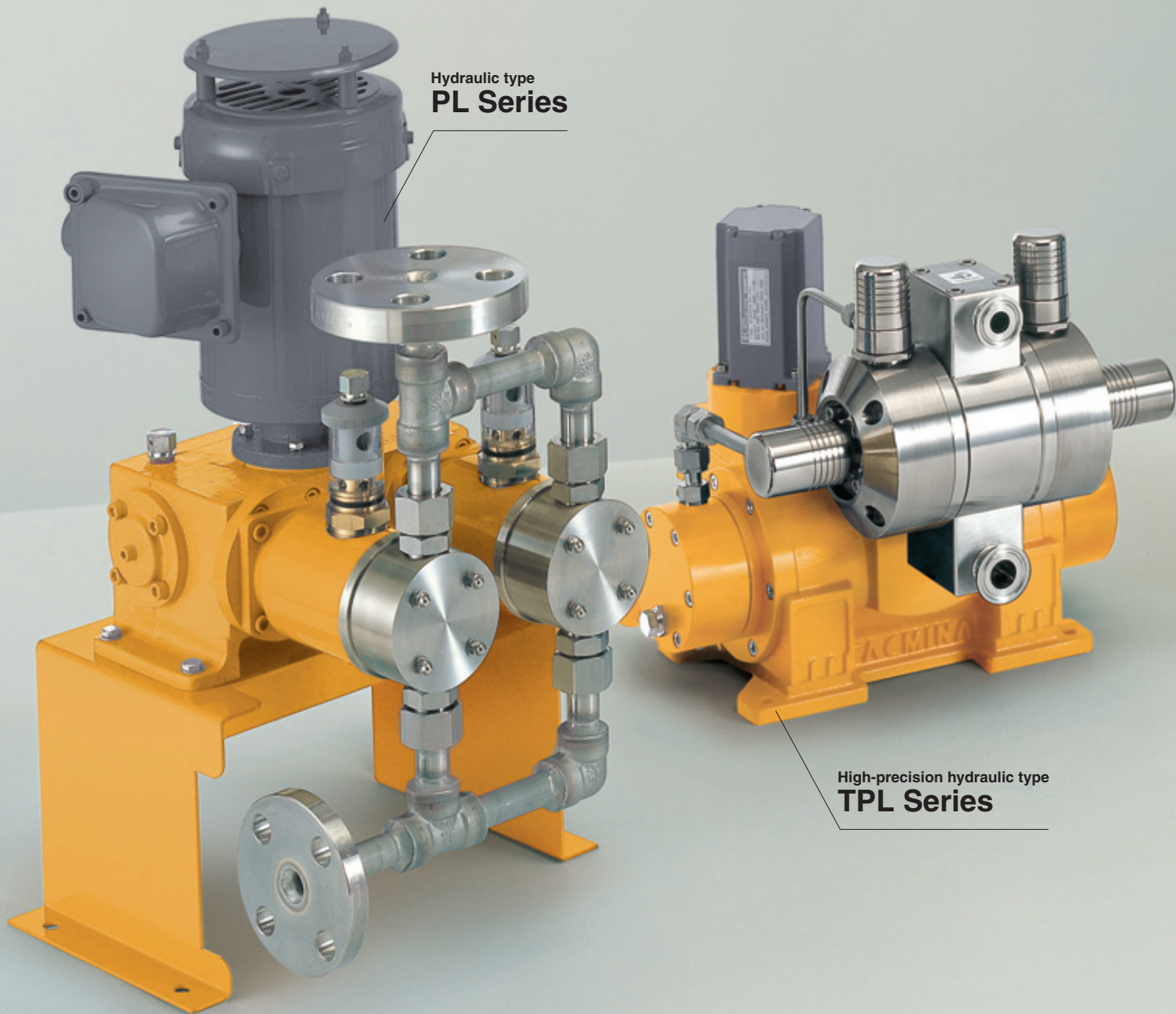


Smoothflow Pump **PL**

Hydraulic / Direct-driven type

Metered supply





Hydraulic type
PL Series

High-precision hydraulic type
TPL Series

A New Paradigm to Create Safe and Reliable

Diaphragm metering pumps are known for their outstanding performances, as they precisely meter and transfer any kind of liquids without excessive pressure or shear. Yet, with this method of transfer, there is still the problem of "pulsation," and so diaphragm metering pumps have been regarded as difficult to implement in manufacturing processes that require high precision.

The TACMINA Smoothflow Series, the highly innovative pulseless diaphragm metering pump, addresses this problem without sacrificing performance.

As an ideal answer for liquid transfer, the Smoothflow Pump can be configured in-line in processes, and operated automatically and continuously. It also ensures greatly enhanced operator ease, product quality and productivity. What's more, your burden of capital investment and maintenance can now be considerably reduced, providing you with "safety" and "reliability."



Direct-driven type
PL Series

Transfer of Liquids

Ideal Method of Liquid Transfer

Smoothflow

- Constant & Stable Flow
- Eco-Friendly
- Economical
- Gentle on Liquids

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.

High-specification model designed for ultimate precision

TPL Series (High-precision hydraulic type) ··· Page 6 ▶▶▶

High-performance model capable of high-pressure/high-precision injection

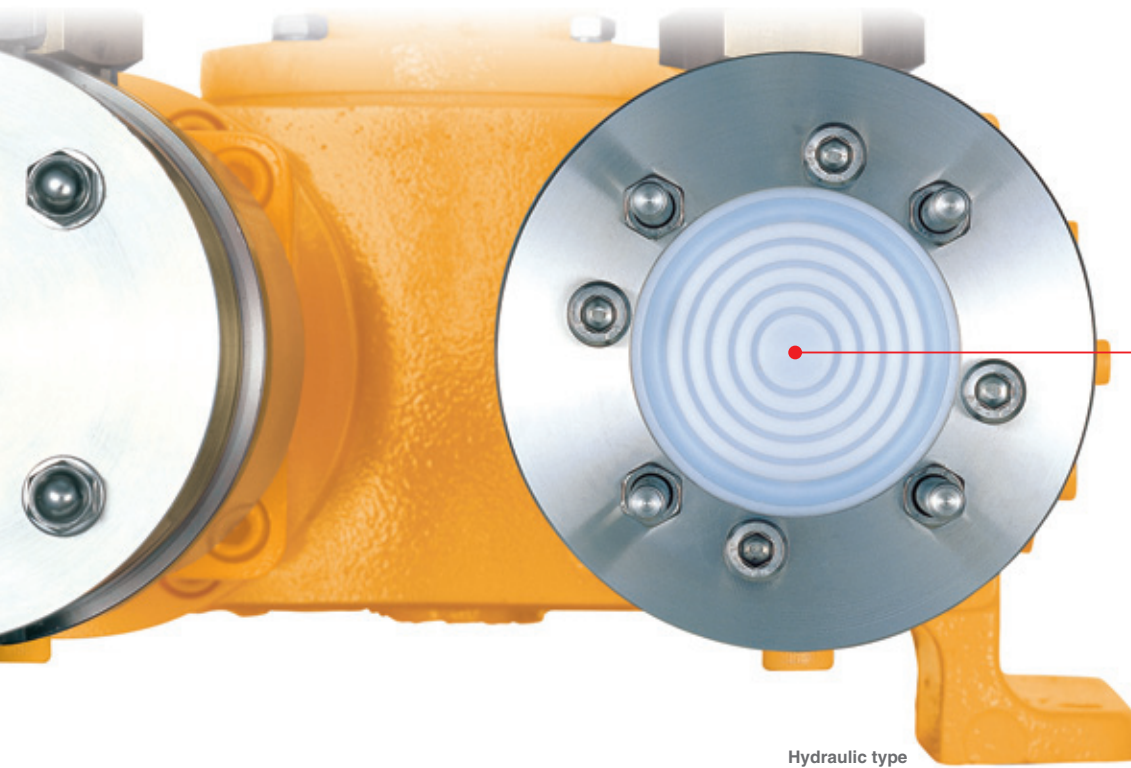
PL Series (Hydraulic type) ··········· Page 7 ▶▶▶

Highly durable standard model

PL Series (Direct-driven type) ··········· Page 9 ▶▶▶

※ On some products, the base is not provided in the standard specification.

An Ideal Pump Mechanism for Accurately and Gently Transferring Liquids



A pure, thick PTFE corrugated diaphragm used for improved precision and safety

Hydraulic type



No Entry of Foreign Matter

The Smoothflow pump has no wearing parts, which means that foreign matter is not generated or enters the pump. This enables safe use in clothing, cosmetics and food processes.



Accurate Transfer of Even Small Amounts

A special valve seat mechanism maintains high precision even when transferring small amounts of liquids. This is ideal for applications such as food mixing processes where accurate mixing ratios and transferred amounts are required.



No Leakage

The Smoothflow pump has no seals, which frees you from the worry of leakage. This is ideal for the transfer of toxic substances that are hazardous when leaked outside or for liquids that easily vaporize.



Idling Possible

The Smoothflow pump is designed in a seal-less structure, which does not adversely affect the drive unit even during pump idling. This frees you from the worry of possible malfunction.



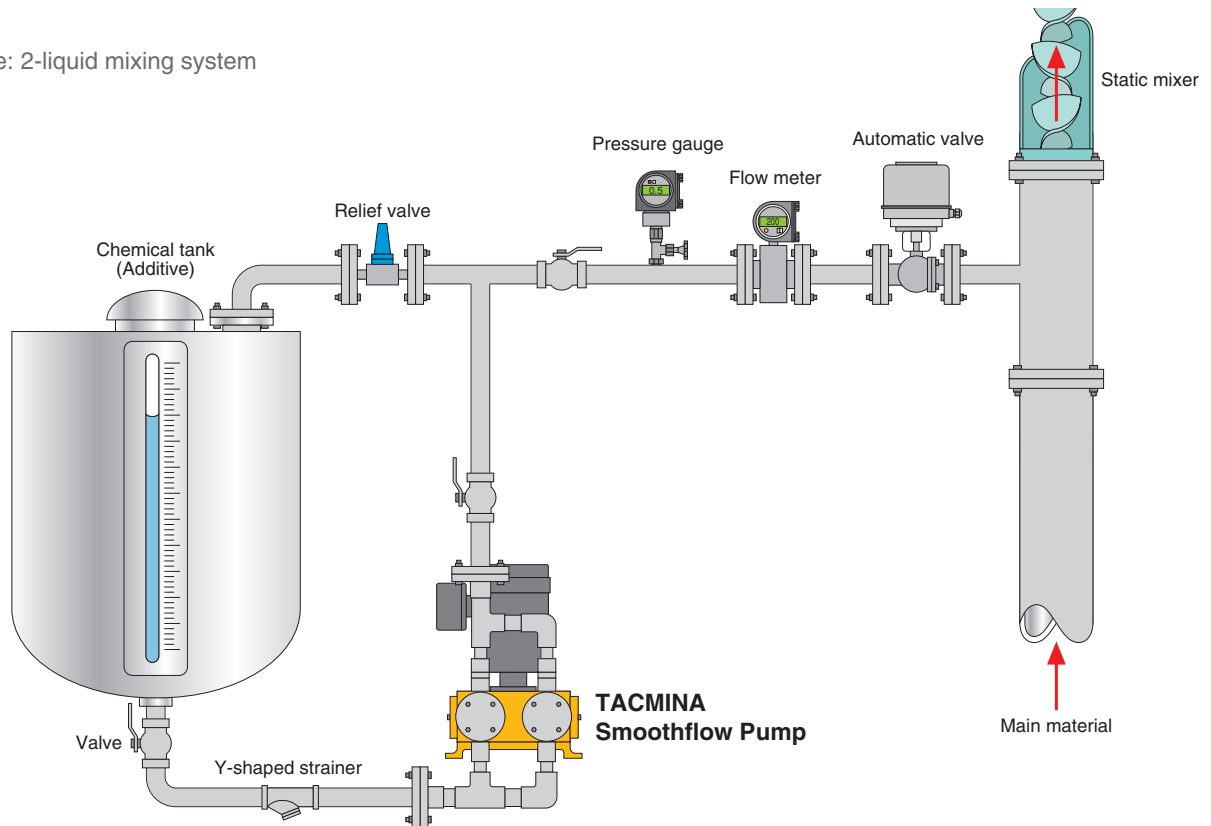
No Damage to Liquid

The Smoothflow pump does not stir or compress liquids like other pumps. This enables the transfer of food or chemicals whose properties are not allowed to deform due to shearing, abrasion, pressure or changes in temperature.

- Foods:** Transfer of yogurt, cheese, drinks
- Pharmaceuticals:** Metered injection of chemicals in granulation process
- Fine chemicals:** Production processes for water absorbing polymers
- Cosmetics:** Transfer of fragrant materials, pigments, etc.
- Bio:** Metered injection of liquid fertilizers etc. ...etc.

Smoothflow Pumps Dramatically Improve Your Production Line's Quality and Efficiency with Less Operating Expense

Example: 2-liquid mixing system



Realizing an In-line Configuration for High-quality Production Processes

The Smoothflow Pump instantly solves pressing issues in manufacturing processes – efficiency (time), improved yield (product) and labor savings (personnel). It also eliminates liquid contact with the outside air and uneven injection, thus improving product quality.



Easy Maintenance

Accumulators or cushion tanks for even injection are no longer required. The Smoothflow Pump has few liquid end materials, which overall simplifies disassembly, cleaning and maintenance.



No Need for Dampers or Accumulators

Generally used accumulators are slow to react and must be monitored and serviced at all times. TACMINA Smoothflow pumps offer quick reaction, and free you from the need for unnecessary maintenance and troublesome pressure adjustments.



Eliminating the Major Cause of Pump Trouble

The Smoothflow Pump has done away with the in-tank agitation mixing process, the major cause of various pump trouble. This minimizes the incidence of accidents and malfunction.



Easy Piping, and Enhanced Cost and Space Savings

Extremely economical because of little transferring liquid loss as piping on the discharge side can be made thinner than piping on pumps that generate pulsation

Painting process: Supply of paint to paint sprayers

Pharmaceuticals: Flow proportional injection of acidic chemicals

Fine chemicals: Constant supply of catalysts for the production of special plastics

Food: Metered injection of flavorings, colorings, aromatizing liquids ...etc.

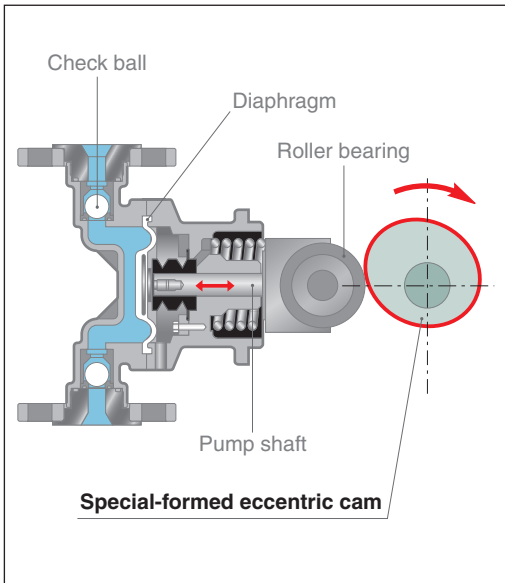
“Special-formed Eccentric Cam” Ensures Pulseless Continuous Discharge

On conventional duplex metering pumps, pulsation occurs on the discharge side as rotary motion of the circular eccentric cam is converted to reciprocating motion.

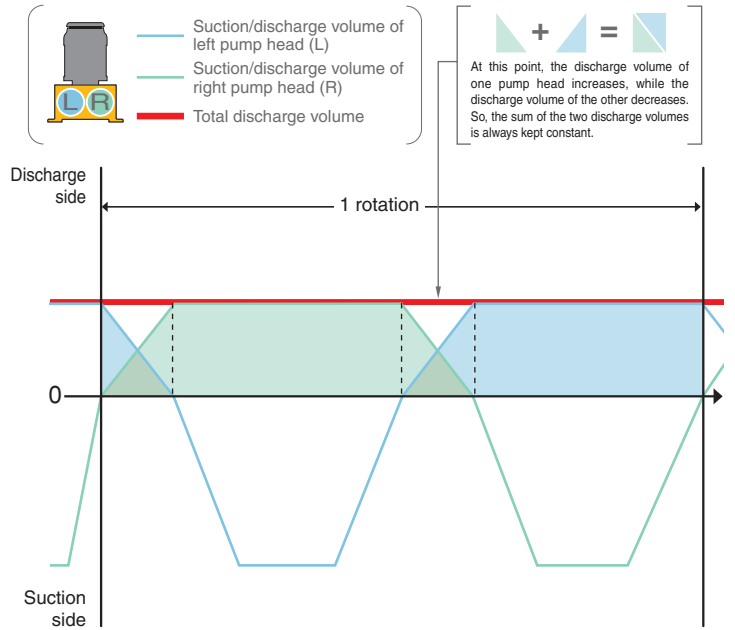
However, by applying the special-formed eccentric cam to set the sum of the discharge volumes of both the left and right pump heads to a constant value, TACMINA has achieved smooth, pulse-free continuous metered operation on a diaphragm pump.

Smoothflow pump (Special-formed eccentric cam)

Example: Direct drive type

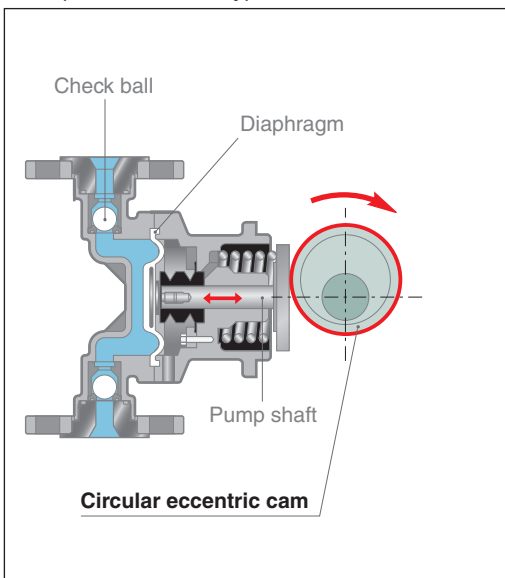


Discharge waveform

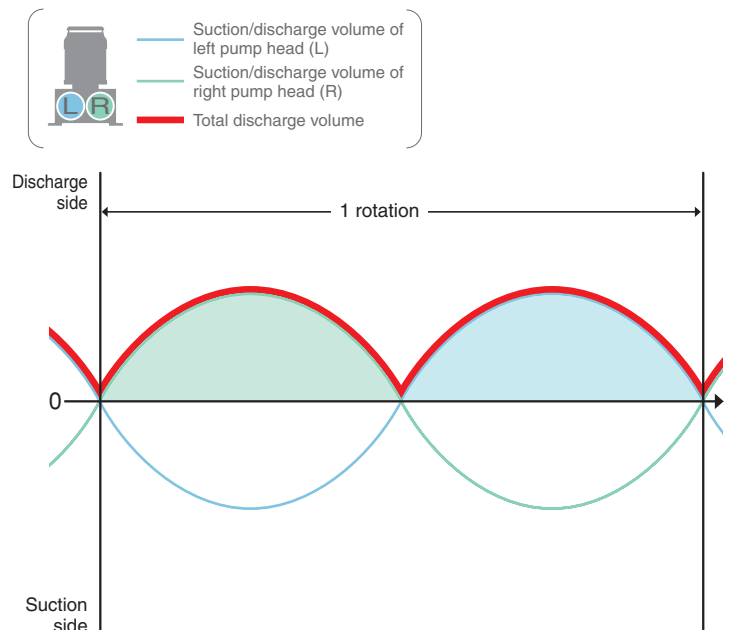


Conventional metering pump (Circular eccentric cam)

Example: Direct drive type



Discharge waveform



High-specification model
designed for
ultimate precision

High-Precision Hydraulic Type

TPL Series

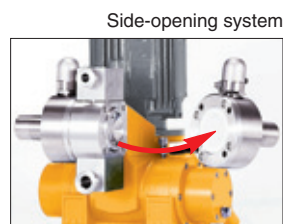
Features

- High precision at a repeatability of $\pm 0.1\%$ or less and pulsation rate $\pm 1\%$ or less
- Having about half the installation space of other conventional TACMINA pumps, compact and easy to install and carry
- No damage to liquid by shearing, heat, etc.
- No high-speed rotating or sliding parts used in liquid end materials. Ideal for transferring liquids containing slurry
- High discharge pressure up to max. 3MPa
- Wide temperature operating range of 0 to 50 °C
- Completely closed, seal-free structure. No worry of liquid leakage or contact of transferred liquid with the outside air
- Special hydraulic mechanism prevents the diaphragm from knocking the pump head, and ensures longer component service life.
- Side-opening system allows replacement of parts and maintenance without removal of pipes.



Application examples

- Transfer of coating liquids such as magnetic substances
- Metered transfer of latex-based raw materials
- Production processes of valuable medicines and chemicals
- Transfer of solutions to liquid chromatography ... etc.



Performance Specifications

Model		TPL1M				TPL2M						
		-008	-014	-018	-028	-028	-032	-040	-056	-080	-095	
Max. discharge volume (L/min)		0.1	0.3	0.5	1.2	2.6	3.4	5.3	10.5	21.0	30.0	
Max. discharge pressure (MPa)*1		3.0			1.5	3.0		2.5	1.5	0.5	0.5	
Connection type	Discharge side*2	Rc1/4(ISO 10A)			Rc1/2(ISO 15A)	30K15A(ISO 15A)	30K20A(ISO 20A)	20K25A(ISO 25A)	10K40A(ISO 40A)			
	Suction side*2	Rc1/4(ISO 10A)	Rc1/2(ISO 15A)			10K20A(ISO 20A)	10K25A(ISO 25A)	10K40A(ISO 40A)	10K50A(ISO 50A)			
Motor	Type/power supply (V)	Totally enclosed fan-cooling outdoor type/3-phase 200V(50Hz·60Hz)/220V(60Hz)										
	Power (kW)/number of poles	0.2/4P					1.5/4P					
	Rated current (A)	1.3(200V·50Hz)	1.1(200V·60Hz)	1.1(220V·60Hz)		7.0(200V·50Hz)		6.2(200V·60Hz)		6.0(220V·60Hz)		
Weight (kg)*3		30				80		95	120			

*1 In the case of ferule specifications: 0.5 MPa

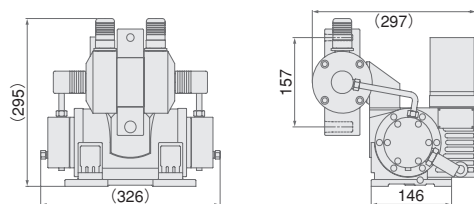
*2 A JIS-compliant flange is standard as a connection type. Dimensions in parentheses () are for a ferule specification.

*3 Indicated weight is for a pump using SUS as its liquid end material and an outdoor use JIS flange motor.

※ Speed control motor specifications are also possible on the TPL1M-008 to 028.

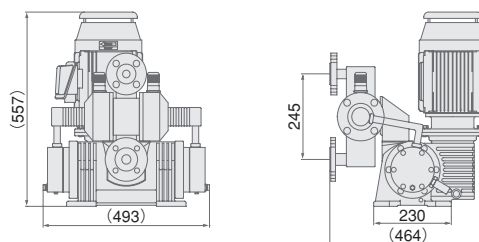
External Dimensions

TPL1M



※ Figure is for TPL1M-014-6T6-SW-1

TPL2M



※ Figure is for TPL2M-040-6T6-FW-5

The performance specifications and external dimensions below are examples for a standard model.
Please contact us for details of customized specifications.

High-performance model
capable of high-pressure/
high-precision injection

Hydraulic Type



PLZXM2

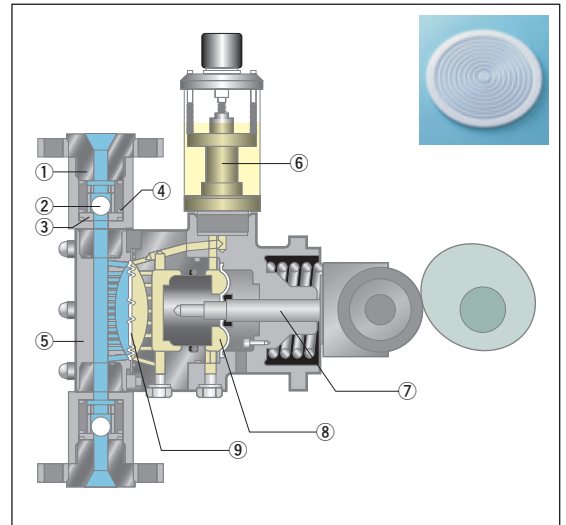
M (Hydraulic diaphragm) type

Features

- Hydraulic mechanism enables high-pressure, high-precision discharge.
- The built-in relief mechanism prevents pump malfunction and accidents caused by excessive pressure. This eliminates the need for relief piping, and frees you from the worry of transferred liquid leakage.
- Pure, thick and extremely highly corrosion-resistant PTFE used for the front diaphragm.

Application examples

- Transfer of adhesives for sticky sheets
- Precipitation process for organic metal powders
- Injection of urea solution for denitration and desulfurization
- Injection of catalysts for the production of plastics ... etc.



Performance Specifications

Model		PLSX(Y)MA2•PLSX(Y)MWA2			PLZXM2•PLZXMW2			PLRYM2•PLRYMW2					
		-014	-020	-030	-028(-028P)	-040(-040P)	-056(-056P)	-028	-040	-056	-080	-100	
Item		0.23	0.47	1.2	1.6	3.3	6.4	1.95	4.0	7.9	16	24.8	
Max. discharge volume (L/min)		2.5		1.5	1.6(2.5)		1.2	2.5		1.2	0.7	0.6	
Max. discharge pressure (MPa)*1		8			15	15	15			15			
Stroke length (mm)		13~126			10~97			12~117					
Strokes per minute (spm)		6~60											
Set frequency range (Hz)		50 or less*2											
Transferrable viscosity (mPa•s)		SUS: 0~50/PVC: 0~40											
Transferrable temperature (°C)		SUS: 0~50/PVC: 0~40											
Connection type	Flange	SUS type	Discharge side		16K15A(30K15A)		16K20A	30K15A		16K20A	10K40A		
			Suction side		10K15A	10K20A	10K25A	10K15A	10K20A	10K25A	10K50A		
	PVC/PVDF type	Discharge side		10K15A			16K20A	10K15A		10K20A	10K40A		
		Suction side		10K15A	10K20A	10K25A	10K15A	10K20A	10K25A	10K50A			
Union		R3/8			—								
Motor	Type/power supply (V)		Totally enclosed fan-cooled outdoor type/3-phase 200V(50Hz•60Hz)/220V(60Hz)*3										
	Power (kW)/number of poles		0.2/2P [0.2/4P]			0.75/2P			0.75/4P			1.5/4P	
	Rated current (A)		1.12[1.3](200V•50Hz) 1.0[1.1](200V•60Hz)		3.3(200V•50Hz) 3.0(200V•60Hz)			3.9(200V•50Hz) 3.4(200V•60Hz)			7.0(200V•50Hz) 6.2(200V•60Hz)		
Pump paint color		Body (Munsell (approximate) 10YR7.5/14 / Motor; Munsell (approximate) N5.5)											
Weight (kg)*4		M: 26 [30]/MW: 27 [31]			M: 86/MW: 88			M: 109/MW: 111			M: 130/MW: 133		

*1 Max. discharge pressure becomes 1.0MPa or less when pump head material is resin.

*3 The PLSX (S motor specification, vertical model) is a safety increased explosion proof outdoor model.

*2 Consult us separately when the viscosity of the liquid used is 50 mPa•s or more.

*4 Indicated weight is for a pump using stainless steel as its liquid end material.

※ Figures in brackets [] are values for the Y (horizontal) type.

Liquid End Materials

Type/material	PLSX (Y) MA2•PLSX (Y) MWA2•PLZXM2•PLZXMW2				PLRYM2•PLRYMW2	
	VTC	VTS	STS	FTC	VTC	STS
Pump head	PVC	PVC	SUS304	PVDF	PVC	SUS304
Diaphragm	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Check ball	Ceramic	SUS304	SUS304	Ceramic	Ceramic	SUS304
Joint	PVC	PVC	SUS304	PVDF	PVC	SUS304
O-ring for joint	Fluoro-rubber	Fluoro-rubber	PTFE	PTFE	Fluoro-rubber	PTFE

※ Fluoro-rubber, or Viton by trade name, is a copolymer of vinylidene fluoride and propylene hexafluoride, and is approved by The Food Sanitation Test by Ordinance 434 of the Ministry of Health and Welfare of Japan.

※ PVDF (polyvinylidene fluoride) is a di-fluoride resin, and is approved by The Food Sanitation Test by Ordinance 434 of the Ministry of Health and Welfare of Japan.

※ PTFE is known as Teflon for its trade name.

※ Contact your dealer regarding special materials other than the above.

Optional Accessories



Attachment for slurry or high-viscosity liquids



Leak monitor (for double diaphragm)

▶ For details, see page 12

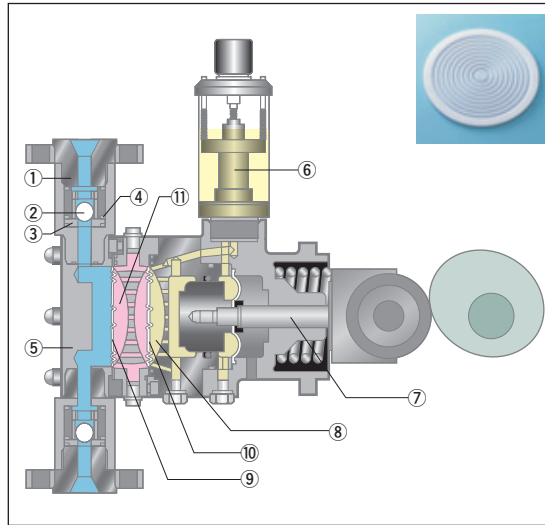
MW (Hydraulic double-diaphragm) type

Features

- Slurry and high-viscosity liquids can be discharged and transferred at high pressure.
- The buffer solution unifies the pressure generated in the drive unit and transfers the pressure to the diaphragm without damaging it.
- Use of two diaphragms frees you from the worry of entry by hydraulic operating oil.
- A leak monitor or remote head can be mounted for safer transfer of liquids.

Application examples

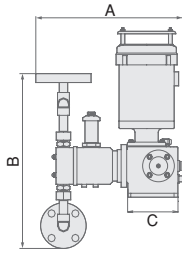
- Mixing of plastics having dual liquid properties
- Drink preparation process
- Metered transfer of high-concentration zirconia (slurry)
- Metered injection of flavorings, colorings, aromatizing liquids ... etc.



- ① Joint
- ② Check ball
- ③ Valve seat
- ④ O-ring
- ⑤ Pump head
- ⑥ Hydraulic pressure regulator
In the case of a piping blockage, the built-in relief mechanism releases the excessive pressure to improve safety and durability.
- ⑦ Pump shaft
- ⑧ Operating oil
For sustained performance and safety, low-toxic, stable silicon-based oil is used in addition to the gear oil for the drive unit.
- ⑨ Front diaphragm
Pure, thick PTFE corrugated diaphragm used
- ⑩ Rear diaphragm
Pure, thick PTFE corrugated diaphragm used
- ⑪ Buffer solution

External Dimensions

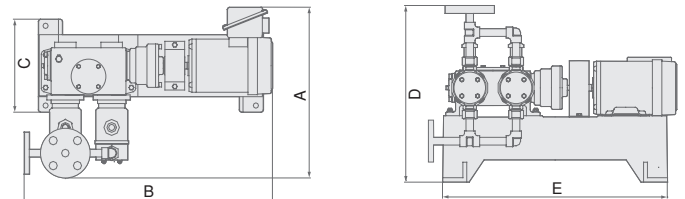
X (vertical) type



※ Figure is for PLSXMA

Model		A	B	C	D	E
PLSXMA2	-014,-020	300	387.5	104	341.5	220
	-030	290	403.5	104	341.5	220
PLSXMA2	-014,-020	322	387.5	104	341.5	220
	-030	315	403.5	104	341.5	220
PLZXMA2	-028P	409	533	168	434	388
	-040P	409	562	168	434	388
	-056P	401.5	563	168	434	388
PLZXMA2	-028P	440	533	168	434	388
	-040P	440	562	168	434	388
	-056P	432.5	563	168	434	388

Y (horizontal) type



※ Figure is for PLSYMA

Model		A	B	C	D	E
PLSYMA2	-014,-020	377	578.5	210	422	524
	-030	367	578.5	210	430	524
PLSYMA2	-014,-020	399	578.5	210	422	524
	-030	392	578.5	210	430	524
PLRYM2	-028P	538	918	338	546	850
	-040P	538	918	338	575	850
	-056	543	918	338	575	850
PLRYM2	-080,-100	571	1008	338	786	850
	-028P	571	918	338	546	850
	-040P	571	918	338	575	850
PLRYM2	-056	576	918	338	575	850
	-080,-100	601	1008	338	786	850

Model Code



1 Series name

PL: Pulseless
SP: Sanitary pulseless

2 Motor

S: Small
Z: Medium
R: Large

3 Drive box type

X: Vertical model
Y: Horizontal model

4 Pump head

M: Hydraulic diaphragm
MW: Hydraulic double-diaphragm
MA: Compact motor (S type) specification hydraulic diaphragm
MWA: Compact motor (S type) specification hydraulic double-diaphragm

5 Number of pump heads

2: Duplex
3: Triplex

6 Piston diameter

Example: 030 = piston diameter of 30 mm

7 Liquid end materials

- (a) Pump head
V: PVC F: PVDF T: PTFE
S: SUS304 6: SUS316 X: Special
- (b) Diaphragm
T: PTFE X: Special
- (c) Check ball
C: Ceramic T: PTFE S: SUS304
6: SUS316 X: Special

※ To select the liquid end parts, refer to the "Liquid End Materials" Table.

8 Connection type

- (a) Joint
H: Hose F: Flange U: Union
C: Sanitary clamp X: Special
- (b) Valve structure
W: Standard (50 mPa*s)
V: High-viscosity (50 to 2000 mPa*s)
X: Special
- (c) General specifications
S: Standard
X: Special



Direct-driven Type



PLZXD2

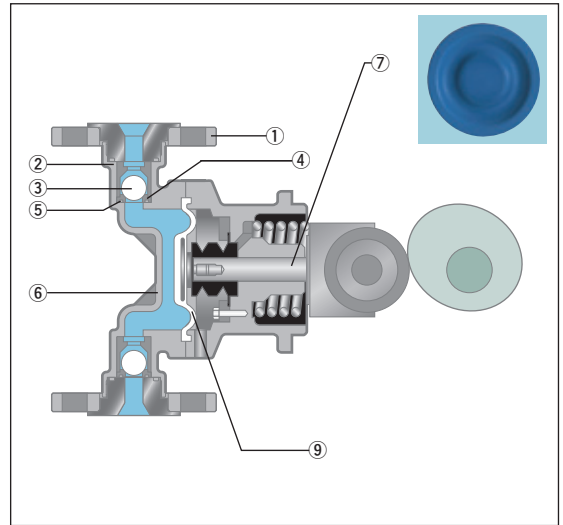
D (Direct-driven diaphragm) type

Features

- Low-cost but capable of high-precision injection
- Excellent durability. Ideal for exacting applications in processes
- Simple mechanism facilitates parts replacement and maintenance.

Application examples

- Dilution of sulfuric acid and caustic soda
- Circulation of paint in dip tanks
- Injection of curing agents for molding sand
- Glaze spraying process ... etc.



※ The picture shows the PTFE type.

Performance Specifications

Item		PLSX(Y)DA2 · PLSX(Y)WA2					PLZXD2 · PLZXW2						
		-12*1	-32	-62	-13	-23	-33	-53					
Max. discharge volume (L/min)		0.24	0.72	1.44	2.4	3.6*2	6.4	13					
Max. discharge pressure (MPa)		1.0			0.5	0.5	0.7	0.5					
Stroke length (mm)		4	6			8	10						
Strokes per minute (spm)		13~126						10~97					
Set frequency range (Hz)		6~60											
Transferrable viscosity	Standard specifications (mPa·s)	50 or less					100 or less						
	High-viscosity specifications (mPa·s)	2000 or less				1000 or less		3000 or less					
Transferrable temperature (°C)		SUS: 0~50/PVC: 0~40											
Connection type	Flange	JIS10K15A					JIS10K20A (discharge side)/25A (suction side)						
	Union	R3/8					—						
Motor	Type/power supply (V)	Totally enclosed fan-cooled outdoor type/3-phase 200V(50Hz·60Hz)/220V(60Hz)*3											
	Power (kW)/number of poles	0.2/2P [0.2/4P]					0.75/2P						
	Rated current (A)	1.12[1.3](200V·50Hz) 1.0[1.1](200V·60Hz) 0.99[1.1](220V·60Hz)					3.3(200V·50Hz) 3.0(200V·60Hz) 3.0(220V·60Hz)						
Pump paint color		Body (Munsell (approximate) 10YR7.5/14 / Motor; Munsell (approximate) N5.5)											
Weight (kg)*4		D: 16[18]/W: 17[19]		D: 17[20]/W: 18[21]		D: 18[21]/W: 19[22]		D: 20[23]/W: 21[24]		D: 62/W: 64		D: 64/W: 66	

*1 Consult us separately regarding the specifications of the PLSX(Y) WA2-12 type.

*2 When using a PTFE (Teflon) diaphragm on a DA (direct-driven) type, the max. discharge volume becomes 3.4 L/min.

*3 The PLSX (S motor specification, vertical model) is a safety increased explosion proof outdoor model.

*4 Indicated weight is for a pump using stainless steel as its liquid end material.

※ Figures in brackets [] are values for the Y (horizontal) type.

Liquid End Materials

Name of part	Material	VEC *	VES *	SES *	VTC	VTS	STS	FTC
Pump head		PVC	PVC	SUS304	PVC	PVC	SUS304	PVDF
Diaphragm		EPDM	EPDM	EPDM	PTFE	PTFE	PTFE	PTFE
Check ball		Ceramic	SUS304	SUS304	Ceramic	SUS304	SUS304	Ceramic
Joint		PVC	PVC	SUS304	PVC	PVC	SUS304	PVDF
O-ring for joint		EPDM	EPDM	EPDM	Fluoro-rubber	Fluoro-rubber	PTFE	PTFE

* D/DA (Direct-driven diaphragm) type only.

※ Fluoro-rubber, or Viton by trade name, is a copolymer of vinylidene fluoride and propylene hexafluoride, and is approved by The Food Sanitation Test by Ordinance 434 of the Ministry of Health and Welfare of Japan.

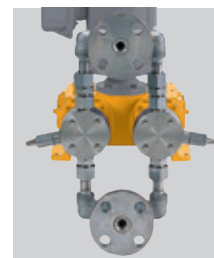
※ PVDF (polyvinylidene fluoride) is a di-fluoride resin, and is approved by The Food Sanitation Test by Ordinance 434 of the Ministry of Health and Welfare of Japan.

※ EPDM is a copolymer of ethylene, propylene, and diene compounds.

※ PTFE is known as Teflon for its trade name.

※ Contact your dealer regarding special materials other than the above.

Optional Accessories



Attachment for slurry or high-viscosity liquids



Leak monitor (for double diaphragm)

▶ For details, see page 12

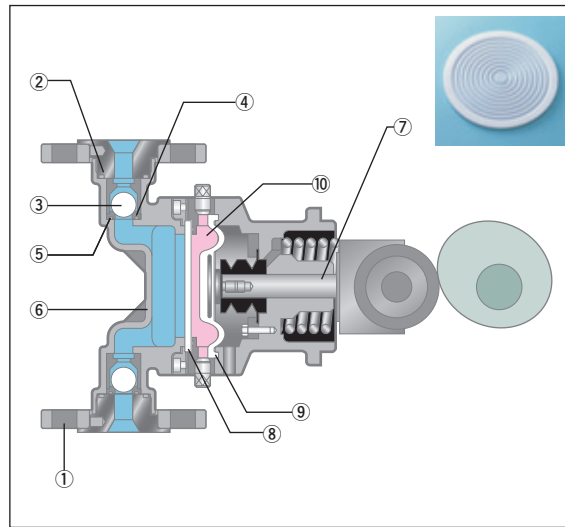
W (Direct-driven double-diaphragm) type

Features

- Highly corrosion-resistant pure, thick PTFE is used for the front diaphragm.
- The buffer solution filled between the two diaphragms alleviates diaphragms' fatigue.
- A leak monitor or remote head can be mounted for safer transfer of liquids.

Application examples

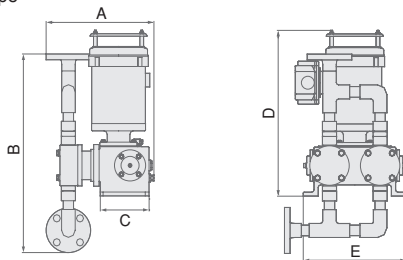
- Injection of filter media in beer filtration processes
- Transfer/injection of organic solvents
- Transfer of highly corrosive solvents
- Injection of chemicals in leather production ... etc.



- ① Loose flange
- ② Joint
- ③ Check ball
- ④ Valve seat
- ⑤ O-ring
- ⑥ Pump head
- ⑦ Pump shaft
- ⑧ Front diaphragm
Pure, thick PTFE corrugated diaphragm used
- ⑨ Drive diaphragm
Highly durable, corrosion-resistant molded diaphragm used
- ⑩ Buffer solution

External Dimensions

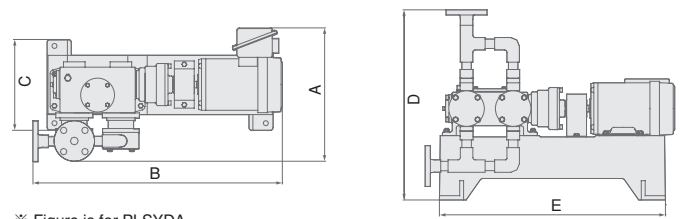
X (vertical) type



※ Figure is for PLSXDA

Model		A	B	C	D	E
PLSXDA2	-12,-32	233	384.5	104	341.5	220
	-62,-82	234	411.5	104	341.5	220
	-13,-23	246	427.5	104	341.5	220
PLSXWA2	-12,-32	261.5	384.5	104	341.5	220
	-62,-82	266	419.5	104	341.5	220
	-13,-23	273.5	431.5	104	341.5	220
PLZXD2	-33	341.5	522.5	168	434	388
	-53	348.5	560.5	168	434	388
PLZXW2	-33	373.5	522.5	168	434	388
	-53	380.5	560.5	168	434	388

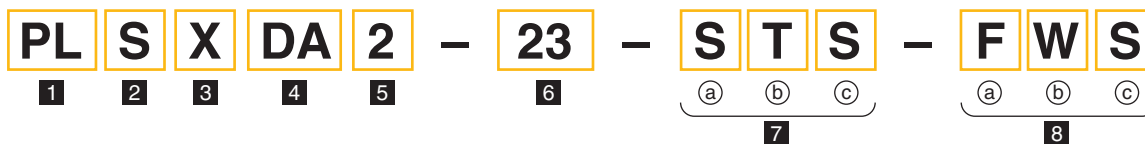
Y (horizontal) type



※ Figure is for PLSYDA

Model		A	B	C	D	E
PLSYDA2	-12,-32	310	578.5	210	417.5	524
	-62,-82	311	578.5	210	443	524
	-13,-23	323	578.5	210	451	524
PLSYWA2	-12,-32	338.5	578.5	210	420.5	524
	-62,-82	343	578.5	210	447	524
	-13,-23	350.5	578.5	210	453	524

Model Code



1 Series name

PL: Pulseless
SP: Sanitary pulseless

2 Motor

S: Small
Z: Medium

3 Drive box type

X: Vertical model
Y: Horizontal model

4 Pump head

D: Direct drive diaphragm
W: Double-diaphragm
DA: Compact motor (S type)
specification direct drive diaphragm
WA: Compact motor (S type)
specification double-diaphragm

5 Number of pump heads

2: Duplex
3: Triplex

6 Discharge volume (1 head)

2 3 = 2000mL/min
Number of 0 digits

7 Liquid end materials

- (a) Pump head
V: PVC F: PVDF T: PTFE
S: SUS304 6: SUS316 X: Special
- (b) Diaphragm
E: EPDM T: PTFE X: Special
- (c) Check ball
C: Ceramic T: PTFE S: SUS304
6: SUS316 X: Special

8 Connection type

- (a) Joint
H: Hose F: Flange U: Union
C: Sanitary clamp X: Special
- (b) Valve structure
W: Standard
* 50 mPa*s in case of S type, and 100mPa*s in case of E type.
V: Viscosity
* 50 to 2000mPa*s in case of S type
100 to 3000mPa*s in case of E type
X: Special
- (c) General specifications
S: Standard
X: Special

※ To select the liquid end parts, refer to the "Liquid End Materials" Table.

An Extensive Line-up of Pulseless Pumps to Suit Operating Conditions and Applications

TACMINA presents you with a wide line-up of products to match your particular requirements for different liquid types such as high-viscosity, liquids containing slurry or high-temperature liquids, or for improved precision injection or higher safety applications.

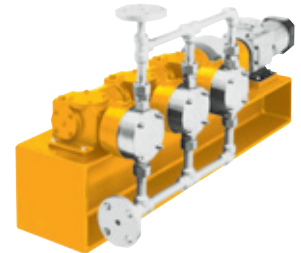
Plunger Type

- Capable of injecting small amounts of liquids at high pressure and at high precision without being affected by pressure fluctuations
- A sturdy oil-bath system is used for the drive unit, which ensures excellent durability.



Triplex Type

- Capable of transferring liquids in a pulseless state on not only the discharge side but also the suction side
- Capable of large-volume discharge



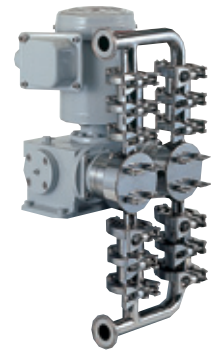
High-viscosity Specification

- Capable of transfer up to a maximum viscosity of 10000 mPa·s
- An ideal design with minimal dead space improves the transfer efficiency of high-viscosity liquids.



Sanitary Type

- Seal-less, sanitary liquid-end structure
- Capable of gentle, metered transfer of liquids without any change to liquid properties



Slurry Liquid Specification (T-branch remote head)

- A T-branch system prevents direct contact between the diaphragm and settling slurry.
- Simultaneously solves the problems of diaphragm service life and slurry blockage.



※ Pulseless type becomes duplex specification.

High-temperature Liquid Specification (Remote head)

- Heat is not transmitted to the pump itself, which allows the transfer of high-temperature liquids exceeding 100°C.
- Heat-radiation fin or heat-insulating jacket can be installed.



※ Pulseless type becomes duplex specification.

Low-capacity Model

- A compact, low-capacity model resistant to slurry.
- Oil-free, completely sealed structure, easy to disassemble.



Exclusive controller

► For details of application products, refer to the respective catalogs.

More Safely, More Accurately and More Simply. Highly Functional Optional and Related Products

We have more optional products available to match specific site requirements and answer your diverse needs.

【 Valve 】

Relief Valve

Automatically releases the excessive pressure when foreign matter blocks the discharge side piping of the pump or the valve is closed at the discharge side.



Back Pressure Valve

Prevents overfeeding (exceeding the preset discharge volume) that is caused on bad piping conditions.



【 Sensor 】

Pulse Sensor

Uses a reed switch to detect the pump's operating speed as a pulse signal. Interlocking with a pulse counter enables the configuration of an automatic metering feed injection system.



Leak Monitor

The electrode installed in the buffer solution immediately detects diaphragm breakage, and notifies the operator.



【 Motor 】

AC Servo Motor

This motor can be controlled in small increments over a wide operating range extending from the low- through high-speed areas. Brushes are not used, which eliminates the need for maintenance.



Exclusive controller

【 Controller 】

Inverter (Frequency control method)

This controller can control the speed of all models of motors at low cost. Also, a wide control range of 10:1 is possible without any influence from the power supply used.



▶ For more details on our products, please visit TACMINA's home page.

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

EC-005 (4) 2

2009/4/CSS



ISO 9001 Registration
JQA-1274 Production Division



ISO 14001 Registration
JQA-EM0637 Production Division



We are using environmentally friendly materials.

