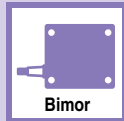


# LIQUID PIEZOELECTRIC PUMP

BPS type  
BPH type  
BPF type  
P83-86



# LIQUID MINIATURE DIAPHRAGM PUMP

DPE-100  
P88

DPE-400  
P89

DPE-400BL  
P90

DPE-800  
P91

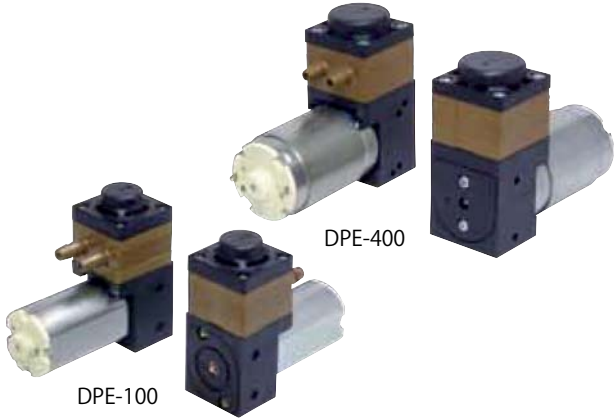


# DC LIQUID PUMP



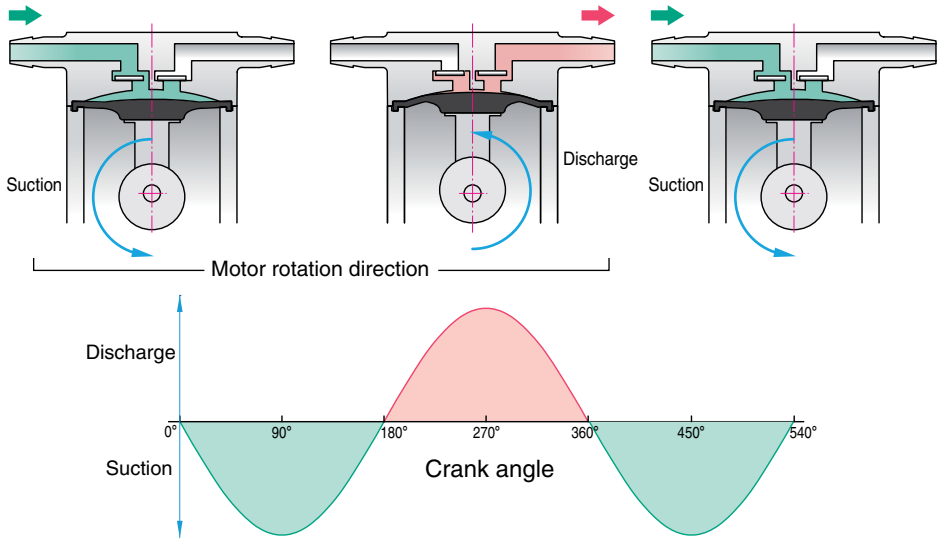
## DIAPHRAGM PUMP

- **Built-in Pulse Absorption Chamber**
- **Many build material options for different liquids**
- **Self-priming type with air suction acceptable**



### Typical Conventional Pump without Pulse Absorption

As liquid is transported through the suction and discharge passages of the pump and liquid circuit, high pulsations can be created which can cause cavitation, vibration in tubing, fittings, peak pulsing noises, and added stress and wear to pump mechanisms. These negative results are often increased through the use of small pumps having relatively high rotational speeds.

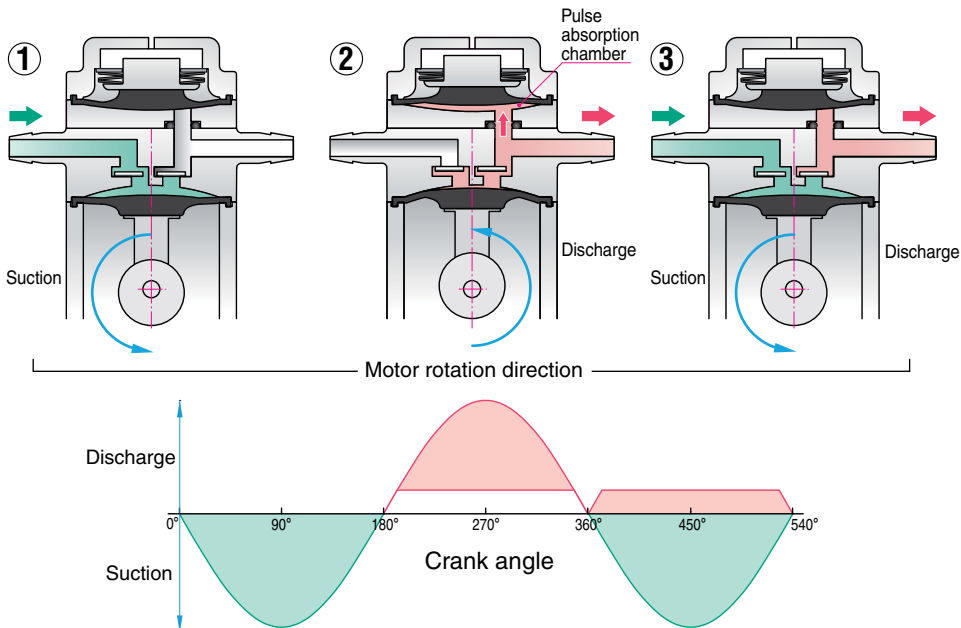


### Advanced design DPE Pump with Pulse Absorption

Provides pulse attenuation which helps to create steady state flow, reduced noise and vibration throughout the fluid circuit, and enhances life of the pump and other circuit components. It's designed in... No need for additional installation cost or space with pulsation dampers.

- ① Suction
- ② Discharge. Partial fluid delivery to pulse absorption chamber, not directly forced to outlet port.
- ③ Cyclical suction drawn into pump is synchronized with the discharge.

Pulses are attenuated through the process of ② and ③.



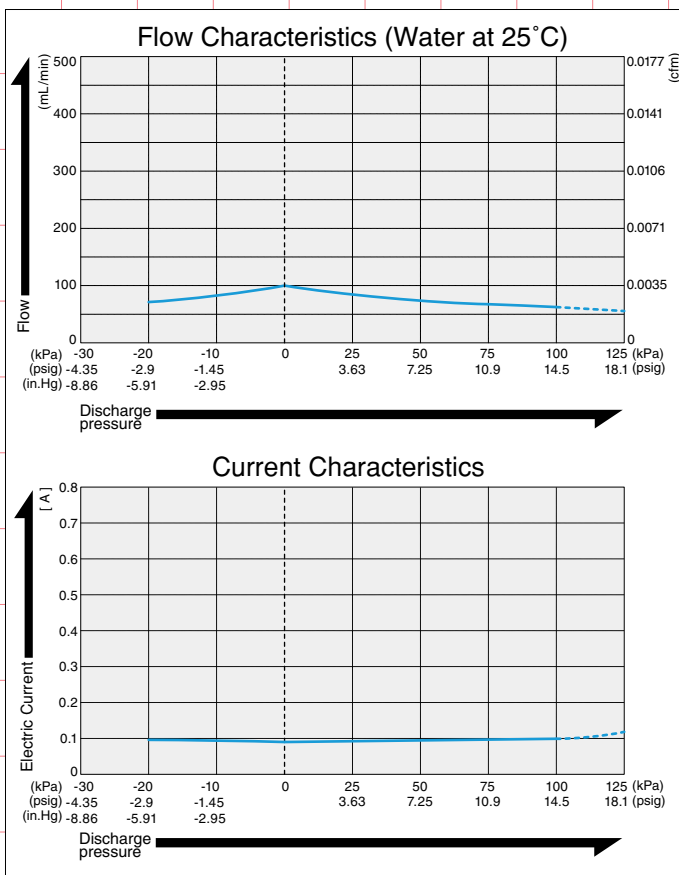
# DC LIQUID PUMP

## DPE-100

### DIAPHRAGM PUMP



#### Flow & Electric Current



#### Specifications

	(SI)	(EURO)	(U.S.A.)
Rated Voltage	24 V DC		
Flow Rate ※1	100 mL/min		0.0035 cfm
Working Pressure Range	0~100 kPa	0~1 bar	0~14.5 psig
Maximum Pressure ※2	300 kPa	3 bar	43.5 psig
Maximum Current	100 mA		
Rated Operating Time	Continuous		
Life Expectancy (MTTF)	500 hours		
Self-priming Pressure ※1	20 kPa		
Inlet & Outlet	4.7 mm O.D. straight nipple		
Insulation Classification	E class equivalent		
Mounting Dimensions	9.5 mm(L) x 17 mm(W)		3/8" (L) x 43/64" (W)
Gross Weight	67 g		0.148 Lbs.
Motor	DC Brush Motor		

※1: When the check valve is hardened due to low liquid temperature, self-priming performance and flow rate will go down.  
 ※2: Restarting pumps with flow passage closed is impossible.  
 Please read the page of "How to Use This Catalog" first for correct use of compressors and pumps.

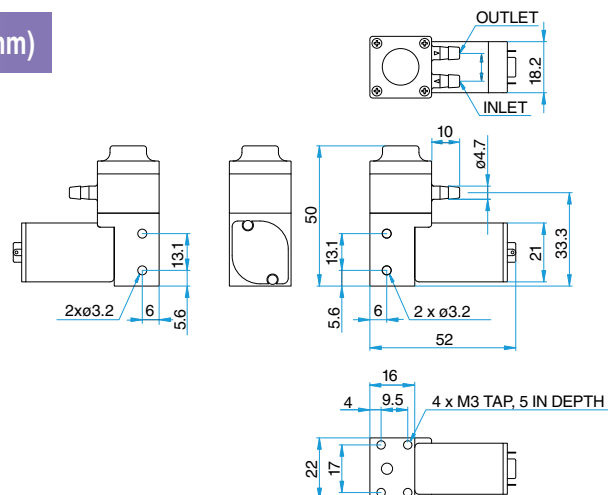
#### Build materials and applicable fluids

Model	Cylinder Head	Head Cover	Diaphragm	Valve	O-ring	Applicable fluids
DPE-100-2E	PA Polyamide(Nylon)	PTFE Polytetrafluoroethylene	PTFE Polytetrafluoroethylene	EPDM Ethylene-propylene rubber	FFKM Perfluoroelastomer	Sodium hydroxide, Citric acid Ammonia water, Caustic potash
DPE-100-2G				FKM Fuluro rubber		Ethanol, Ethylene glycol Sodium carbonate, mineral oil
DPE-100-7G	PPS Polyphenylene sulfide	PTFE Polytetrafluoroethylene	PTFE Polytetrafluoroethylene	FFKM Perfluoroelastomer	FFKM Perfluoroelastomer	Xylene, Carbon tetrachloride Trichloroethylene, Silicon oils
DPE-100-7P						FFKM Perfluoroelastomer

#### Applications

- Liquid analytical instruments e.g. medical, food, water treatment & environmental.
- Liquid transport within filtration, sampling, sterilizers and washers.
- Ink transport within industrial ink-jet printers.

#### Sketch Drawing and Mounting Dimensions Diagram (mm)



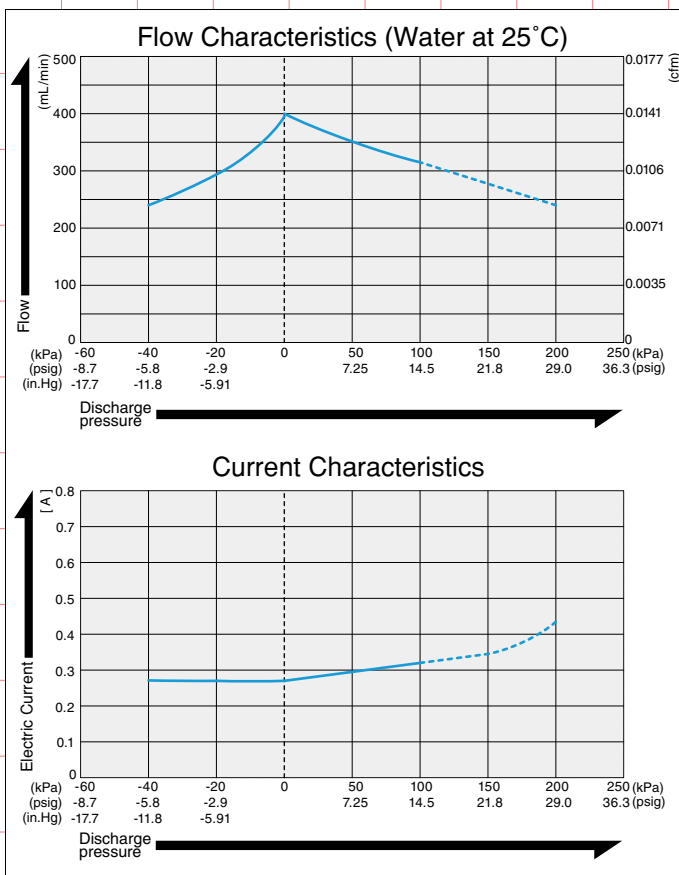
# DC LIQUID PUMP

## DIAPHRAGM PUMP



# DPE-400

### Flow & Electric Current



### Specifications

	(SI)	(EURO)	(U.S.A.)
Rated Voltage	24 V DC		
Flow Rate ※1	400 mL/min		0.0141 cfm
Working Pressure Range	0~100 kPa	0~1 bar	0~14.5 psig
Maximum Pressure ※2	300 kPa	3 bar	43.5 psig
Maximum Current	345 mA		
Rated Operating Time	Continuous		
Life Expectancy (MTTF)	500 hours		
Self-priming Pressure ※1	40 kPa		
Inlet & Outlet	5.4 mm O.D. straight nipple		
Insulation Classification	F class equivalent		
Mounting Dimensions	19 mm(L) x 26 mm(W)		3/4" (L) x 1-1/32" (W)
Gross Weight	187 g		0.412 Lbs.
Motor	DC Brush Motor		

※1: When the check valve is hardened due to low liquid temperature, self-priming performance and flow rate will go down.  
 ※2: Restarting pumps with flow passage closed is impossible.  
 Please read the page of "How to Use This Catalog" first for correct use of compressors and pumps.

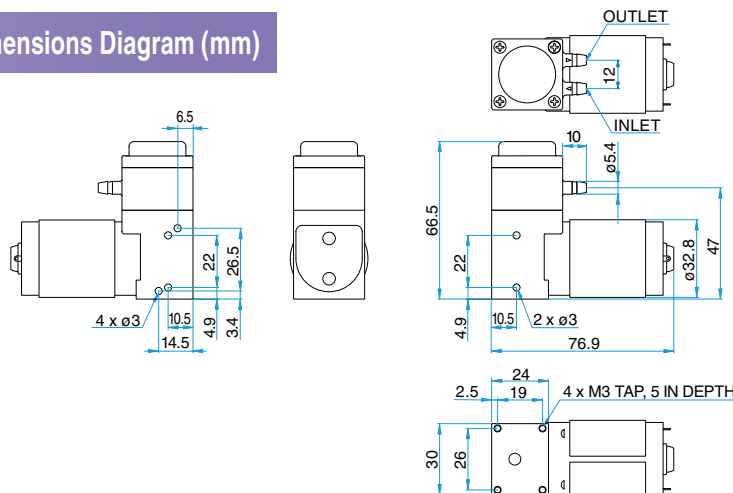
### Build materials and applicable fluids

Model	Cylinder Head	Head Cover	Diaphragm	Valve	O-ring	Applicable fluids
DPE-400-2E	PA Polyamide(Nylon)	PTFE Polytetrafluoroethylene	PTFE	EPDM Ethylene-propylene rubber	FKM Fuluro rubber	Sodium hydroxide, Citric acid Ammonia water, Caustic potash
DPE-400-2G						Ethanol, Ethylene glycol Sodium carbonate, mineral oil
DPE-400-7G	PPS Polyphenylene sulfide	PTFE	PTFE	FKM Fuluro rubber	FFKM Perfluoroelastomer	Xylene, Carbon tetrachloride Trichloroethylene, Silicon oils
DPE-400-7P						Chloroform, Benzene Glacial acetic acid, Methyl ethyl ketone

### Applications

- Liquid analytical instruments e.g. medical, food, water treatment & environmental.
- Liquid transport within filtration, sampling, sterilizers and washers.
- Ink transport within industrial ink-jet printers.

### Sketch Drawing and Mounting Dimensions Diagram (mm)



# DC LIQUID PUMP

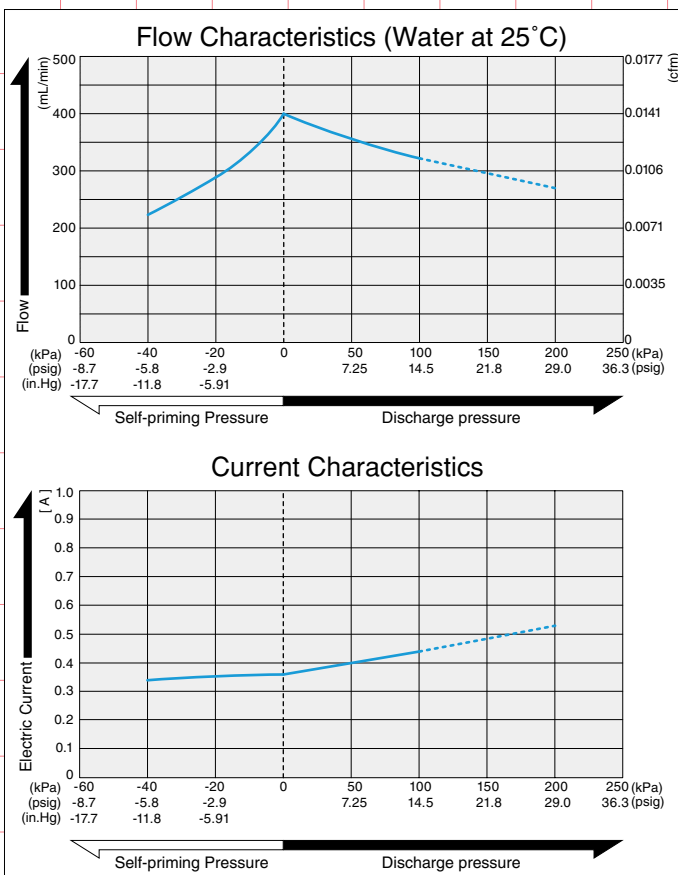
## DIAPHRAGM PUMP

# DPE-400BL



### Flow & Electric Current

### Specifications



	(SI)	(EURO)	(U.S.A.)
Rated Voltage	24 V DC		
Flow Rate <sup>※1</sup>	400 mL/min		0.0141 cfm
Working Pressure Range	0~100 kPa	0~1 bar	0~14.5 psig
Maximum Pressure <sup>※2</sup>	300 kPa	3 bar	43.5 psig
Maximum Current (Reference)	450 mA		
Rated Operating Time	Continuous		
Life Expectancy (MTTF) <sup>※3</sup>	5,000 hours		
Self-priming Pressure <sup>※1</sup>	40 kPa		
Inlet & Outlet	5.4 mm O.D. straight nipple		
Insulation Classification	A class equivalent		
Mounting Dimensions	41 mm(W)	1-19/32"(W)	
Gross Weight	230 g		0.507 Lbs.
Motor	DC Brushless Motor		

<sup>※1</sup>: At low temperature, the performance may reduce.  
<sup>※2</sup>: Pumps may not re-start against high backpressure.  
<sup>※3</sup>: Life expectancy is based on the following conditions:  
 Rated voltage: 24 V DC  
 Atmospheric pressure: 0 kPa  
 Fluid: water at 25°C  
 Please read the page of "How to Use This Catalog" first for correct use of compressors and pumps.

### Build materials and applicable fluids

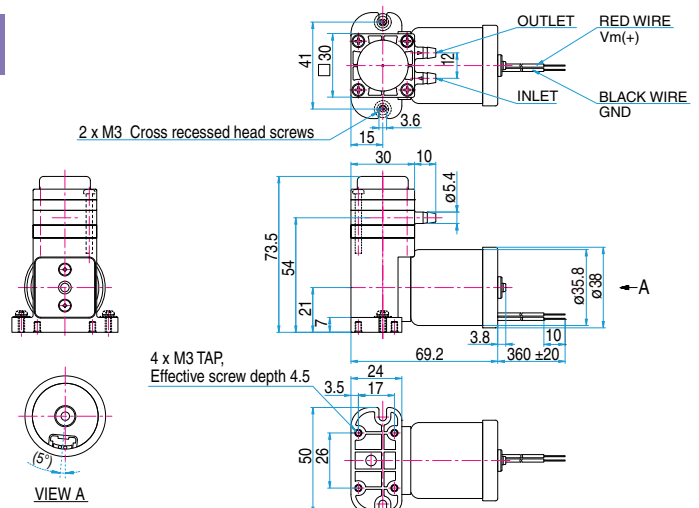
Model	Cylinder Head	Head Cover	Diaphragm	Valve	O-ring	Applicable fluids
DPE-400BL-2E	PA Polyamide(Nylon)		PTFE Polytetrafluoroethylene	EPDM Ethylene-propylene rubber		Sodium hydroxide, Citric acid Ammonia water, Caustic potash
DPE-400BL-2G				FKM Fluoro rubber		Ethanol, Ethylene glycol Sodium carbonate, mineral oil
DPE-400BL-7G	PPS Polyphenylene sulfide		PTFE Polytetrafluoroethylene	FFKM Perfluoroelastomer		Xylene, Carbon tetrachloride Trichloroethylene, Silicon oils
DPE-400BL-7P						Chloroform, Benzene Glacial acetic acid, Methyl ethyl ketone

The chemicals shown are for reference only. Please confirm suitability of materials in each application.

### Applications

- Liquid analytical instruments e.g. medical, food, water treatment & environmental.
- Liquid transport within filtration, sampling, sterilizers and washers.
- Ink transport within industrial ink-jet printers.

### Sketch Drawing and Mounting Dimensions Diagram (mm)



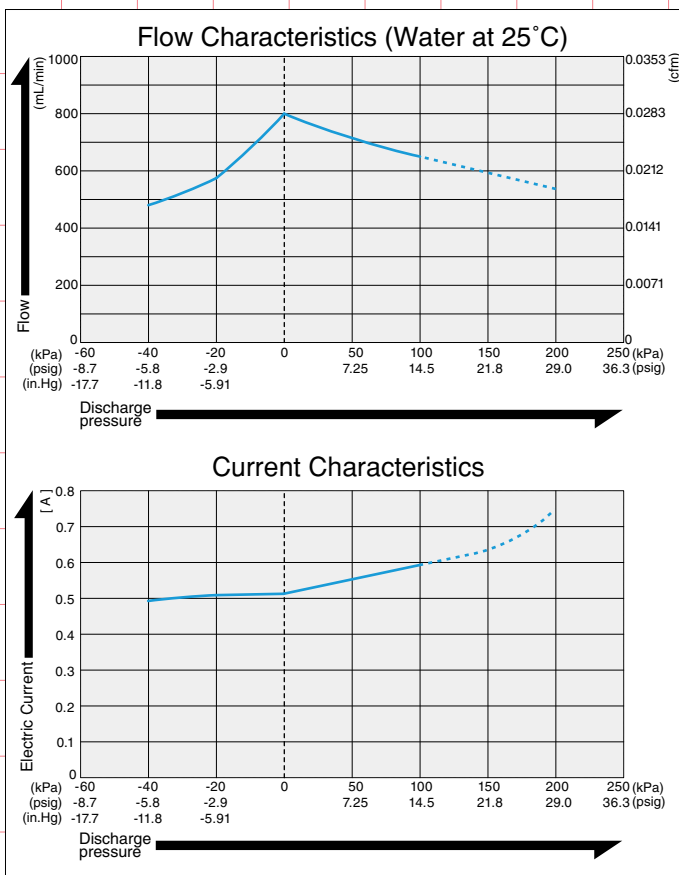
# DC LIQUID PUMP

# DPE-800

## DIAPHRAGM PUMP



### Flow & Electric Current



### Specifications

	(SI)	(EURO)	(U.S.A.)
Rated Voltage	24 V DC		
Flow Rate ※1, ※3	800 mL/min		0.0282 cfm
Working Pressure Range	0~100 kPa	0~1 bar	0~14.5 psig
Maximum Pressure ※2	300 kPa	3 bar	43.5 psig
Maximum Current	600 mA		
Rated Operating Time	Continuous		
Life Expectancy (MTTF)	600 hours		
Self-priming Pressure ※1	40 kPa		
Inlet & Outlet	5.4 mm O.D. straight nipple		
Insulation Classification	E class equivalent		
Mounting Dimensions	74.5 mm(L) x 41 mm(W)	2 <sup>-15/16</sup> "(L) x 1 <sup>-19/32</sup> "(W)	
Gross Weight	350 g		0.771 Lbs.
Motor	DC Brush Motor		

※1: When the check valve is hardened due to low liquid temperature, self-priming performance and flow rate will go down.  
 ※2: Restarting pumps with flow passage closed is impossible.  
 ※3: Tubing in series between the two pumping heads should not be made. This may cause extreme pressure hike that will result in broken parts, liquid splash out or possible ignition.  
 Please read the page of "How to Use This Catalog" first for correct use of compressors and pumps.

### Build materials and applicable fluids

Model	Cylinder Head	Head Cover	Diaphragm	Valve	O-ring	Applicable fluids
DPE-800-2E	PA Polyamide(Nylon)	PTFE Polytetrafluoroethylene	PTFE Polytetrafluoroethylene	EPDM Ethylene-propylene rubber	FKM Fuluro rubber	Sodium hydroxide, Citric acid Ammonia water, Caustic potash
DPE-800-2G						Ethanol, Ethylene glycol Sodium carbonate, mineral oil
DPE-800-7G	PPS Polyphenylene sulfide	PTFE Polytetrafluoroethylene	PTFE Polytetrafluoroethylene	FKM Fuluro rubber	FFKM Perfluoroelastomer	Xylene, Carbon tetrachloride Trichloroethylene, Silicon oils
DPE-800-7P						Chloroform, Benzene Glacial acetic acid, Methyl ethyl ketone

### Applications

- Liquid analytical instruments e.g. medical, food, water treatment & environmental.
- Liquid transport within filtration, sampling, sterilizers and washers.
- Ink transport within industrial ink-jet printers.

### Sketch Drawing and Mounting Dimensions Diagram (mm)

