PRS Series

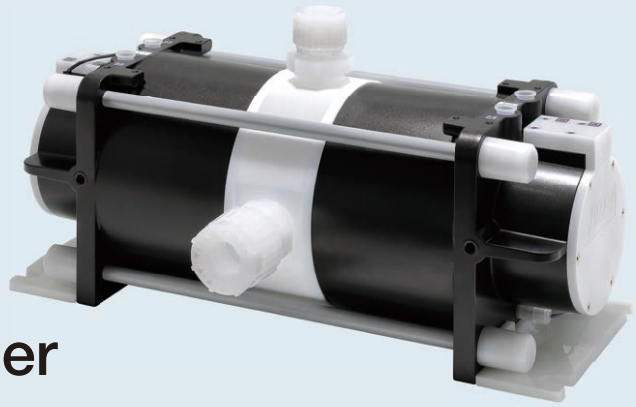
New Low-pulsation Bellows Pump

PILLAR CLEAN SAFETY FRONTIER

Further evolving the low-pulsation bellows pump

Providing significantly improved pulse pressure performance

Securing flow rate even under high discharge pressure



Features

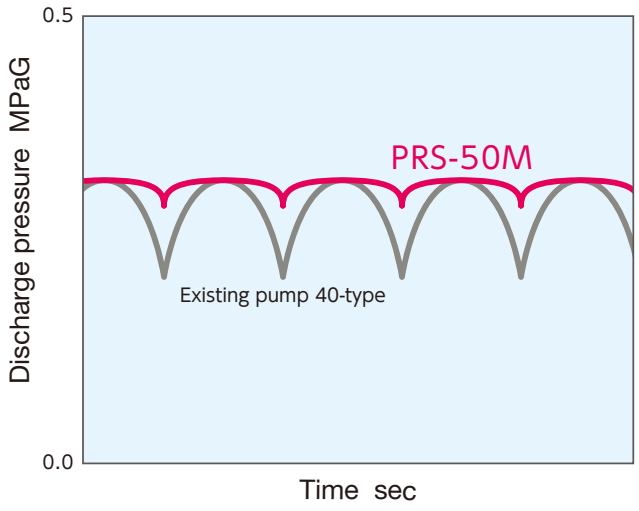
Achieving even lower pulsation

Our original operating mechanism has significantly improved pulse pressure performance.
This product can suppress pipe and device vibration, making it possible to reduce particle generation.

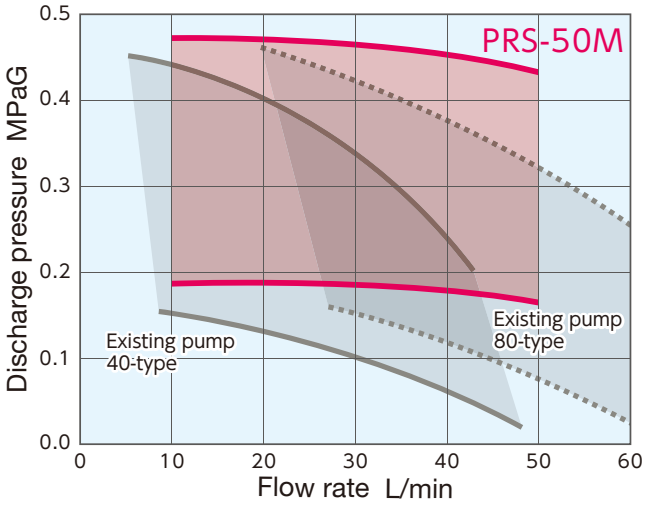
Expanded flow rate range relative to discharge pressure

This product can be used even when discharge pressure is high due to valve/filter connection or high lift or for another reason.
Replacing an existing pump with this pump can contribute to space saving.

■ Comparison of pulse pressure waveforms



■ Range of flow rates corresponding to supply air pressures 0.2 to 0.5 MPaG



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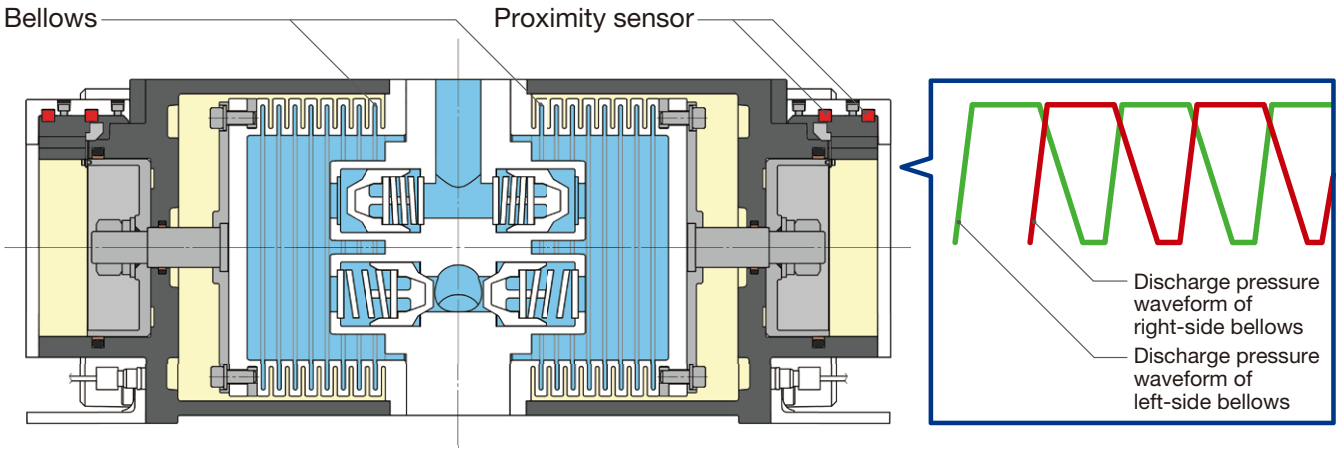
Left and right independent structure + Feedback control

- Because the left and right bellows move independently, discharge pressure waveform phases overlap each other, suppressing pulsation.
  ⇒ Because the pump itself can perform low-pulsation runs, unlike existing pumps, there is no need to separately arrange or incorporate an accumulator (damper).
- This product monitors the position of each bellows using proximity sensors and adjusts air pressure so that pulse pressure waveforms become as flat as possible.
  ⇒ Even if the discharge pressure or flow rate fluctuates, this pump automatically continues low-pulsation runs.

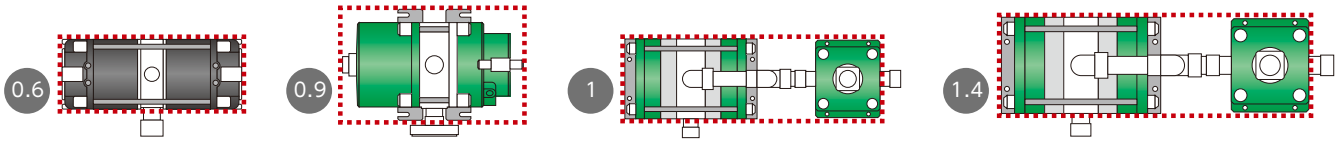


Existing pumps

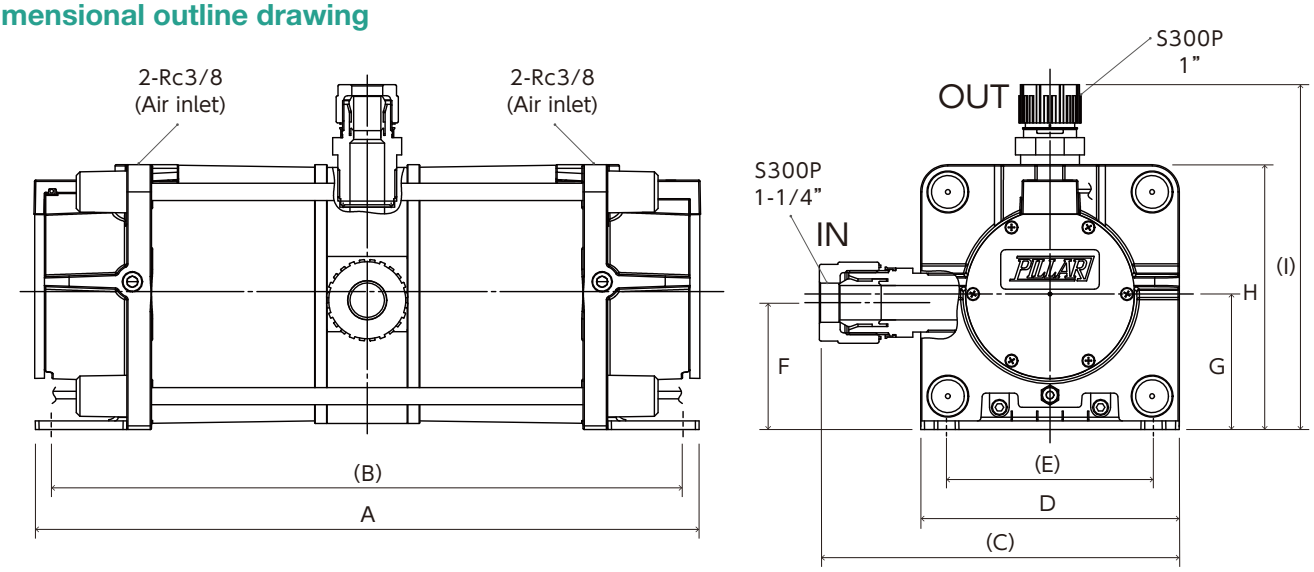
PE series
Left and right bellows are connected.
An accumulator (damper) must be installed to reduce pulsation.

PS and PS-E series
Pump and accumulator functions are integrated.

Footprint ratio



Dimensional outline drawing



Unit: mm

Model	A	(B)	(C)	D	(E)	F	G	H	(I)
PRS-50M-PW10W8	540	513	292	210	168	103	110	215	280

Specifications

Pump model		PRS-50M	
Pump connection size*1	mm	IN 1-1/4" / OUT 1"	
Pump connector		Super 300 Type PILLAR Fitting™	
Max discharge capacity	L/min	50	
Operating temperature	℃	15 to 85	86 to 100
Supply air pressure	MPaG	0.2 to 0.5	0.2 to 0.4
Max discharge pressure	MPaG	0.47	0.37
Allowable differential pressure of bellows*2	MPa	0.4	0.3
Discharge capacity per stroke*3	L	1.04	
Air consumption	L/min (Normal)	70 to 900	
Ambient temperature	℃	10 to 50	
Effective cross-sectional area of solenoid valve	mm^2	60 or more	
Air inlet ports		4-Rc3/8	
Pulsation pressure range*4		Within ± 8%	
Weight	kg	Approx. 29	
Pump size (excluding piping)*5	mm	$540^{L} \times 210^{W} \times 215^{H}$	
Equipment required*6		Solenoid valve, electro-pneumatic regulator, and dedicated controller (PB-13)	

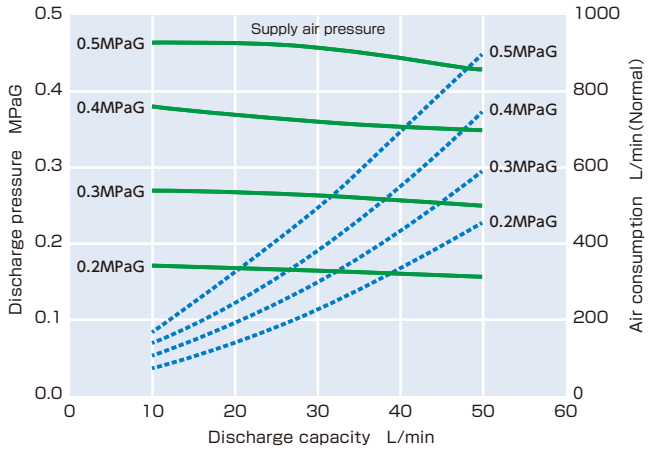
∗1: To obtain performance with this pump, pipes with the pump connection size shown above are required. Install the pump so that the length of the suction pipe does not exceed two meters.
∗2: Allowable differential pressure of bellows = Air supply pressure - Discharge pressure
∗3: This is a reference value. Make sure that the stroke speed is always 50 spm or lower.
∗4: This applies only when there is no foaming in the suction pipe.
∗5: The pump size is a reference value.
∗6: Please contact us for details regarding equipment required and connection methods.
Note: If the fluid to be used is CMP slurry, we recommend the “PC series slurry pump” dedicated to use with CMP slurry.

Performance curve

H-Q characteristics —— Air consumption ·····

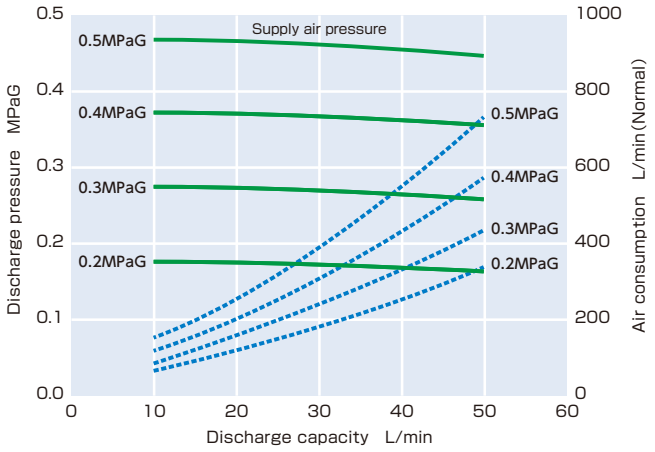
Temperature: 25°C

Air supply piping size: φ12×φ10
Fluid supply piping size: φ31.8×φ28.0×2m (on suction side) Fluid: Pure water
φ25.4×φ22.2×2m (on discharge side)



Temperature: 80°C

Air supply piping size: φ12×φ10
Fluid supply piping size: φ31.8×φ28.0×2m (on suction side) Fluid: Pure water
φ25.4×φ22.2×2m (on discharge side)



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Safety precaution	● When using this product, please use correctly and pay sufficient attention to safety.

＊Please understand that this catalog may change without prior notice.
＊The values shown on this catalog are reference values, not guaranteed values.

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