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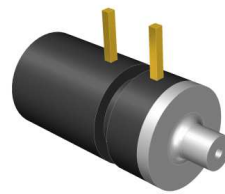
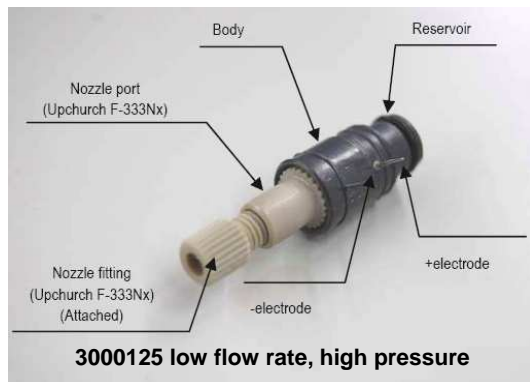
**The Dolomite Centre Limited**  
 Registered office: 27 Jarman Way,  
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 Company No. 05640084

## INFORMATION SHEET

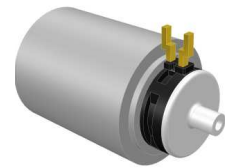
Part name	Micro electro-osmotic pump	Part number	3000125 3000126 3000127 3000128
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### Description

The micro electro-osmotic pump provides excellent pumping performance in a miniature package. The unique feature of this pump is the smoothness of flow that is obtained. This technology is ideal for integration into a microfluidic system due to the product size and the precise control that can be achieved in the low flow rate range.



**3000126 / 3000127**  
 low flow rate  
 microchip mount



**3000128**  
 medium flow rate  
 microchip mount

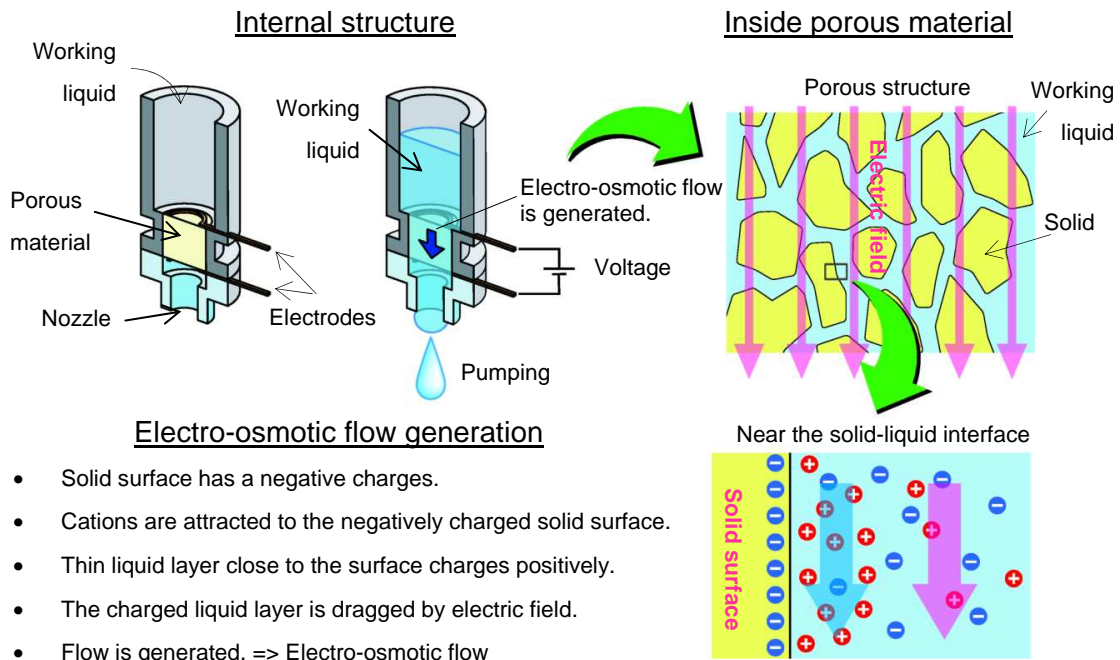
Electro-osmotic flow is generated in the pump by applying a low voltage across the two electrodes. This may be implemented using a battery or DC power supply unit. For advanced flow rate control a PWM (Pulse Width Modulated) power source can be supplied (see product datasheet 3000129). The PWM power source can be connected to a flow rate sensor enabling closed loop control of flow rate.

The working liquid for direct pumping is deionised water. However, by using a sample loop it is possible to pump any liquid including aggressive media and cell suspensions.

### Benefits

- No pulsation
- No moving parts
- Small size
- High pressure performance
- Easy operation
- Connect directly to a DC supply or battery to pump fluid

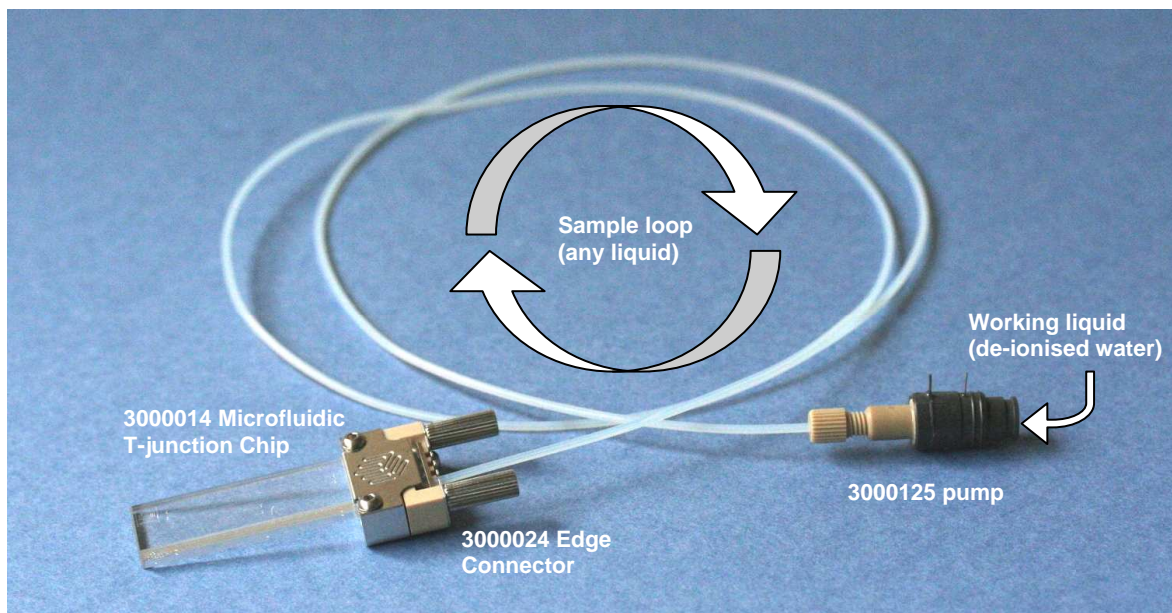
## Working Principle



## Direct and Indirect Pumping

For working liquids passing directly through the pump, de-ionised water is recommended to give optimum performance (pumps for operation with methanol available on request).

Using an indirect pumping system (shown below), the micro electro-osmotic pump can be used with any liquid.



*Notes: The micro electro-osmotic pump is sensitive to impurities in the liquid. Impurities can cause degradation of EO material performance. Flow rate performance of the pump is dependent on the kind of working liquid. The flow rate is also inversely proportional to the viscosity of the liquid. Ambient temperature also has an impact on the performance.*

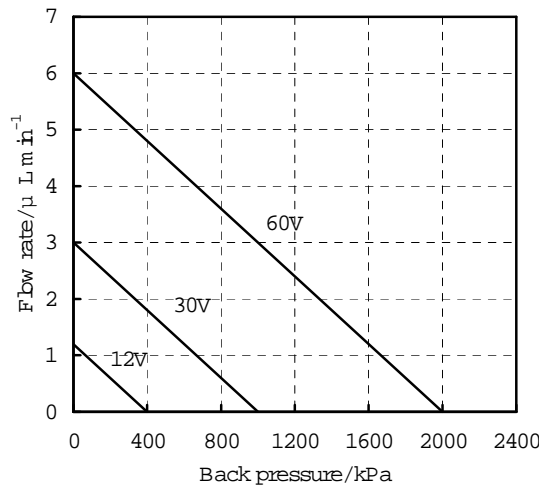
## Specification

	Micro pump specification	3000125	3000126 / 3000127	3000128
1	Pumping Principle <sup>(1)</sup>	Electro-osmosis		
2	Max. Flow Rate <sup>(2)</sup>	6 µl/min	10 µl/min	190 µl/min
3	Max. Pressure <sup>(3)</sup>	2000 kPa	90 kPa	110 kPa
4	Power Consumption <sup>(4)</sup>	7 mW	6 mW	100 mW
5	Working Liquid <sup>(7)</sup>	De-ionized water		
6	Body Material	PPS	Polypropylene	
7	Body Size	Ø10.3, Length 27.3 mm	Ø6, Length 11.5 mm	Ø8, Length 17.9 mm
8	Nozzle Length	N/A	1.5 mm (3000126) 2.2 mm (3000127)	2.5 mm
9	Nozzle Port	Upchurch Nanoport N-333	N/A (microchip mount)	
10	Nozzle Fitting	Upchurch Nanoport F-333Nx		
11	Reservoir Capacity	Sized to Customer Requirements	100 µl	1.2 ml
12	Weight	1.8g	0.2g	0.5g

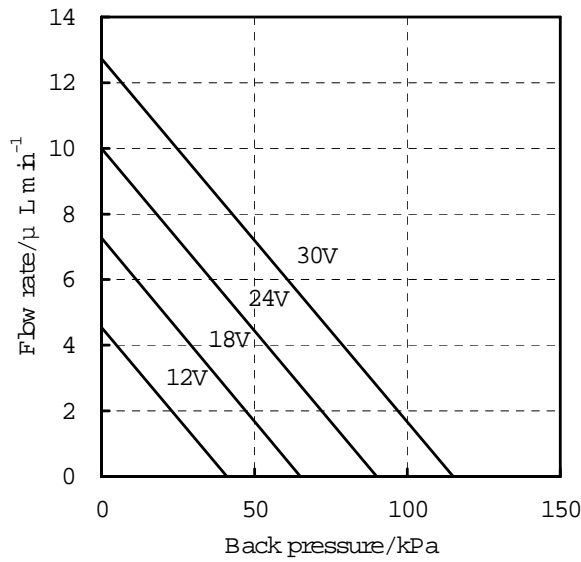
1. The pump utilizes electro-osmotic flow, which is induced by applying an external electric field on a charged solid-liquid interface. This occurs in narrow channels inside porous material.
2. The max. flow rate is defined as the flow rate at zero back pressure.
3. The max. pressure is defined as the pressure to make the net flow zero.
4. Power consumption is roughly proportional to the square of the voltage.
5. Values at 60V DC are specified for reference. Max. flow rate and max. pressure are roughly proportional to the applied voltage. Applied voltage is recommended to be less than 60V.
6. Values at 24V DC are specified for reference. Max. flow rate and max. pressure are roughly proportional to the applied voltage. Applied voltage is recommended to be less than 30V.
7. Alternative versions are available on request, which use methanol as the working liquid.

**Technical Data**

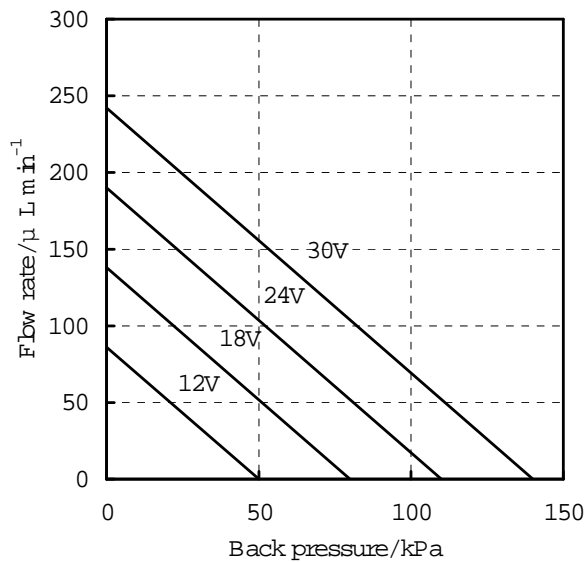
**Performance of 3000125**



**Performance of 3000126 / 3000127**

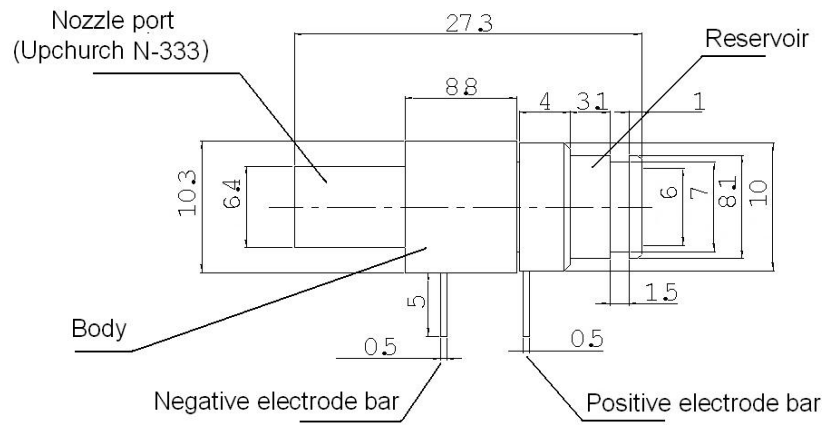


**Performance of 3000128**

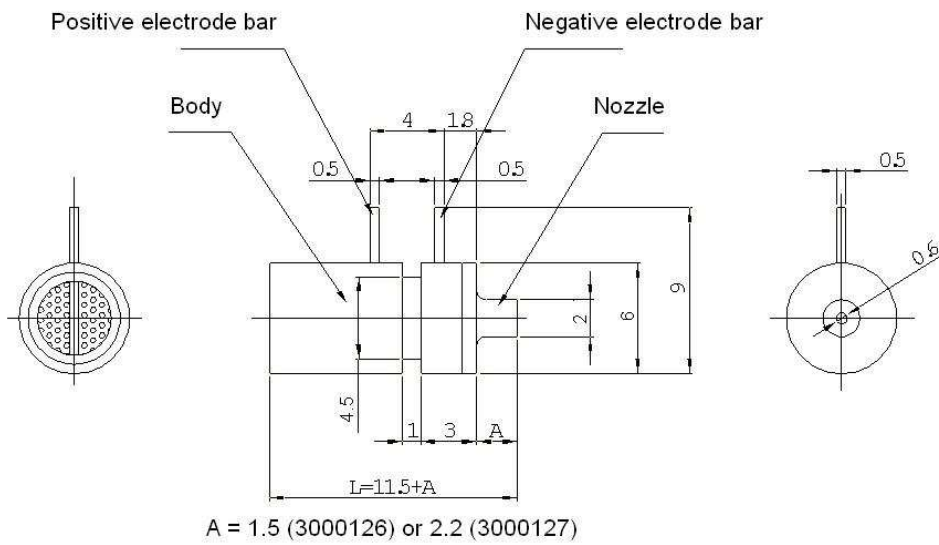


## Geometry

### 3000125 Dimensions



### 3000126 / 3000127 Dimensions



### 3000128 Dimensions

