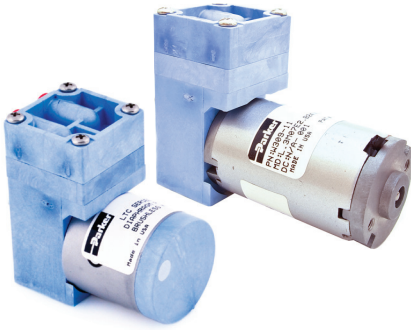
LTC Series

Miniature Diaphragm Pumps (liquid)

Up to 650 mLPM Free Flow



LTC Miniature Diaphragm Pumps are offered in both brush and brushless DC motor drives that can be configured for your specific performance requirements and handle a wide range of liquid media over a wide range of pressures. LTC's patented Fluid-Blok™ Advanced Sealing Technology provides redundant sealing capabilities to eliminate potential leaks. Monolithic diaphragm design enables maximum suction, priming, and continuous dry operation. Ideal for waste, transfer and bulk movement of liquids.

Typical Markets

- Clinical Diagnostics
- Analytical Chemistry
- Printing

Typical Applications

- Clinical Chemistry
- Wash and Waste Circuits
- Urinalysis
- Liquid Chromatography
- Large Format Printers
- Photo Processing Printers

Features

- LTC Series Pumps set the highest benchmark for service free life-expectancy with our advanced proprietary diaphragm elastomer.
- Port design allows for top or bottom face seal and is molded for 1/4-28 UNF threaded fittings.
- Overmolded diaphragm eliminates metal components in the wetted path resulting in a design that is inert to variety of media.
- Incorporating the lightweight EZ Mount Accessory facilitates simple system assembly while dampening vibration and reducing noise levels.
- Our 100% oil and grease-free pump and compressor design maintains the purity of your system and are commonly used in FDA-approved systems.
- RoHS Compliant

Product Specifications*

Physical Properties

Operating Environment[1]:
41 to 122°F (5 to 50°C)
Storage Environment:
-4 to 212°F (-20 to 100°C)
Media:
Most Gases and Liquids
Humidity:
0 – 95% Relative Humidity
Pump Assembly Rated Life[2]:
PMDC Iron Core Brush - 3,000 hrs
Brushless Slotted - 10,000 hrs
Weight:
7.0 oz. (198 g) PMDC Iron Core Brush
5.0 oz. (142 g) Brushless Slotted

Electrical

Motor Type (DC):
PMDC Iron Core Brush,
Brushless Slotted
Nominal Motor Voltages[3]:
12, or 24 VDC
Other voltages available upon request
Electrical Termination:
PMDC Iron Core Brush: 22 AWG Wire Leads, Length 10" (254 mm)
Brushless Slotted Motor: 22 AWG Wire Leads, Length 20" (508 mm)
Current Range[4]:
240 - 880 mA

Pneumatic

Head Configuration:
Single
Maximum Unrestricted Flow:
650 mLPM
Pressure Range (Liquid):
0 - 30 psig (0 - 193 kPa)
Vacuum Range (Air):
0 - 14.5 in Hg (0 - 368 mm Hg)
Filtration:
40 microns - recommended
Efficiency at Free Flow[5]:
PMDC Iron Core: 0.1 LPM/Watt (*PN: W311-11*)
Brushless Slotted: 0.1 LPM/Watt (*PN: W312-11*)

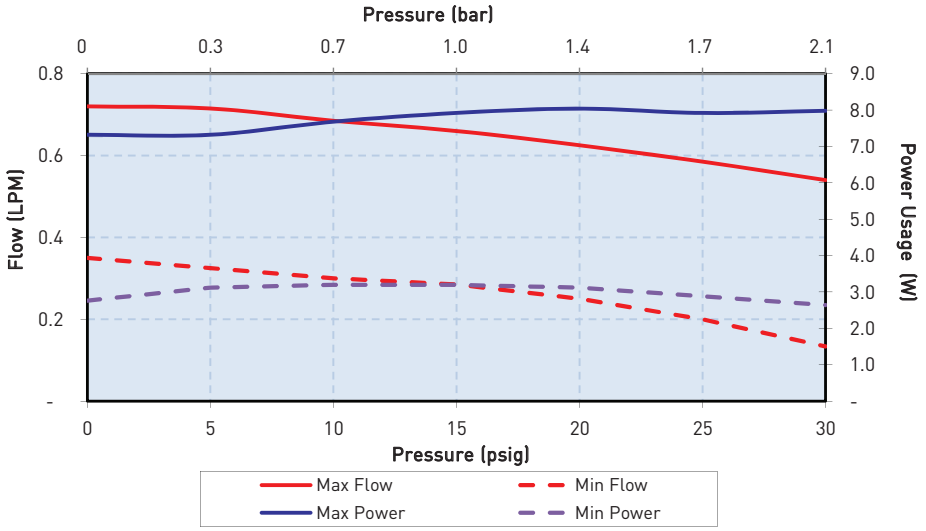
Wetted Materials

Diaphragm:	**Pump Head:**
EPDM, AEPDM, FKM, Teflon/EPDM Laminate	Vectra (Liquid Crystal Polymer)
Valves:	
EPDM, AEPDM, FKM, FFKM	

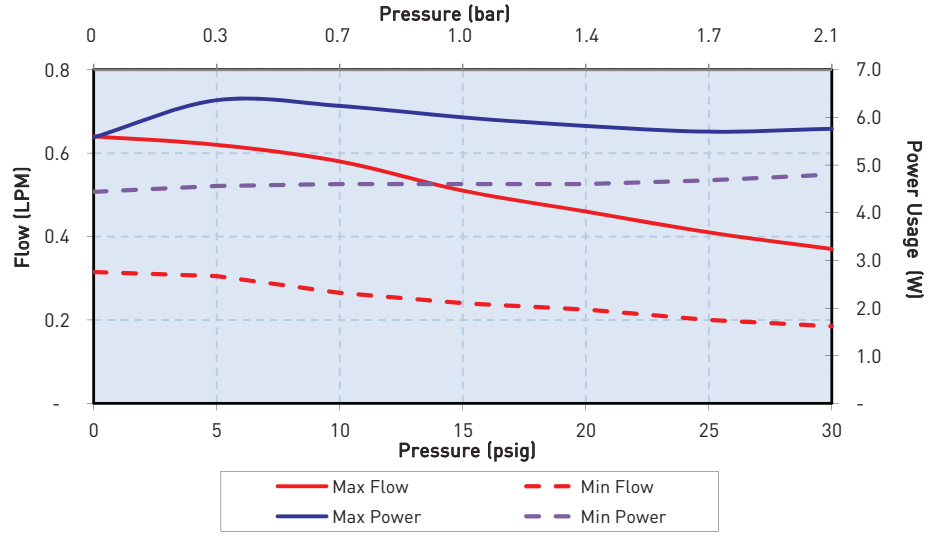
* See Appendix A for details.

Performance Specifications

LTC - PMDC Iron Core Brush Motor



LTC - Brushless Slotted Motor



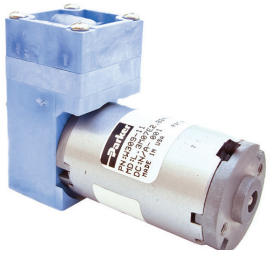
The above graph represents an example of performance for the pumps series handling water at 800 feet (244m) above sea level at 75°F (24°C). Performance will vary depending on barometric pressure and media temperature. Curves are representative of standard pump configurations. Pump configurations could be customized for higher or lower flows, depending on specific customer requirements.

Please contact Parker Precision Fluidics Applications Engineering for other considerations.

LTC Series

Miniature Diaphragm Pumps (liquid)

Sizing and Selection

LTC Series	PMDC Iron Core Brush	Brushless Slotted Motor
		
	PMDC Iron Core Brush	**BLDC Slotted Motor**
Efficiency[1]	Good	Better
Life[2]	Good - 3,000 hrs	Best - 10,000 hrs
Cost	Best	Better

Mounting Guidelines:

- Bracket options available for mounting consideration (*See EZ Mount catalog pages).*
- Hole in the center of the bottom of housing is for manufacturing only–not to be used for mounting.
- Mounting holes are drilled for #6-20 self-tapping screws with 1/4" (6 mm) thread engagement torque to 4 in-lbs (0.45 N-m).

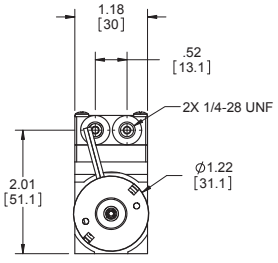
Port Connections:

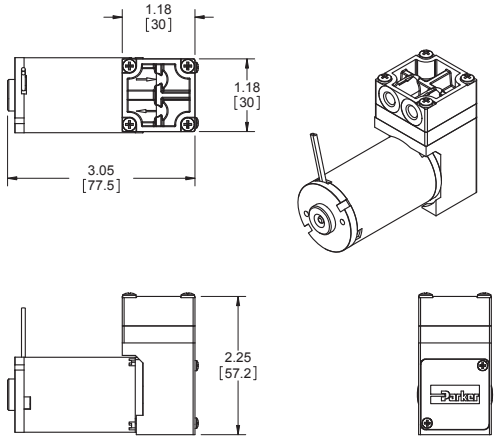
- Flow direction is marked on the pump head with arrows.
- Ports are sized for 1/4"-28 UNF male fittings.

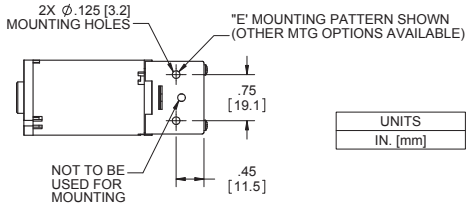
Mechanical Integration

Dimensions

PMDC Iron Core Brush



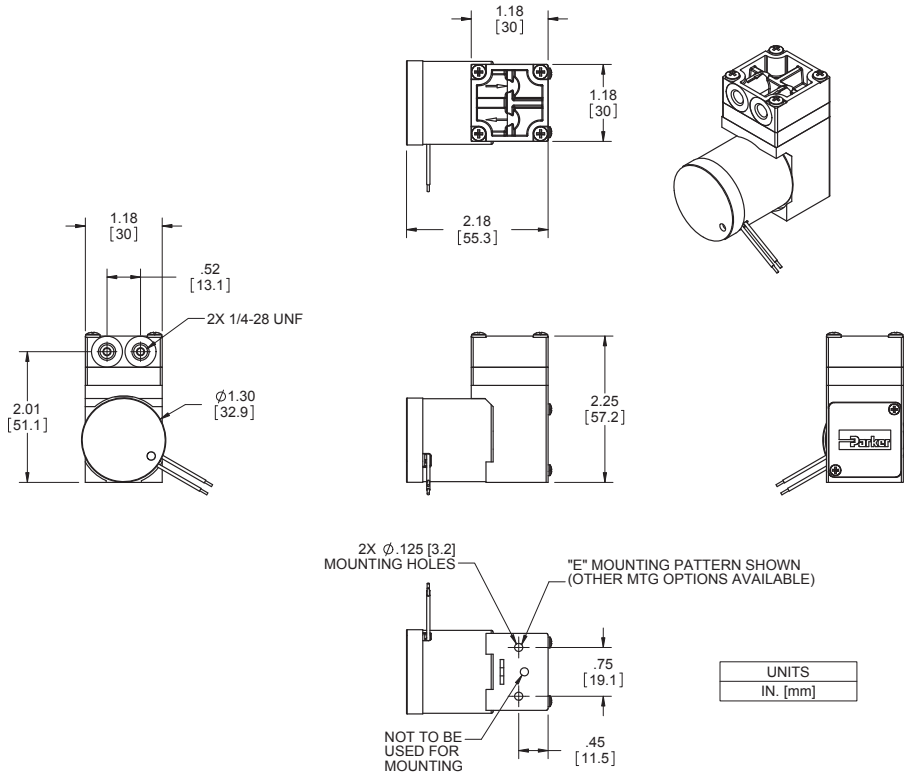




Mechanical Integration

Dimensions

Brushless Slotted Motor



Electrical Integration and Motor Control

PMDC Iron Core Brush Motor

2 Wire	Red (+), Black (-)
Wire specification	22AWG, Insulation OD 0.051 in (1.30 mm) 10” (254 mm) Wire Leads

Brushless Slotted Motor Control Options

2 Wire	Red (+), Black (-)
Wire specification	22AWG, Insulation OD 0.051 in (1.30 mm) 20” (508 mm) Wire Leads

Other Motor Control Considerations

The drive electronics for the BLDC motors are integrated into the motor itself, all that is needed is a power supply with the sufficient voltage and current.

Key Things to Remember

The pump is not a pressure holding device. An external check valve is recommended, if there is a pressure holding requirement.

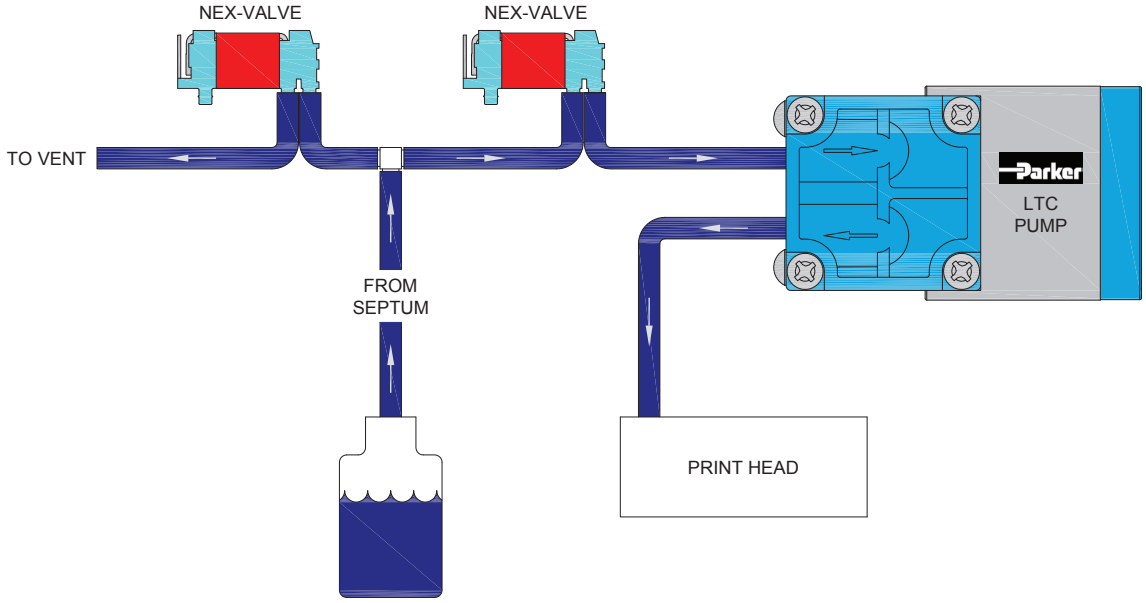
Pump orientation does not affect performance or life.

LTC Series

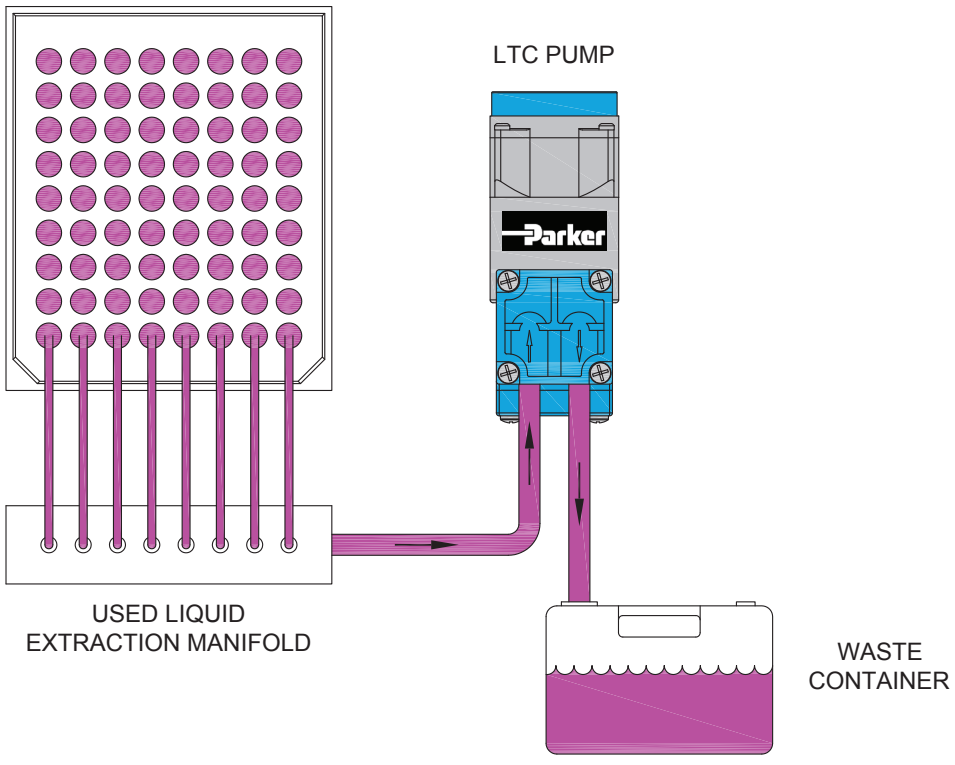
Miniature Diaphragm Pumps (liquid)

Typical Flow Diagram

LTC pump used for liquid transfer in a printing application

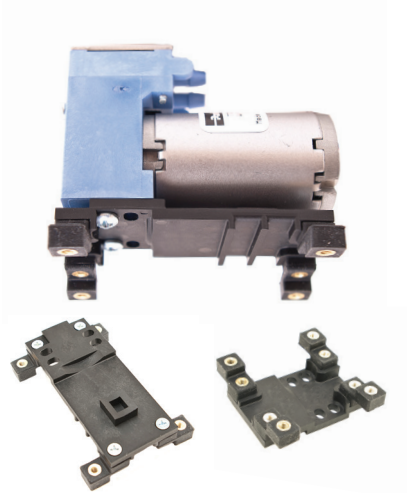


LTC Waste Pump



Accessory Information

EZ Mount available



EZ Mount provides ease of installation and effective control of vibration transfer. EZ Mount was designed to mount easily to the Precision Fluidic LTC Family of diaphragm pumps.

Features

- Isolation feet on the EZ mount can be rotated in any one of three ninety-degree planes and is designed for top-down or bottom-up mounting providing simple installation.
- EZ Mount was designed to minimize weight added to the pump assembly. Approximate weights are: Style A - 0.63 oz (18 g), Style B - 0.71 oz (20 g).
- Effectively absorbs vibration to minimize most vibration-induced noise and vibration transfer into an instrument.
- Designed to keep height and size to a minimum.
- Engineered for Parker LTC pumps to ease integration into your system.

Physical Properties

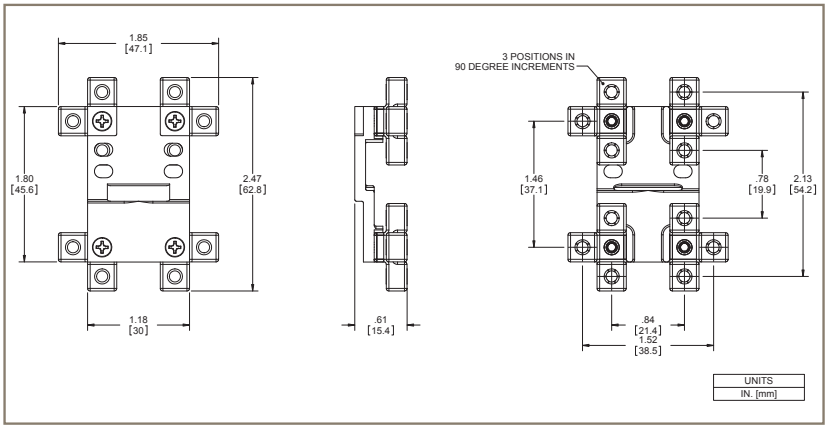
Operating Environment:
41 - 158°F (5 - 70°C)
Humidity:
0 - 95% Relative Humidity
Base Plate:
Noryl GTX830
Feet:
Silicone
Feet Insert:
Brass
Hardware:
Zinc-Plated Steel

EZ Mount kits include all necessary hardware and detailed instructions.

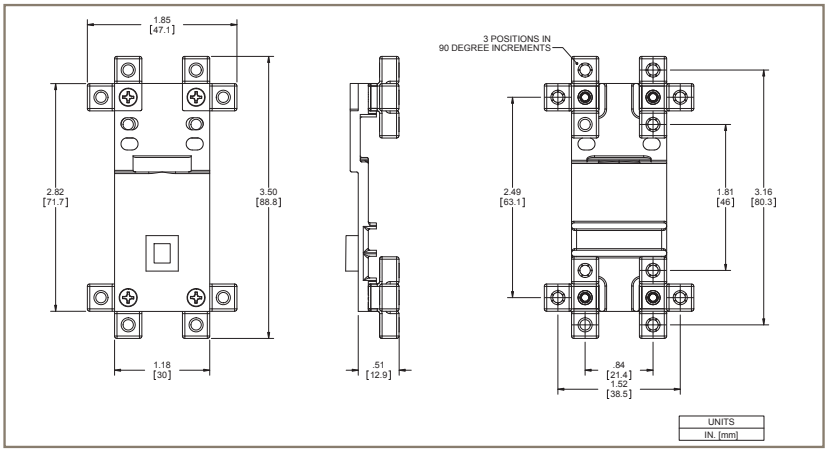
Isolation Feet are available in either threaded or thru-hole clearance for standard #4-40 (M3.5 for clearance hole only) or #6-32 hardware and can be mounted in any of three ninety-degree planes.

Dimensions

Style A - Brushless Slotted Motor



Style B - PMDC Iron Core Brush Motor



LTC Series Miniature Diaphragm Pumps (liquid)

Ordering Information

LTC Liquid Single Head Pumps

Part No.	Free Flow	Liquid Flow (Water) mLPM @ Load						Max				PCD*	Wetted Materials
	0 psig 0 mbar	5 psig 345 mbar	10 psig 689 mbar	15 psig 1034 mbar	20 psig 1379 mbar	25 psig 1724 mbar	30 psig 2068 mbar	Vac in Hg	Countinuous psig [Liquid]	Motor Type	VDC	mA	Diaphragm, Valves, Gasket
W309-11	**720**	715	685	660	625	585	540	14.5	30.0	Brush PMDC	24	335	EPDM, AEPDM, EPDM
W311-11	**670**	650	600	550	505	450	390	14.5	30.0	Brush PMDC	12	530	EPDM, AEPDM, EPDM
W312-11	**640**	630	570	510	455	415	375	14.5	30.0	Brushless Slotted	24	305	EPDM, AEPDM, EPDM
W313-11	**640**	620	580	510	460	410	370	14.5	30.0	Brushless Slotted	12	530	EPDM, AEPDM, EPDM

Note: The Ordering Information Section includes a few selected part numbers for the product line. Other performances and configurations are available. Please contact your Sales Representative or an Application Engineer to discuss your application needs.

*PCD: Peak Current Draw

EZ Mount for LTC Single Head Pump with PMDC Iron Core Brush Motor

Part Number	Style	Description
00329-10-A45S	B	#4-40 Threaded
00329-10-B45S	B	#4 / M3.5 Clearance
00329-10-D45S	B	#6-32 Threaded
00329-10-C45S	B	#6-32 Clearance

EZ Mount for LTC Single Head Pump with Brushless Slotted Motor

Part Number	Style	Description
00328-10-A45S	A	#4-40 Threaded
00328-10-B45S	A	#4 / M3.5 Clearance
00328-10-D45S	A	#6-32 Threaded
00328-10-C45S	A	#6-32 Clearance

Please click on the Order On-line button below (or go to www.parker.com/precisionfluidics/ltc) to configure your LTC Miniature Diaphragm Pump.

Serviceable – PPF products are designed for use through the rated life and Parker does not sell replacement parts, nor is it recommended to service these in the field

Note: In addition to Parker's innovative and flexible pump designs, we offer applications engineering expertise to our customers in order to configure and recommend the optimal pump for the application. Contact Parker Applications Engineering to discuss and configure alternate pump configurations to meet your specific application requirements. Providing information on the following requirements will assist us in developing an optimal solution for your application:

- Noise
- Operating Pressure / Vacuum
- Power Consumption
- Life Requirement
- Description of pump function in the application
- Size
- Motor Control
- Media
- Voltage

Appendix A

All performance data is typical based on standard conditions: 70°F and 14.7 psia (21°C and 1 bar).

1. Duty Dependent. For operation above 122°F (50°C) consult factory
2. Life rating can vary depending on application and operating conditions.
3. Custom motor options available. Custom motors may require a significant application potential. The standard motors can be configured with a special winding to meet a particular operation point at a specified voltage
4. Current range is dependent on motor type, voltage, pressure/vacuum and flow requirement. Lower levels possible depending on application.
5. Pump efficiency is a measure of the flow rate generated per unit of power consumed. Efficiency may change dependent on application and operating condition at free flow.

Parker Hannifin Corporation
Precision Fluidics Division
26 Clinton Dr., Unit 103
Hollis, NH 03049
phone: +1 603 595 1500
email: ppfinfo@parker.com
www.parker.com/precisionfluidics