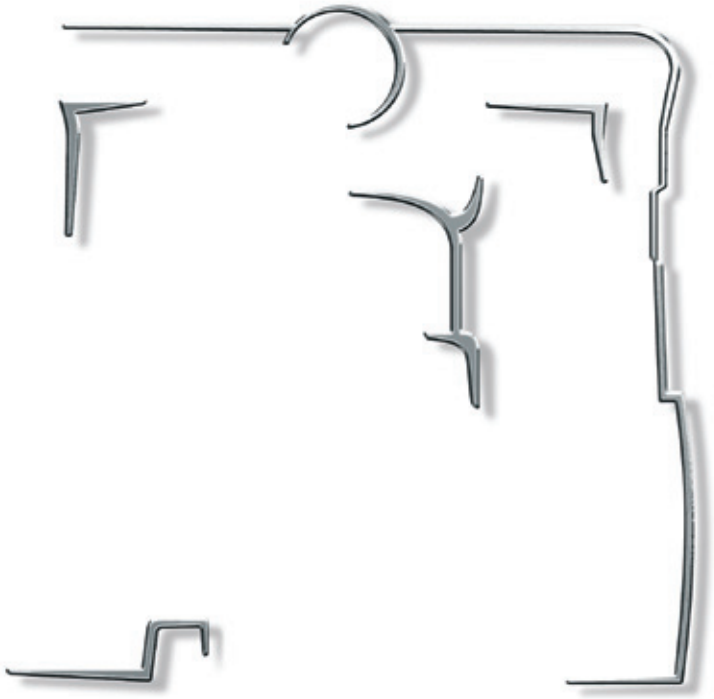
TACMINA

Smoothflow Pump

BPL

Direct-driven type

Metered transfer & injection

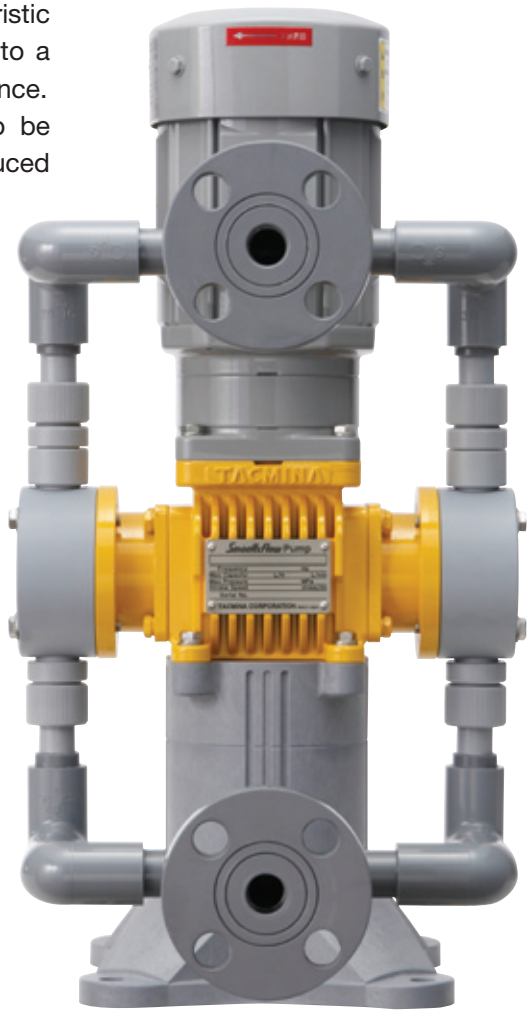


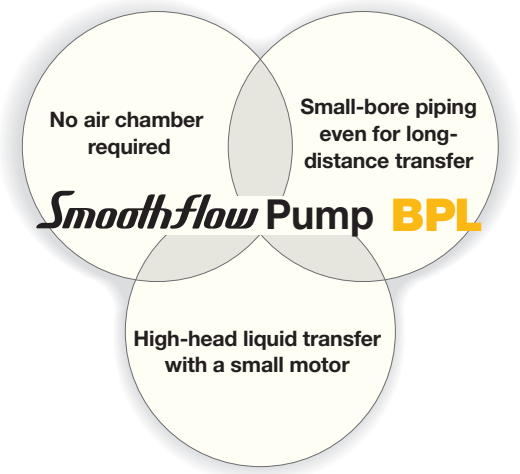
CE

www.tacmina.com

Heralding a revolution in piping design practice.

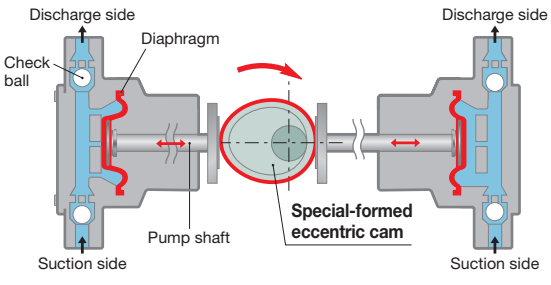
The BPL Smoothflow pump eliminates the pulsation that is characteristic of diaphragm pumps, and transfers liquids in precise amounts up to a high pump head, even through small-bore pipework over a long distance. There is no need for auxiliary units, enabling uncluttered lines to be constructed and contributing to significant energy savings with reduced carbon dioxide levels.
This is the pump that heralds a revolution in piping design practice.

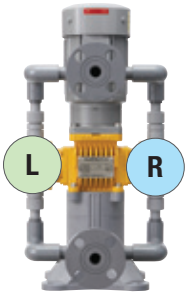


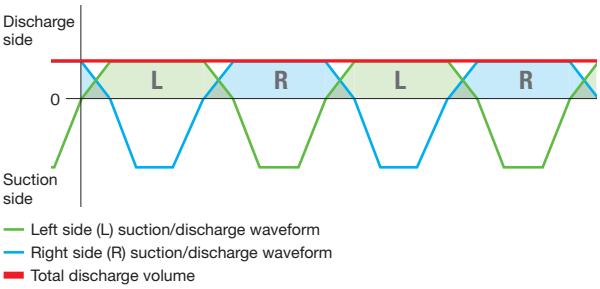


Special-formed eccentric cam for continuous constant flow with no pulsation

The Special-formed eccentric cam incorporates a simple drive mechanism with a single-cam construction which ensures that the sum of the volumes discharged from the left and right pump heads remains constant to create a continuous flow.
The discharge volume of liquids can be controlled with a high degree of precision.



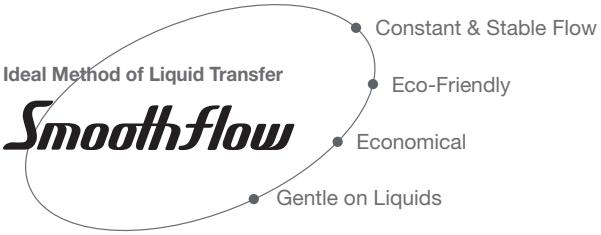




✻This schematic diagram is for illustrative purposes.

For Those Who Want Total Control in Liquid Flow

Smoothflow ___ the ideal method of liquid transfer. This innovative method not only meets your liquid transfer needs, but provides optimal solutions to Man, liquids and the environment as well. TACMINA's Smoothflow technology, based on unique know-how cultivated over 50 years, delivers you ultimate performance and provides complete satisfaction.



VS Conventional Diaphragm Pumps

Every part is designed to improve efficiency and to reduce the overall cost.

Safe

No more dangers posed by air chambers
Air chambers have been eliminated to banish any risk of chemical being splattered or spilled.

Cost-saving

Reduced expenses involved in long distance pipework
Small-bore pipework, even over a long distance, can now be used since there is no pulsation.

Reduced running costs
Maintenance costs are lower since there is no longer any need to recharge air chambers or adjust the pressure.

ECO

Contribution to energy saving
This pump has lower power consumption than conventional diaphragm pumps.

Easy & Accurate

Easy metering of flow rates
The discharge volume of liquid can be easily checked with a flow meter since the flow rate is constant.

No fear of injection fluctuation
Uniform injection is achieved because the liquid flow is continuous without pulsation.

VS Rotary Pumps

Eco-friendly & worry-free operation

Safe

No leakage of chemical outside the pump
No liquid can leak from the pump because there are no mechanical seals.

No damage even when idling
There are no sliding parts, so the pump will not be damaged even when idling while the tank is empty.

Cost-saving

Minimum maintenance required
These pumps have few consumable parts, and they are also easy to disassemble and replace.

ECO

Contribution to energy saving
Liquid can be transferred to a high pump head by a small motor, resulting in less power consumption.

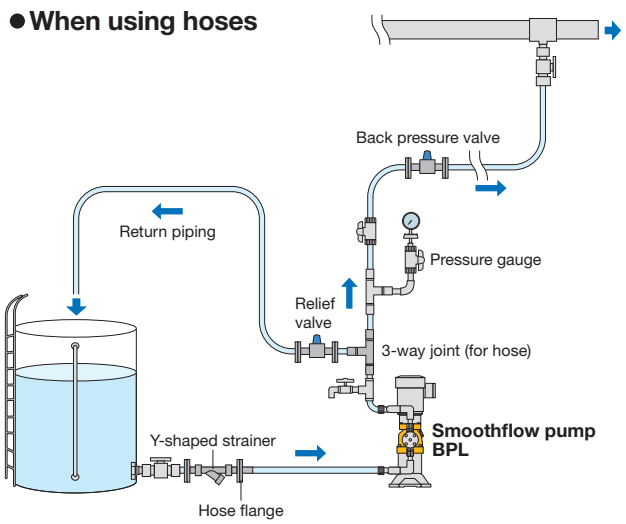
Accurate & Gentle

Precise liquid transfer even at a very low flow rate
The outstanding sealing characteristics of the valve seats prevent backflow and enable even a very small volume of liquid to be injected with a high degree of precision.

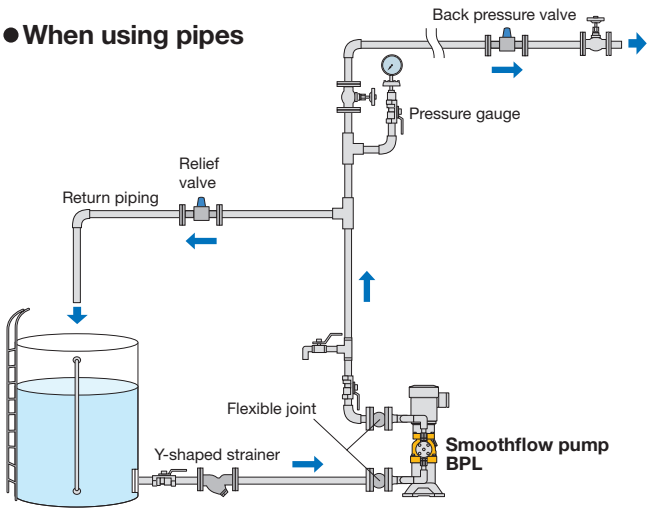
No deterioration of the transferred liquid
There are no sliding parts, so there is no deterioration of the transferred liquid induced by shearing, wear, pressurization or temperature change.

Examples of Recommended Piping

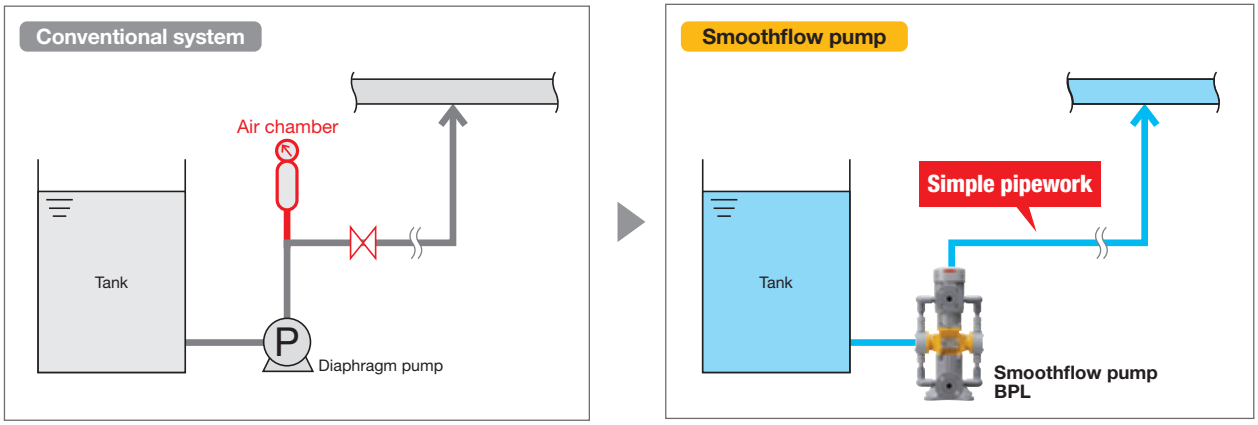
● When using hoses



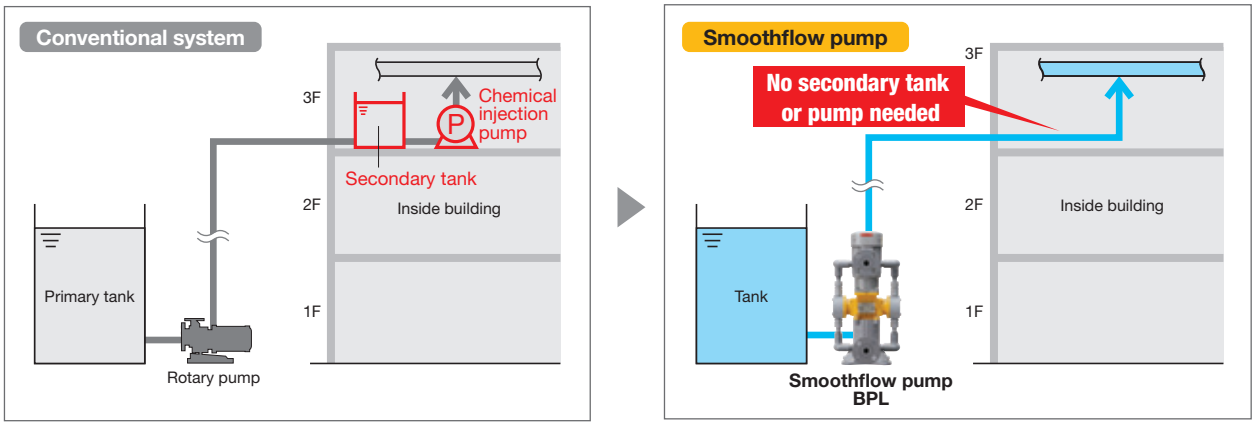
● When using pipes



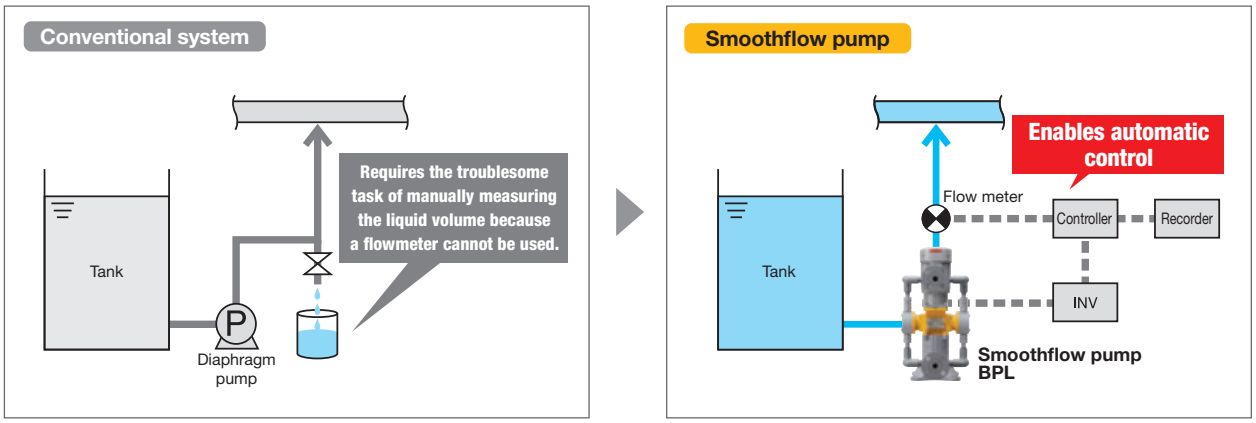
Example : Injection of sodium hypochlorite



Example : Chemical transfer to a high pump-head over a long distance



Example : Liquid volume control using flowmeter



Auxiliary Devices & Options

Inverter

This helps to save energy and also enables the flow rate to be remotely controlled. It can be installed outdoors or mounted on a cart. Purpose-made control boxes can also be provided.

Flow meter

This enables the flow rate to be calibrated and monitored. Meters can be selected according to the flow rate and corrosivity of the transferred liquid.

Back pressure valve*

This valve prevents overfeeding *1 and siphoning*2 phenomena. Provide the back pressure valve near the injection point on the discharge-side piping.

Relief valve

This relief valve automatically releases excess pressure that builds up in the discharge-side piping of the pump to prevent unexpected accidents.

Trolley type

The trolley type unit with casters can be easily moved for installation at different sites and easily integrated into other equipment.

*1 Phenomenon where the momentum (inertia) of the push process in a flow having pulsation causes discharge to continue even in the stroke in which the pump is not discharging
*2 Phenomenon where chemicals are sucked out naturally and continue to flow even with pump operation stopped as the tip of the pump's discharge-piping is located lower than the level of the liquid in the suction-side tank
* Note that the back pressure valve will no longer be able to operate correctly if dirt builds up inside the valve.

Model Code

BPL – **005** – **VTCE** – **H** **W** **X** – **CE**

1 2 3 4 5 6 7

BPL-1-VTCE-HWS

1 Series name

2 Model (discharge-volume standard)
005 / 01 / 02 / 03 / 06 / 1 / 2 / 3 / 5
10 / 20 / 30

3 Liquid-end material ★1

	Pump head	Diaphragm	Check ball	O-ring
VTCE	PVC	PTFE	Ceramic	EPDM
VTCF	PVC	PTFE	Ceramic	Fluoro rubber
VT6E	PVC	PTFE	SUS316	EPDM
VT6F	PVC	PTFE	SUS316	Fluoro rubber
STST	SUS304 ★7	PTFE	SUS304	PTFE ★8

4 Connection type★2
H : Hose★3
F : JIS flange
A : ANSI flange★4
D : DIN flange ★4
U : Union
M : Screw (Rp female screw) ★3

5 Joint specification ★5
W : Standard
V : High-viscosity type

6 General specification★6
S : Standard
X : Special

7 Applicable standard
Blank : None
CE : CE marking-compatible★6

★1 "005" cannot be selected as the model in 2 for VT6E/VT6F. "V" is selected in 5.
The pump head material of STST 10 to 30 is SCS14 (equivalent to SUS316).

★2 "3 to 30" cannot be selected as the model in 2 for the hose type.
"3 to 30" cannot be selected as the model in 2 for the union type; "STST" is selected in 3.
"3 to 30" cannot be selected as the model in 2 for the screw type; "VTCE/VTCF" is selected in 3.

★3 For those who would like to use a hose other than the standard size listed in the specifications, select M rather than H and designate the desired size.

★4 Only 380V, 400V and 440V motor can be selected for ANSI/DIN connection type.

★5 "VT6E/VT6F" should be selected in 3 for the high-viscosity type.

★6 Select "X" in 6 , if "CE" is selected in 7 .
Only 380V and 400V motor (50Hz) can be selected for CE marking-compatible model.

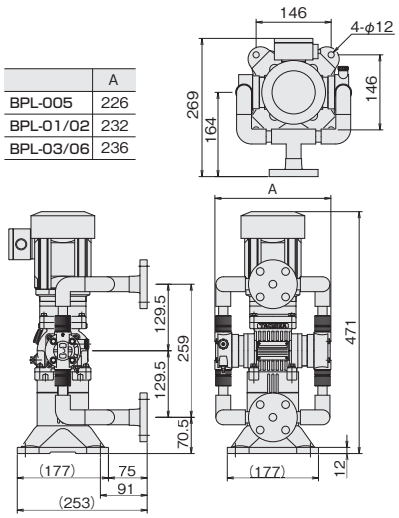
★7 If "10 to 30" is selected as the model in 2, "SCS14" (equivalent to SUS316) should be selected.

★8 If "10 to 30" is selected as the model in 2, "PFA/Silicon" should be selected.

External Dimensions

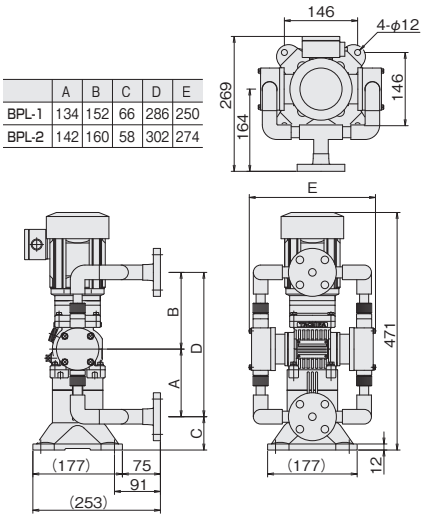
BPL-005/01/02/03/06

	A
BPL-005	226
BPL-01/02	232
BPL-03/06	236

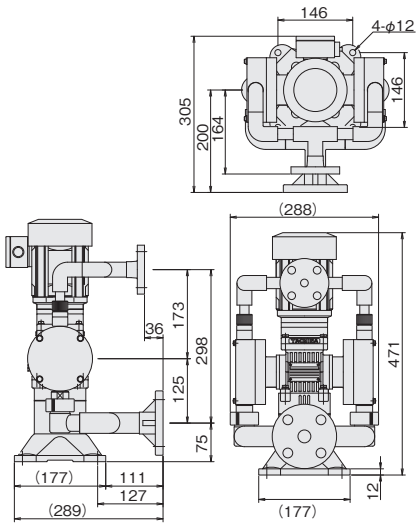


BPL-1/2

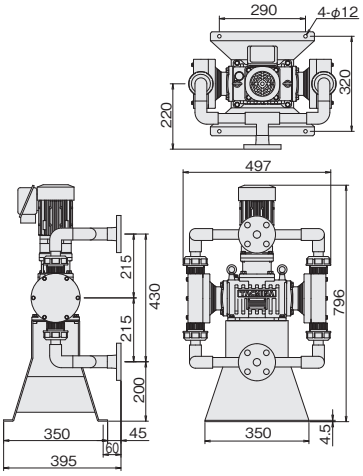
	A	B	C	D	E
BPL-1	134	152	66	286	250
BPL-2	142	160	58	302	274



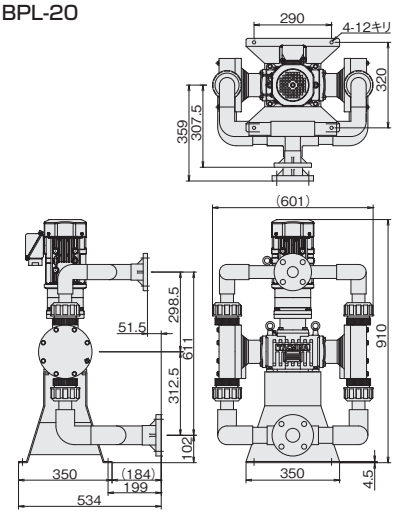
BPL-3/5



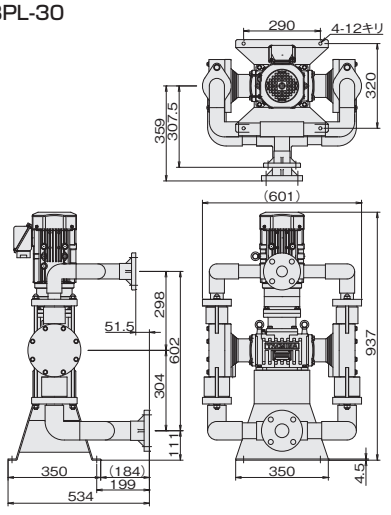
BPL-10



BPL-20



BPL-30



✻ Dimensions for the VTCE/VTCF flange types are given. Contact us for details of the dimensions for other models.
✻ The dimension of CE marking compatible-model differs. Contact your dealer or TACMINA

Specifications

Specification				BPL-005	BPL-01	BPL-02	BPL-03	BPL-06	BPL-1	BPL-2	BPL-3	BPL-5	BPL-10	BPL-20	BPL-30
Max. discharge volume ✶1 (at max. discharge pressure)	L/min			0.05	0.14	0.2	0.3	0.6	1	2	3	5	10	20	30
	L/h			3	8.4	12	18	36	60	120	180	300	600	1200	1800
	US G/h			0.79	2.21	3.16	4.75	9.5	15.84	31.68	47.52	79.2	158.4	316.8	475.2
Max. dischargepressure ✶2	MPa			1.0						0.5					
	bar			10						5					
	psi			145						72.5					
Discharge volume control system				Motor-speed control by inverter											
Discharge volume control range	1:n			1:10							1:4	1:2	1:10		
	Hz			6 to 60							15 to 60	30 to 60	6 to 60		
Stroke speed	strokes/min			105			119	105		119			84	104	
Stroke length	mm			2	3			6			4	6	10	13	20
Connection	Standard type	Hose ✶3	Discharge side	6x11PVC braided (standard)／6x8PE／1/4x3/8PE			12x18PVC braided (standard)				—				
			Suction side	12x18PVC braided (standard)							—				
		Flange ✶4	Discharge side	JIS10K15A／ANSI150Lb 1/2B／DIN2501 PN10 DN15									JIS10K25A ANSI150LB 1B DIN2501 PN10DN25	JIS10K40A ANSI150LB 1-1/2B DIN2501 PN10DN40	
			Suction side	JIS10K15A／ANSI150Lb 1/2B／DIN2501 PN10 DN15							JIS10K25A ANSI150Lb 1B DIN2501 PN10 DN25		JIS10K25A ANSI150LB 1B DIN2501 PN10DN25	JIS10K50A ANSI150LB 2B DIN2501 PN10DN50	
		Union		R3/8							—				
		Screw		Rp1/2							—				
	High-viscosity type	Hose	Discharge side	—	12x18PVC braided				19x26PVC braided		—				
			Suction side	—	12x18PVC braided				19x26PVC braided		—				
		Flange ✶4	Discharge side	—	JIS10K15A／ANSI150Lb 1/2B／DIN2501 PN10 DN15				JIS10K25A／ANSI150Lb 1B／DIN2501 PN10 DN25				JIS10K25A ✶4	JIS10K40A✶4	
			Suction side	—	JIS10K15A／ANSI150Lb 1/2B／DIN2501 PN10 DN15				JIS10K25A／ANSI150Lb 1B／DIN2501 PN10 DN25				JIS10K25A ✶4	JIS10K40A✶4	
Transferrable temperature	Ambient temperature			0 to 40℃											
	Liquid temperature			PVC type: 0 to 40℃／SUS type: 0 to 60℃ (no freezing allowed)											
Transferrable viscosity	Standard			50 mPa･s or less											
	High-viscosity type			—	2000mPa･s or less				1000mPa･s or less				2000mPa･s or less		
Motor	Type			Totally enclosed fan-cooling outdoor type											
	Power supply(V)/Frequency(Hz)/No. of poles			3-phase／200V(50 Hz／60 Hz), 220V(60 Hz)／4P ✶5											
	Output(kW)			0.2									0.4	0.75	1.5
	Reduction ratio			1/17			1/15	1/17		1/15			1/21	1/17	
	Rated current		200V/50Hz	1.24/4.6									2.35/9.1	4.29/26.3	7.48/45.0
	Max.startup current(A)		200V/60Hz	1.09/4.2									2.05/8.3	3.73/23.9	6.80/41.1
			220V/60Hz	1.09/4.8									2.02/9.4	3.78/26.7	6.57/45.7
	Insulation class			E[F]									E	F	
	Cable conduit connection diameter			PF1/2[M2.4x1.5 M16x1.5]									PF1/2	G3/4	
Pump paint color				Body : Munsell (approximate) 10YR7.5/14／Motor: Munsell (approximate) N5.5											
Weight	VTCE/VTCF flange type(kg)			11[12]					12[13]	13[14]	15[16]		46	69	77
	STST flange type(kg)			15[16]					16[17]	18[19]	25[26]		64	91	101

✻ The numbers or letters inside of [ ] stands for specifications of CE model.
✶1 This is the discharge volume of the VTCE/VTCF type. For details about the VT6E/VT6F/STST type, contact your TACMINA representative.
✶2 In the case of models BPL-3 and BPL-5, the maximum discharge pressure is 0.3 MPa when a setting of 1:10 (6 to 60 Hz) is used for the discharge volume control range.
✶3 STST type discharge side: BPL-005 to 06, 10 mm dia. x 12 mm dia.; BPL-1 and 2, 12 mm dia. x 15 mm dia.; suction side: 12 mm dia. x 15 mm dia.
✶4 Other connections are also available. For details, contact your TACMINA representative.
✶5 Other motors are also available. For details, contact your TACMINA representative.

A High Capacity Type Appears!

BPL-80

Max. discharge volume : 4,800L/H(80L/min)
Max. discharge pressure : 0.3MPa
✻For details, contact your TACMINA representative.

Product designs and specifications are subject to change without notice for product improvement.

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