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# INFORMATION SHEET

Part name	Valve Chip Holder with Chip & Diaphragm	Part number	3000138
	Valve Chip		3000287
	Diaphragm Set (2 Sets)		3000288

## Description

The Valve Chip Holder is designed to hold a chip with one etched glass layer and a removable polymer diaphragm. A gas pressure supply can be connected to the holder for pneumatic actuation of the diaphragm. The holder is supplied with a valve chip and a diaphragm. The Valve Chip can be used for back pressure regulation or as an active valve.



Left: Valve Chip Holder (3000138)

Below left: Valve Chip Holder disassembled with Valve Chip (3000287)

Below right: Valve Chip FEP diaphragm (3000288) and gasket



## Benefits

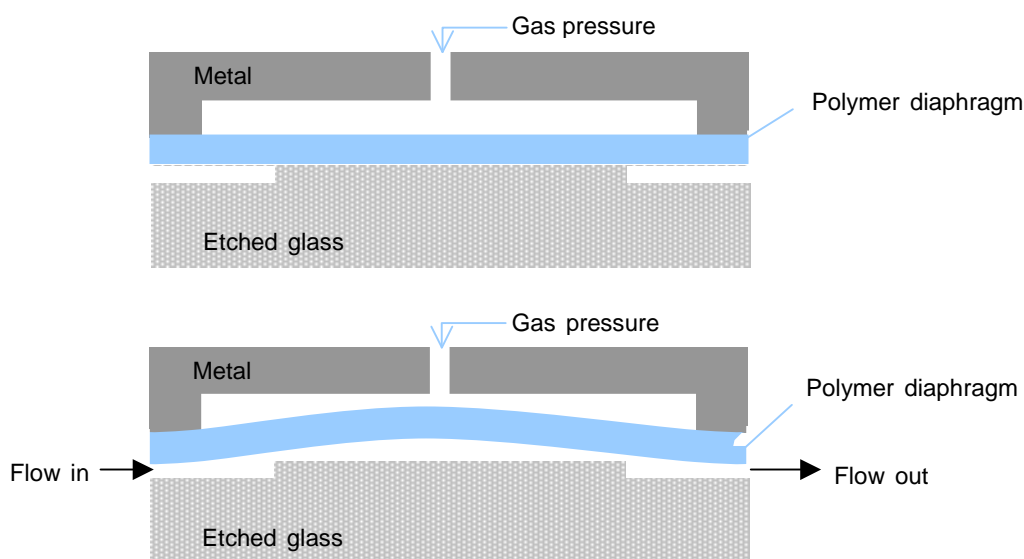
- Compact
- Low dead volume
- Quick connect/disconnect
- Easy control of back pressure
- Wide temperature and pressure range
- Excellent chemical compatibility

	Specification	Value
1	Number of inputs	1
2	Number of outputs	1
3	Internal channel cross section	125 x 300 $\mu\text{m}$ (depth x width)
4	Total internal volume	2.2 $\mu\text{l}$
5	Surface roughness of channels ( $R_a$ )	5 nm
6	Chip size	10 mm x 10 mm
7	Chip glass layer thickness	3 mm
8	Diaphragm layer thickness	50 $\mu\text{m}$
9	Operating pressure range	0 - 10 Bar
10	Operating temperature range	0 - 200 $^{\circ}\text{C}$

11	Chip material	Glass layers with FEP polymer diaphragm
12	Chip fabrication process	HF etching
13	Chip sealing	Mechanical clamping, no adhesives

### Operation as a back pressure regulator

The valve chip and holder may be used to apply a back pressure to a liquid flow stream. In the diagram below the pressure of the fluid stream must overcome the pneumatic pressure applied to the diaphragm in order to achieve flow. Assuming the flow is driven by a displacement pump, the pressure of the fluid entering the valve chip holder will equal the pneumatic pressure applied.



### Operation as an active valve

If the pneumatic pressure applied to the valve chip is increased above the pumping pressure then the flow will stop. In this way the valve chip can be used as an on / off valve.

### Custom chips and membranes

Custom chips can be designed for the valve chip holder with different valve seat arrangements. It is also possible to use different diaphragm layers with different sealing characteristics.