Burkert USA & Schwarzer Precision
proudly present:

# Customizable Miniature Pumps

Schwarzer Precision
Member of the Burkert Companies

bürkert
FLUID CONTROL SYSTEMS

# Performance

## A Broad Range of Possibilities

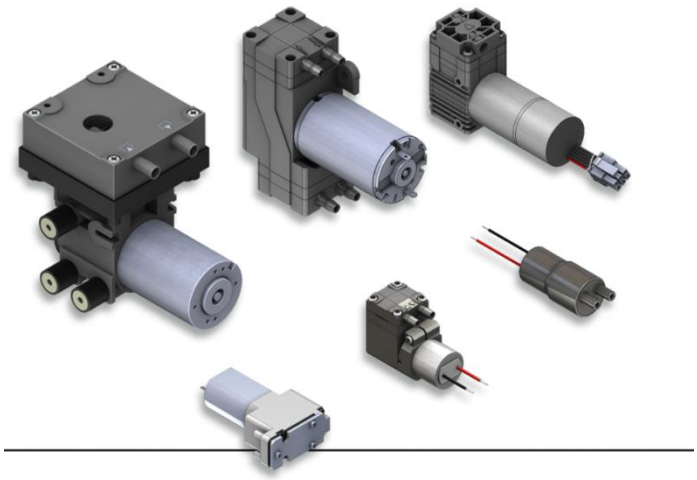
### Micro precision pumps for high-end applications

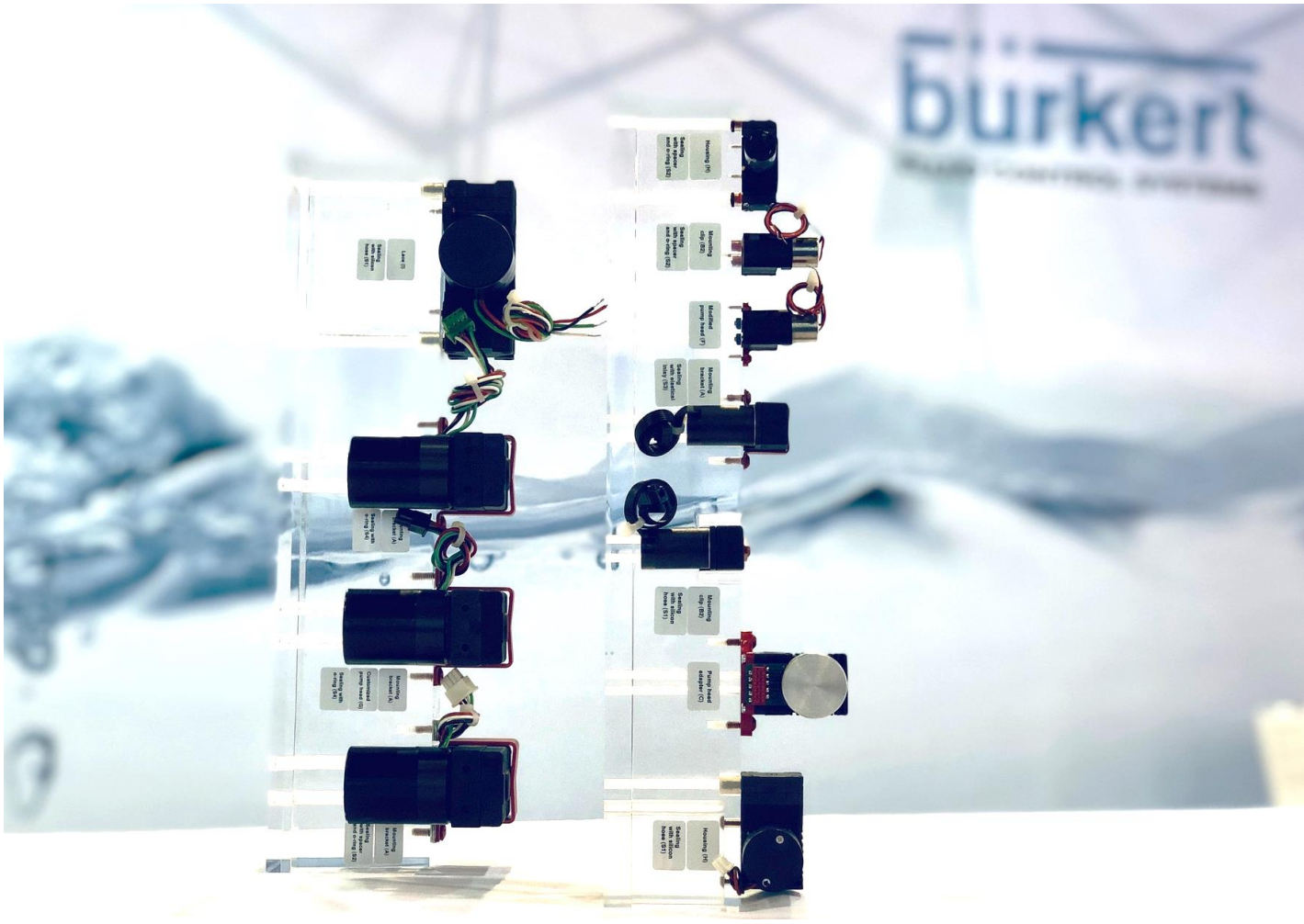
Since 1970, Schwarzer Precision is the technology leader in the development and production of high-precision and durable miniature pumps for medical, analysis and laboratory technology.

"We care": Schwarzer Precision stands for superior quality and excellent service. We maintain direct contact to our customers and business partners to exactly understand their requirements and to meet them without compromise.

Customizing is extremely important to us: All parameters of our diaphragm pumps can be customized exactly to your specific requirements.

Being an independent medium-sized enterprise allows us to produce at an optimal price-performance ratio, even with individual small production batches. In addition, our economically priced standard program is available for large industrial series.





# Applications

## We Fit Where You Need Us

### Medical Technology

Precision pumps for medical technology must satisfy maximum requirements. For example, if the pump of an anesthesia device fails a life-threatening situation develops immediately for the patient. Only uncompromising quality counts therefore in this sensitive area.

### Environmental and Analysis Technology

The development of analytical systems requires exact components to generate high-quality measuring data. Miniature pumps from Schwarzer Precision have proven themselves for many years both in stationary laboratory instruments and in mobile analysis devices.

### Automotive Technology

Miniature pumps from Schwarzer Precision are used in a wide variety of applications in vehicle technology. From the electric forklift truck to the high-performance race car, they have proven themselves for decades through high reliability and exact customization to the respective purpose.

### Safety Technology

Safety first: From gas concentration measurement at the workplace via portable personal protection devices on to toxicological analysis – our precision pumps with their diverse applications ensure the safety of human life.

### Inkjet and Reprographic Technology

Maximum precision and tough continuous operation are required in professional printing and reprographic-technology. Renowned inkjet and plotter manufacturers therefore rely on micro pumps from Schwarzer Precision.

### Industrial Engineering

Whether for handling robots, soldering and welding technology or safety monitoring of the workplace: Micro pumps from Schwarzer Precision have become indispensable in a wide range of sectors in industrial and production engineering.

### Food Industry

Schwarzer Precision is an ideal partner for the food industry with their oil-free and maintenance-free pumps customized exactly to the respective application.

### Air Conditioning and Energy Technology

When years of reliability are required for continuous operation, micro pumps from Schwarzer Precision are the first choice for many companies in the field of air-conditioning, heating and energy technology. Our products operate completely maintenance-free.

# Design Types

## Solutions for Gas & Liquid

## Gas Pumps

### EC – Eccentric Diaphragm Pumps

Our precision pumps of the design type "EC" are distinguished by maximum reliability and high performance at smallest dimensions. They can be used as pressure and / or vacuum pumps. Maximum leak-tightness of the pump head and resistance against aggressive fluids constitute additional advantages of this design type. From the series 100 to 700, our eccentric diaphragm pumps cover a very wide performance range: from a few milliliters to 18 l/min.

### RO – Rotary Diaphragm Pumps

-Maximum operation smoothness and impermeability with an almost linear pressure/volume characteristic.
-The generation of pressure reaches up to 1.3 bar, the extracted volume up to 5.3 l/min.
-Cost/performance ratio is highlighted here for large quantity applications. Optimized pressurization cycle for blood pressure applications.

### FZ - Vane Pumps

The Schwarzer Precision 135 / 140 FZ is the world's smallest vane pump. These rotary valve pumps are the optimal solution to pump low volumes in a high precision and basically pulsating free fashion.
-Light weight (12 g), small size and an extremely low power consumption – the vane pumps of Schwarzer Precision are especially suitable for portable machines. The linear characteristics enable these micro pumps to be extremely manageable.

### LI – Linear Diaphragm Pumps

Run by an electronic magnet, these pumps are spared the complexity of a motor driven technology. The linear pumps run completely frictionless. The outcome is an extremely high durability – ideal for continuous operations. Schwarzer Precision linear diaphragm pumps are available as pressure (D) and vacuum-pressure (VD) pumps.

### PA – Pivot Armature Pumps

Pivot diaphragm pumps utilize the reinforcing effect of a mechanical lever to be able to build up high pressure in the pump head. The lever drives two oval diaphragms in alternating fashion. The result: high volume flow rate at high pressure as well as reduced pulsation of the air flow. Circumferential clamping of both diaphragms prevents external air from being sucked in. The oval diaphragm shape allows an extremely flat design.

### SA – Vibrating Diaphragm Pumps

Because these pumps are run by an electronic magnet, the complexity of a motor driven technology is unnecessary. The vibrating diaphragm pumps run completely frictionless. The outcome is an extremely high durability – ideal for continuous operations.
-Low pressure up to 0.4 bar, high volume performances up to 7.5 l/min and a prominent operation smoothness – these characteristics are ideal for stationary analysis machines.
-In addition, there is an optimal cost/performance ratio: ideal for mass productions.

## Liquid Pumps

### EC-L – Eccentric Diaphragm Pumps

Liquid pumps of the design type EC-L offer enormous performance at small component size. They can be used as pressure and / or self-priming vacuum pumps. Maximum leak-tightness of the pump head and resistance against aggressive fluids constitute additional advantages of this model series. From the series 200-L to 700-L, our eccentric diaphragm pumps cover a very wide performance range: from a few milliliters to 1.4 l/min.

### RO-L – Rotary Diaphragm Pumps

The SP Rotary diaphragm pumps are unique worldwide. An extremely pulsating free operation is their outstanding characteristic. With every turn of the motor three small diaphragms are moved - instead of a large one! This generates a consistent flow of liquids up to 600 ml/min.

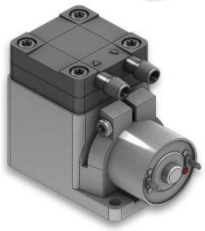
# Gas Pumps

## Eccentric Diaphragm Style

SP 100 EC-DB
Eccentric Diaphragm Pumps for Gases
Free flow rate: 500 ml/min
Max pressure: 10.1 psi / 700 mbar
Max rel. vacuum: -7.3 psi / -500 mbar

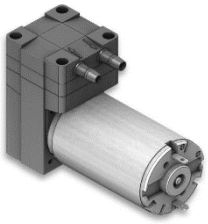
SP 100 EC-DU
Eccentric Diaphragm Pumps for Gases
*Parallel:*
Free flow rate: 1000 ml/min
Max pressure: 10.1 psi / 700 mbar
Max rel. vacuum: -7.9 psi / -550 mbar
***Serial:***
**Free flow rate: 550 ml/min**
**Max pressure: 21.7 psi / 1500 mbar**
**Max rel. vacuum: -11.6 psi / -800 mbar**

SP 270 EC- LC
Eccentric Diaphragm Pumps for Gases
Free flow rate: 600 ml/min
Max pressure: 8.7 psi / 600 mbar
Max rel. vacuum: -7.2 psi / -500 mbar



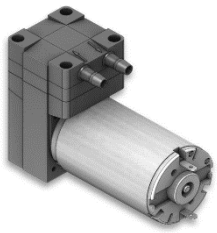
SP 500 EC-LC
Eccentric Diaphragm Pumps for Gases
Free flow rate: 1100 ml/min
Max pressure: 10.1 psi / 700 mbar
Max rel. vacuum: -7.9 psi / -550 mbar

SP 570 EC
Eccentric Diaphragm Pumps for Gases
Free flow rate: 2000 ml/min
Max pressure: 14.5 psi / 1000 mbar
Max rel. vacuum: -9.4 psi / -650 mbar

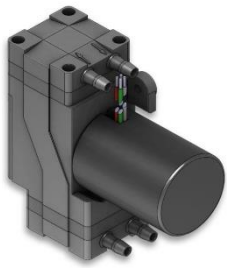


SP 600 EC
Eccentric Diaphragm Pumps for Gases
Free flow rate: 3000 ml/min
Max pressure: 18.8 psi / 1300 mbar
Max rel. vacuum: -7.9 psi / -550 mbar

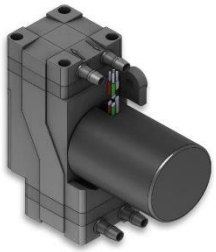
SP 620 EC-BL
Eccentric Diaphragm Pumps for Gases
Free flow rate: 3500 ml/min
Max pressure: 21.7 psi / 1500 mbar
Max rel. vacuum: -8.7 psi / -600 mbar



SP 620 EC-DV
Eccentric Diaphragm Pumps for Gases
Free flow rate: 4600 ml/min
Max pressure: 26.1 psi / 1800 mbar
Max rel. vacuum: -9.2 psi / -640 mbar

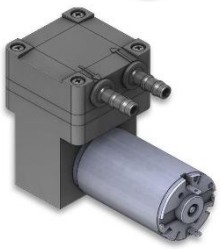


SP 622 EC-BL-DU-DV
Eccentric Diaphragm Pumps for Gases
Preferred for pressure applications
*Parallel:*
Free flow rate: 13000 ml/min
Max pressure: 26.1 psi / 1800 mbar
Max rel. vacuum: -9.5 psi / -660 mbar
*Serial:*
Free flow rate: 5800 ml/min
Max pressure: 43.5 psi / 3000 mbar

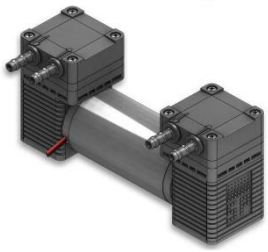


SP 622 EC-BL-DU-VD
Eccentric Diaphragm Pumps for Gases
Preferred for vacuum applications
*Parallel:*
Free flow rate: 12000 ml/min
Max rel. vacuum: -10.4 psi / -720 mbar
*Serial:*
Free flow rate: 8000 ml/min
Max rel. vacuum: -13.3 psi / -920 mbar

SP 622 EC-BL
Eccentric Diaphragm Pumps for Gases
Free flow rate: 5500 ml/min
Max pressure: 23.2 psi / 1600 mbar
Max rel. vacuum: -8.84 psi / -610 mbar



SP 680 EC
Eccentric Diaphragm Pumps for Gases
Free flow rate: 6200 ml/min
Max pressure: 21.7 psi / 1500 mbar
Max rel. vacuum: -8.9 psi / -620 mbar

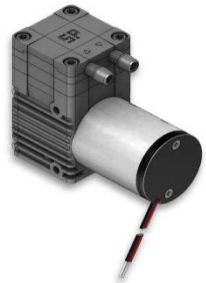


SP 725 EC-TH-DV
Eccentric Diaphragm Pumps for Gases
*Parallel:*
Free flow rate: 14800 ml/min
Max pressure: 26.1 psi / 1800 mbar
Max rel. vacuum: -10.4 psi / -720 mbar
*Serial:*
Free flow rate: 8000 ml/min
Max pressure: 44.9 psi / 3100 mbar
Max rel. vacuum: -13.7 psi / -950 mbar

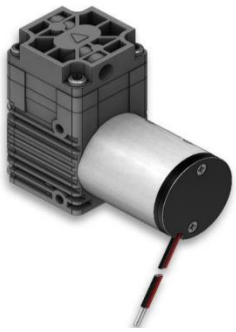
# Liquid Pumps

## Eccentric Diaphragm Style

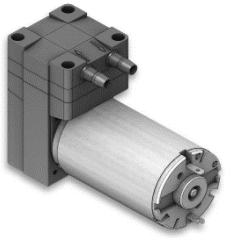
SP 270 EC-LC-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 100 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -4.35 psi / -300 mbar*
*Max suction height filled: -3.0 m H20*



SP 570 EC-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 260 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -4.35 psi / -300 mbar*
*Max suction height filled: -8.0 m H20*



SP 570 EC-LD
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 50 ml/min*
*Max pressure: 43.5 psi / 30.0 m H20*
*Max suction height dry (priming): -4.35 psi / -300 mbar*
*Max suction height filled: -8.0 m H20*

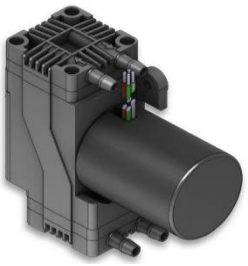


SP 600 EC-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 450 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -2.17 psi / -150 mbar*
*Max suction height filled: -2.3 m H20*

SP 620 EC-BL-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 680 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -8.7 psi / -600 mbar*
*Max suction height filled: -9.0 m H20*

SP 620 EC-DU-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 1100 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -8.7 psi / -600 mbar*
*Max suction height filled: -9.0 m H20*

SP 620 EC-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 710 ml/min*
*Max pressure: 21.7 psi / 15.0 m H20*
*Max suction height dry (priming): -8.7 psi / -600 mbar*
*Max suction height filled: -9.0 m H20*



SP 622 EC-BL-DU-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 1050 ml/min*
*Max pressure: 14.5 psi / 10.0 m H20*
*Max suction height dry (priming): -8.7 psi / -600 mbar*
*Max suction height filled: -9.0 m H20*

SP 622 EC-BL-L
*Eccentric Diaphragm Pumps for Liquids*
*Free flow rate: 700 ml/min*
*Max pressure: 21.7 psi / 15.0 m H20*
*Max suction height dry (priming): -8.7 psi / -600 mbar*
*Max suction height filled: -9.0 m H20*

# Inquiry Form

Schwarzer Precision
Member of the Burkert Companies

Thank you very much for your interest! Our micro-pumps with modular design will be exactly adapted to your application conditions.

Please complete the following form to allow us assisting you in an optimal manner. Of course, any information submitted will be treated with strict confidentiality.

**Please note: the fields marked with an asterisk (*) are mandatory fields!**

**1. Your contact information**

First & Last name*: _____

Company*: _____

Address: _____

City/State/Zip: _____

Country*: _____

Telephone*: _____

E-Mail: * _____

**2. Information about the Media in your application**

Media*: Gas/Air *or* Liquid *(circle one)*

Temperature of the Media*: _____C *or* F

Designation of the Media: _____

**3. Required pump performance for your application**

max. pressure: _____mbar *or* bar *or* psi *or* mH2O *(circle one)*

max. vacuum (rel.): _____mbar *or* mmHg *or* inHg *or* psi *(circle one)*

Volume (free flow): _____ml/min *or* l/min *or* l/h *(circle one)*

back-pressure at start: _____mbar *or* bar *or* psi *or* mH2O *(circle one)*

Operating point

· necessary volume: _____ml/min *or* l/min *or* l/h *(circle one)*

· at (pressure / vacuum): _____mbar *or* bar *or* psi *or* mH2O (circle one)

**4. Operating conditions of the pump**

Operating voltage*: _____ V dc or V ac/Hz *(circle one)*

Surrounding temperature :_____C *or* F

Action time : Continuous *or* Intermittent

· with periodical use: _____min. on and _____min. off

Required operating life (ON time): _____hours

Maximum size: _____mm length

_____mm width

_____mm height

Pump housing: Pump with housing required *or* OEM assembly version *(circle one)*

**5. Project information with your application**

Application description: _____

_____

_____

Quantity of samples / pilot production: 1 *or* 2-5 *or* 6-10 units *(circle one)*

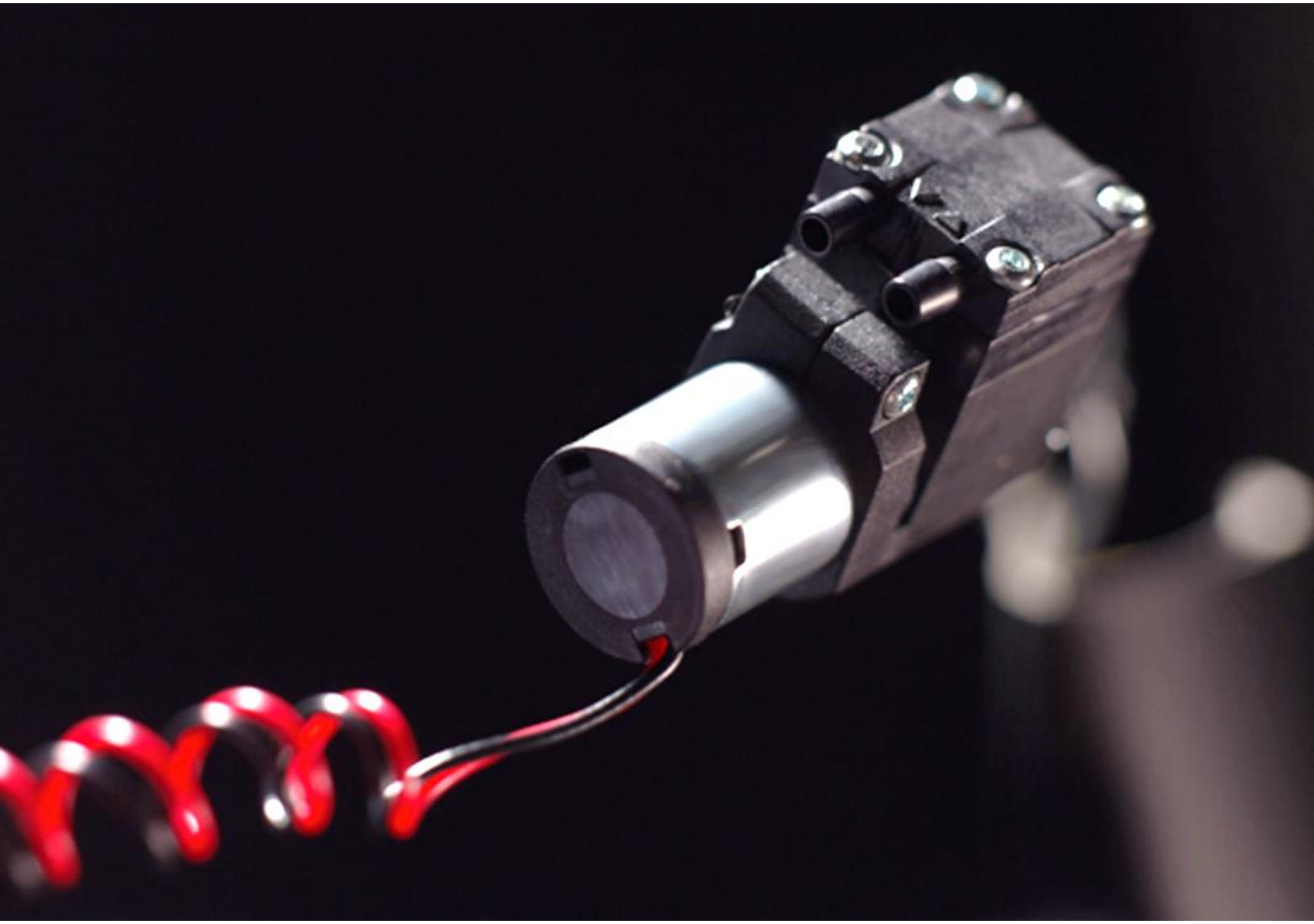
Expected quantity per year*: 1-4 *or* 5-9 *or* 10-24 *or* 25-99 *or* 100-249 *or* >250 *or* > 1k *or* >10k *or* unknown units *(circle one)*

Comments: _____

_____

_____

Please complete the information above and send a scanned copy to sales.us@burkert.com or fax to 949-223-3198

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FLUID CONTROL SYSTEMS

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