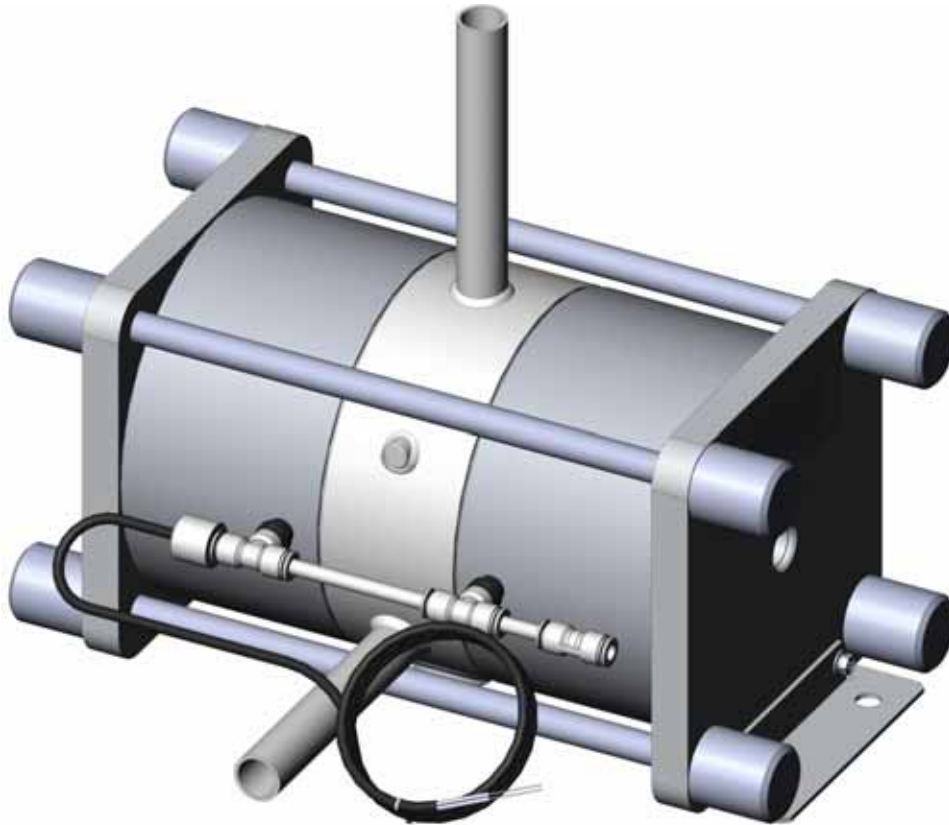


Bellows Cylinder Pump



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Introduction

Air-driven new *Bellows Cylinder Pumps* have developed and launched to sell. Simple piston-rings mechanism and changeover system of compressed driving air can make low pressure driving, low discharge pulsation and large discharge. All wet-end materials are made of fluorocarbon polymers; PTFE and PFA to supply contamination-less solutions.

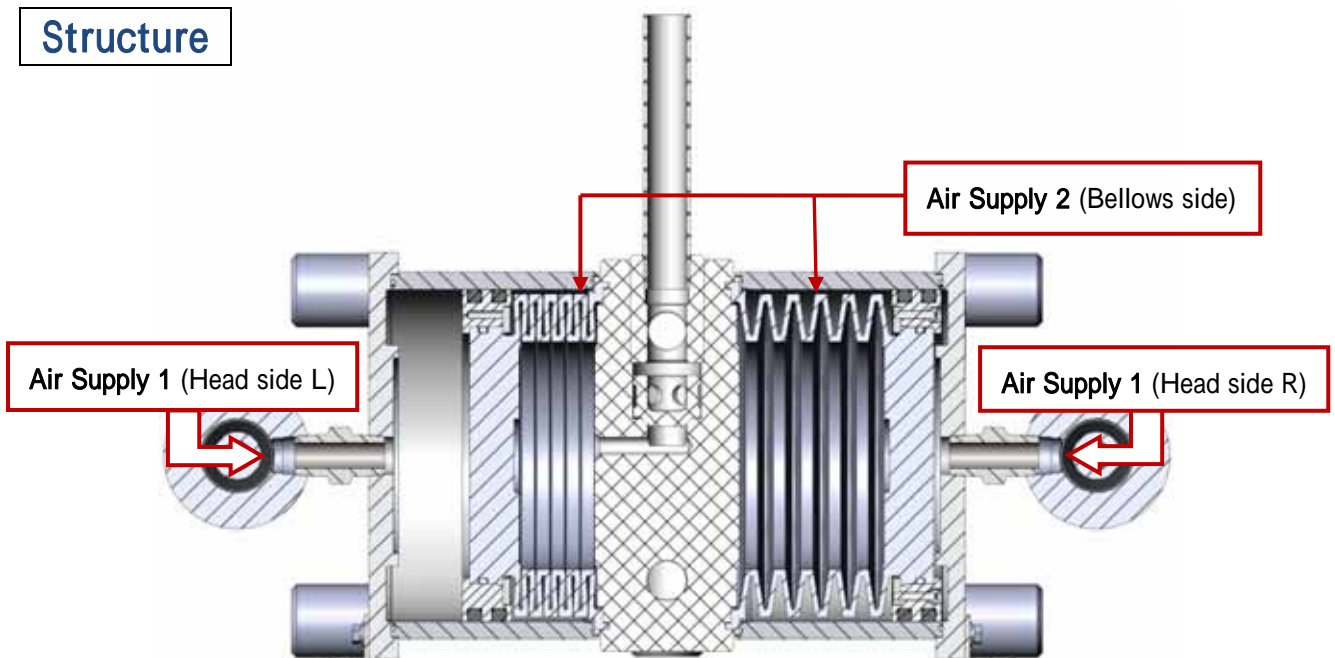
15, 40, and 40 liters per minute pumps(P-15, P-40, and P-60, correspondingly) are available. And, small flow rate type five liters (P-5) and large flow rate type 100 liters(P-100) pumps are now under development.

Features

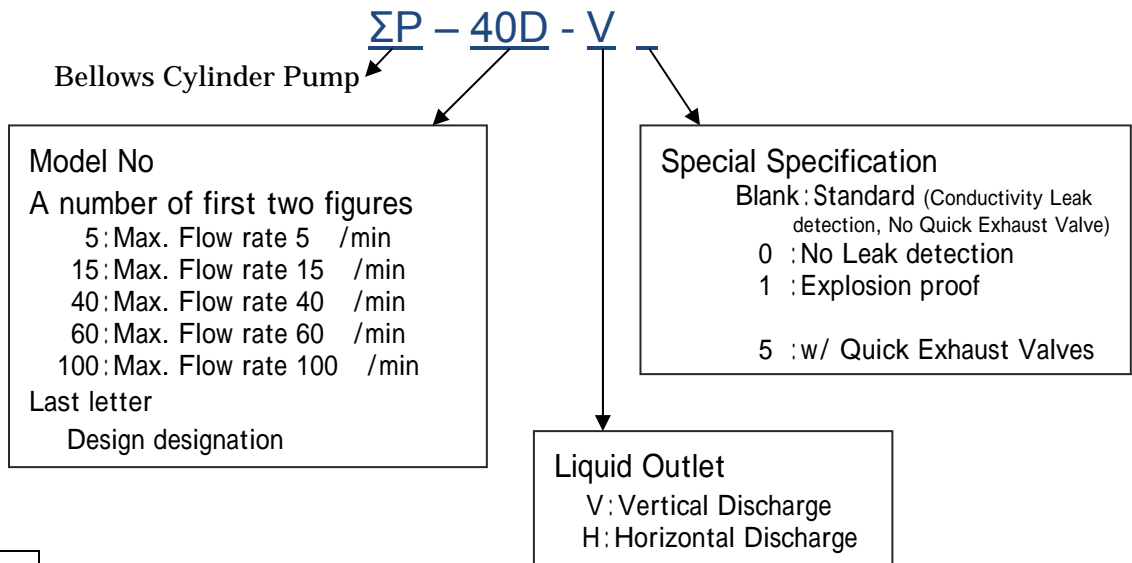
- **Simple and Compact;** A conventional bellows pump needs a mechanism that links two bellows. On the other hand, our *Bellows Cylinder Pump* only needs piston-rings.
- **Low Pulsation;** Appropriate changeover time and driving air pressure make low discharge pulsation.
- **Low Pump Vibration;** Small inertia of moving parts reduces vibration of the pump.
- **Valve Shuttles moving gravity direction;** All check valves in the pump body have a valve shuttle moving gravity direction, so the operation becomes secure.

Safety; The pump does not break even if outlet line or inlet line is closed accidentally in running.

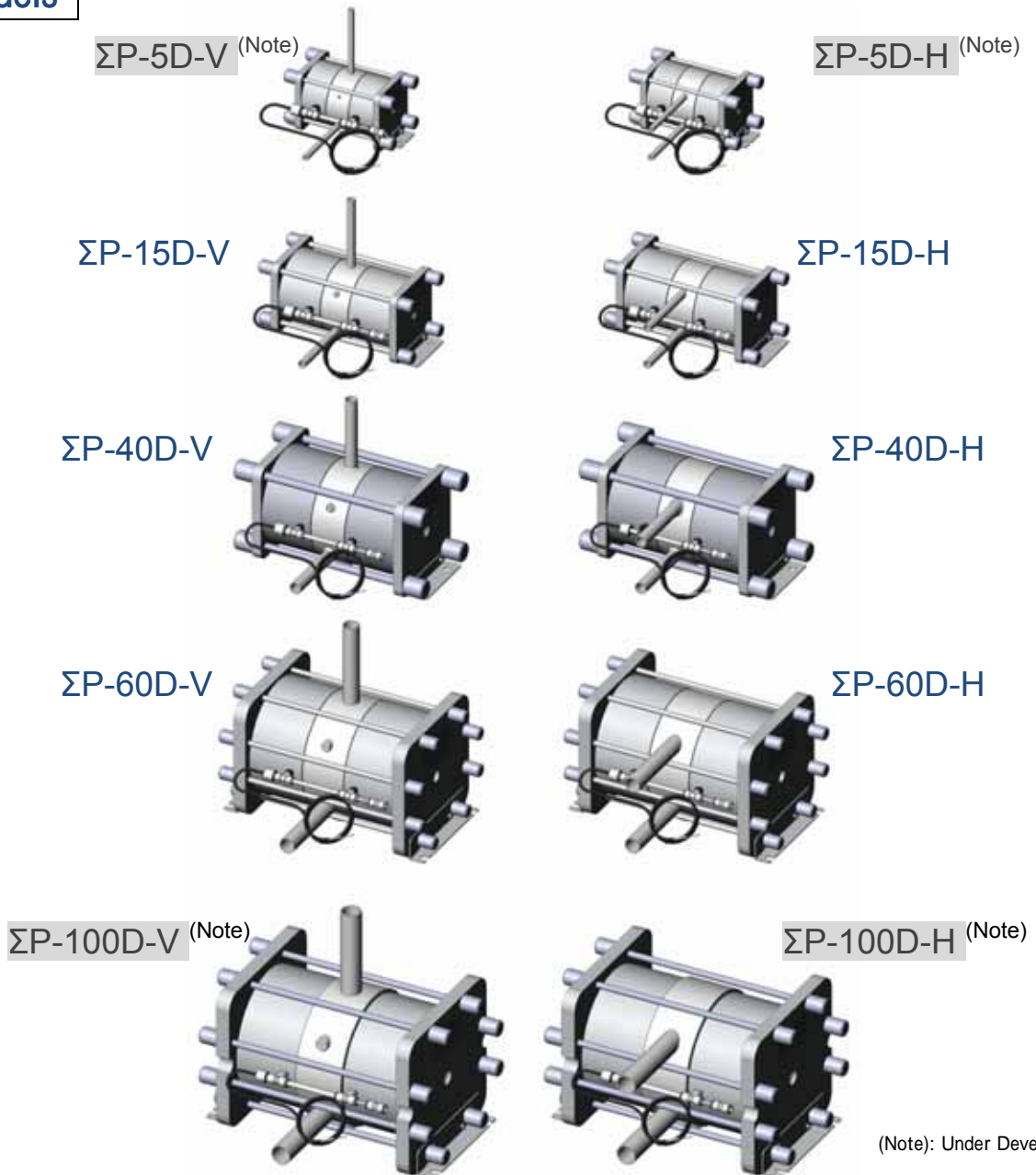
Structure



Product designation



Models

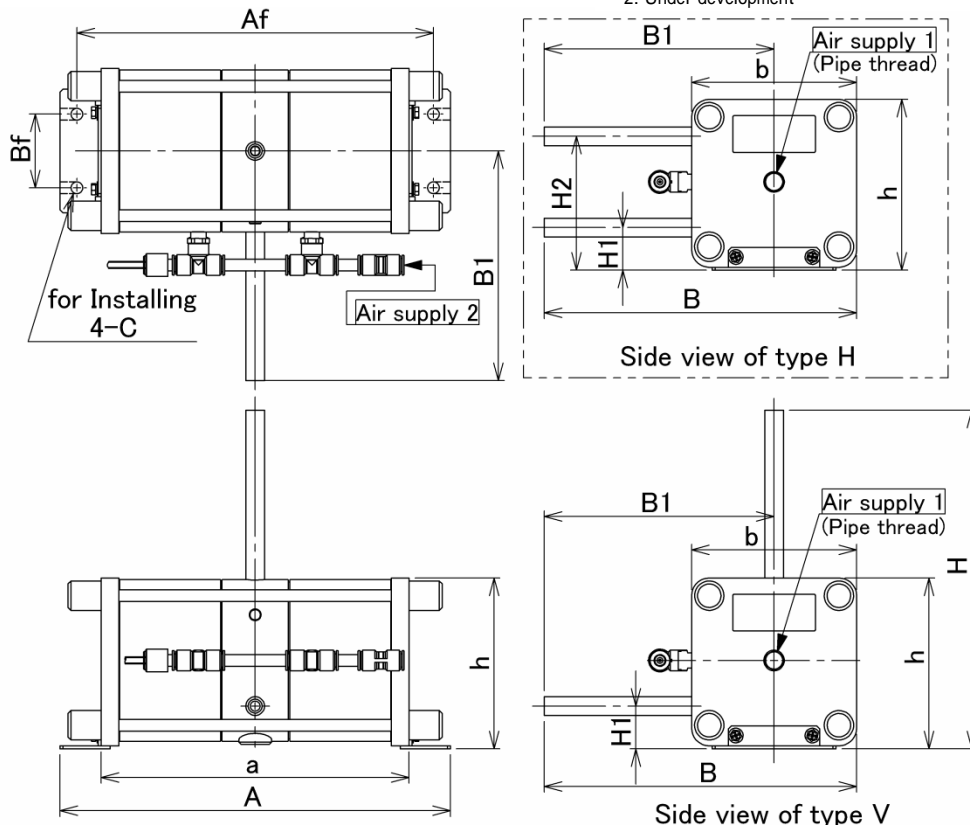


(Note): Under Development

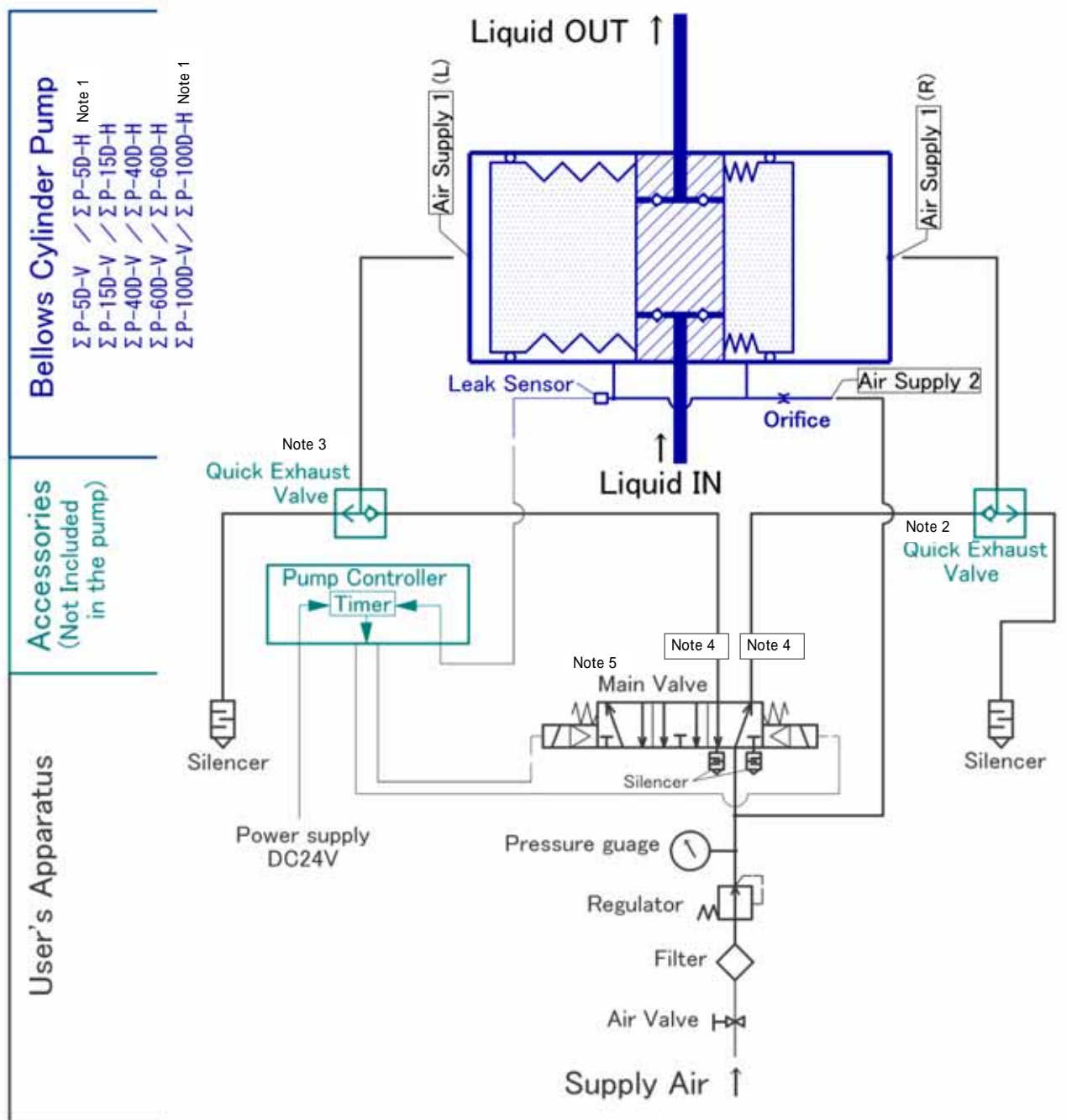
Specifications

Item \ Model	P-5D-V ^{*2}	P-15D-V	P-40D-V	P-60D-V	P-100D-V ^{*2}	
	P-5D-H ^{*2}	P-15D-H	P-40D-H	P-60D-H	P-100D-H ^{*2}	
Max. flow rate [L/min]	5	15	40	60	100	
Self-priming ability [m]	2	2	2	2	2	
Liquid temperature range [°C]	5-180	5 - 180	5 - 180	5 - 180	5-180	
Max. Supply air pressure ^{*1} [MPa]	0.2-0.5	0.2 - 0.5	0.2 - 0.5	0.2 - 0.5	0.2-0.5	
Min. Supply air pressure [MPa]	0.05	0.05	0.05	0.05	0.05	
Wet end materials	PTFE and PFA	PTFE and PFA	PTFE and PFA	PTFE and PFA	PTFE and PFA	
Pump connection caliber [in] ([mm])	3/8" (9.53x 6.33)	1/2" (12.7x 9.50)	3/4" (19.0x 15.8)	1" (25.4x 22.2)	1.25" (31.8x 28.0)	
Air supply 1 (Pipe thread)	Rc1/8	Rc1/4	Rc3/8	Rc3/8	Rc1/2	
Driving air tube [mm]	Min. I/D (Air supply 1)	4 or more	5 or more	6.5 or more	6.5 or more	8 or more
	O/D (Air supply 2)	6	8	8	8	8
Max. Air consumption [NL/min]		220	470	620		
Ambient temperature [°C]	0 - 40	0 - 40	0 - 40	0 - 40	0 - 40	
Mass [kg]	2.2	4.3	9.2	13.9	20.5	
Dimensions (mm)	a x b x h	140x90x97	209x112x116	250x152x157	284x204x192	321x244x231
	Af x Bf x C	164x 97 x 5	242x50x 116	282x70x 157	310x80x 192	360x160x 231
	A	180	265	313	337	381
	B1	145	156	176	202	222
	B	190	212	252	304	344
	H1	28	29	41	45	55
	H2	76	91	121	149	175
	H	206	230	272	317	356

*1: Max. Supply air pressure depends on the temperature of the liquid.
*2: Under development



Tubing, Wiring



Notes 1. P-5D-V /H and P-100D-V/H are under development.

2. Air tubing should be short and symmetry right and left as much as possible.

3. It is recommended to have Quick Exhaust Valves to prevent the main valve from getting rusty because of corrosive exhaust and to run the pump stably, although they are not always necessary.


4. Speed controllers may help stable pump running.

5. The main valve should be 3 positions, 5 ports, exhaust center, double solenoid valve, and has effective area more than necessary inner area of the driving air tube.

6. The pump does not include tubing materials or wiring materials. They should be arranged by users.

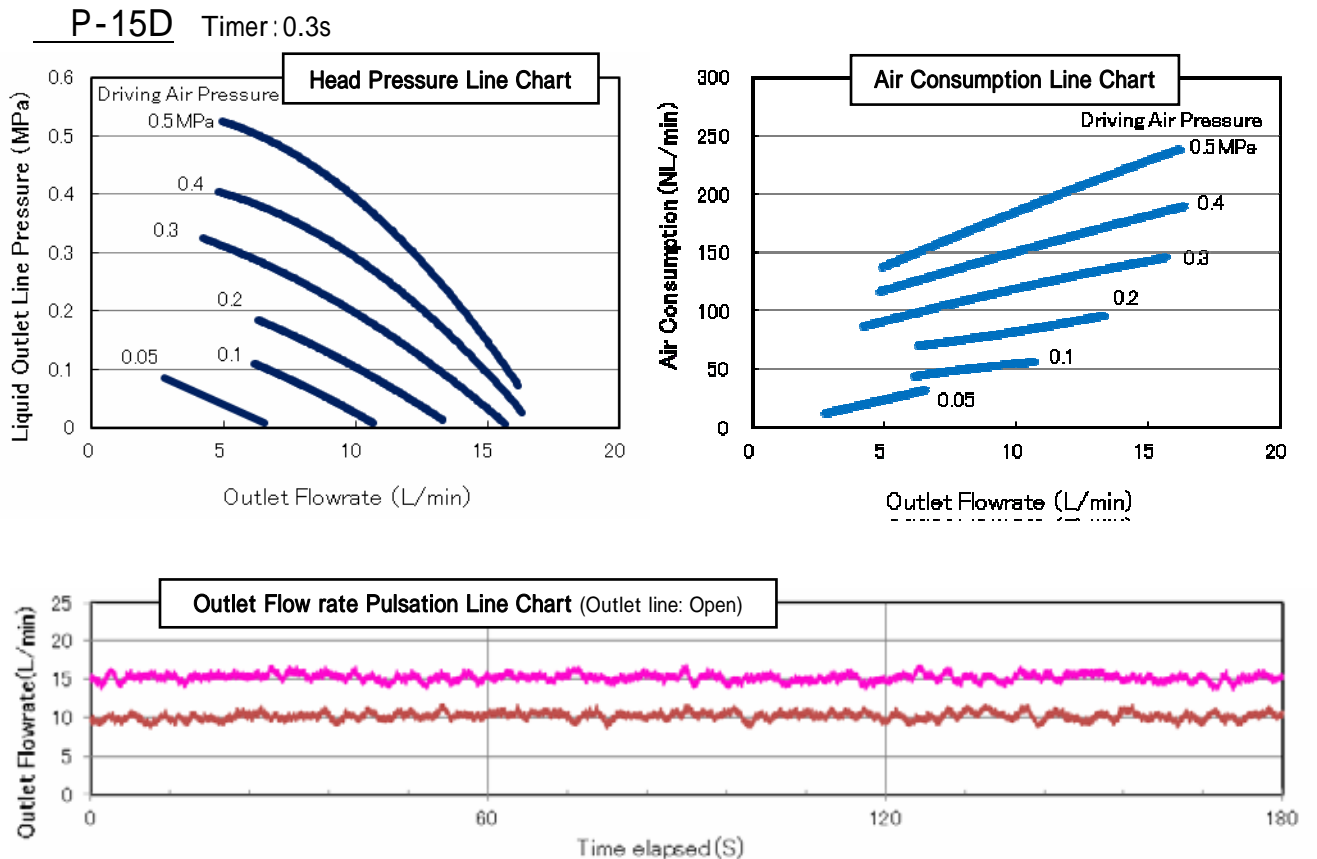
Optional Accessories

These accessories are made by Sigma Technology.

Pump Item	For P-5	For P-15	For P-40	For P-60	For P-100
1 . Pump Controller	<u>CT-1</u> 				
2 . Quick Exhaust Valve	<u>QE-V1</u> (Under development)	<u>QE-V2</u> 	<u>QE-V</u> 	<u>QE-V4</u> (Under development)	

Performance Curves

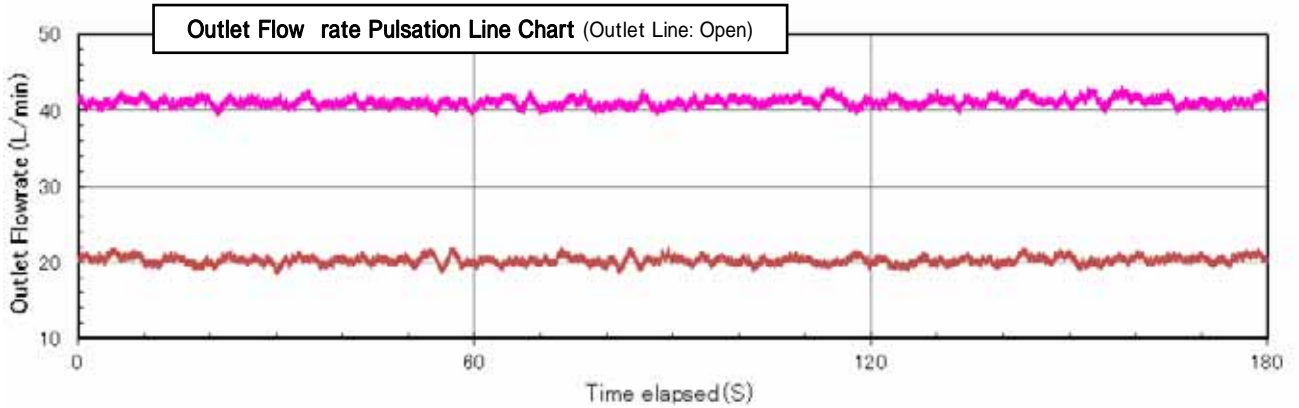
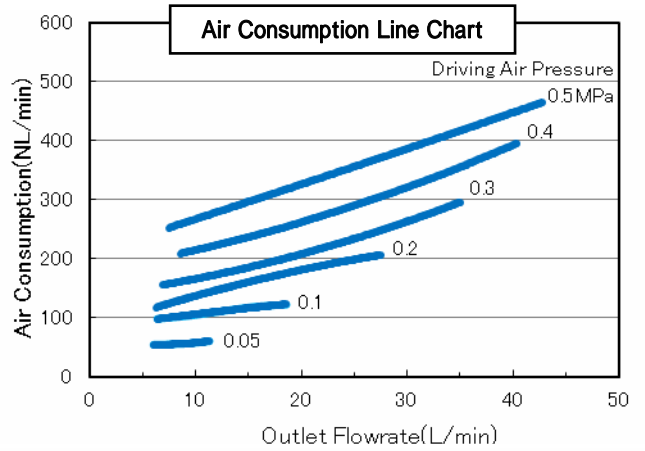
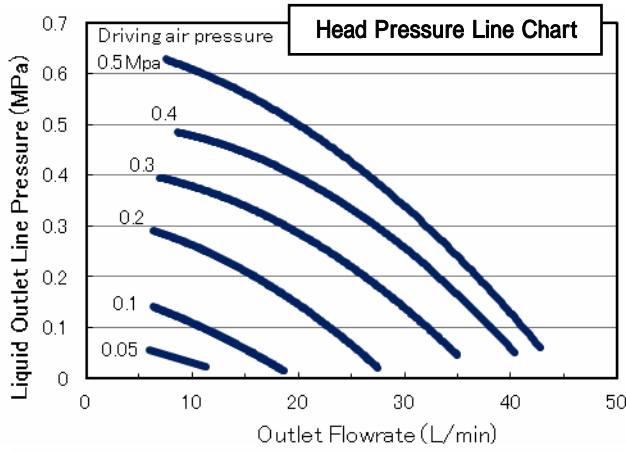
Fluid: Clean water , Fluid temp./Ambient temp:approx.23



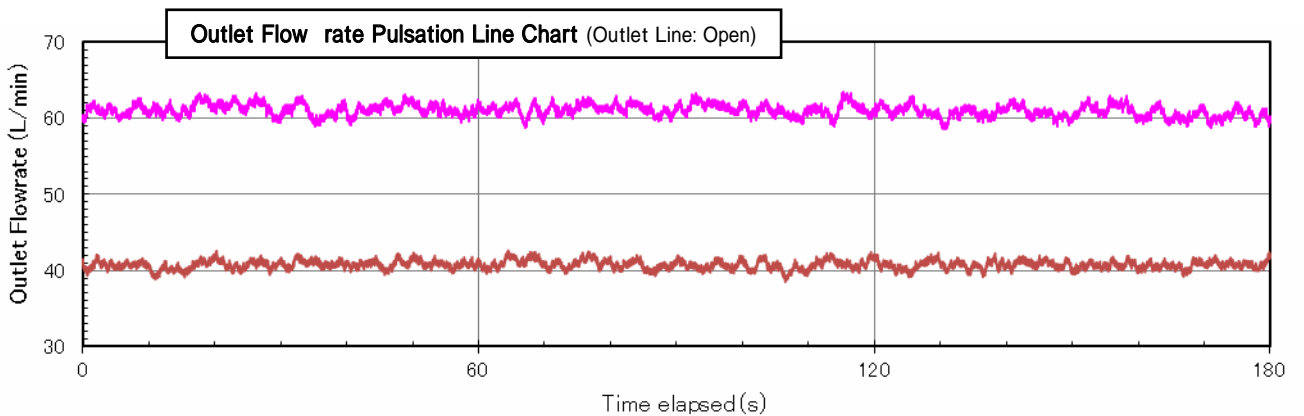
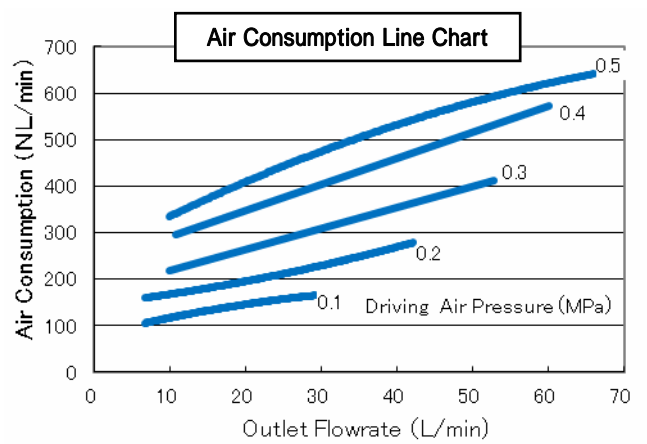
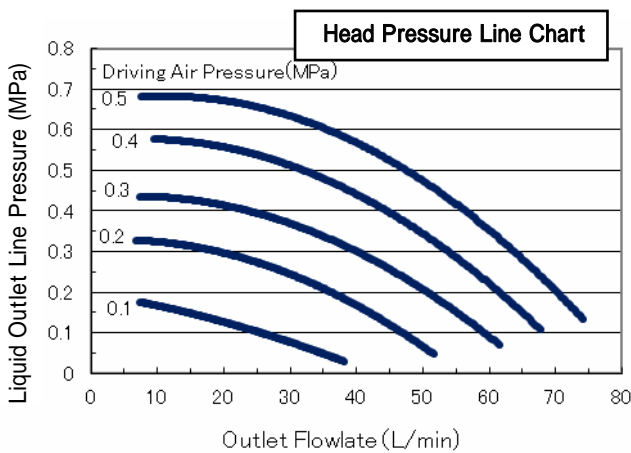
Performance Curves

Fluid: Clean water , Fluid temp./Ambient temp:approx.23

P-40D Timer: 0.3s



P-60D Timer: 0.35s



Industrial property

Pat. 4547451 Bellows pump and Driving method of bellows pump

The other related four patents are pending.

Acknowledgements

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Specification data, performance data and other information in this catalog is subject to change without notice.



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