PZiG

Digital Setting

Advanced Functions

Large-capacity

Large-capacity

Lineup of five models supporting large-capacity injection up to 1300 mL/min

High-viscosity

The PZiG series can also be used for the injection of polymer coagulant.

* When transferring high-viscosity liquids, the maximum discharge volume may be lower than the specified volume depending on the characteristics of the liquid and operating conditions. Consult TACMINA separately when transferring high-viscosity liquids.

Direct Entry of Injection Amount

The injection amount can be set according to three patterns:

[By stroke speed]

Setting range: 1 to 300 strokes/min (minimum setting increment: 1 stroke/min)

[By discharge volume]

Setting range: 0.1 to (maximum discharge volume of selected model) mL/min (minimum setting increment: 0.1 mL/min)

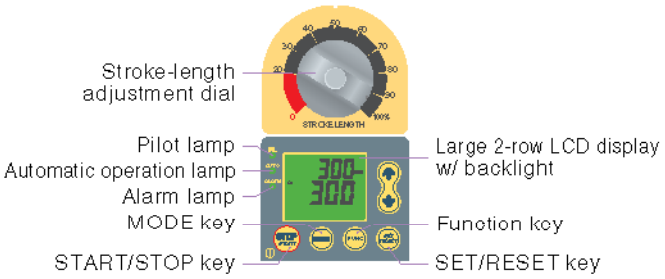
[By percentage]

Setting range: 1 to 100% (minimum setting increment: 1% (3 strokes/min))

Wide Voltage Range Power Supply

There is no need to worry about site power supply voltage or voltage fluctuations since it can be used with AC100 to 240 V (±10%) power supplies. You can also keep it in stock safely since it can be used for a variety of sites and applications.

Simple key Layout



Water- & Dust-proof Specifications

IEC standard: IP65 or equivalent

* Avoid condensation and immersion in water.

Quick & Easy Calibration

The PZiG Series is provided with easy calibration function for accurate pump calibration. Just push the button to automatically discharge 300 strokes' worth of chemical and enter the actual discharge volume that you will be measuring. This is all you need to do for accurate calibration.

Extensive Range of Liquid-end Materials

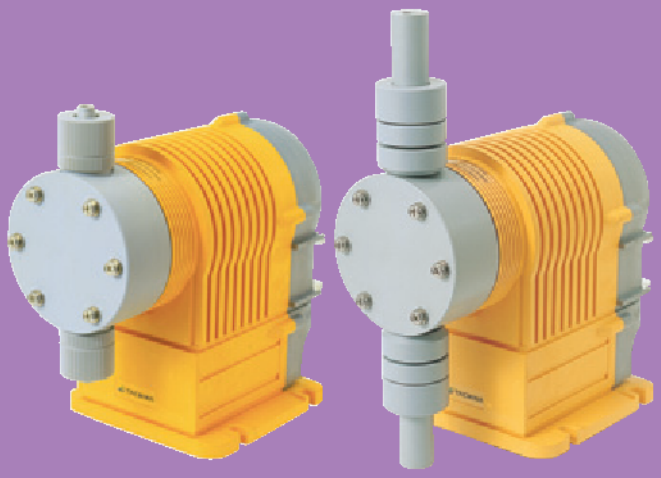
* For details, refer to the "Liquid-end Material" table on the following page.

VTCE/VTCF
Material: PVC
Application example: Transfer/injection of general chemicals

FTCT
Material: PVDF
Application example: Transfer/injection of special chemicals (e.g. strong and mixed acids)

VTCF (high-viscosity type)
Material: PVC
Application example: Transfer/injection of high-viscosity liquids

Analog/Digital-Input & Digital-Output

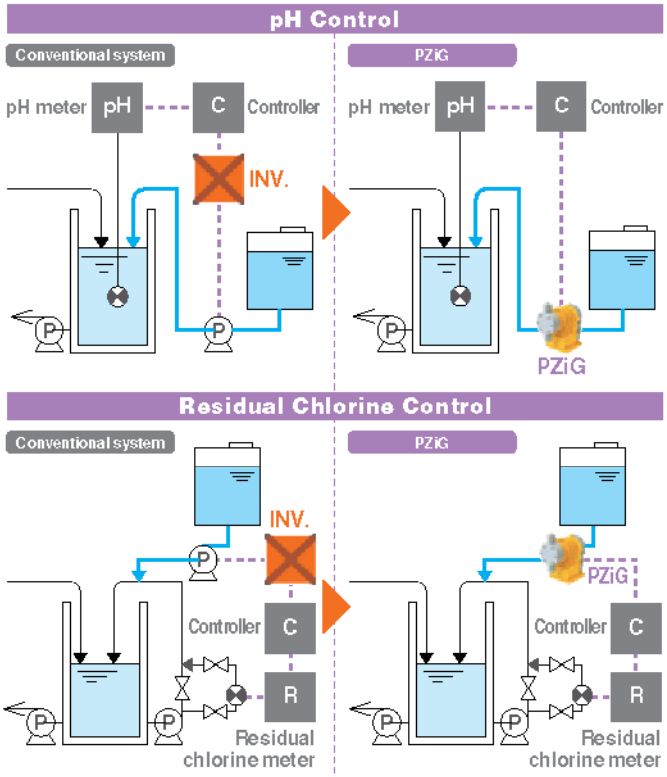


Standard
(300/500/700/1000/1300)

High-viscosity type
(300/500/700/1000/1300)

Analog-Input Proportional Control

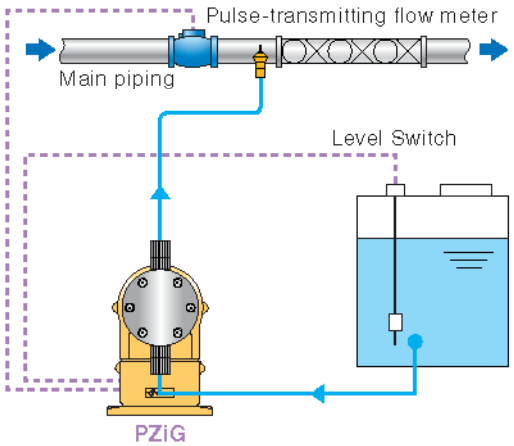
The injection amount (stroke frequency: 0 to 300 strokes/min) can be set according to the analog input signal (0 to 20 mA or 4 to 20 mA) from an external device.



Motor Driven Pump	PZiG
·Inverter required	·Inverter not required
·Narrow control range of 1:10 (6 to 60 Hz),	·Wide control range of 1:300 (1 to 300 strokes/min)
·Raw liquid must be diluted since the discharge volume per stroke is large.	·Raw liquid can be injected since the discharge volume per stroke is small.

Pulse-Input Proportional Control & External Stop Input Control

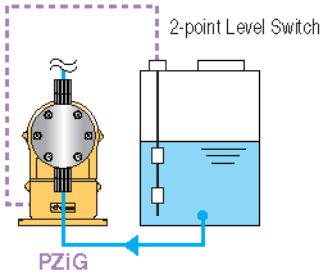
Pump ON/OFF can be controlled by an external stop input signal. Also, the injection amount (1/9999 to 9999 strokes/pulse) can be set according to the pulse input signal from an external device.



* For details on the Level Switch, see "Option" on the back cover.

2-point Level Switch Control

Control such as alarm display and output, and pump stop is performed in accordance with the remaining amount of chemicals.



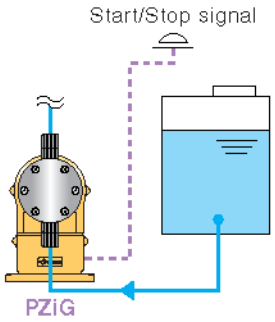
Count (batch) & Interval (timer) Operation

Count setting

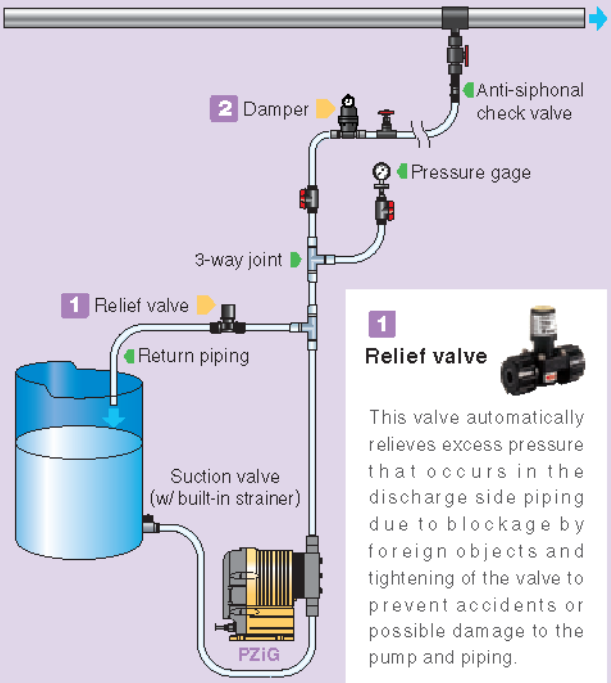
1 to 9999 strokes
(x1, x10, x100, x1000)

Interval setting

ON time : 1 to 9999 min
OFF time : 1 to 9999 min



Example of Safe Hose Piping for Fully Demonstrating the Performance of the PZiG



1 Relief valve

This valve automatically relieves excess pressure that occurs in the discharge side piping due to blockage by foreign objects and tightening of the valve to prevent accidents or possible damage to the pump and piping.

2 Damper

Install a damper or air chamber when the piping is long or to suppress vibration on the piping. Also, be sure to install the damper near to the pump when the PZiG1300 model is used and the discharge side piping is to be extended beyond two meters.

Specification

Specification \ Model			300				500				700			
			VTCE	VTCF	FTCT	VTCF (high-viscosity type)	VTCE	VTCF	FTCT	VTCF (high-viscosity type)	VTCE	VTCF	FTCT	VTCF (high-viscosity type)
Max. discharge volume*1		mL/min	340				530				760			
		L/h	20.4				31.8				45.6			
Max. discharge pressure*1		MPa	1.0		0.5	1.0 / 1.0	0.7		0.5	0.7 / 0.7	0.4			
		bar	10.0		5.0	10.0 / 10.0	7.0		5.0	7.0 / 7.0	4.0			
Stroke speed			1 to 300 strokes/min (digital setting)											
Stroke length			0.3 to 1.5 mm (adjustable by manual dial)											
Connection (hose/tube: I.D x O.D)	Discharge side		12 x 18 (PVC braided hose) FNPT 1/2		12 x 15 (PTFE)	FNPT 1/2 / FNPT 3/4 MNPT 3/4 VP 20 (Union Joint)	12 x 18 (PVC braided hose) FNPT 1/2		12 x 15 (PTFE)	FNPT 1/2 / FNPT 3/4 MNPT 3/4 VP 20 (Union Joint)	12 x 18 (PVC braided hose) FNPT 1/2		12 x 15 (PTFE) FNPT 1/2	FNPT 3/4 MNPT 3/4 VP 20 (Union Joint)
	Suction side													
	Relief /air-release		—											
Max. allowable viscosity			50 mPa·s			3000 mPa·s*2	50 mPa·s			3000 mPa·s*2	50 mPa·s			3000 mPa·s*2
Allowable temperature			Ambient temperature: 0 to 40°C/Transferring liquid: 0 to 40°C (no freezing allowed)											
Ambient humidity			35 to 85% RH											
Environmental protection			IEC standard: IP65 or equivalent (water- and dust-proof)											
Altitude of installation location			Less than 1,000 m											
Noise level			Less than 85 dB											
Signal	Analog-Input		1 port : Analog signal (4 to 20 mA DC, 0 to 20 mA, input resistance: approx. 110 Ω)*3											
	Digital*4	Input	2 ports: High-speed pulse signal (no-voltage contact or open collector, input resistance: approx. 2 kΩ, max. number of pulses: 7500 pulse/min, min. pulse width: 4 msec (ON time))*3 2 ports: Low-speed pulse signal (no-voltage contact or open collector, input resistance: approx. 2 kΩ, min. pulse width: 50 msec (ON time)) Signal assignments : Unassigned, Pulse signal, Stop signal, Start signal, Reset/Restart signal, Alarm reset signal, (4 selectable) Level Switch signal (only when Level Switch is used), Compulsive MAX operation signal											
		Output	2 ports: Pulse signal (10 mA DC, 25 V or less) Signal assignments : Unassigned, Solenoid-operation sync pulse signal, In-operation signal, Running signal, Operation end signal, Lamp alarm signal, (4 selectable) Low tank-level alarm signal (only when 2-point Level Switch is used), Pulse-Input error signal, Analog-Input error signal											
Operation mode	Manual		Digital settings: 3 patterns [stroke speed (1 to 300 strokes/min, in 1 stroke/min increments), discharge volume (in 0.1 mL/min increments), percentage (1 to 100%, in 1% increments)]											
	Auto	Analog-Input proportional control*5	Control possible by Proportional Band (PB) setting/Set Point (SP) setting											
		Pulse-Input proportional control*5	Control possible by Frequency-division (1/1 to 1/9999) setting/Multiplication (1 to 9999) setting											
		Count operation (batch control)	1 to 9999 strokes (x1, x10, x100, x1000)											
		Interval operation (timer control)	ON time: 1 to 9999 min/OFF time: 1 to 9999 min											
		External stop input control	"STP" flashing display, pump stopped											
		2-point Level Switch control*6	[Low tank-level alarm] "E-02" displayed and alarm output/[Lower tank-level alarm] "STP" flashing display and pump stopped											
Power supply	Rated voltage		AC 100 to 240 V (±10%)											
	No. of phases/Frequency		1-phase/50 or 60 Hz											
	Maximum current		4.0 A											
	Power consumption		Max.: 750 VA/Ave.: 100 W											
Weight			11 kg											

*1 Conditions: Clean water, room temperature *2 When transfering high-viscosity liquids, the maximum discharge volume may be lower than the specified volume depending on the characteristics of the liquid and operating conditions. Consult TACMINA separately when transfering high-viscosity liquids.
*3 Combined use of Analog-Input signal and high-speed pulse signal not possible. *4 For a detailed explanation on signals, see "Digital Signal" on page 26.
*5 For details, see "Analog-Input Proportional Control" and "Pulse-Input Proportional Control" on page 18. *6 When 2-point Level Switch is used

Model Code

✱ Not all model combinations are possible. When selecting the pump model, first check "Specification" and "Liquid-end Material".

PZiG – 300 – VTCE – 12x18PVC – W – S – JPL – ☐

1 2 3 4 5 6 7

1 Model (discharge volume standard)
[for injection of general chemicals]
300 : 300 mL/min
500 : 500 mL/min
700 : 700 mL/min
1000 : 1000 mL/min
1300 : 1300 mL/min

[High-viscosity type]
300 : 300 mL/min
500 : 500 mL/min
700 : 700 mL/min
1000 : 1000 mL/min
1300 : 1300 mL/min

2 Liquid-end material
VTCE
VTCF
FTCT

VTCF

3 Hose standard (size/material)
12 x 18 PVC
12 x 15 PTFE
FNPT 1/2

FNPT 3/4
MNPT 3/4
VP 20 (Union Joint)

4 Joint specification
W : Standard

V : high-viscosity type

5 Applicable standard
S : Standard
CE : CE marking-compatible

6 Power plug
EUP : Euro plug*
ULP : UL plug
AUP : Australia plug
UKP : UK plug*
JPL : Japan lead wire

7 General specification
None : Standard
X : Special

Accessory

✱ The 4-pin/8-pin cable (2 m or 5 m selectable) is an option.

Item \ Model	VTCE	VTCF	FTCT	VTCF (High-viscosity type)
Hose/Tube*	3 m			—
Anti-siphon check valve	1 set (R1/2 or R3/8)			—
Strainer	1 set			—
Pump mounting nuts/bolts(M5 x 30)	4 sets			
Operation manual	1 set			

✱ For details on the hose/tube aperture, see "Connection" for the respective model in "Specification" table above.

Specification

Specification \ Model			1000				1300			
			VTCE	VTCF	FTCT	VTCF (high-viscosity type)	VTCE	VTCF	FTCT	VTCF (high-viscosity type)
Max. discharge volume*1		mL/min	1000				1300			
		L/h	60.0				78.0			
Max. discharge pressure*1		MPa	0.3				0.2			
		bar	3.0				2.0			
Stroke speed			1 to 300 strokes/min (digital setting)							
Stroke length			0.3 to 1.5 mm (adjustable by manual dial)							
Connection (hose/tube: I.D x O.D)	Discharge side		12 x 18 (PVC braided hose) FNPT 1/2		12 x 15 (PTFE) FNPT 1/2	FNPT 3/4 MNPT 3/4 VP 20 (Union Joint)	12 x 18 (PVC braided hose) FNPT 1/2		12 x 15 (PTFE) FNPT 1/2	FNPT 3/4 MNPT 3/4 VP 20 (Union Joint)
	Suction side									
	Relief /air-release		—							
Max. allowable viscosity			50 mPa·s			3000 mPa·s*2	50 mPa·s			3000 mPa·s*2
Allowable temperature			Ambient temperature: 0 to 40℃/Transferring liquid: 0 to 40℃ (no freezing allowed)							
Ambient humidity			35 to 85% RH							
Environmental protection			IEC standard: IP65 or equivalent (water- and dust-proof)							
Altitude of installation location			Less than 1,000 m							
Noise level			Less than 85 dB							
Signal	Analog-Input		1 port : Analog signal (4 to 20 mA DC, 0 to 20 mA, input resistance: approx. 110Ω)*3							
	Digital*4	Input	2 ports: High-speed pulse signal (no-voltage contact or open collector, input resistance: approx. 2 kΩ, max. number of pulses: 7500 pulse/min, min. pulse width: 4 msec (ON time))*3 2 ports: Low-speed pulse signal (no-voltage contact or open collector, input resistance: approx. 2 kΩ, min. pulse width: 50 msec (ON time)) Signal assignments (4 selectable): Unassigned, Pulse signal, Stop signal, Start signal, Reset/Restart signal, Alarm reset signal, Level Switch signal (only when Level Switch is used), Compulsive MAX operation signal							
		Output	2 ports: Pulse signal (10 mA DC, 25 V or less) Signal assignments (2 selectable): Unassigned, Solenoid-operation sync pulse signal, In-operation signal, Running signal, Operation end signal, Lamp alarm signal, Low tank-level alarm signal (only when 2-point Level Switch is used), Pulse-Input error signal, Analog-Input error signal							
Operation mode	Manual		Digital settings: 3 patterns [stroke speed (1 to 300 strokes/min, in 1 stroke/min increments), discharge volume (in 0.1 mL/min increments), percentage (1 to 100%, in 1% increments)]							
	Auto	Analog-Input proportional control*5	Control possible by Proportional Band (PB) setting/Set Point (SP) setting							
		Pulse-Input proportional control*5	Control possible by Frequency-division (1/1 to 1/9999) setting/Multiplication (1 to 9999) setting							
		Count operation (batch control)	1 to 9999 strokes (x1, x10, x100, x1000)							
		Interval operation (timer control)	ON time: 1 to 9999 min/OFF time: 1 to 9999 min							
		External stop input control	"STP" flashing display, pump stopped							
		2-point Level Switch control*6	[Low tank-level alarm] "E-02" displayed and alarm output/[Lower tank-level alarm] "STP" flashing display and pump stopped							
Power supply	Rated voltage		AC 100 to 240 V (±10%)							
	No. of phases/Frequency		1-phase/50 or 60 Hz							
	Maximum current		4.0 A							
	Power consumption		Max.: 750 VA/Ave.: 100 W							
Weight			11 kg							

*1 Conditions: Clean water, room temperature *2 When transferring high-viscosity liquids, the maximum discharge volume may be lower than the specified volume depending on the characteristics of the liquid and operating conditions. Consult TACMINA separately when transferring high-viscosity liquids.
*3 Combined use of Analog-Input signal and high-speed pulse signal not possible. *4 For a detailed explanation on signals, see "Digital Signals" on page 26.
*5 For details, see "Analog-Input Proportional Control" and "Pulse-Input Proportional Control" on page 18. *6 When 2-point Level Switch is used

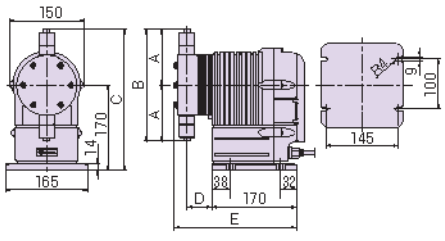
Liquid-end Material

✱ Also refer to the "Corrosion-resistance Table" on page 26.

Part \ Model	VTCE	VTCF	FTCT	VTCF (high-viscosity type)
Pump head	PVC		PVDF	PVC
Diaphragm	PTFE			
Check ball	Ceramic			
O-rings	EPDM	Fluoro-rubber	PTFE	Fluoro-rubber
Valve seat	EPDM	Special fluoro-rubber	PTFE	Special fluoro-rubber
Joint	PVC		PVDF	PVC
Ball stopper	PVC		PTFE (valve stopper)	—
Ball guide	—		—	PVC
Compressed coil spring	—		—	SUS304

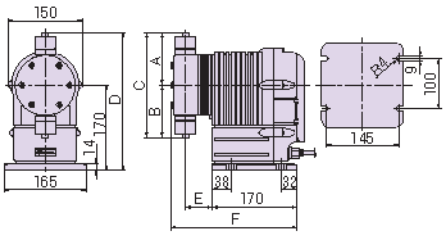
External Dimension (mm)

VTCE/VTCF



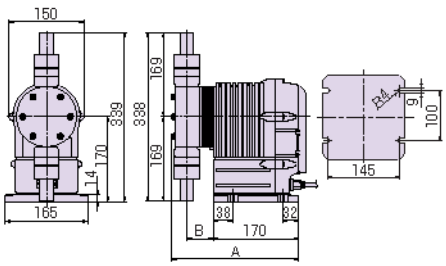
Model	A	B	C	D	E
300/500	112	224	282	49.5	246
700	103	206	273	53.5	253
1000/1300	105	210	275	53.5	253

FTCT



Model	A	B	C	D	E	F
300/500/700	115	97	212	285	49.5	246
1000/1300	128	128	256	298	53.5	253

VTCF (high-viscosity type)



Model	A	B
300/500/700	249	49.5
1000/1300	253	53.5

PZiG