# Пневматическая помпа с автоматическим управлением

# PA3000/5000

1~45 л/мин

Встроенная автоматическая система управления, полностью пневматическая (помпа работает при подаче управляющего сжатого воздуха)

Увеличенный срок службы благодаря новому материалу диафрагмы и ее малой деформации (за счет увеличения диаметра)

Высокая износостойкость (нет скользящих поверхностей в рабочей полости)

Нет необходимости в предварительной заливке рабочей полости жидкостью

Многообразие рабочих жидкостей, различающихся как по химическим свойствам, так и по вязкости

**PA3000**

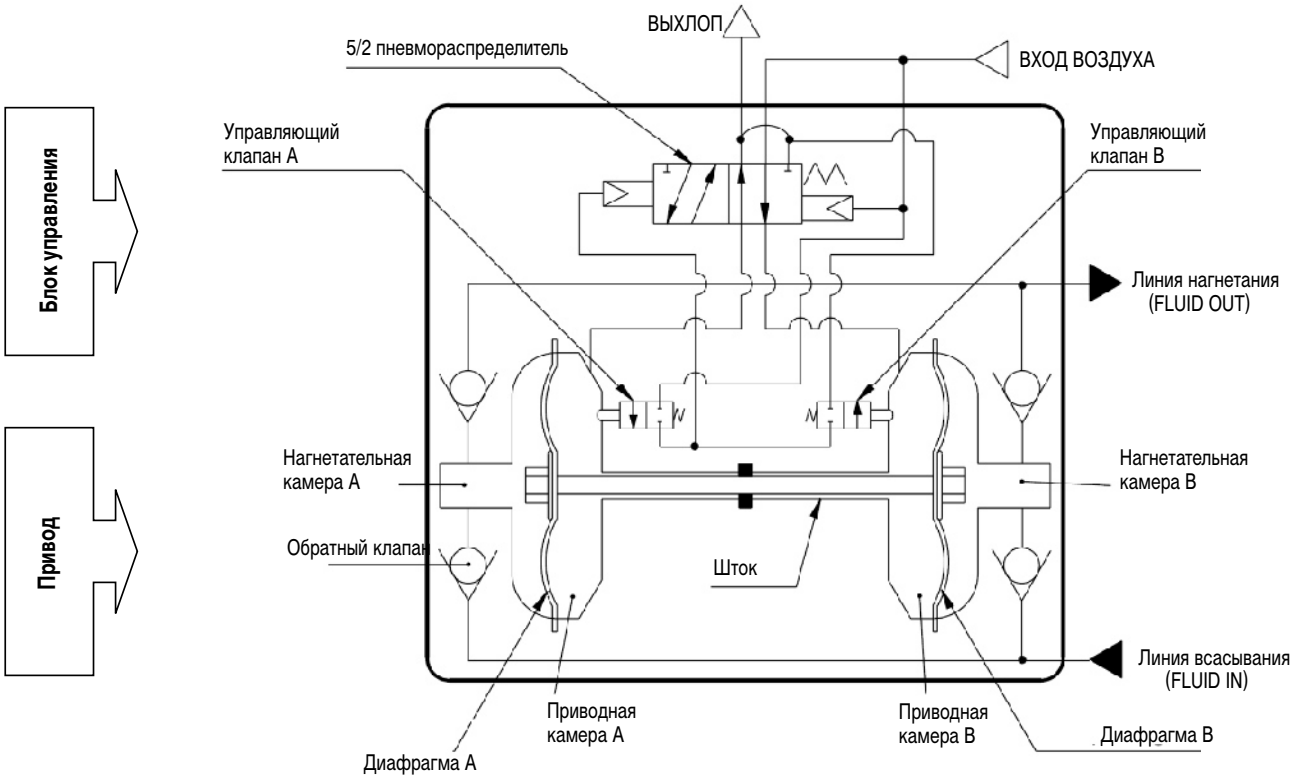

**PA5000**


**Технические характеристики**

| Модель | | PA310 | PA320 | PA510 | PA520 |
|---|---|---|---|---|---|
| Присоединение | Жидкость | 3/8 | | 1/2, 3/4 | |
| | Управл. воздух | 1/4 | | | |
| Материалы | Детали, соприкасающиеся с жидкостью | ADC12 | SCS14 | ADC12 | SCS14 |
| | Диафрагма | PTFE, NBR | | | |
| | Обратный клапан | PTFE, PFA | | | |
| Производительность (л/мин) | | 1 ~ 20 | | 5 ~ 45 | |
| Среднее давление нагнетания (МПа) | | 0 ~ 0.6 | | | |
| Расход воздуха (норм.л/мин) | | < 200 | | < 300 | |
| Высота подъема всасываемой жидкости (м) | Сухая полость | 1 | | 2 | |
| | Залитая полость | до 6 | | | |
| Температура перекачиваемой среды (°C) | | 0 ~ 60 (замерзание не допускается) | | | |
| Окружающая температура (°C) | | 0 ~ 60 | | | |
| Давление управляющего воздуха (МПа) | | 0.2 ~ 0.7 | | | |
| Испытательное давление (МПа) | | 1.05 | | | |
| Рабочее положение изделия | | Горизонтальное (посадочной поверхностью вниз) | | | |
| Вес (кг) | | 1.7 | 2.2 | 3.5 | 6.5 |

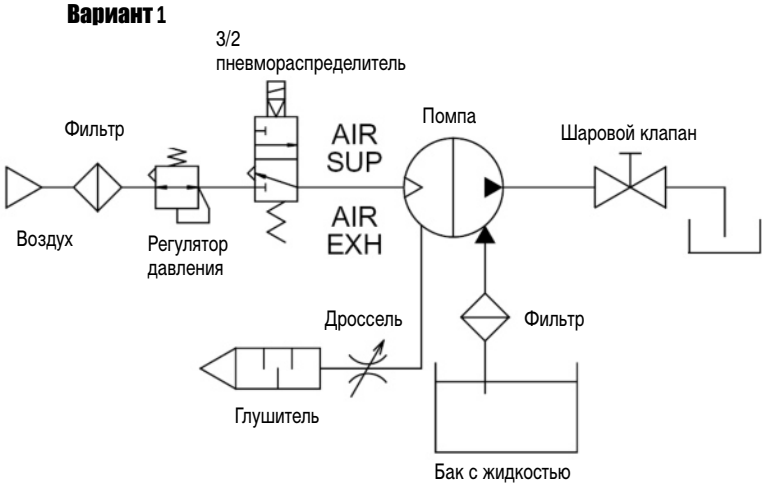
Характеристики приведены для случая перекачки воды при температуре 20°C.

## Конструкция

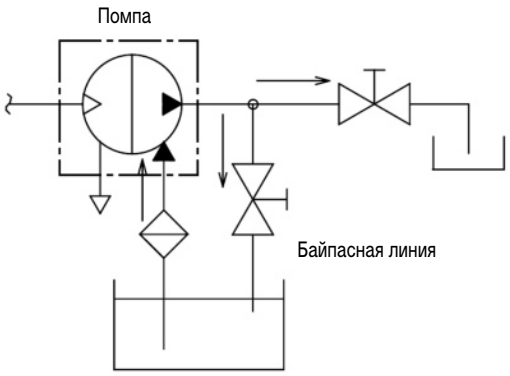


## Схемы подключения

**Вариант 1**



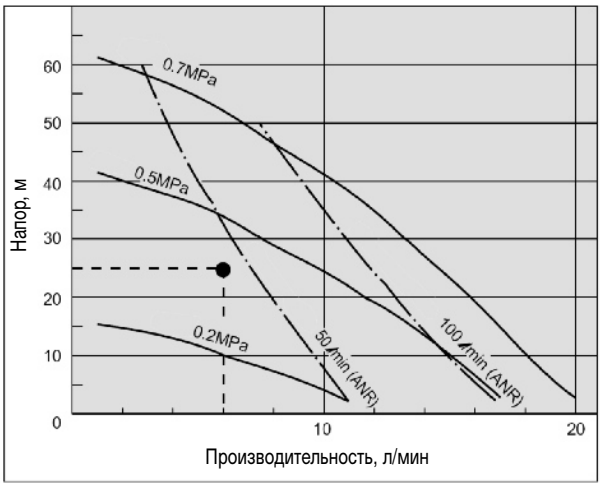

**Вариант 2**



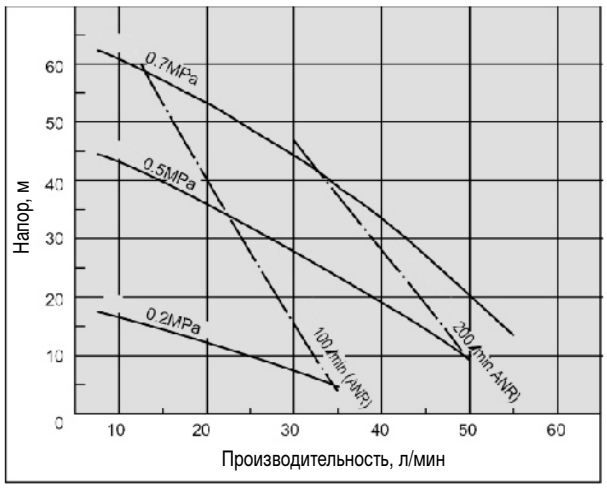

## Характеристики

### Связь между производительностью помпы и напором при различных давлениях воздуха

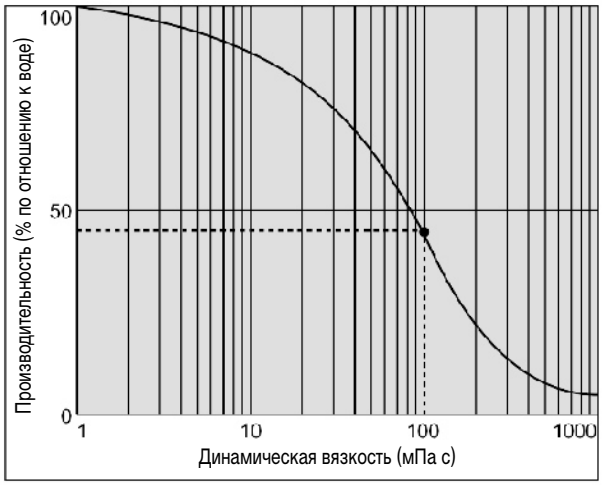
**PA3000**




**PA5000**




### Влияние вязкости жидкости на производительность помпы




За 100% принята производительность помпы при перекачке воды (динамическая вязкость воды при 20°C составляет 1 миллипаскаль×с)

## Номер для заказа

PA 3 1 1 0 - F 03

**Материал диафрагмы**

| | |
|---|---|
| 1 | PTFE |
| 2 | NBR |

**Материал деталей корпуса, соприкасающихся с жидкостью**

| | |
|---|---|
| 1 | ADC12(алюминий) |
| 2 | SCS14 (нерж.сталь) |

**Типоразмер**

| | |
|---|---|
| 3 | 3/8,стандарт |
| 5 | 1/2,стандарт |

**Размер порта**

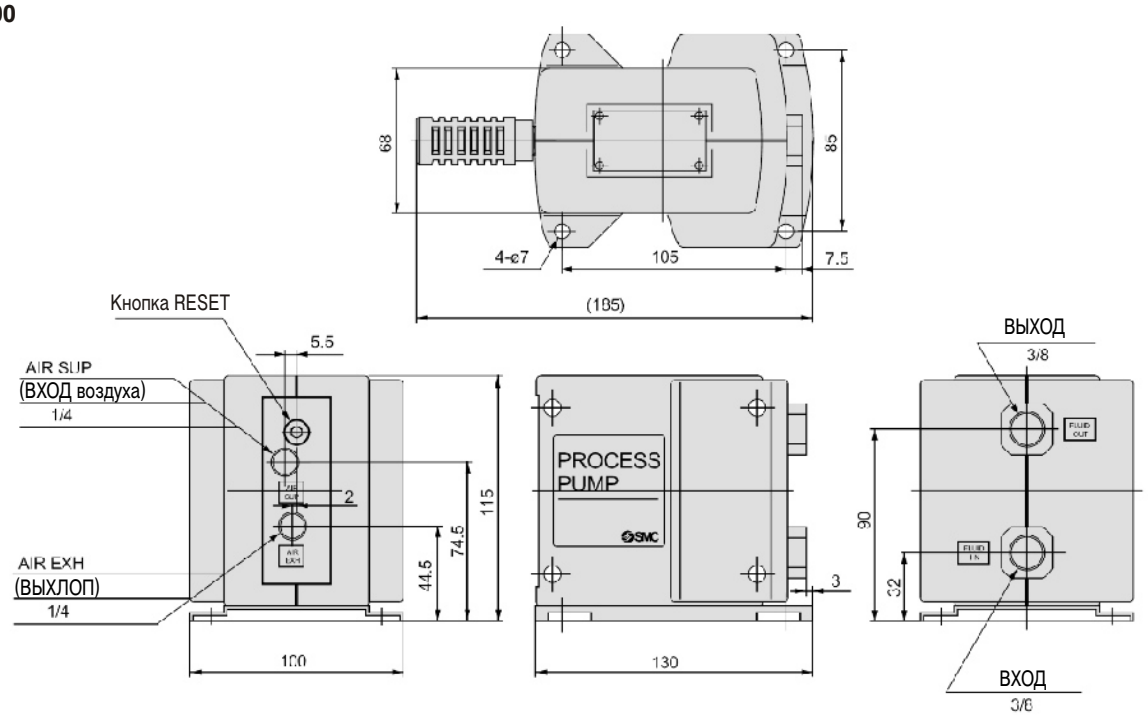
| | |
|---|---|
| 03 | G3/8 (10A): PA3 |
| 04 | G1/2 (15A): PA5 |
| 06 | G3/4 (20A): PA5 |

Глушитель (серия AN200-02) заказывается отдельно.

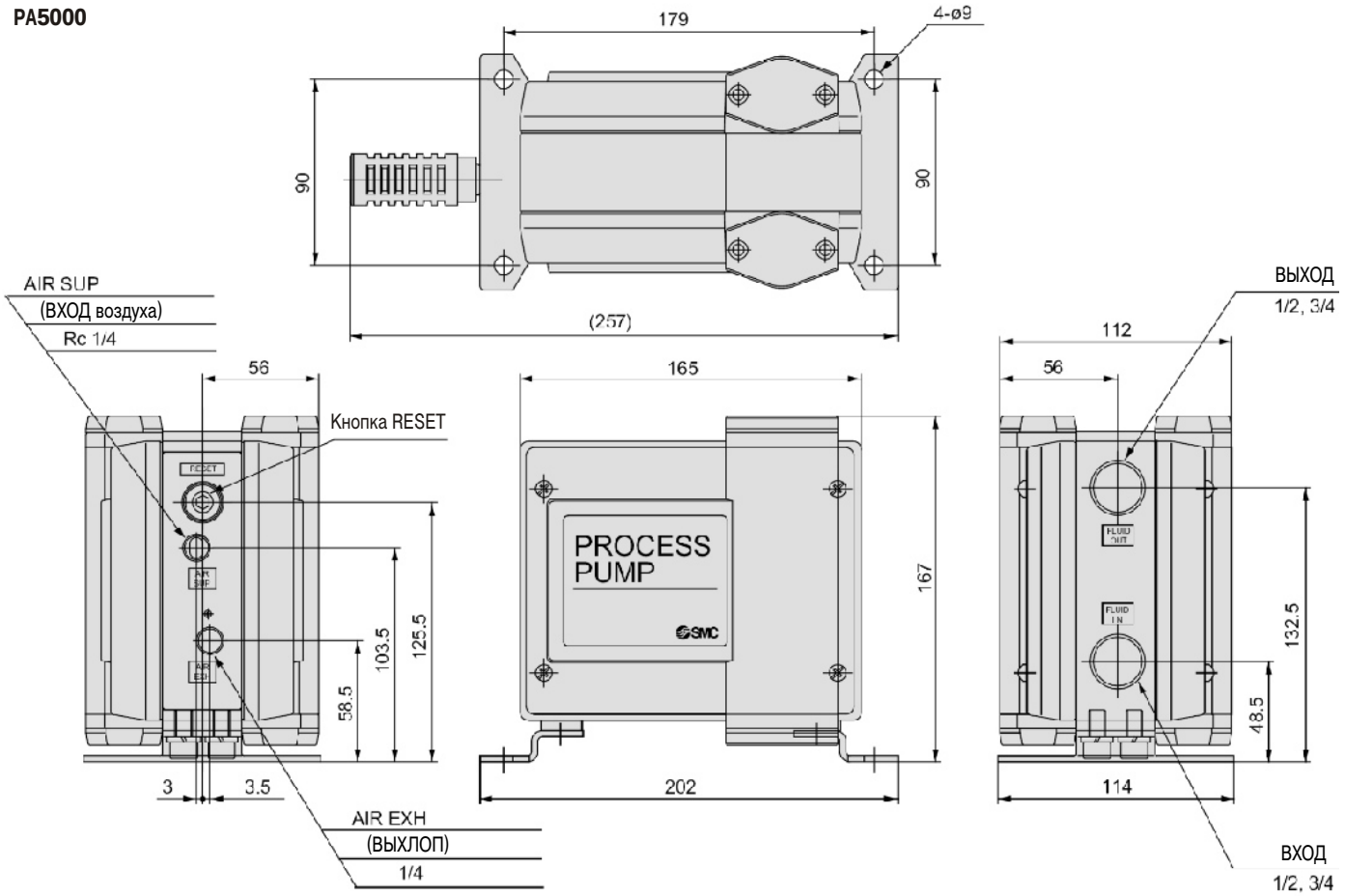
# Пневматическая помпа с автоматическим управлением
# PA3000/5000

## Размеры

**PA3000**




**PA5000**

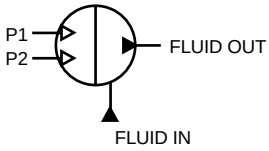


# Process Pump
## Air Operated Type (External Switching Type)
# *Series PA3000/5000*

**PA3000**

**PA5000**

**Symbol**




Air operated type

## How to Order

**PA 3 1 1 3 – □ 03**

**Body size**

| | |
|---|---|
| **3** | 3/8 standard |
| **5** | 1/2 standard |

**Liquid contact body material**

| | |
|---|---|
| **1** | ADC12 (aluminum) |
| **2** | SCS14 (stainless steel) |

**Diaphragm material**

| | |
|---|---|
| **1** | PTFE |

**Air operated type**

**Connection port size**

| | |
|---|---|
| **03** | 3/8 (10A): PA3 |
| **04** | 1/2 (15A): PA5 |
| **06** | 3/4 (20A): PA5 |

**Thread type**

| | |
|---|---|
| **Nil** | Rc |
| **T**∗ | NPTF |
| **F**∗ | G |
| **N**∗ | NPT |

∗ T, F, N are order made specifications.

## Specifications

| Model | | Air operated type | | | |
|---|---|---|---|---|---|
| | | **PA3113** | **PA3213** | **PA5113** | **PA5213** |
| **Port size** | **Main fluid suction/ discharge port** | Rc 3/8 | | Rc 1/2, 3/4 | |
| | **Pilot air supply/ exhaust port** | Rc 1/4 | | | |
| **Material** | **Liquid contact areas** | ADC12 | SCS14 | ADC12 | SCS14 |
| | **Diaphragm** | PTFE | | | |
| | **Check valve** | PTFE, PFA | | | |
| **Discharge rate** | | 0.1 to 12//min | | 1 to 24//min | |
| **Average discharge pressure** | | 0 to 0.4MPa | | | |
| **Pilot air consumption rate** | | Maximum 150//min (ANR) | | Maximum 250//min (ANR) | |
| **Suction lifting range** Note1) | **Dry** | Up to 1m (interior of pump dry) | | Up to 0.5m (interior of pump dry) | |
| | **Wet** | Up to 6m (liquid inside pump) | | | |
| **Fluid temperature** | | 0 to 60°C (with no freezing) | | | |
| **Ambient temperature** | | 0 to 60°C | | | |
| **Pilot air pressure** | | 0.1 to 0.5MPa | | | |
| **Withstand pressure** | | 0.75MPa | | | |
| **Mounting position** | | Horizontal (with mounting foot at bottom) | | | |
| **Weight** | | 1.7kg | 2.2kg | 3.5kg | 6.5kg |
| **Recommended operating cycles** | | 1 to 7Hz (0.2 to 1Hz also possible depending on conditions Note 2)) | | | |
| **Pilot air solenoid valve recommended Cv factor** Note 3) | | 0.20 | | 0.45 | |

∗ Each of the values above indicates use at ordinary temperatures with fresh water.

Note 1) With cycles at 2Hz or more

Note 2) After initial suction of liquid operating at 1 to 7Hz, it can be used with operation at lower cycles. Since a large quantity of liquid will be pumped out, use a suitable throttle in the discharge port if problems occur.

Note 3) With a low number of operating cycles, even a valve with a small Cv factor can be operated.

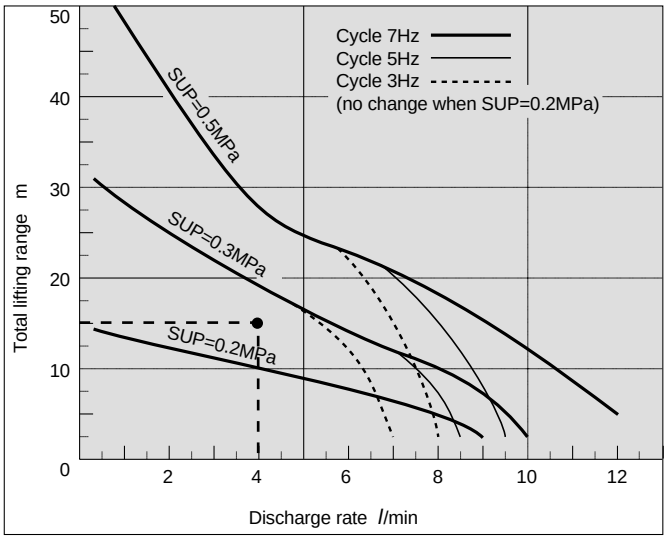
## Recommended Valve

| | |
|---|---|
| **PA3000** | VQZ14□0 (exhaust center) |
| **PA5000** | VQZ24□0 (exhaust center) |

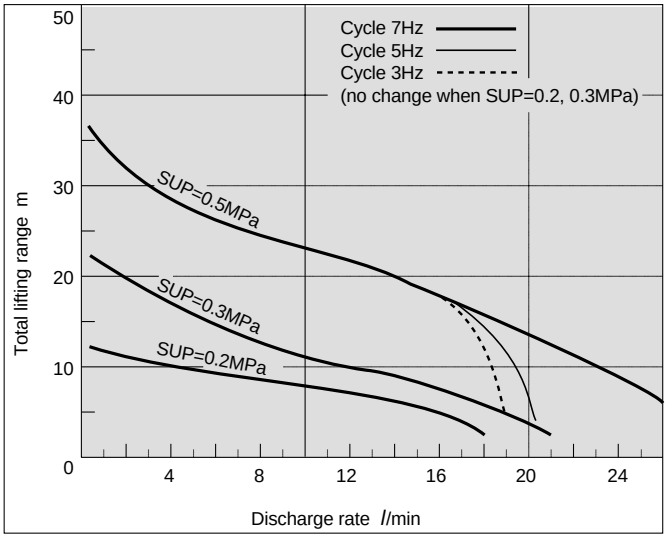
Refer to page 21 for further details.

## Performance Curves/Air Operated Type

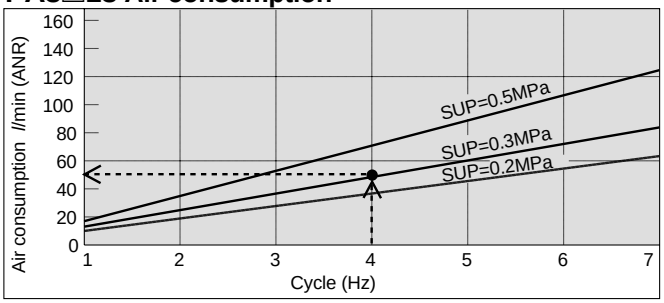
### PA3□13 Flow rate characteristics



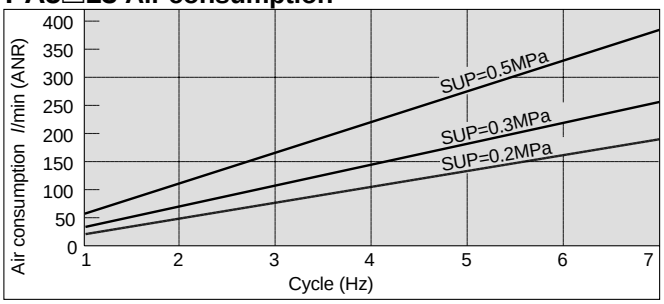

### PA5□13 Flow rate characteristics



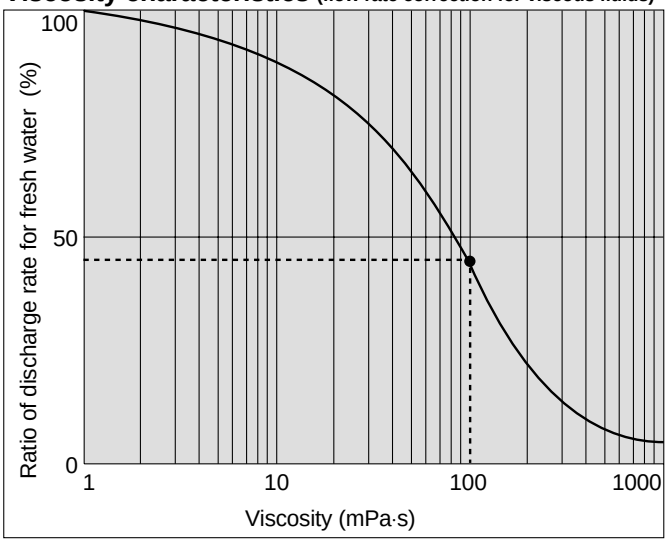

### PA3□13 Air consumption




### PA5□13 Air consumption




### Viscosity characteristics (flow rate correction for viscous fluids)




### Selection from flow rate characteristic graphs (for PA3000)

Required specification example:

Find the pilot air pressure for a discharge rate of 4l/min and a total lifting range of 15m. <The transferred fluid is clean water (viscosity 1mPa·s, specific gravity 1.0).>

Note 1) If the discharge pressure is required instead of the total lifting height, a total lift of 10m corresponds to a discharge pressure of 0.1MPa.

Note 2) 1 cycle discharge rate PA3000: Approx. 22m/ PA5000: Approx. 100m/

Selection procedure

1. First mark the intersection point for a discharge rate of 4l/min and a lifting range of 15m.
2. Find the pilot air pressure for the marked point. In this case, the point is between the discharge curves (solid lines) for SUP=0.2MPa and SUP=0.3MPa, and based on the proportional relationship to these lines, the pilot air pressure for this point is approximately 0.25MPa.

Note 1) Even when switching cycles are changed for PA3000 with SUP=0.2MPa or PA5000 with SUP=0.2MPa or 0.3MPa, there is almost no change in the lifting height.

### Calculating air consumption (for PA3000)

Find the air consumption for operation with a 4Hz switching cycle and pilot air pressure of 0.3MPa from the air consumption graph.

Selection procedure

1. Look up from the 4Hz switching cycle to find the intersection with SUP=0.3MPa.
2. From the point just found, draw a line to the Y-axis to find the air consumption. The result is approximately 50l/min.

### ⚠Caution

1. These flow rate characteristics are for fresh water (viscosity 1mPa·s, specific gravity 1.0).
2. The discharge rate differs greatly depending on properties (viscosity, specific gravity) of the fluid being transferred and operating conditions (lifting range, transfer distance), etc.

### Selection from viscosity characteristic graph

Required specification example:

Find the pilot air pressure for a discharge rate of 2.7l/min, a total lifting range of 25m, and a viscosity of 100mPa·s.

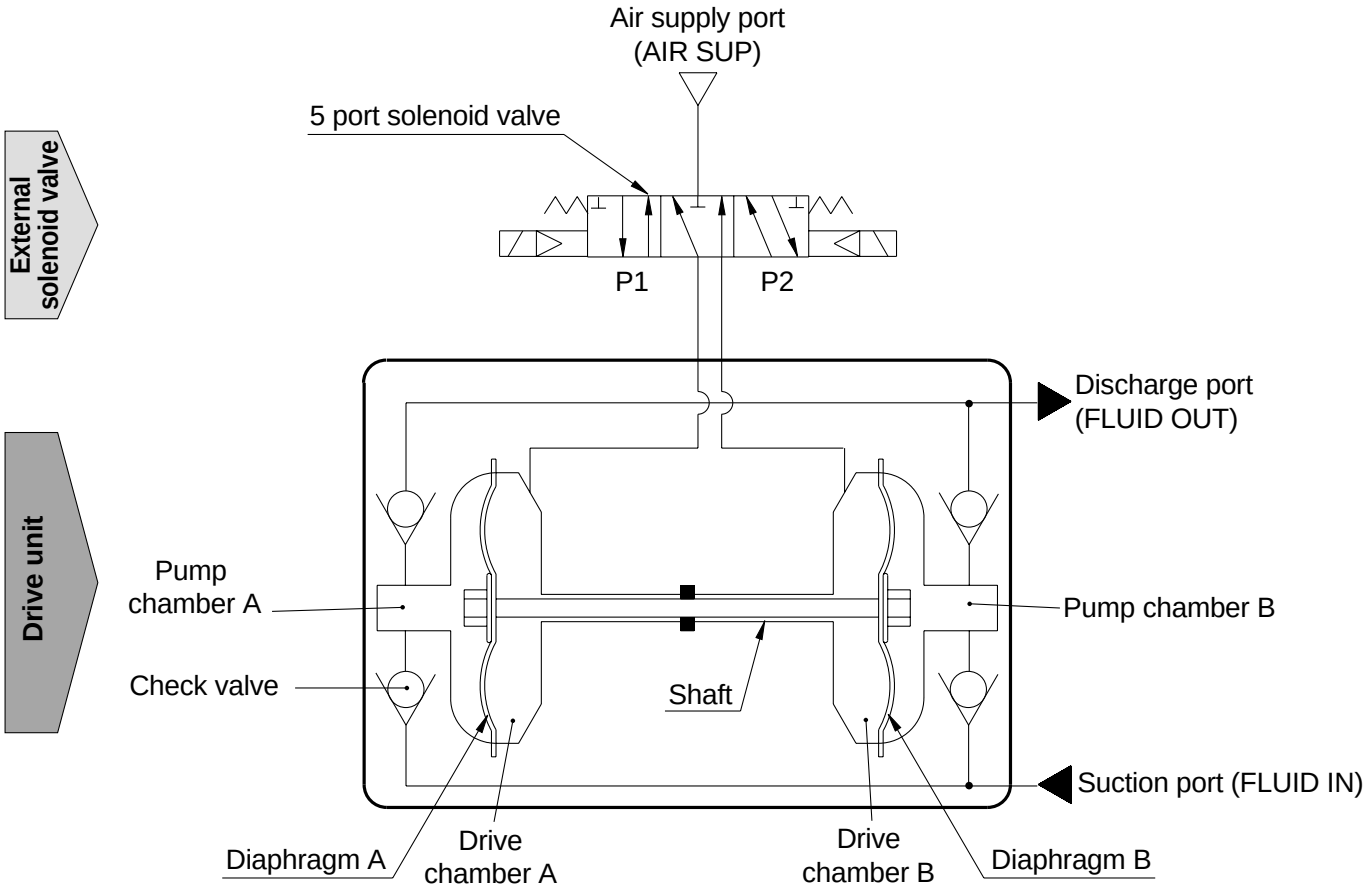
Selection procedure

1. First find the ratio of the discharge rate for fresh water when viscosity is 100mPa·s from the graph at the left. It is determined to be 45%.
2. Next, in the required specification example the viscosity is 100mPa·s and the discharge rate is 2.7l/min. Since this is equivalent to 45% of the discharge rate for fresh water, 2.7l/min ÷ 0.45 = 6l/min, indicating that a discharge rate of 6l/min is required for fresh water.
3. Finally, find the pilot air pressure and pilot air consumption rate based on selection from the flow rate characteristic graphs.

### ⚠Caution

Viscosities up to 1000mPa·s can be used.

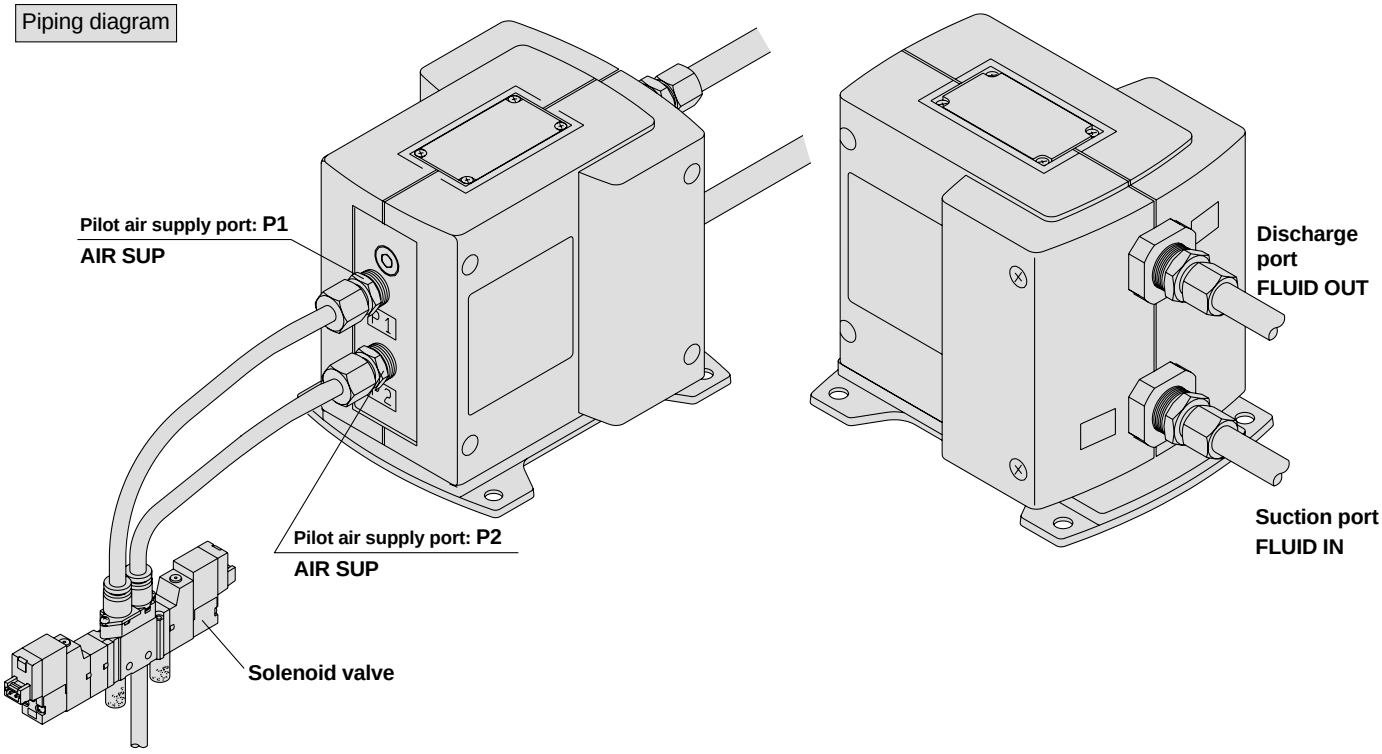
## Operating Principle/Air Operated Type




1. When air is supplied to P1 port, it enters drive chamber A.
2. Diaphragm A moves to the left, and at the same time diaphragm B also moves to the left.
3. The fluid in pump chamber A is forced out to the discharge port, and the fluid is sucked into pump chamber B from the suction port.
4. If air is supplied to the P2 port, the opposite will occur. Continuous suction and discharge of fluid is performed by repeating this process with the control of an external solenoid valve (5 port valve).

## Piping and Operation/Air Operated Type

Piping diagram




### ⚠Caution

Maintain the proper tightening torque for fittings and mounting bolts, etc. Looseness can cause problems such as fluid and air leaks, while over tightening can cause damage to threads and parts, etc.

Operation

<Starting and Stopping> Refer to circuit example

1. Connect air piping Note 1) to the pilot air supply ports <P1>, <P2> and connect piping for the fluid to be transferred to the suction port <FLUID IN> and the discharge port <FLUID OUT>.
2. Using a regulator, set the pilot air pressure within the range of 0.1 to 0.5MPa. Then, the pump operates when power is applied to the solenoid valve Note 2) of the pilot air supply port and fluid flows from the suction port <FLUID IN> to the discharge port <FLUID OUT>. At this time, the ball valve on the discharge side is in an open state. The pump performs suction with its own power even without priming. (Note 3) Dry state suction lifting range: PA3 1m, PA5 up to 0.5m) To restrict exhaust noise, attach a silencer to the solenoid valve air exhaust port.
3. To stop the pump, exhaust the air pressure being supplied to the pump with the solenoid valve of the air supply port.

Note 1) When used for highly permeable fluids, the solenoid valve may malfunction due to the gas contained in the exhaust. Implement measures to keep the exhaust from going to the solenoid valve side.

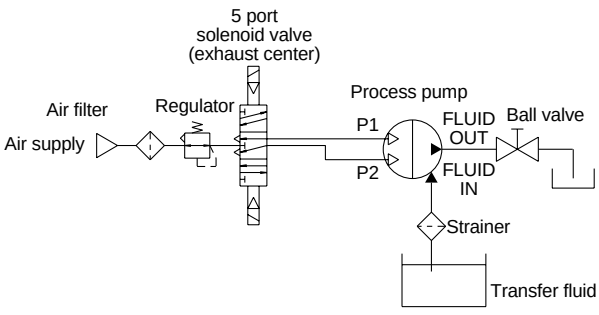
Note 2) For the solenoid valve, use an exhaust center 5 port valve, or a combination of residual exhaust 3 port valve and a pump drive 4 port valve. If air in the drive chamber is not released when the pump is stopped, the diaphragm will be subjected to pressure and its life will be shortened.

Note 3) When the pump is dry, operate the solenoid valve at a switching cycle of 1 to 7Hz. If operated outside of this range, the suction lifting height may not reach the prescribed value.

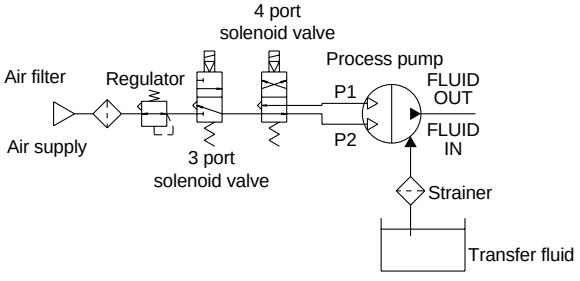
<Discharge Flow Rate Adjustment>

1. The flow rate from the discharge port <FLUID OUT> can be adjusted easily by changing the switching cycle of the solenoid valve on the air supply port.

Circuit example (1)

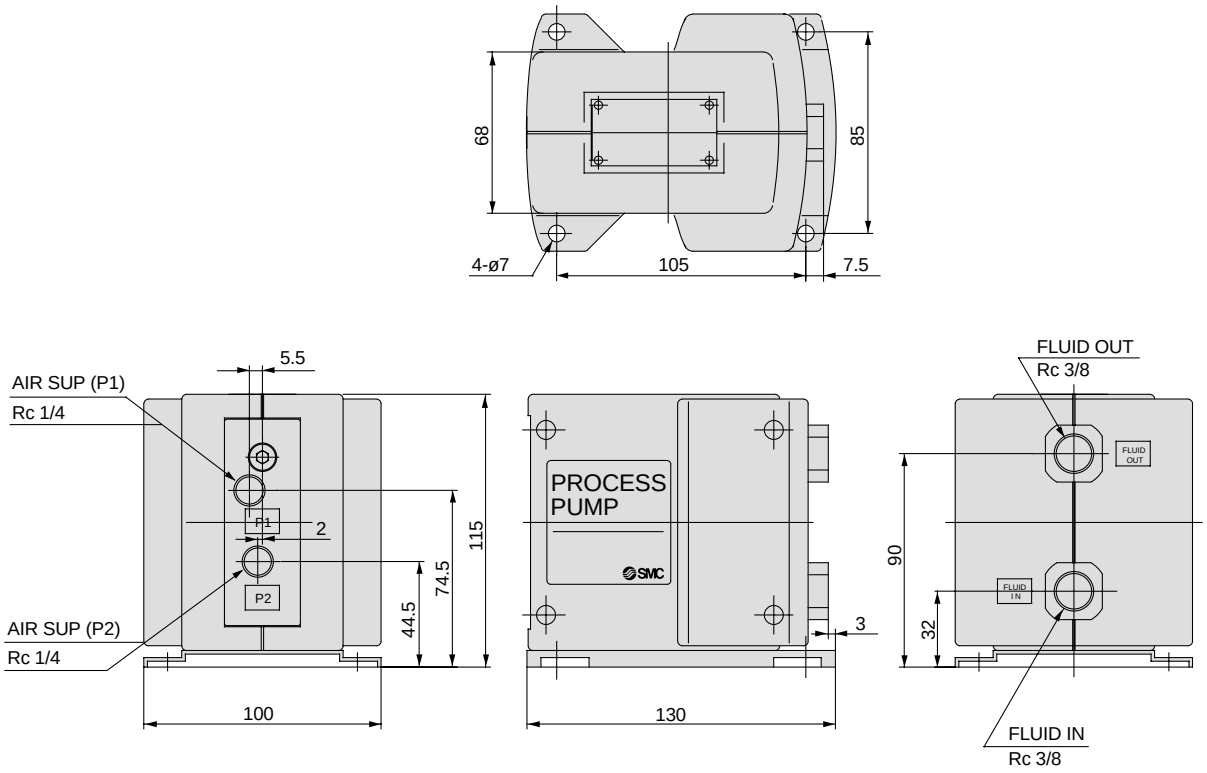



Circuit example (2)

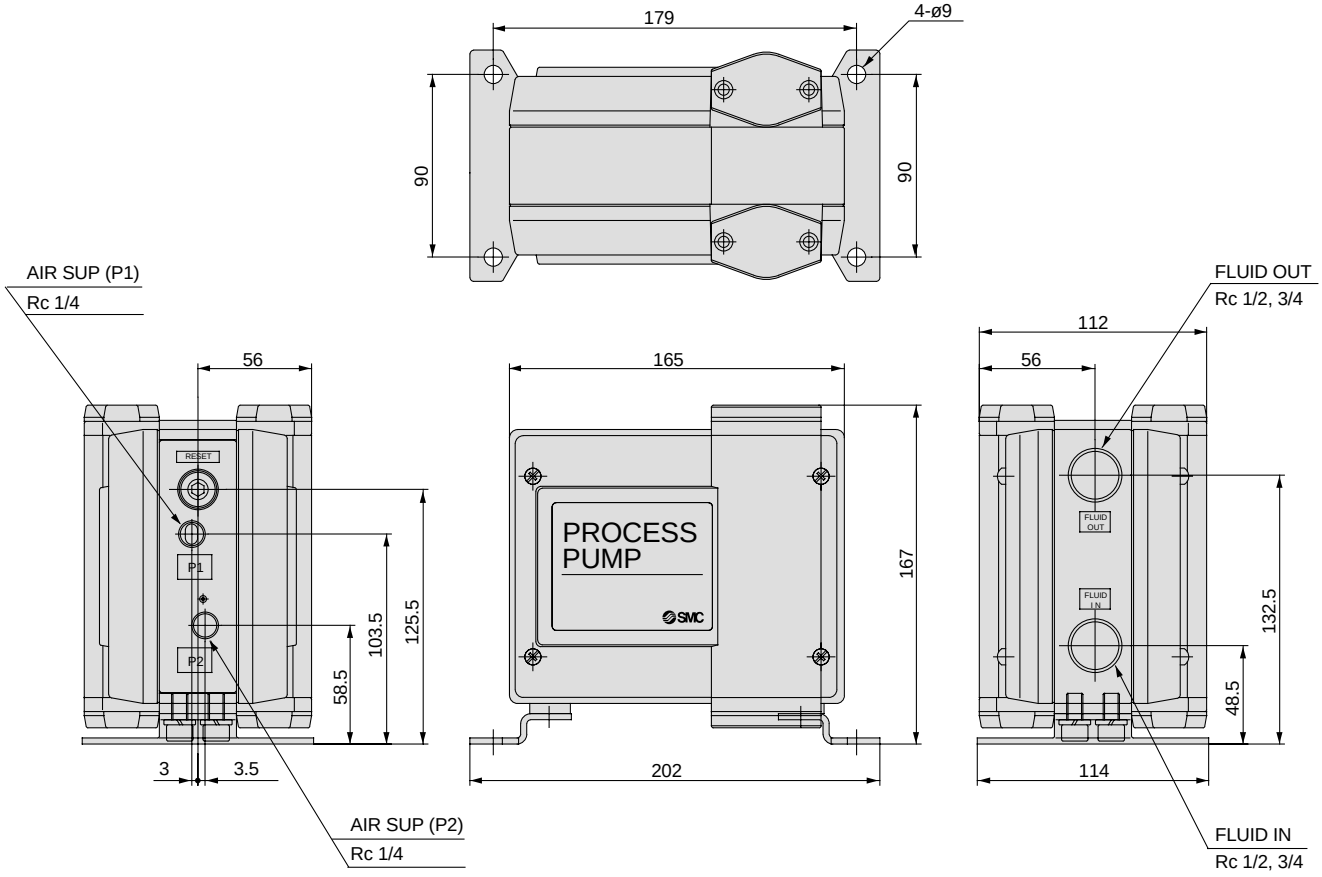


## Dimensions/Air Operated Type

### PA3000

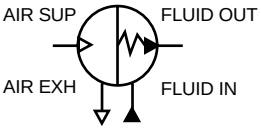



### PA5000



# Process Pump
# Automatically Operated Type with Built-in Pulsation Attenuator (Internal Switching Type)
# *Series PAX1000*

**Symbol**




Built-in pulsation attenuator
Automatically operated type

## How to Order

**PAX1 [1] 1 2 – [ ] [02] [ ]**

**Body material**

| | |
|---|---|
| **1** | ADC12 (aluminum) |
| **2** | SCS14 (stainless steel) |

**Diaphragm material**

| | |
|---|---|
| **1** | PTFE (fluororesin) |

**Type of operation**

| | |
|---|---|
| **2** | Automatically operated type with built-in pulsation attenuator |

**Thread type**

| | |
|---|---|
| **Nil** | Rc |
| **T**∗ | NPTF |
| **F**∗ | G |
| **N**∗ | NPT |

∗ T, F, N are order made specifications.

**Connection port size**

| | |
|---|---|
| **02** | 1/4 (8A) |
| **03** | 3/8 (10A) |

**Option**

| | |
|---|---|
| **Nil** | Body only |
| **N** | With silencer ∗ |

∗ For AIR EXH: AN200-02

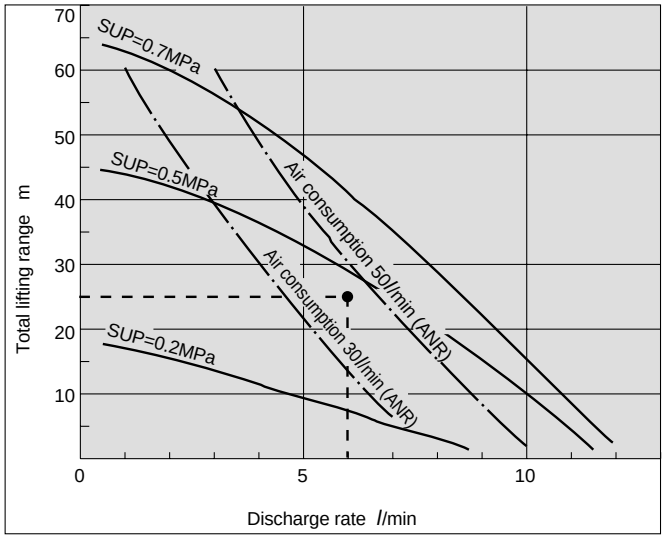
## Specifications

| Model | | PAX1112 | PAX1212 |
|---|---|---|---|
| Port size | Main fluid suction/ discharge port | Rc 1/4, 3/8 | |
| | Pilot air supply/ exhaust port | Rc 1/4 | |
| Material | Fluid contact areas | ADC12 | SCS14 |
| | Diaphragm | PTFE | |
| | Check valve | PTFE, SCS14 | |
| Discharge rate | | 0.5 to 10//min | |
| Average discharge pressure | | 0 to 0.6MPa | |
| Pilot air consumption | | Maximum 150//min (ANR) | |
| Suction lifting range | Dry | Up to 2m (interior of pump dry) | |
| | Wet | Up to 6m (liquid inside pump) | |
| Discharge pulsation attenuating capacity | | 30% or less of maximum discharge pressure | |
| Fluid temperature | | 0 to 60°C (with no freezing) | |
| Ambient temperature | | 0 to 60°C | |
| Pilot air pressure | | 0.2 to 0.7MPa | |
| Withstand pressure | | 1.05MPa | |
| Mounting position | | Horizontal (bottom facing down) | |
| Weight | | 2.0kg | 3.5kg |

∗ Each of the values above indicates use at ordinary temperatures with fresh water.

## Performance Curves/Automatically Operated Type with Built-in Pulsation Attenuator

### PAX1000 Flow rate characteristics




### Selection from flow rate characteristic graph

Required specification example:

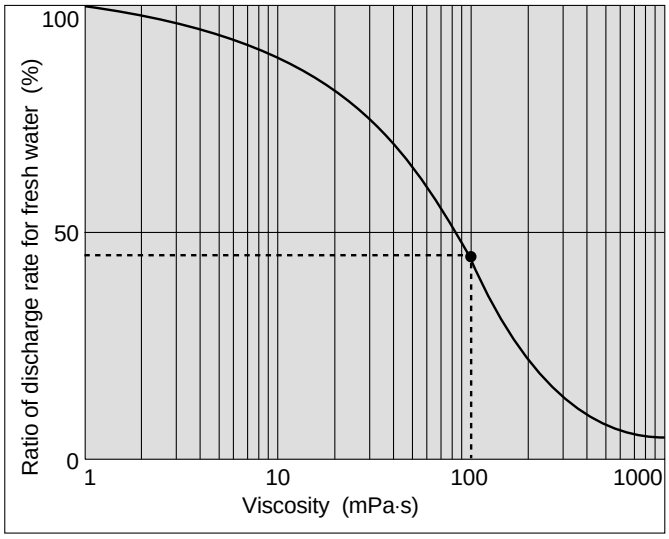
Find the pilot air pressure and pilot air consumption for a discharge rate of 6l/min and a total lifting range of 25m. [The transfer fluid is fresh water (viscosity 1mPa·S, specific gravity 1.0).]

* If the discharge pressure is required instead of the total lifting height, a total lift of 10m corresponds to discharge pressure of 0.1MPa.

Selection procedures

1. First mark the intersection point for a discharge rate of 6l/min and a lifting range of 25m.
2. Find the pilot air pressure for the marked point. In this case, the point is between the discharge curves (solid lines) for SUP=0.2MPa and SUP=0.5MPa, and based on the proportional relationship to these lines, the pilot air pressure for this point is approximately 0.45MPa.
3. Next find the air consumption. Since the marked point is below the curve for 50l/min (ANR), the maximum rate will be about 50l/min (ANR).

### Viscosity characteristics (flow rate correction for viscous fluids)




### Selection from viscosity characteristic graph

Required specification example:

Find the pilot air pressure and pilot air consumption for a discharge rate of 2.7l/min, a total lifting range of 25m, and a viscosity of 100mPa·s.

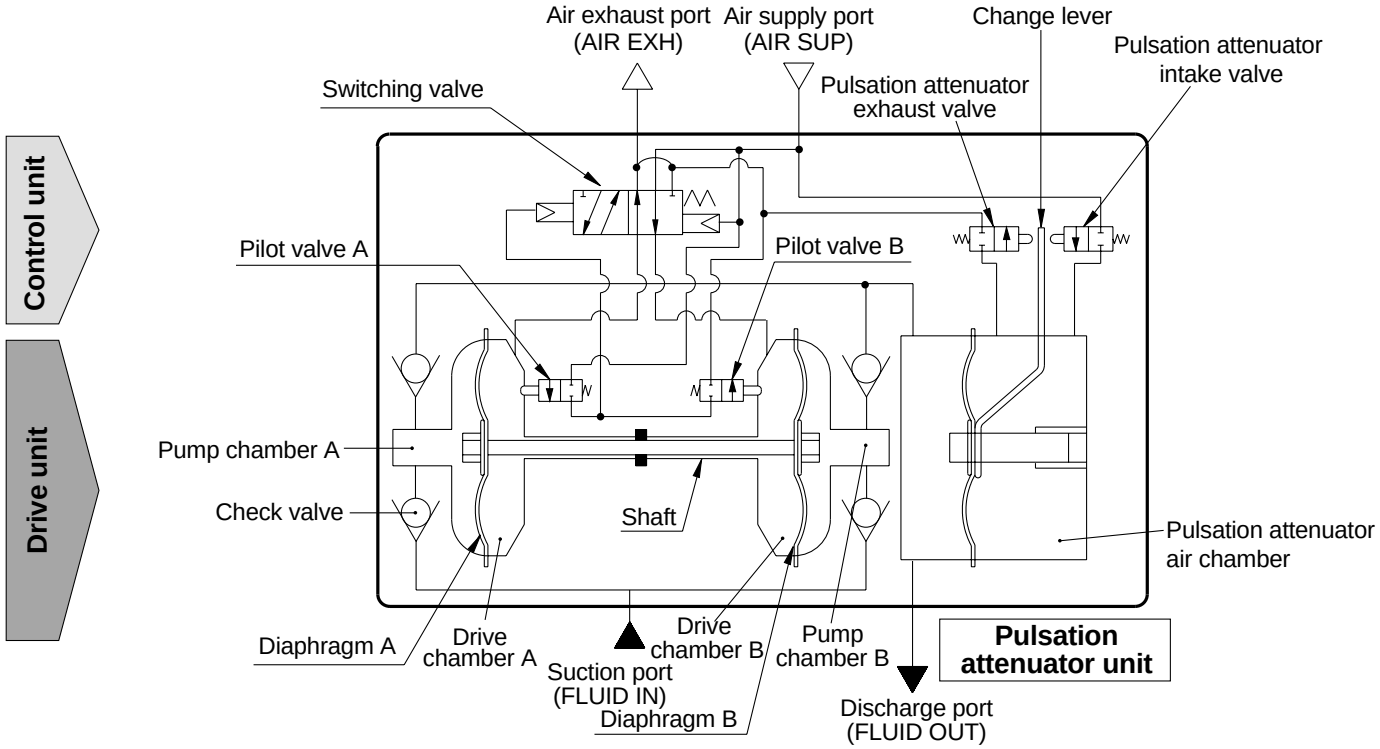
Selection procedure

1. First find the ratio of the discharge rate for fresh water when viscosity is 100mPa·s from the graph below. It is determined to be 45%.
2. Next, in the required specification example, the viscosity is 100mPa·s and the discharge rate is 2.7l/min. Since this is equivalent to 45% of the discharge rate for fresh water, 2.7l/min ÷ 0.45 = 6l/min, indicating that a discharge rate of 6l/min is required for fresh water.
3. Finally, find the pilot air pressure and pilot air consumption based on selection from the flow rate characteristic graph.

**⚠Caution**

Viscosities up to 1000mPa·s can be used.

## Operating Principle/Automatically Operated Type with Built-in Pulsation Attenuator




### Control unit

1. When air is supplied, it passes through the switching valve and enters drive chamber B.
2. Diaphragm B moves to the right, and at the same time diaphragm A also moves to the right pushing pilot valve A.
3. When pilot valve A is pushed, air acts upon the switching valve, drive chamber A is switched to a supply state, and the air which was in drive chamber B is exhausted to the outside.
4. When air enters drive chamber A, diaphragm B moves to the left pressing pilot valve B.
5. When pilot valve B is pushed, the air which was acting upon the switching valve is exhausted, and drive chamber B once again switches to a supply state. A continuous reciprocal motion is generated by this repetition.

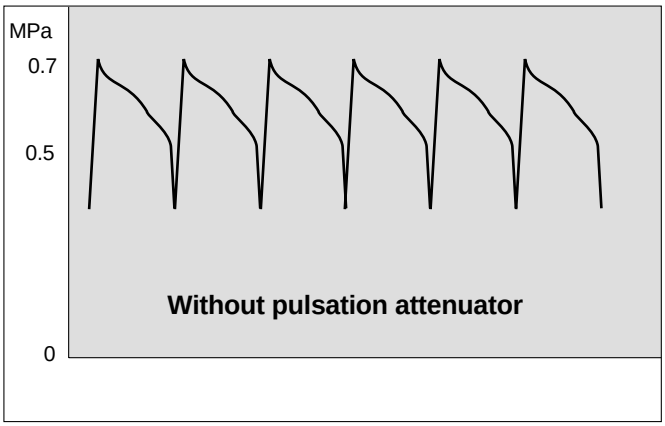
### Drive unit

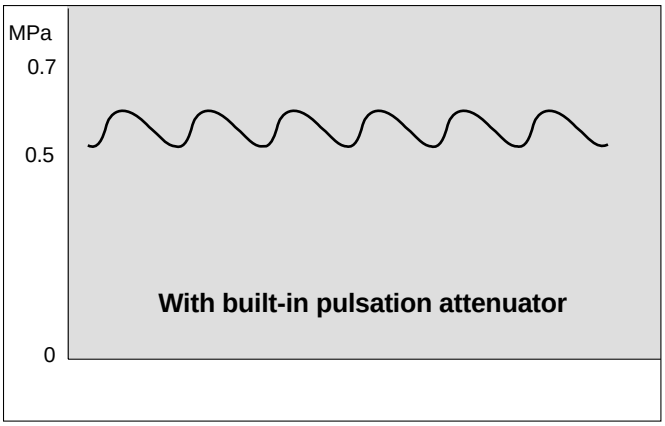
1. When air enters drive chamber B, the fluid in pump chamber B is forced out, and at the same time fluid is sucked into pump chamber A.
2. When the diaphragm moves in the opposite direction, the fluid in pump chamber A is pushed out, and fluid is sucked into pump chamber B.
3. The pressure of the fluid that is forced out of the pump chamber is adjusted in the pulsation attenuation chamber and is then exhausted.
4. Continuous suction/discharge is performed by the reciprocal motion of the diaphragm.

### Pulsation attenuation chamber

1. Pulsation is attenuated by the elastic force of the diaphragm and air in the pulsation attenuation chamber.
2. When the pressure in the pulsation attenuation chamber rises, the change lever presses the pulsation attenuator intake valve, and air enters the pulsation attenuator air chamber.
3. Conversely, when pressure drops, the change lever presses the pulsation attenuator exhaust valve, exhausting the air from the air chamber and keeping the diaphragm in a constant position. Note that some time is required for the pulsation attenuator to operate normally.

## Pulsation Attenuating Capacity

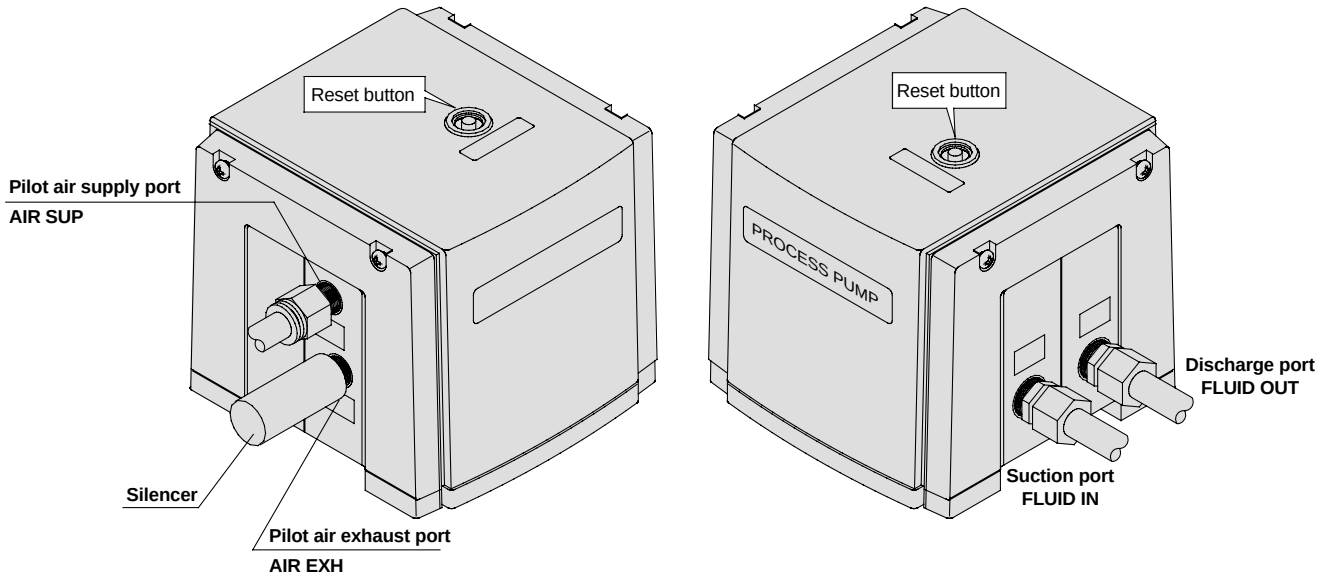



The process pump generates pulsation because it discharges a liquid using two diaphragms. The pulsation attenuator absorbs pressure when discharge pressure increases, and compensates the pressure when discharge pressure decreases. By this means pulsation is controlled.

## Piping/Automatically Operated Type with Built-in Pulsation Attenuator

Piping diagram




**⚠ Caution**
Maintain the proper tightening torque for fittings and mounting bolts, etc. Looseness can cause problems such as fluid leakage, while over tightening can cause damage to threads and parts, etc.

Operation

<Starting and Stopping> Refer to circuit example (1)

1. Connect air piping to the air supply port <AIR SUP> and connect piping for the fluid to be transferred to the suction port <FLUID IN> and the discharge port <FLUID OUT>.
2. Using a regulator, set the pilot air pressure within the range of 0.2 to 0.7MPa. Then, the pump operates when power is applied to the 3 port solenoid valve of the air supply port <AIR SUP>, the sound of exhaust begins from the air exhaust port <AIR EXH> and fluid flows from the suction port <FLUID IN> to the discharge port <FLUID OUT>. At this time, the ball valve on the discharge side is in an open state. The pump performs suction with its own power even without priming. (Dry state suction lifting range: max. 2m) To restrict exhaust noise, attach a silencer (AN200-02: option) to the air exhaust port <AIR EXH>.
3. To stop the pump, exhaust the air pressure being supplied to the pump with the 3 port solenoid valve of the air supply port <AIR SUP>. The pump will also stop if the ball valve on the discharge side is closed.

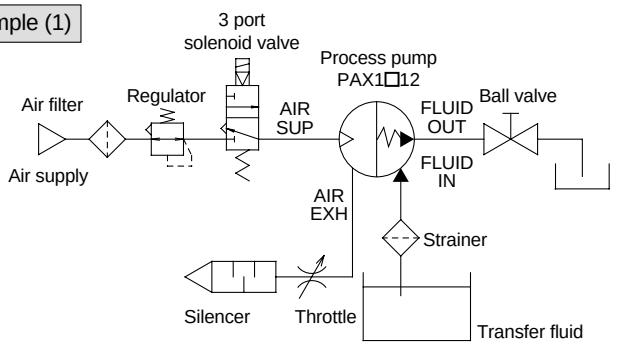
<Discharge Flow Rate Adjustment>

1. Adjustment of the flow rate from the discharge port <FLUID OUT> is performed with the ball valve connected on the discharge side or the throttle connected on the air exhaust side. For adjustment from the air side, use of the silencer with throttle ASN2 (port size 1/4) connected to the air exhaust port <AIR EXH> is effective. Refer to circuit example (1).
2. When operating with a discharge flow rate below the specification range, provide a by-pass circuit from the discharge side to the suction side to ensure the minimum flow rate inside the process pump. With a discharge flow rate below the minimum flow rate, the process pump may stop due to unstable operation. (Minimum flow rate: PAX1000 0.5ℓ/min)

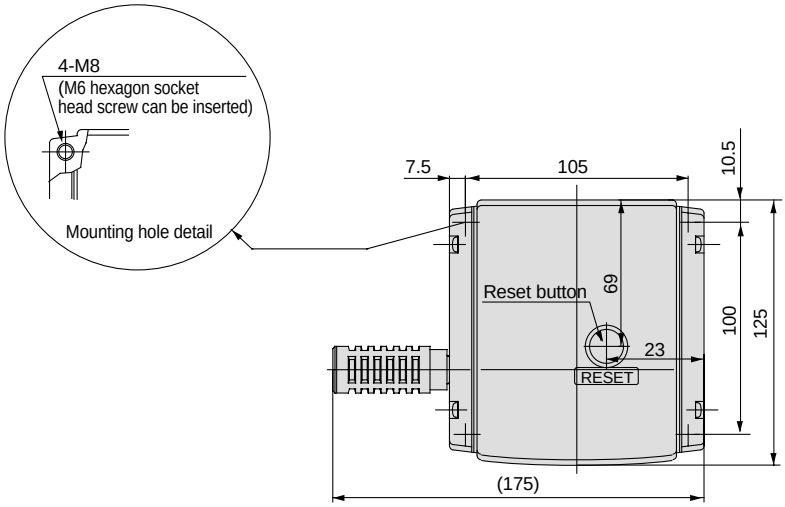
<Reset Button>

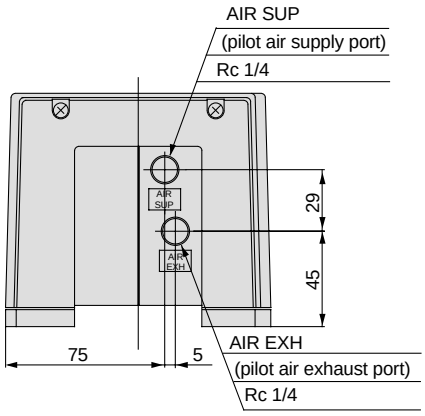
1. When the pump stops during operation, press the reset button. This makes it possible to restore operation in case the switching valve becomes clogged due to foreign matter in the supply air.

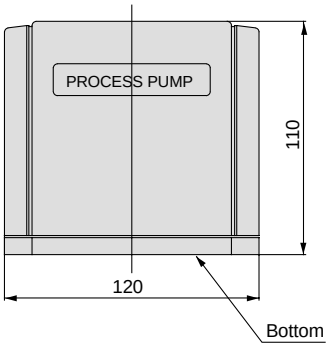
Circuit example (1)

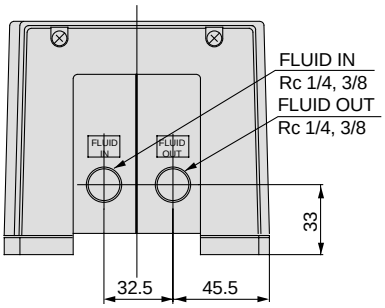


## Dimensions


4-M8
(M6 hexagon socket
head screw can be inserted)
Mounting hole detail
7.5
105
10.5
Reset button
69
100
125
23
RESET
(175)


AIR SUP
(pilot air supply port)
Rc 1/4
AIR SUP
AIR EXH
29
45
75
5
AIR EXH
(pilot air exhaust port)
Rc 1/4


PROCESS PUMP
110
120
Bottom


FLUID IN
Rc 1/4, 3/8
FLUID OUT
Rc 1/4, 3/8
FLUID IN
FLUID OUT
33
32.5
45.5

# Малая пневматическая помпа

# PB1000

0.008 ~ 2 л/мин

Малые габариты и вес (помещается на ладони)
Исполнение со встроенным пневмораспределителем с внешним электроуправлением
Исполнение с внешним пневматическим управлением


### Технические характеристики

| Модель | | | PB1011 | PB1013 |
|---|---|---|---|---|
| Присоединение | Жидкость | | 1/8 | |
| | Управл. воздух | Вход | 1/8 | |
| | | Выхлоп | M5x0.8 | |
| Материалы | Детали, соприкасающиеся с жидкостью | | Полипропилен PP, нерж.сталь SUS316 | |
| | Диафрагма | | PTFE | |
| | Обратный клапан | | PTFE | |
| | Уплотнения, соприкасающиеся с жидкостью | | FKM | |
| Производительность (мл/мин) | | | 8 ~ 2000 | 8 ~ 500 |
| Среднее давление нагнетания (МПа) | | | 0 ~ 0.6 | |
| Высота подъема всасываемой жидкости (м) | | | до 2.5 (сухая полость помпы) | |
| Температура перекачиваемой среды (°C) | | | 0 ~ 50 (замерзание не допускается) | |
| Окружающая температура (°C) | | | 0 ~ 50 | |
| Давление воздуха (МПа) | | | 0.2 ~ 0.7 | |
| Испытательное давление (МПа) | | | 1.05 | |
| Рабочее положение изделия | | | Окно OUT сверху (см. надпись на корпусе) | |
| Смазка | | | Не требуется | |
| Напряжение питания (В) | | | 24 DC | - |
| Вес (кг) | | | 0.17 | 0.15 |
| Рекомендуемая рабочая частота (Гц) | | | 1 ~ 10 (при определенных условиях 0.03~1) [2] | |
| Рекомендуемая пропускная способность пневмораспределителя для воздуха (норм.л/мин) [1] | | | - | 200 |

Характеристики приведены для случая перекачки воды при температуре 20°C.

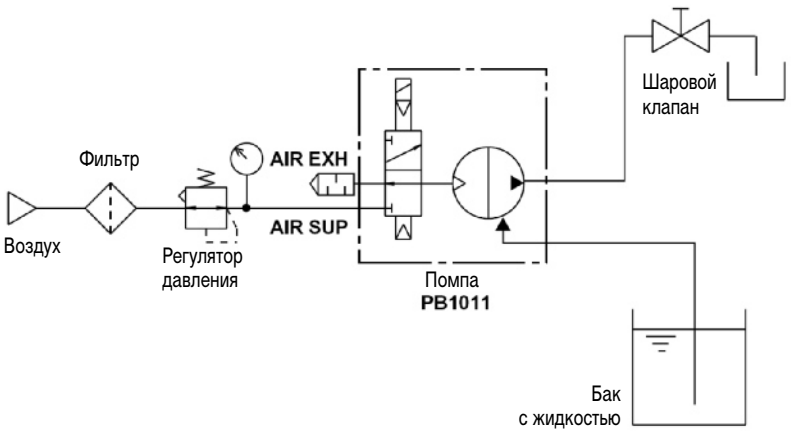
[1]) При низкой частоте работы помпы можно использовать пневмораспределитель с меньшей пропускной способностью.
Для управления помпой PB1013 рекомендуется использовать пневмораспределитель серии SYJ34

[2]) Если начальная частота работы была 1~7 Гц, можно переключить помпу на работу с более низкой частотой.
Если возникнет проблема избыточного расхода жидкости при срабатывании помпы, следует установить подходящий дроссель в линию нагнетания

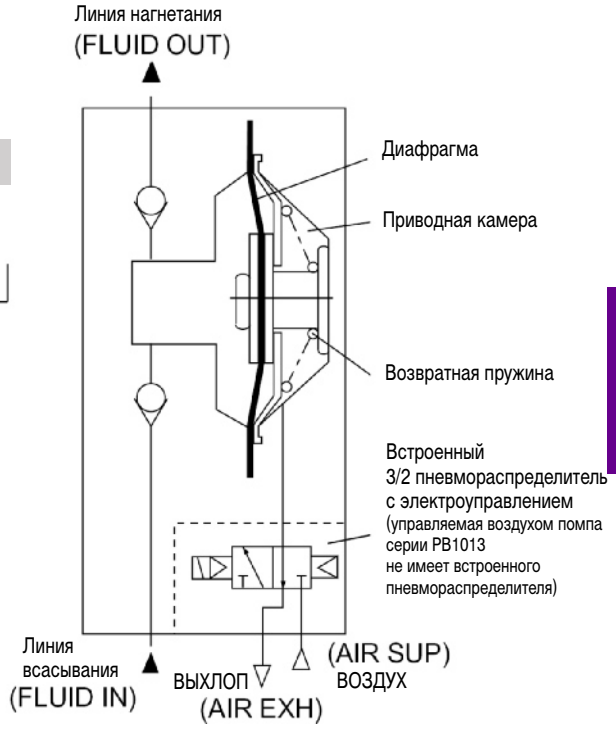
**Примечания:**

1. Помпы серии PB1000 не предназначены для перекачки суспензий из-за опасности износа и разрушения седла обратного клапана и засорения его частичками, что может привести к повреждению помпы.
2. Помпа серии PB1011 имеет встроенный пневмораспределитель с электроуправлением, поэтому она не может использоваться для перекачки горючих жидкостей.

## Схема подключения




## Конструкция

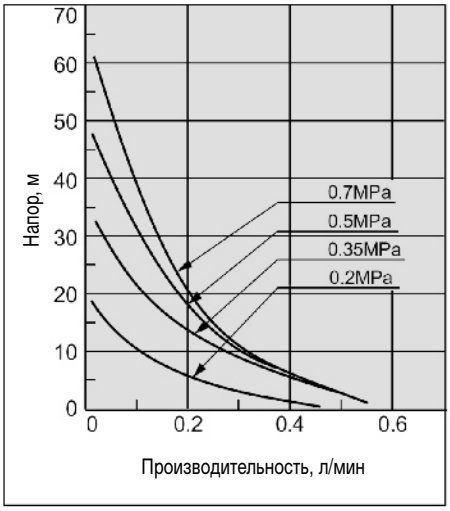


# Малая пневматическая помпа
# PB1000

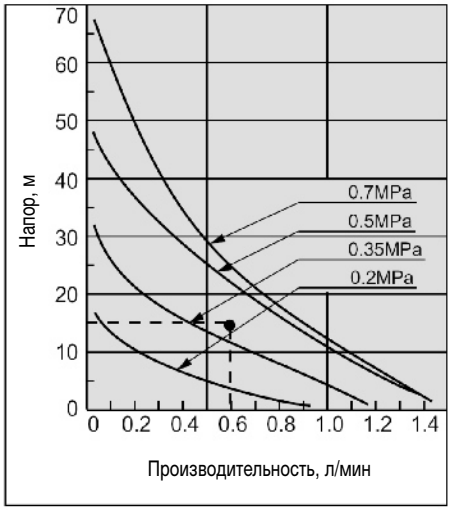
## Характеристики

### Связь между производительностью помпы и напором при различных давлениях воздуха и частотах срабатывания помпы

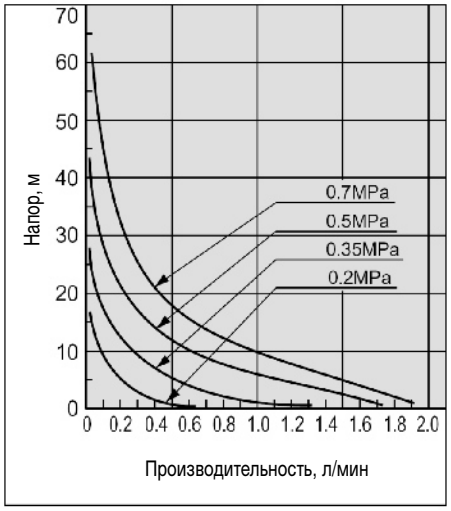
Частота 1Гц



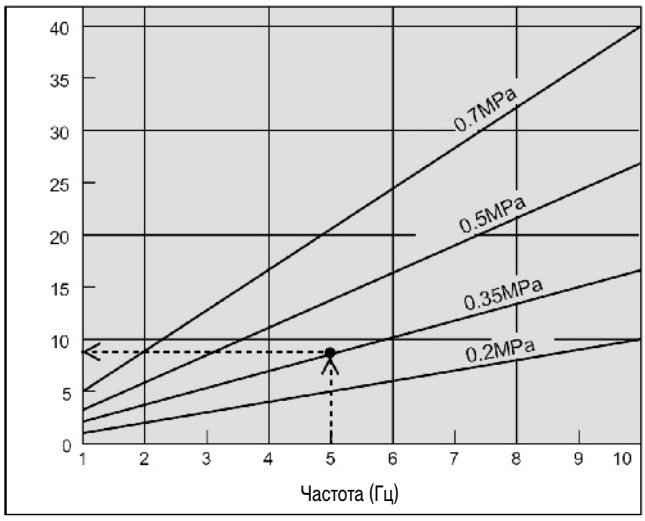

Частота 5Гц



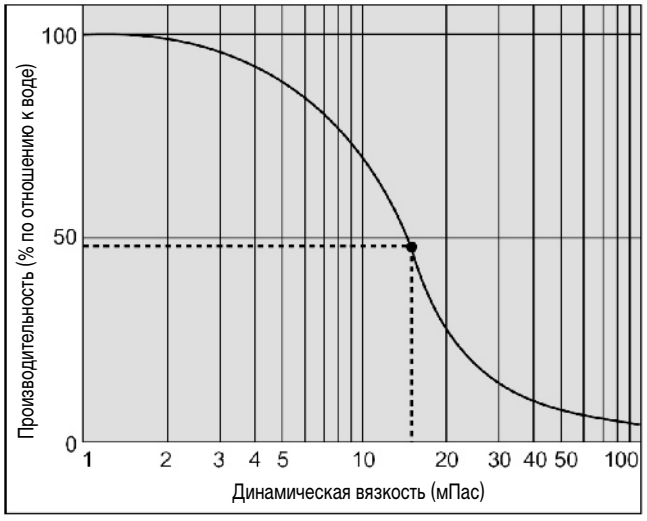

Частота 10Гц




### Потребление воздуха (норм.л/мин) в зависимости от его давления и частоты срабатывания помпы




### Влияние вязкости жидкости на производительность помпы




За 100% принята производительность помпы при перекачке воды (динамическая вязкость воды при 20°C составляет 1 миллипаскаль×с)

## Номер для заказа

**PB 1 0 1 1 - F 01**

**Тип управления**

| | |
|---|---|
| 1 | Встроенный пневмораспределитель с электроуправлением |
| 3 | Внешнее пневмоуправление |

Глушитель (серия AN120-M5) и крепёжный угольник (серия KT-PB1-3) заказываются отдельно

# Масляный насос мембранного типа с пневмоприводом
# Серия AEP100

**Применяется для перекачивания масла из маслосборников станков, гидронасосов и других гидроаппаратов в сливную магистраль для последующего использования**

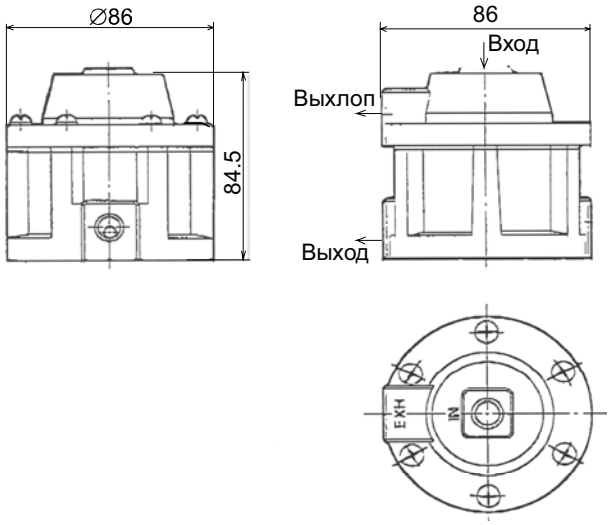
## Технические характеристики

| Номер для заказа | AEP100-02 |
|---|---|
| Рабочая среда | СОЖ, Эмульсионные масла |
| Управление | Сжатый воздух |
| Максимальное управляющее давление (МПа) | 1.0 |
| Рабочее управляющее давление (МПа) | 0.2~0.7 |
| Диапазон рабочих температур (°C) | 5~60 |
| Присоединительная резьба (вход, выход, выхлоп) | Rc 1/4 |
| Объем перекачиваемой жидкости/цикл [1)] (мл) | 10 |
| Тонкость фильтрации (мкм) | 40 |
| Высота подъема жидкости[1)] (м) | 8 |
| Вес (кг) | 0.8 |

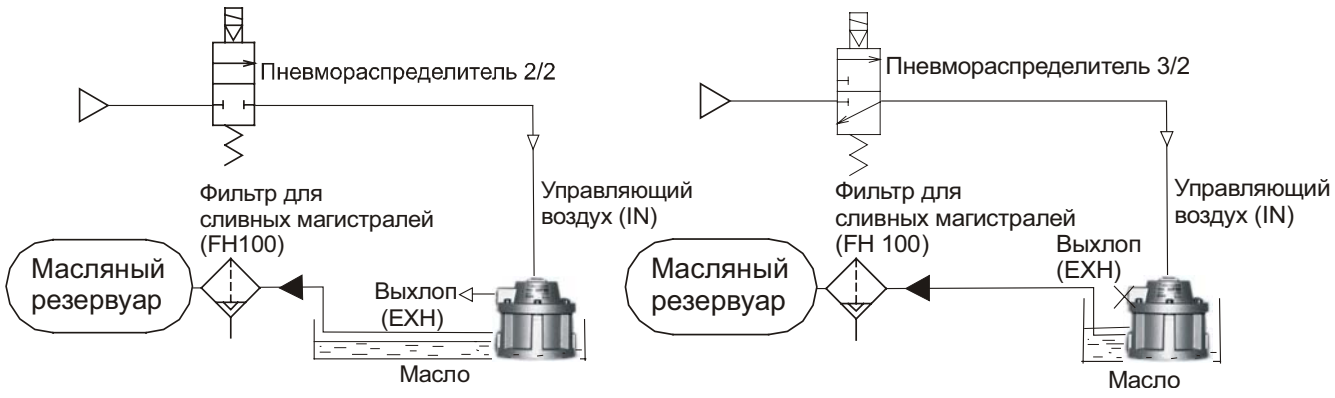
[1)] При управляющем давлении P=0.5 МПа

*При использовании пневмораспределителя 3/2 выхлопной порт можно заглушить и насос применять как насос погружного типа.*

## Размеры




## Схема подключения



# Коллектор для сбора жидкости эжекторного типа
# Серия HEP500

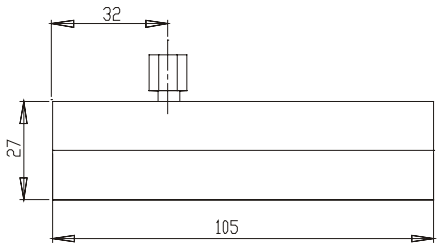
**Применяется для сбора эмульсионных масел и СОЖ для шлифования**

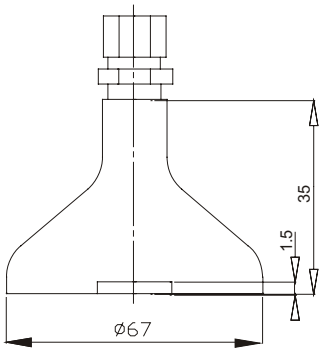
## Технические характеристики

| **Номер для заказа** | | **HEP500-04** | |
|---|---|---|---|
| Рабочая среда | | СОЖ для шлифования | Эмульсионные масла |
| Свойства рабочих сред | | Не водорастворимые | Водорастворимые |
| Мин. рабочее давление (МПа) | | 0.2 | |
| Присоединительная резьба | Вход(IN) | Rc 1/2 | |
| | Выход (OUT) | Rc 1/2 (или фитинг H10-04/H12-04 с зажимным кольцом S10/12) | |
| Производительность (л/мин) | | 0.8~2.7 | 0.01~1 |
| Максимальная длина заборной магистрали[1)] (м) | | 20 | |

1) Для трубки ∅6 мм.

## Размеры




## Схема подключения