

## TFS MICRO NEEDLE VALVE

### MNV Series



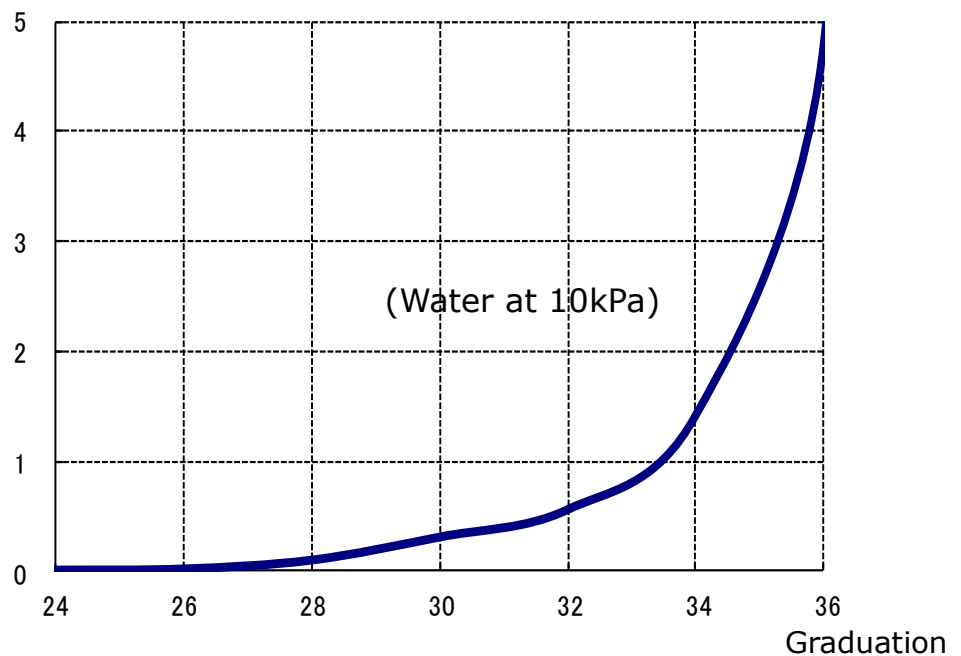
#### Features

- Fine manual adjustment of flows below 1  $\mu\text{L}/\text{min}$
- Reduced flow pulsation by restricting flow
- Wetted materials: Perfluoroelastomer, PEEK and stainless steel
- Operating pressure range: 0 ~ 200 kPa

#### Flow Characteristics

<Example Flow Data\*>

Flow ( $\mu\text{L}/\text{min}$ )



\*Flow-graduation relationship varies according to valve.

Note: Details including specifications may change without notification.

Contact for Purchase

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# Reduction of Flow Pulsation

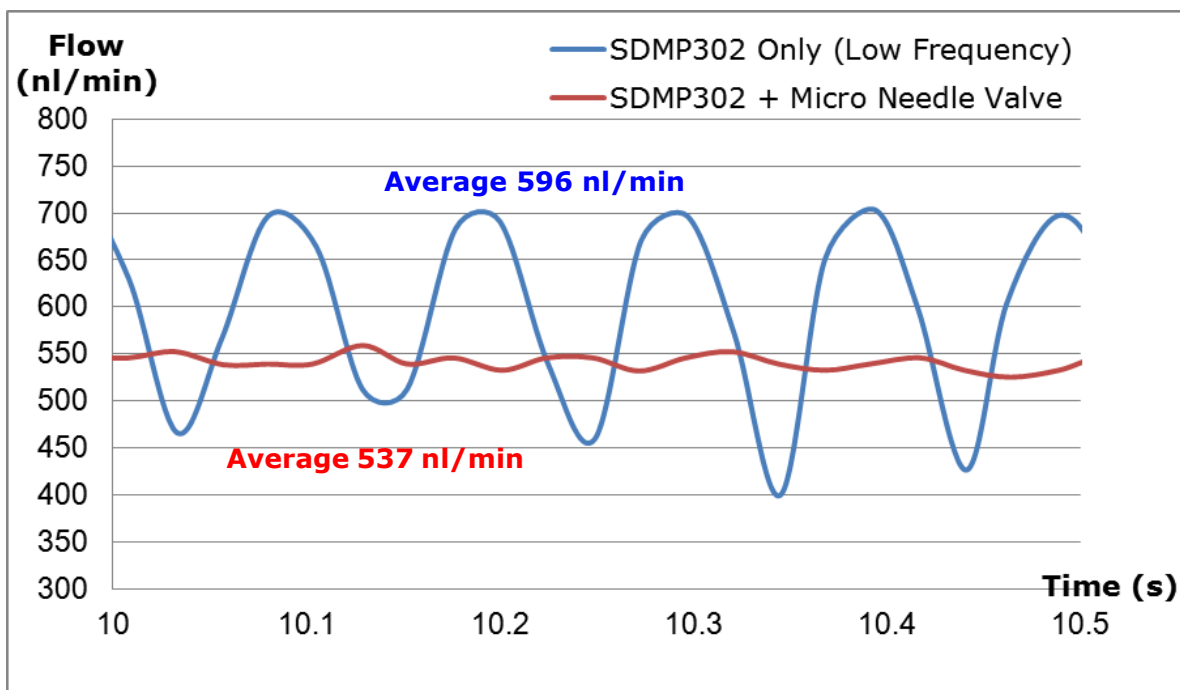
## <Example of Combination with Piezoelectric Micro Pump>

Piezoelectric micro pumps are small-sized, lightweight and slim diaphragm micro pumps driven by piezoelectric element. By considerably reducing the drive frequency and the drive voltage from the standard operating ranges, a piezoelectric micro pump alone can transfer  $\mu\text{l}/\text{min}$  level flows. However, significant pulsation is created at a low flow rate as represented by the blue line in the graph below.

By incorporating a micro needle valve on the discharging side of a piezoelectric micro pump, a low flow rate with almost no pulsation can be achieved. The red line on the graph below is an example that shows this remarkable reduction in pulsation. Pulsation can also be reduced when combined with other kinds of pumps, such as peristaltic pumps.

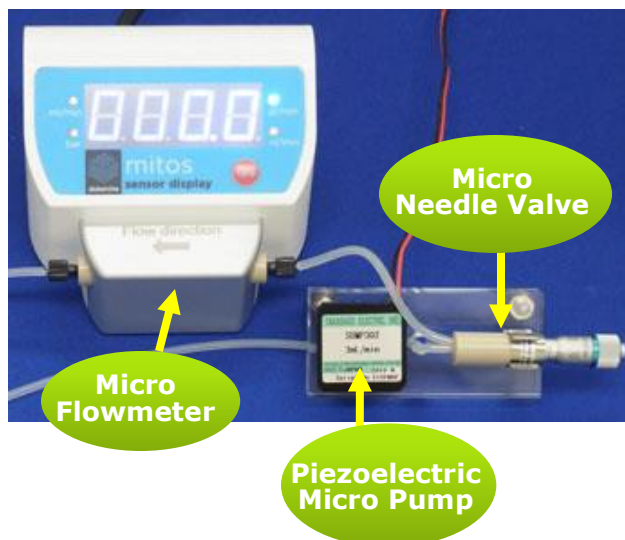
Note: The actual effect may change depending on the flow rates, pumps, types of tubing, etc. Please consult with us for more details.

## Flow Data of Piezoelectric Micro Pump SDMP302 (at 10 Hz, 150 Vp-p)



## Low Pulsation Micro Pump Module

### <Piezoelectric Micro Pump + Micro Needle Valve + Micro Flowmeter>



The Low Pulsation Micro Pump Module is a module to adjust the flow of a piezoelectric micro pump at the  $\mu\text{l}/\text{min}$  level using a micro needle valve. In the setup in the left picture, the output flow from the module is being measured by a micro flowmeter. The features of this module make it suitable for various fields, such as flow cytometers, cell culture equipment, etc.