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INFORMATION SHEET

Part name	Membrane Chip Holder with Separator Chip	Part number	3000135
	Membrane Chip Holder with LL Contactor		3000136

Description

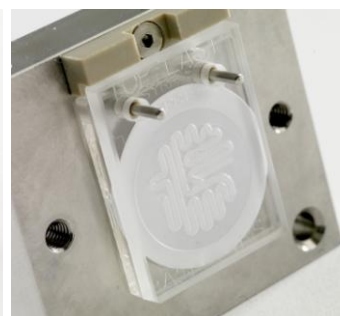
The Membrane Chip Holder is designed to hold a chip with two etched glass layers with a removable membrane layer between. There are two versions of the holder, one with a single input and one with two inputs. The single input chip holder is typically used for liquid – liquid separation. The two input holder is used for liquid - liquid contacting. Other applications for the chip holder include cross-flow filtration and surface chemistry reactions.



Left: Membrane Chip Holder with separator chip (3000135)

Below left: Membrane Chip Holder disassembled (with chip)

Below right: Membrane separator chip



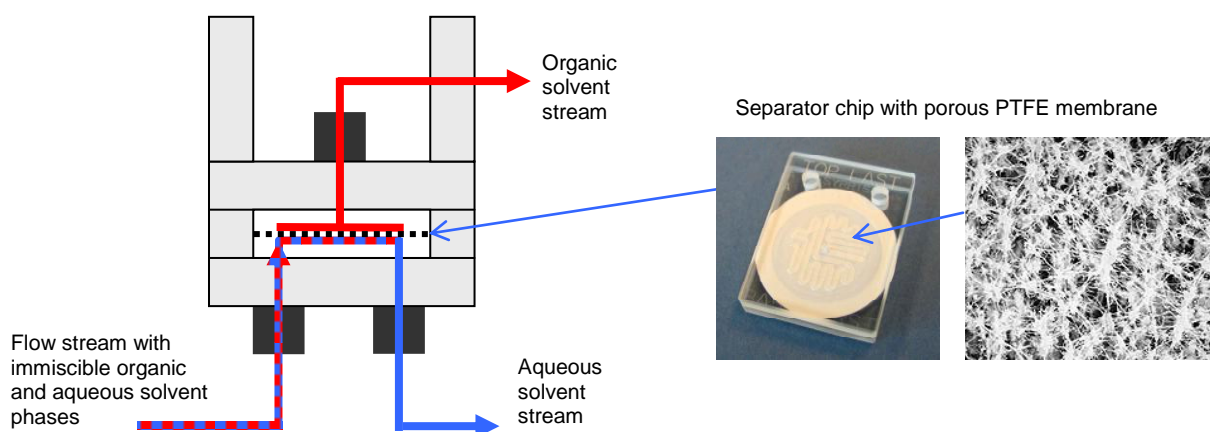
Benefits

- Low dead volume
- Quick connect/disconnect
- Wide temperature and pressure range
- Excellent chemical compatibility
- Wide range of membranes possible

	Specification	Value
1	Number of inputs	1 or 2
2	Number of outputs	2
3	Internal channel cross section	900 μm x 125 μm (width x depth)
4	Total internal volume	28 μl
5	Surface roughness of channels (R_a)	5 nm
6	Chip size	31 mm x 24 mm
7	Chip top layer thickness	3 mm
8	Chip base layer thickness	3 mm
9	Operating pressure	10 Bar
10	Operating temperature	150 $^{\circ}\text{C}$
11	Chip material	Glass layers with PTFE membrane
12	Chip fabrication process	HF etching

Membrane Chip Holder with Liquid - Liquid Separator Chip (3000135)

The liquid - liquid separator chip can separate flow streams containing immiscible organic and aqueous solvent phases. The porous PTFE membrane is hydrophobic and repels the aqueous phases, but allows the organic stream to pass through. This results in separation with the organic stream passing out through the top of the separator chip and the aqueous stream passing out through the base of the separator chip as shown below:



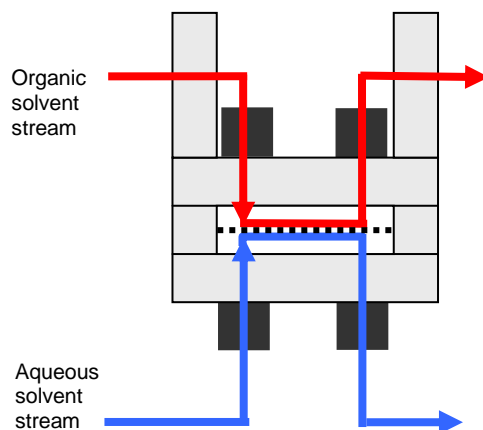
To achieve the maximum flow rate of 1ml/min the cross-membrane pressure needs to be controlled, see the FRX FLLEX (2101306). The PTFE membrane can also be easily replaced.

Accessories

Description	P/N
Separator Base Chip	3000294
Separator Top Chip (Glass)	3000295
Separator Top Chip (PEEK)	3000296
25mm PTFE Membrane (Pack of 10)	3000297
Contacting Pipe	3000298
Contacting to Separator Pipe	3000299
Separator to BPR Pipe	3000300

Membrane Chip Holder with Liquid - Liquid Contacting Chip (3000136)

In this configuration separate organic and aqueous solvent streams can be brought into contact across a membrane. This allows diffusion of solutes between the two streams. The surface area of contact on the chip is 110 mm². See diagram below:



Custom chips and membranes

Custom chips can be designed for the membrane chip holder. It is also possible to use different membranes and gaskets between the two glass layers. The clamping force generated between the two glass layers is around 60 kg.