



INACOM INSTRUMENTS

Issue 3

# Magazine

*Innovative products for fluidic systems*

## No Troubles with Bubbles

Skogafoss, Iceland © Thomas Landén



# Degassing & Debubbling



## Degassing

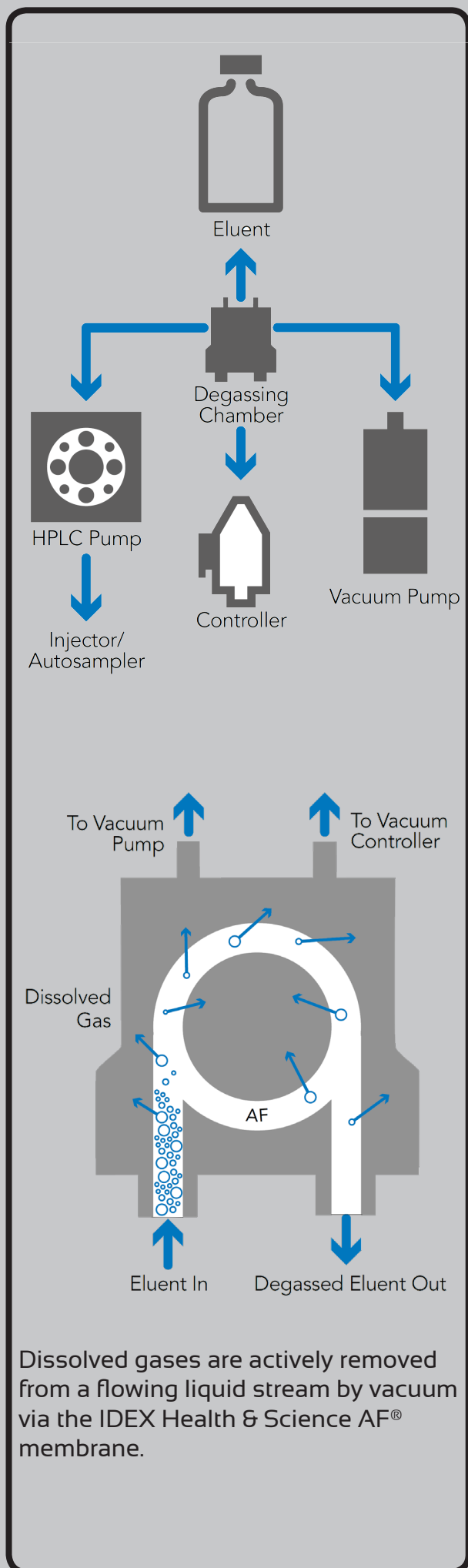
Degassers improve fluidic instrument precision and reliability by removing dissolved gases from fluids before they outgas and form problem causing bubbles. Three main types of bubble removing products are available.

AF based degassers offer the widest range of chemical compatibility and are used to eliminate retention shifts and baseline fluctuations.

Silicone based degassers offer the highest flow rate capabilities for water based systems such as diagnostic and life science instrumentation to improve dispense accuracy and reliability.

Poridex based products provide rapid bubble remove for locations where bubble introduction cannot be avoided.





# Degassing - How it works

Dissolved gasses in a fluidic system can often cause troubles. When the pressure or the temperature changes, the dissolved gasses can form bubbles which affect the accuracy, precision and performance of your equipment. On-line degassing is a very efficient way of removing dissolved gasses from the liquid and preventing bubble formation.

## Why Degas Your Mobile Phase?

Dissolved air in HPLC mobile phases can result in flow rate instability and baseline disturbance.

**Flow rate instability:** Non-degassed mobile phase can outgas in the pump head, causing bubbles to be formed and trapped inside the head or check valves. These bubbles can cause flow disturbances and pressure fluctuations, resulting in flow rate instability.

**Baseline disturbance:** As the mobile phase passes through the column, it experiences a large pressure drop. Non-degassed mobile phase can outgas due to this pressure differential, causing air bubbles to form. Air bubbles passing through or lodging in the flow cell cause detection disturbances, exhibited as baseline noise.

## No Troubles with Bubbles

Biotech AB is specialized in degassing of liquids. With Systec components you can be sure to get degassers with the latest cutting edge technology. Except for our unique range of DEGASi® Standalone degassers, Biotech offers custom made degassing modules to fit your need. Biotech supplies degassing modules to some of the world's largest instrument manufacturers.



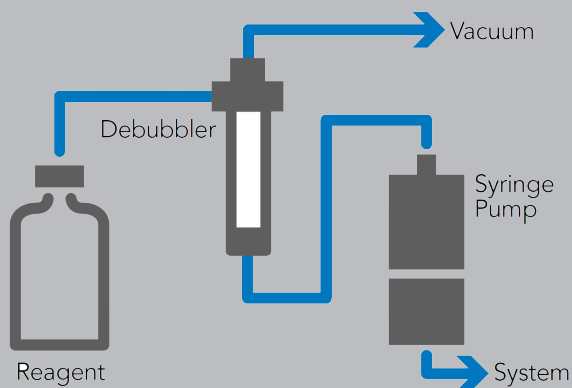


## Debubbling

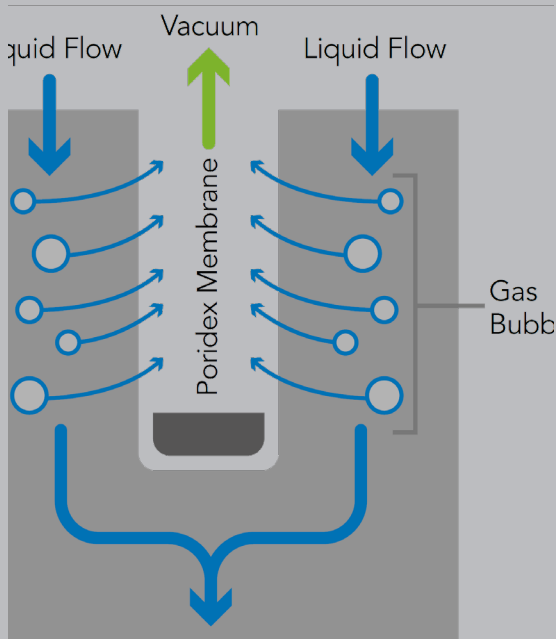
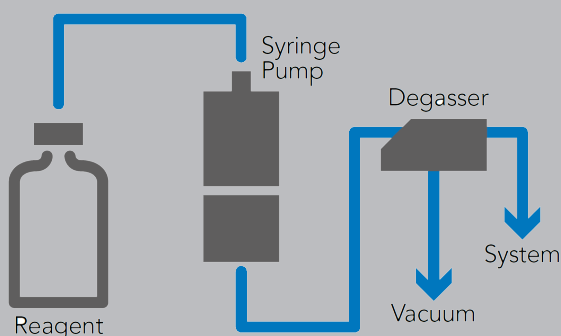
In many low pressure systems, such as diagnostic instruments, bubbles in the fluid stream can cause false detection readings and dispense anomalies. For these systems, the SysTec Active Debubbler captures and removes bubbles before they can affect the instrument or the results. Unlike passive bubble traps where bubble removal is dependent on backpressure, the Active Debubbler can be installed before or after a pump and provides consistent debubbling regardless of the system conditions.



### Typical Debubbler Implementation



### Transfer-Line Degasser Implementation



Gas bubbles are actively removed from a flowing liquid stream by vacuum via the PORIDEX membrane.

## Debubbling - How it works

Dissolved gases and bubbles in system liquids cause dispense volume anomalies in many instruments, negatively affecting both dispense precision and analytical accuracy. Now you have a choice of components for actively removing bubbles with or without also removing dissolved system gases. Online Vacuum Degassing offers operating convenience, high efficiency and low operating costs compared to other common degassing technologies.

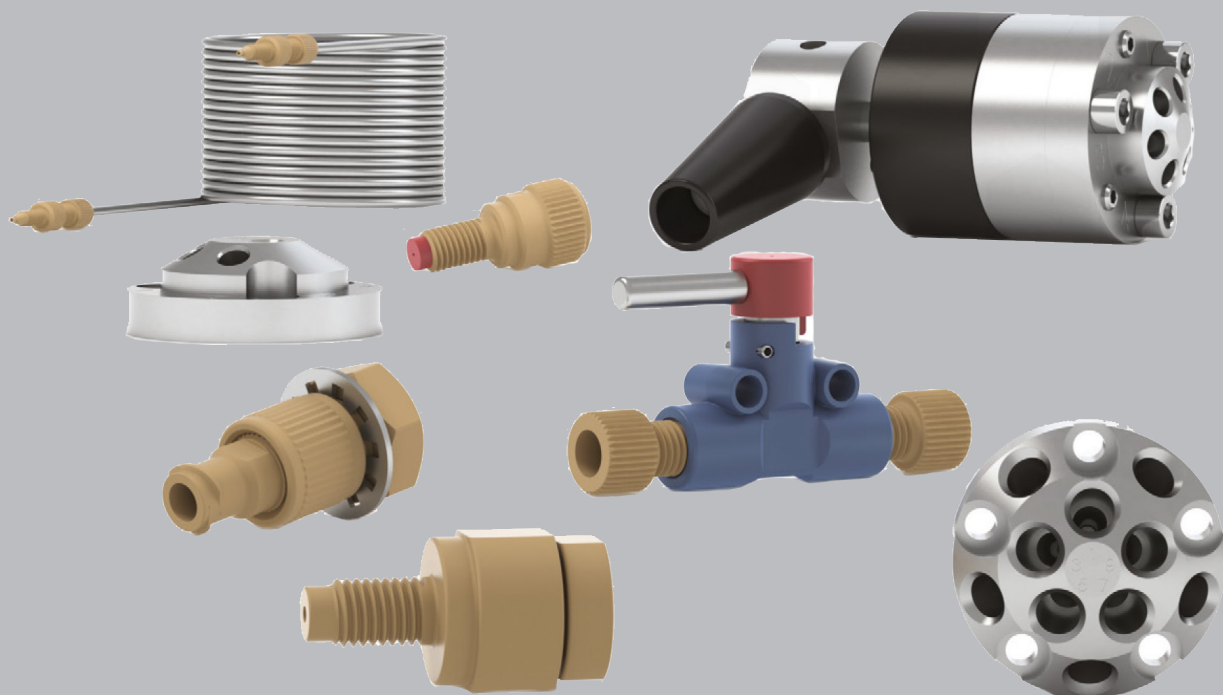
## Why Debubbling?

In medical analyzers, bubbles interfere with critical volumetric reagent dispenses and cause sample failures, wasting time and money. Because bubbles adhere to nearly every part of a dispensing system, high velocity or induced turbulent flow is often used to displace and discharge bubbles from the flow stream and into a waste area. These alternative processes waste reagents and are time consuming, unpredictable, and may additionally require designing the system to recognize bubbles are present.

## No troubles with Bubbles

Biotech AB proudly presents a DEBUBBLER for removal of bubbles in liquids. Improve the precision and accuracy in your instrumentation with our new line of debubblers. The new debubbler can be used in every liquid transferring system where bubbles may occur; Dispensing, DNA-sequencing etc. Custom designed modules upon request. We offer total systems responsibility in the field of degassing and debubbling.



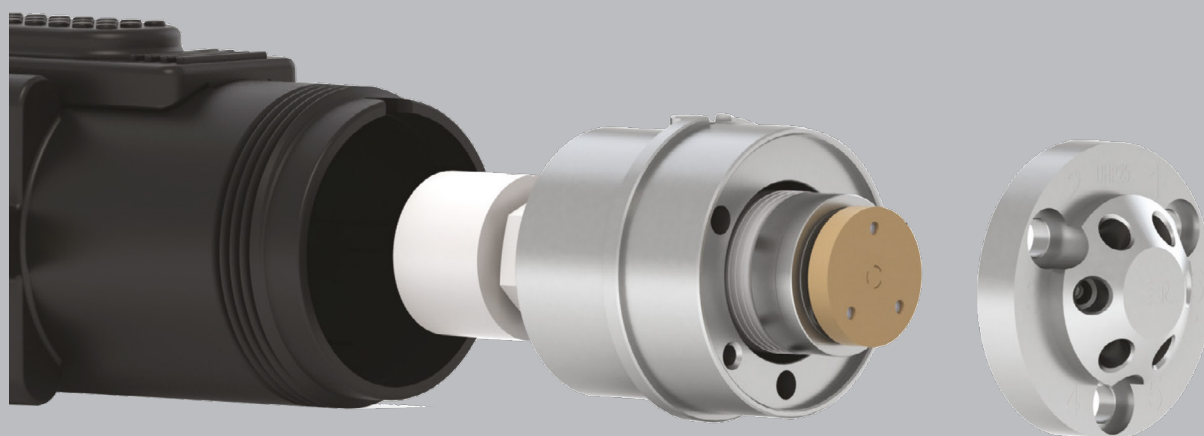


# Valves

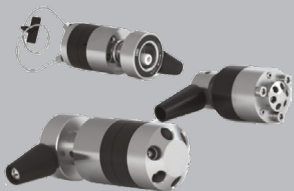
Our valves are an integral part of advanced fluid-handling solutions for a wide range of analytical instrumentation and clinical diagnostic systems. Our valve options include manual valves for lower frequency use and rotary shear valves that meet the high duty cycle requirements of UHPLC and also come in high and low pressure versions to meet your system requirements. We also offer check valves when there is a need to limit the fluid flow to one direction. Our Back Pressure Regulators products are designed to enhance system performance through outgassing prevention. All of our valve products, components, tools, and accessories are designed keeping our customer's system needs first.

## Rotary Shear Valves

Our Rotary Shear Valves were developed in tandem with the evolution of liquid chromatography, where combinations of elevated system pressures, aggressive chemicals, and ever-diminishing fluid volumes continually challenged system manufacturers who required highly precise fluid control and delivery. Today, many other disciplines utilize Rotary Shear Valves for their versatility, reliability, repeatability, long system uptime, and easy preventive maintenance







# Manual Valves

Choose a manual valve if your application involves low frequency of use, demands operator control, or involves injection of smaller sample volumes.



**7725i**  
Manual Injection Valve  
Up to 9,000 psi (600 bar)



**7060**  
Manual Switching Valve  
Up to 7,000 psi (483 bar)

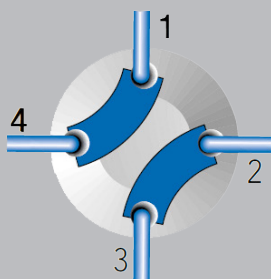


**3725i-038**  
Manual Switching Valve  
Up to 7,000 psi (483 bar)

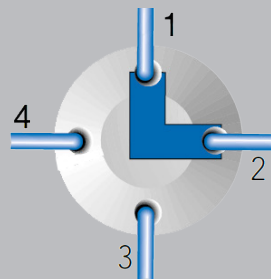


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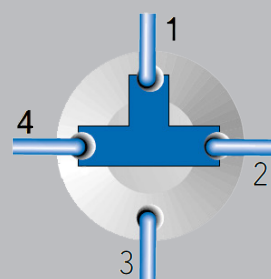
## Manual Switching Valves Options



4-Way Diagonal Flow Switching Valves (V-100D, V-101D)



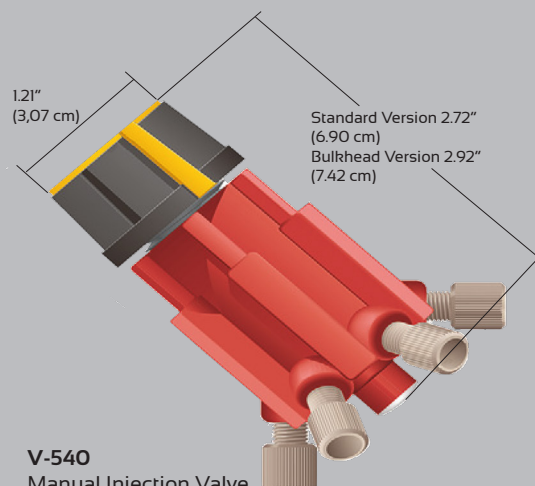
Right Angle Flow Switching Valves (V-100L, V-101L)



3-Way Flow Switching Valves (V-100T, V-101T)



**V-101L**  
Manual Switching Valve  
Up to 1,000 psi (69 bar)



**V-540**  
Manual Injection Valve  
Up to 1,000 psi (69 bar)

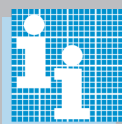
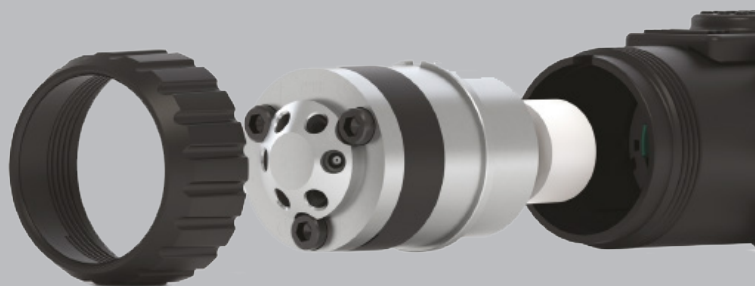


# Rapid Replacement Pods

## For IDEX H&S MX Series II Valves

- Zero downtime maintenance
- Improves lab throughput

To help keep your instrument online and performing at maximum precision, select the exact Rapid Replacement Pod for your higher pressure MX Series II valves. Replacement pods are easily exchanged as part of scheduled preventive maintenance, or in an emergency, a pod can be substituted quickly while the original is examined and maintained at your convenience. The pod kit contains complete instructions for removal and replacement.



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