit's range of connection kits are designed to make tubing connections quick and easy. Choose the kit most suitable for your application and Omnifit will supply you with everything you need to make quick, reliable connections every time.

Omnifit's starter kit provides a range of fittings and connections selected to give a variety of tube connection options for the user.

Each kit contains enough Omnifit Grippers, fittings and PTFE tubing to make 20 fittings. Also included are 10 x 2-way couplings, 1 male and 1 female Luer fitting and 1 x 3-way 'T'-connector. The starter kit is available in 1/16" and 1/8" OD tubing versions.

Tube connector kits

These kits contain parts to make 10 Gripper fittings and come complete with 5 coupling bodies to enable simple straight-through connection of two Gripper fittings. Available in 1/16" and 1/8" OD tubing versions and with either polypropylene or Tefzel® couplings.

Laboratory kits

A comprehensive kit of parts to enable the user to make a range of tubing connections using different sizes of tubing and to produce flow splitting/distribution effects. Each kit contains:

- 2 x 2-way connector (1001)
- 1 x universal connector (1008)
- 1 x 3-way 'T' valve (1109)
- 1 x 1/16" tube end fittings, pack of 10 (2110)
- 1 x 1/16" Gripper fittings, pack of 10 (2310)
- 1 x 3-way connector 'T' (1010)
- 1 x distribution valve (1118)
- 2 x 2-way coupling (2301)
- 1 x 0.8mm ID PTFE tubing, 20m (3001)



 [Spec sheet](#)



Tube cutting and flanging

- Non-electrical, no heating required
- Easy to use for reproducible results
- Tube cutter ensures tube ends are cut square for optimum connections

The flanging kit includes flanging tool, tips for 0.5, 0.8 and 1.6mm ID tubing and also a tubing cutter.

Flanging tool

The Omnifit flanging tool creates a perfect flange without practice. The flange is mechanically formed without heat-stressing the tube. The flanging tool is safe to use, being non-electrical and not heated.

Tubing cutter

A handy cutter is available to ensure clean cuts by holding the tube perpendicular to the blade and supporting it whilst cutting. Replacement blades are also available.

Fittings

Flanged tubes can only be used with flanging washers and corresponding tube end fittings. Omnifit supplies a range of flanging washers and fittings. Please see our fittings section for more information.



 [Spec sheet](#)



► PTFE tubing

- High chemical inertness
- Sizes from 1/16" to 4mm OD
- Wide service temperature range

Almost totally inert, PTFE tubing can be used with virtually all chemicals, solvents and corrosive materials, even at elevated temperatures. It can be sterilised in line by steam or chemical methods, or by autoclaving.

PTFE tubing is ideal for use with all Omnifit 'cap' type connectors and valves and with Omnifit Grippers or inverted cone fittings.

Being hardwalled, PTFE tubing is **not** suitable for use with barbed connectors or adaptors.



[Spec sheet](#)

Search

[Home](#) | [Products](#) | [Applications](#) | [Resources](#) | [Online Store](#) | [Contact Us](#)

Copyright © 2008 Bio-Chem Fluidics.

HRMalytic +61(0)3 9762 2034 09
AUSTRALIAN Distributors **ECHnology** www.chromtech.net.au



► Bottle Caps and Reservoirs

- Positive containment of laboratory chemicals and vapors
- Chemically inert wetted parts
- Robust and easy to use
- Anti-twist design
- GL45, GL32 and 38-430 sizes
- 2, 3 and 4 port caps

Safe, simple and economic liquid containment. Open solvent bottles can allow harmful solvent vapor to escape and chemicals to be spilled. Omnifit bottle caps and accessories help prevent these problems and give you the security of a safe and dependable solvent delivery system.



 Bottle Caps & Reservoirs

Products:

- **T Series** - Luer ported straight through tubing
- **Q Series**: 1/4"-28 UNF ported with optional valves
- **Reservoirs**
- **Accessories for Bottle Caps and Reservoirs**



► Chromatography Columns

- Pressure ratings to 1200 psi (80 bar)
- Solvent resistant
- Fixed or adjustable height
- Robust and easy to use



 Chromatography Columns

Omnifit's empty glass columns are the perfect solution for most low and mid-pressure liquid chromatography applications. Available with an adjustable endpiece designed for quick and easy height adjustment, they offer the chromatographer a multipurpose column that can be used again and again for a variety of different applications.

Products:

- 3mm bore columns
- 6.6mm bore columns
- 10mm bore columns
- 15mm bore columns
- 25mm bore columns
- 35mm bore columns
- 50mm bore columns
- Accessories for all column sizes



➤ Manual Rotary Valves

- Large selection
- Chemically inert materials
- 1/4"-28 UNF connections
- Pressure ratings up to 500 psi

A range of small and large manual valves offering a variety of flow paths and connection options. Products include connectors with valves, rotary valves with Omnifit 'Cap-type' connections, high pressure manual rotary valves, stacked distribution valves, a manual sample injection valve, needle valves, click-stop valves, and 1/4"-28 UNF screw-in valves

Large and small electric rotary valves provide exceptional chemical resistance and have various porting options and configurations.

Products:



 [Manual Rotary Valves](#)

- High pressure small manual rotary valves with 1/4"-28 UNF helicoil connections
- Small manual rotary valves with Omnifit 'Cap-type' connections
- Distribution and Loop Injection Valves
- Manual sample injection valve
- Omnifit 'cap-type' connectors with valves for 0.5 to 4mm OD tube
- Omnifit 'cap-type' connectors with valves for 4 to 11mm OD tube



► Check Valves, Filters, Bubble Traps

- 3 check valve versions available
- Chemically inert materials
- 1/4"-28 or barbed connections
- The Bubble Trap provides effective removal of gas bubbles

Bio-Chem Fluidics offers flow control accessories including check valves and the bubble trap.

Omnifit check valves prevent the flow of gas and liquid in one direction, and at a preset cracking pressure. The two types offered are the Vari-bore with Omnifit 'cap-type' connections and barbed for connecting to soft tubing.

The Bio-Chek™ self-sealing in-line check valves feature an inert flow path, no metal components and zero maintenance in high-purity, low-pressure applications. The valves connect to standard 1/4 - 28 ports and fittings.

The Omnifit Bubble Trap connects in-line to provide an effective, time-saving and costefficient method of bubble removal upstream of sensitive detectors. If gas bubbles are formed in-line, or your pump delivers air instead of liquid, the resulting bubbles will be removed completely by the Trap, the outlet flow will stop and your device remain protected

Products:

- [Bio-Chek™ In-line Check Valve: Series C](#)
- [Varibore check valves and non-return valves](#)
- [Barbed check valves](#)
- [Bubble trap](#)



 [Check Valves, Bio-Chek](#)
 [Bubble Trap](#)



➤ Self-Priming Micro Pumps

- High accuracy dispense settings from 8µl to 250µl
- Low power consumption / minimal heat generation
- Low internal volume
- Positive shut off
- High cycle life - up to 20 million dispense cycles
- Choice of inert wetted materials

Broad range of dispense settings and flow rates

The diaphragm pumps are factory set for discrete outputs ranging from 8µl to 250µl. The pumps can be cycled at up to 2.0 Hz for the smallest version and 1.6 Hz for the largest version. Flow rates reach up to 25 ml / minute. Depending on the dispense setting, very high accuracy can be achieved with deviations from set-point of less than 1%. For optimal accuracy, the pumps should be used for the transfer of fluids between un-pressurized containers.

Self-priming

At startup, the pump is able to draw air. The suction created by the larger pumps is sufficient to pull liquids from an unpressurized container located up to 1.3 meters (4' 3") beneath the pump. Once the pump is primed, it is able to generate around 5 psi (0.3 bar) pressure, equating to 3.5 meters (11' 6") of water.


Wide assortment of inert wetted materials available

The pumps provide a non-metallic, inert fluid path for the dispensing of high purity or aggressive fluids. The standard pump body is made of PPS (polyphenylsulfide). Other materials available for the pump body include PTFE, PEEK and Delrin®. The elastomers that can be used for the diaphragms and check valves include PTFE, EPDM, and Viton®.

High reliability

The pumps are designed for continuous duty. They are guaranteed for up to 20 million actuations, corresponding to nearly 3,000 hours of continuous use at a 2 Hz cycle rate.



 Self-Priming Micro Pumps

Operating Instructions:

The diaphragm of the pump is held closed with an internal spring mechanism. When voltage is applied, the solenoid coil becomes energized and pulls the diaphragm open. This opening action causes fluid to be drawn into the pump chamber. The fluid is dispensed from the pump when the voltage is dropped enough to de-energize the coil and allow the internal spring to force the diaphragm back to the closed position. To operate the pumps:

1. The pumps require a square wave signal. For ideal dispense properties, provide a 12 volt signal (or 24 volt for 24 volt rated pumps) for 150 milliseconds (200 milliseconds for the 150SP).
2. Cut the voltage for a minimum of 350 milliseconds (400 milliseconds for the 150SP). This will provide a maximum cycle rate of 2.0 hertz (1.6 hertz for the 150SP).

To control the flow or dispense timing, modify the 'off-time'. Lengthening the 'off-time' will cycle the pump slower. The pump can cycle faster, but accuracy and dispense volume may be affected, depending upon the application setup.

Products:

- [Micro Pumps: Series 090SP](#)
- [Micro Pumps: Series 110TP](#)
- [Micro Pumps: Series 120SP](#)
- [Micro Pumps: Series 150SP](#)
- [Micro Pumps: Series 130SP](#)
- [Pump Mounting Hardware](#)
- [CoolCube for reduced response time](#)



Isolation Valves

What is an Isolation Valve?

An Isolation Valve is a solenoid operated valve where the fluid path is completely isolated from the valve's solenoid actuation mechanism. The only wetted parts are the valve diaphragm and the valve body – hence the name Isolation Valve.

Inert

For high purity applications and aggressive media handling, the fluid path in the isolation valve can be made entirely of extremely inert materials such as PTFE – something that can not be done with pinch valves as PTFE tubing would be too hard to pinch. Our all-PTFE solenoid operated isolation valves are the most chemically inert solution available. We also offer a choice of PEEK and PPS valve bodies as well as a range of diaphragm materials to suit a large variety of mechanical and chemical requirements.

Reliable

Our valves use continuous duty solenoids rated to over 20 million cycles. They feature low power consumption and fast response time.

Standard construction

These are a list of the common features and styles of our standard isolation valves:

- 12 volt or 24 volt
- PTFE, PEEK or PPS body materials
- 2 way, normally closed ported
- 2 way, normally closed manifold mount
- 2 way, normally open ported
- 2 way, normally open manifold mount
- 3 way ported
- 3 way manifold mount
- 3 way syringe valve

Customization Services

We routinely offer fully customized solutions on our solenoid operated isolation valves to meet equipment makers' precise specifications. Please [contact](#) us to discuss your special requirements, including:

- choice of wetted materials
- operating pressure up to 550 PSIG
- custom lead wire length
- special port threads
- driving voltage from 3 to 220V
- manifold design
- connectorization
- special port locations

3-step Easy Product Selection Guide

Step 1: Select Valve Function (NC= normally closed, NO = normally open)



Related products



 [Download Isolation Valves brochure](#)



Gradient and Flow Selection Valves

- Precise flow characteristics
- Compact, robust construction
- Minimal dead volume
- Fast response time
- All PTFE wetted parts; other materials available

Compact valve / manifold configurations

The Bio-Chem Valve flow selection valves are available with three valve sizes, using 0.38 inch, 0.75 inch and 1.00 inch solenoid shell diameters. These sizes correspond to orifice diameters spanning from 0.032 inches to 0.125 inches, covering a broad range of application requirements. For ease of installation, all inlet ports are positioned on the same side of the manifold. The common outlet port is centered between the inlet ports. (Note: in diverting applications, the inlet and outlet ports are reversed.) The compact manifold construction ensures minimal internal volumes.

Optimized flow characteristics

Every solenoid actuator on the flow selection valve is individually adjusted in the factory so as to provide equal flow rates at the same pressure. Ultra-fast response times for gradient applications. Through rapid cycling of the solenoid, the valves can be used to provide modulating flow rates at constant pressures. With opening and closing times of only 2 milliseconds, the 040T valve series is ideally suited to gradient applications.

Choice of inert wetted materials

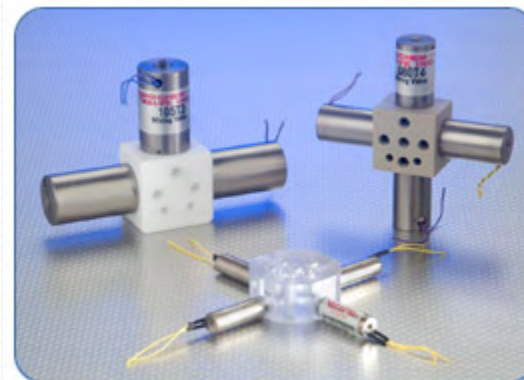
The isolation valve design used with the Bio-Chem Valve flow selection valves ensures that the only wetted parts are the valve diaphragm and the valve seat, which is part of the manifold. In the standard flow selection valve, both parts are made of PTFE, offering the most chemically inert solution available. For different mechanical and chemical requirements, the customer also has the option of using PEEK™ or PPS for the manifold material and EPDM, Viton® or a perfluorelastomer for the diaphragm material.

Quick-Change Customization™

Through Bio-Chem Valve's Quick-Change Customization™ process, the standard flow selection valve configurations shown on this product data sheet can be modified to meet the customer's specifications. For possibilities regarding solenoid and spring response times, operating pressures, port threads and locations, wetted material and other features, please consult Bio-Chem Valve and Omnifit.

Products:

- Gradient Valves: Series 040T
- Flow Selection Valves: Series 080T
- Flow Selection Valves: Series 105T



 Gradient and Flow Selection (Mixing) Valves



► Pinch Valves

Bio-Chem Valve Pinch Valves feature:

- Inertness similar to an isolation valve
- Straight, no-clog flow path
- A wide range of medical grade, class VI tubing with sizes ranging from 1/32" I.D. to 1/4" I.D.
- On/Off control
- A selector or diverter flow control in 3 way configurations
- Dual 2-way and dual 3-way configurations are available in 100P series products



 Pinch Valves

The new Pinch Valve enhancements offer the same features mentioned above, plus:

- Quiet version - Eliminates the clicking noise level on actuation from 72 dB to 52 dB. Available on all pinch valve series, add a "Q" to the end of the part number when ordering.
- Feedback sensor version - comes with a built-in, infrared feedback sensor that instantaneously detects the position of the pusher/armature assembly to verify whether the valve is open or closed. Available on 100P series products only, add an "F" to the end of the part number when ordering.

Bio-Chem Valve pinch valves have been designed to assure sterility while managing the isolation, diversion, and flow of high purity fluids, blood, or saline in patient applications involving liquid or gas measurements within a fixed instrument. As the flow control component within a transfer site, the Bio-Chem Valve Pinch Valves enable fast, easy removal and replacement of sterile tubing sets, eliminate the need for disassembly or removal of the valve from the instrument, and isolate fluid contact to the sterile tubing.

Products:

- Pinch Valves: Series 075P
- Pinch Valves: Series 100P
- Pinch Valves: Series 150P
- Valve Mounting Hardware
- CoolCube for reduced response time



► Inert Relief Valves

- 2 Versions
 - 075RV - stand-alone, spring loaded
 - 075RS - spring loaded with solenoid control (open when energized)
- 6 Pressure Relief Settings from 20 to 150 psi
- Fully Chemically Inert
- Chemraz® and PPS Wetted Fluid Path
- Minimal Internal Volume
- High Cycle Life

The Omnifit 075RV / 075RS relief valve series is ideally suited for use with aggressive and high-purity fluids. Wetted parts consist of the PPS (Ryton) valve body and the Chemraz® diaphragm. Custom body and diaphragm configurations are available from a broad menu of engineered plastics and elastomers, including Teflon®. The unique Bio-Chem Valve diaphragm retention design ensures the most reliable performance and longest life available.

The solenoid operated, normally closed 075RS relief valve provides dual functionality as a solenoid valve with pressure relief function. This provides flow control and the capability to periodically purge the system.

Products:

- Relief Valves: Series 075RV & 075RS



Relief Valves

- [Solenoid Operated Micro Pumps](#)
- [Isolation Valves](#)
- [Flow Selection Valves](#)
- [Pinch Valves](#)
- [Relief Valves](#)
- [Electric Rotary Valves](#)
- [Solenoid Valve Accessories](#)



- [Fitting Systems](#)
- [Solvent Safety Bottle Caps](#)
- [Chromatography Columns](#)
- [Connectors & Adaptors](#)
- [Manual Rotary Valves](#)
- [Filters, Check Valves, Bubble Trap](#)

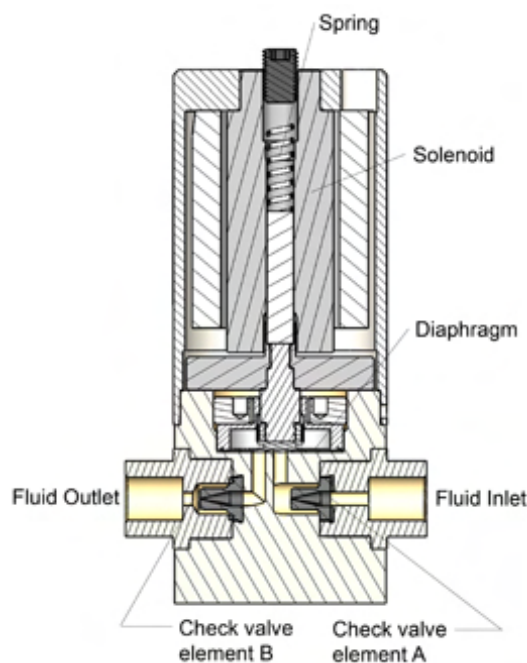
Sign up for our  **Email Newsletter**

Privacy by  **SafeSubscribeSM**
For Email Marketing you can trust

You are at > [Solenoid Operated Micro-Pumps](#)

What is a Solenoid Operated Micro-Pump?

A Micro-Pump is a solenoid operated device designed to provide a precise, repeatable and discrete dispensed volume of fluid. (Download product brochure - [Solenoid Operated Micro-Pumps](#))



The flow path is isolated from the operating mechanism by a flexible diaphragm. When the solenoid is energized the diaphragm is pulled back creating a partial vacuum within the pump body. This pulls liquid through the inlet check valve (A) and simultaneously closes the outlet check valve (B). When the solenoid is de-energized a spring pushes the diaphragm down expelling a discrete volume of liquid through check valve B while simultaneously closing check valve A. Bio-Chem Fluidics solenoid operated Micro-Pumps require a complete on-off cycle for each discrete dispense (see below). Repeatedly cycling the solenoid creates a pulsed flow.

Features of the Bio-Chem Fluidics solenoid operated Micro-Pump:

Inert materials Our pumps provide a non-metallic inert fluid path for the dispensing of high purity or aggressive fluids. We offer a range of different materials available for all the wetted parts of the pumps - body, diaphragm and check valve. Material combinations can be chosen to suit the application.

Body materials: PPS, PTFE, PEEK™, POM

Diaphragm materials: EPDM, PTFE

Check valve materials: EPDM, FKM, FFKM (Refer to the [Resources](#) page for more details on listed materials)

Self-priming At start-up, the pump is able to draw air. The suction created by the larger pumps is sufficient to pull liquids from an unpressurized container located up to 4' 3" (1.3m) beneath the pump. Once the pump is primed, it is able to generate around 5psi (0.3bar) pressure, equating to 11' 6" (3.5m) of water.

Continuous duty The pumps are designed for continuous duty. They are suitable for up to 20 million actuations, corresponding to nearly 3,000 hours of continuous use at a 2 Hz cycle rate.

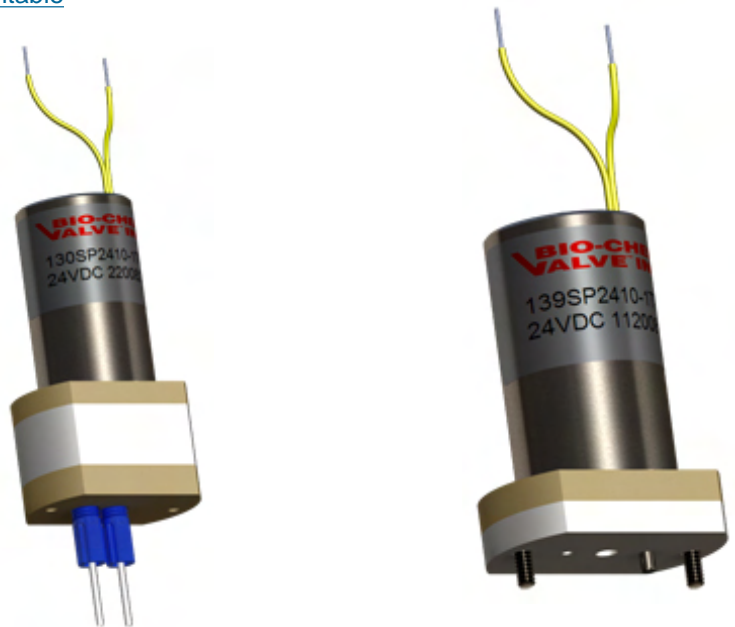
Accurate discrete dispense volumes Dispense volumes range from 4µl to 250µl per cycle. The pumps can be cycled at up to 4 Hz for the smallest version and 1.6 Hz for the largest. Pumps can be operated at less than the maximum cycle rate by increasing the length of the "off" time. The "on" time should remain unchanged to retain dispense accuracy.

(Download product brochure - [Solenoid Operated Micro-Pumps](#))

The Micro-Pumps selection process starts here, choosing between the two configurations listed below. Then you will select the required dispense volume and materials of construction.

- [Ported \(threaded\) connections](#)
- [Manifold mountable](#)

Subcategories



[Ported Micro-Pumps \(1/4-28 and 5/16-24 threaded connections\)](#) [Manifold mounted Micro-Pumps](#)

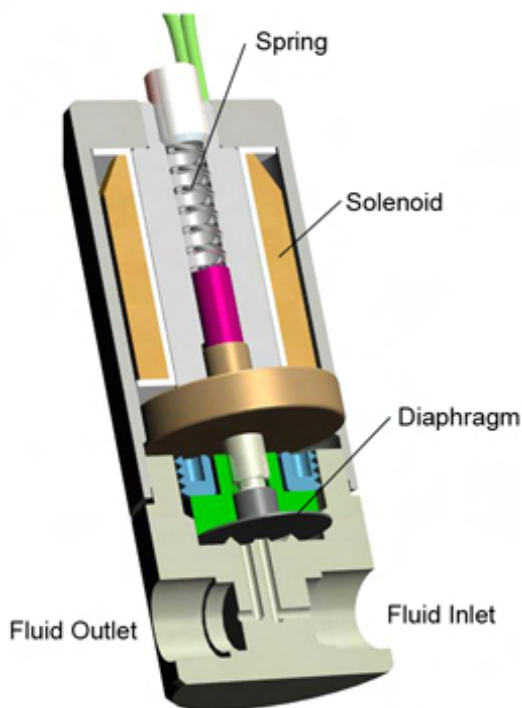
- ❖ [Solenoid Operated Micro Pumps](#)
- ❖ [Isolation Valves](#)
- ❖ [Flow Selection Valves](#)
- ❖ [Pinch Valves](#)
- ❖ [Relief Valves](#)
- ❖ [Electric Rotary Valves](#)
- ❖ [Solenoid Valve Accessories](#)



- ❖ [Fitting Systems](#)
- ❖ [Solvent Safety Bottle Caps](#)
- ❖ [Chromatography Columns](#)
- ❖ [Connectors & Adaptors](#)
- ❖ [Manual Rotary Valves](#)
- ❖ [Filters, Check Valves, Bubble Trap](#)

You are at > [Solenoid Operated Isolation Valves](#)

What is a Solenoid Operated Isolation Valve? An Isolation Valve is a solenoid operated valve where the fluid path is completely isolated from the valve's solenoid actuation mechanism. The only wetted parts are the valve diaphragm and the valve body – hence the name Isolation Valve. (Download brochure - [Solenoid Operated Isolation Valves](#))



Inert For high purity applications and aggressive media handling, the fluid path in the solenoid operated isolation valve can be made entirely from extremely inert materials such as PTFE – something that can not be done with pinch valves as PTFE tubing would be too hard to pinch.

Our all-PTFE solenoid operated isolation valves are the most chemically inert solution available. We also offer a choice of PEEK and PPS valve bodies as well as a range of diaphragm materials to suit a large variety of mechanical and chemical requirements.

Reliable Our valves use continuous duty solenoids rated to over 20 million cycles. They feature low power consumption and fast response time (more details in the brochure- [Solenoid Operated Isolation Valves](#)).

Standard construction Listed below is a list of the common features and styles of our standard solenoid operated isolation valves:

- 12 volt or 24 volt
- PTFE, PEEK or PPS body materials (Refer to [Resources](#) page for details on material choice)

- [2 way, normally closed ported](#)
- [2 way, normally closed manifold mount](#)
- [2 way, normally open ported](#)
- [2 way, normally open manifold mount](#)
- [3 way ported](#)
- [3 way manifold mount](#)
- [3 way syringe valve](#)

(Download brochure - [Solenoid Operated Isolation Valves](#))

Customization Services We routinely offer fully customized solutions on our solenoid operated isolation valves to meet equipment makers' precise specifications. Refer to our [Customization](#) page for more details.

3-step Easy Product Selection Guide

Step 1: Select Valve Function (NC= normally closed, NO = normally open)

Subcategories



[2-way, Normally Closed, ported](#)



[2-way, Normally Closed, manifold mount](#)



[2-way, Normally Open, ported](#)



[2-way, Normally Open, manifold mount](#)



[3-way, ported](#)



[3-way, manifold mount](#)



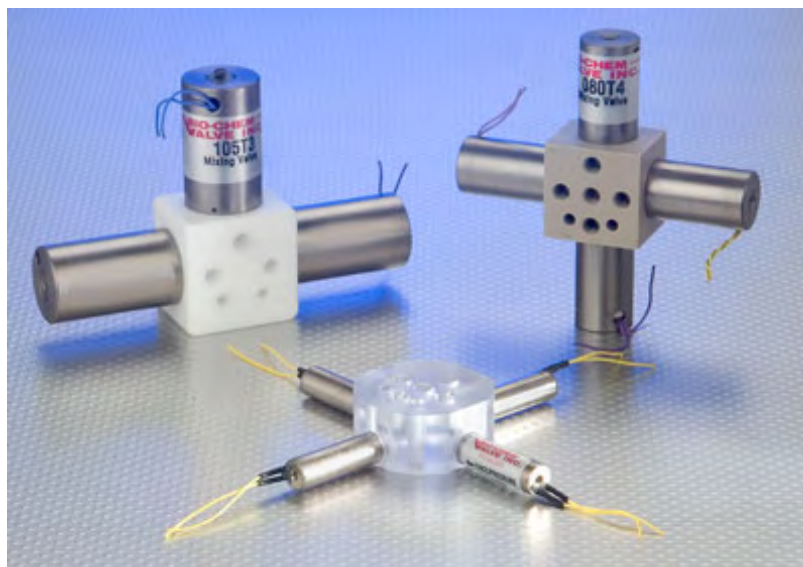
[Syringe valves](#)

- [Solenoid Operated Micro Pumps](#)
- [Isolation Valves](#)
- [Flow Selection Valves](#)
- [Pinch Valves](#)
- [Relief Valves](#)
- [Electric Rotary Valves](#)
- [Solenoid Valve Accessories](#)

- [Fitting Systems](#)
- [Solvent Safety Bottle Caps](#)
- [Chromatography Columns](#)
- [Connectors & Adaptors](#)
- [Manual Rotary Valves](#)
- [Filters, Check Valves, Bubble Trap](#)

[Flow Selection Valves](#)

What is a Solenoid Operated Flow Selection Valve? Flow Selection Valves allow multiple solenoid operated valve elements to be combined into a single, compact unit. Because each element is operated independently of each other an accurately defined combined outlet flow can be produced from between 2 and 8 individual source streams. (Download brochure - [Solenoid Operated Flow Selection Valves](#))



Compact valve/manifold configurations Bio-Chem Fluidics flow selection valves are available with three valve sizes, using 0.38 inch (designated as the [040T](#)), 0.75 inch ([080T](#)) and 1.00 ([105T](#)) inch solenoid shell diameters. Orifice diameters from 0.032 inches to 0.125 inches cover a broad range of application requirements. For ease of installation, all inlet ports are positioned on the same side of the manifold. The common outlet port is centered between the inlet ports. (Note: in diverting applications, the inlet and outlet ports are reversed.) The compact manifold construction ensures minimal internal volumes.

Optimized flow characteristics Each solenoid actuator on the flow selection valve is individually adjusted in the factory so as to provide equal flow rates at the same pressure. Ultra-fast response times for gradient applications. Through rapid cycling of the solenoid, the valves can be used to provide modulating flow rates at constant pressures.

Choice of inert wetted materials The isolation valve design used within the Bio-Chem Fluidics flow selection valves ensures that the only wetted parts are the valve diaphragm and the valve seat, which is part of the manifold. In the standard flow selection valve, both parts are made of PTFE, offering the most chemically inert solution available. For different mechanical and chemical requirements, the customer also has the option of using PEEK or PPS for the manifold material and EPDM, FKM or FFKM for the diaphragm material (refer to [Resources page](#) for more information).

Customization Services We routinely offer fully customized solutions on our solenoid

operated isolation valves to meet equipment makers' precise specifications. Refer to our [Customization page](#) for more details.

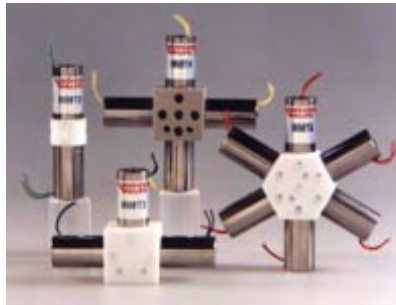
Customization Services We routinely offer fully customized solutions on our solenoid
(Download brochure - [Solenoid Operated Flow Selection Valves](#))

From the chart below select number of inlet ports needed (NOTE: all flow selection valves have a common inlet port) and then match that up against the orifice diameter needed. (cno = currently not offered on website, xx in the part number refers to operating voltage either 12 or 24 volts)

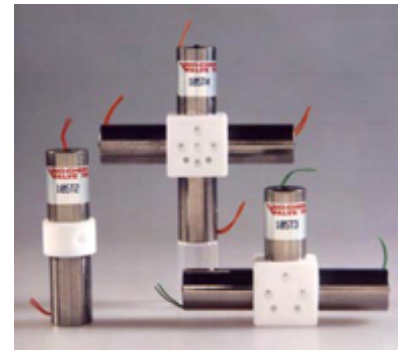
Number of inlet ports	040T		080T			105T	
	0.032"	0.054"	0.032"	0.062"	0.078"	0.092"	0.125"
2			080T2xx-32	080T2xx-62	-cno-	-cno-	105T2xx-125
3	040T3xx-32	-cno-	080T3xx-32	080T3xx-62	-cno-	-cno-	105T3xx-125
4	040T4xx-32	-cno-	080T4xx-32	080T4xx-62	-cno-	-cno-	105T4xx-125
5			080T5xx-32	080T5xx-62	-cno-	-cno-	105T5xx-125
6			080T6xx-32	080T6xx-62	-cno-	-cno-	105T6xx-125
8			080T8xx-32	080T8xx-62	-cno-		

Subcategories

[040T](#)



[080T](#)



[105T](#)

HROMalytic +61(0)3 9762 2034 09
AUSTRALIAN Distributors **ECHnology** www.chromtech.net.au

- [Solenoid Operated Micro Pumps](#)
- [Isolation Valves](#)
- [Flow Selection Valves](#)
- [Pinch Valves](#)
- [Relief Valves](#)
- [Electric Rotary Valves](#)
- [Solenoid Valve Accessories](#)



- [Fitting Systems](#)
- [Solvent Safety Bottle Caps](#)
- [Chromatography Columns](#)
- [Connectors & Adaptors](#)
- [Manual Rotary Valves](#)
- [Filters, Check Valves, Bubble Trap](#)

You are at > [Solenoid Operated Pinch Valves](#)

What is a Solenoid Operated Pinch Valve? A Pinch Valve is a solenoid operated valve allowing a full bore flow passage through a flexible tube which is "pinched" off to produce a tight seal. Only the easily replaceable tubing comes into contact with the fluid making this style of valve ideal for applications requiring frequent changes of the flow path. (Download brochure - [Solenoid Operated Pinch Valves](#))



Tubing Bio-Chem Valve solenoid operated pinch valves, as standard, are supplied with either Silicone Select™ or Bio-Chem (C-Flex) tubing. (Other, customer supplied tubing may be used - refer to [Customization](#) page for more details). Silicone Select™ is a platinum cured silicone tubing complying with USP XXII, Class VI, FDA and USDA standards and is FDA master file listed and is rated for a minimum of 500,000 cycles. Bio-Chem (C-Flex) complies with the same standards and is rated to 350,000 cycles and, although it has a shorter life expectancy, it is preferred in applications where gas permeability is an issue. The C-Flex also has higher chemical resistance to certain fluids. (Download material data sheets for [Silicone Select™](#) and [Bio-Chem \(C-Flex\)](#) tubing.)

Reliable Our valves use continuous duty solenoids rated to over 20 million cycles. They feature low power consumption and fast response time.

Standard construction These are a list of the common features and styles of our standard isolation valves:

- 12 volt or 24 volt
- Silicone Select™ and Bio-Chem (C-Flex) tubing (currently only valves with Silicone Select are available via online store, please [contact us](#) for C-Flex tubing)
- Quiet operation (optional)
- Feedback sensor (optional)
- [2 way, normally closed](#)
- [2 way, normally open](#)
- [3 way](#)

- [2 way, dual tubing](#)
- [3 way, dual tubing](#)
- Multi-tube (currently unavailable via online store, please [contact us](#))

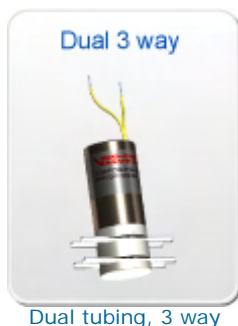
(Download brochure - [Solenoid Operated Pinch Valves](#))

Customization Services We routinely offer fully customized solutions on our solenoid operated isolation valves to meet equipment makers' precise specifications. Refer to our [Customization](#) page for more details.

3-step Easy Product Selection Guide

Step 1: Select Valve Function (NC= normally closed, NO = normally open)

Subcategories



➤ [Solenoid Operated Micro Pumps](#)

➤ [Isolation Valves](#)

➤ [Flow Selection Valves](#)

➤ [Pinch Valves](#)

➤ [Relief Valves](#)

➤ [Electric Rotary Valves](#)

➤ [Solenoid Valve Accessories](#)



➤ [Fitting Systems](#)

➤ [Solvent Safety Bottle Caps](#)

➤ [Chromatography Columns](#)

➤ [Connectors & Adaptors](#)

➤ [Manual Rotary Valves](#)

➤ [Filters, Check Valves, Bubble Trap](#)

You are at > [Relief Valves](#)

What is a Relief Valve? A Relief Valve is a valve designed to relieve over-pressure from a system. Normally this is done by adjusting a spring to give a specific closing force - when the pressure in the system exceeds the spring force the valve opens and relieves the pressure. Bio-Chem Fluidics offers two styles of relief valves - a traditional stand-alone, spring loaded unit (designated the [075RV](#)) and a unit with a solenoid operator that allows for dual functionality as a solenoid valve with pressure relief function ([075RS](#)). (Download brochure - [Relief Valves](#))

Standard features:

- 6 pressure relief settings from 20 to 150 psi
- FFKM and PPS fluid path
- Minimal internal volume

Series 075RS solenoid features:

- Isolated solenoid
- Continuous duty coil
- Low power consumption
- Fast response time
- High cycle life

Subcategories



[075RV](#)



[075RS](#)

[Safety Bottle Caps](#) here.

Tubing - both flexible and semi-rigid tubing is used to withdraw solvent from the bottle. More on [tubing](#) here

Omni-Lok fittings - used here to provide positive connections between the tubing and the bottle cap. More on [Omni-Lok and our other fittings systems](#) here.

B. Fluid tubing

Tubing - this is the arterial system of the instrumentation, moving fluid from one component to another. More on [tubing](#) here

Omni-Lok fittings - used wherever a piece of tubing interfaces with a component. Omni-Lok fittings are available with 1/4"-28, 5/16"-24 and M6 threads to suit most common instrument ports. More on [Omni-Lok and our other fittings systems](#) here.

Connectors and Adaptors - often tubing is required to split and combine flows and fit into very tight corners. Our range of inert connectors and adaptors are ideal for this. More on our [Connectors and Adaptors](#) here.

C. Flow mixing valve

Flow selection valve - here a flow selection valve is being used as a mixing valve to provide an accurate mixture of the solvents prior to being pumped into the chromatography column. More on [Flow Selection Valves](#) here.

D. High pressure pump

Micro-Pumps - inside the high pressure zone no Bio-Chem Fluidics products are used in direct contact with the high pressure fluid. Solenoid operated Micro-Pumps are used to provide accurate lubrication to moving parts on the non-pressurized side of the high pressure pump. More on [Micro-Pumps](#) here.

E. High pressure column

No Bio-Chem Fluidics product are used in conjunction with the high pressure column.

F. Auto-Sampler

Isolation Valves - on the low pressure side of the Auto-Sampler (≤ 100 psi / 7 bar) solenoid operated isolation valves are used to provide fluid control. More on [Isolation Valves](#) here.

Tubing, Omni-Lok fittings, Connectors and Adaptors for fluid transfer within the auto-sampler.

G. Detector

Isolation Valves, Tubing, Omni-Lok fittings, Connectors and Adaptors for fluid transfer within the detector.

H. Flow mixing valve

Flow selection valve - here a flow selection valve is being used to divert the flow from the detector either to product collection or to waste. More on [Flow Selection Valves](#) here.

I. Solvent waste

Solvent Safety Bottle Caps - used to prevent harmful solvent vapors from being released into the atmosphere. Also prevents spillage. More on [Solvent Safety Bottle Caps](#) here.