

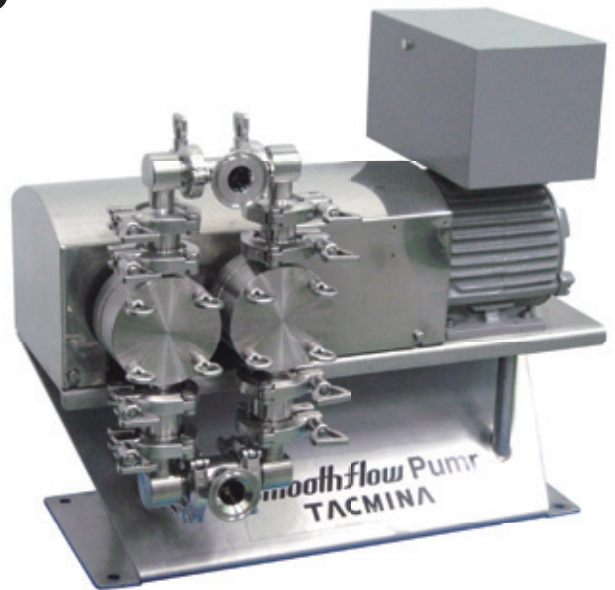
# Excellent Wear-Resistant Precision Pump

## PLSS Smoothflow Pump

- The diaphragm system ensures slow and gentle liquid transfer. It's excellent wear-resistance and cleaning performance can contribute to boost yield in various coating liquid and electrode material supply processes.

## Smoothflow Pump

**PLSS** For transferring coating liquid and electrode material



### Features of PLSS

#1

Liquid transfer structure with excellent wear-resistance !

As PLSS Smoothflow Pump has no sliding parts in the liquid-end areas, not only having highly wear-resistant performance, but it can also reduce the risk of metal contamination.

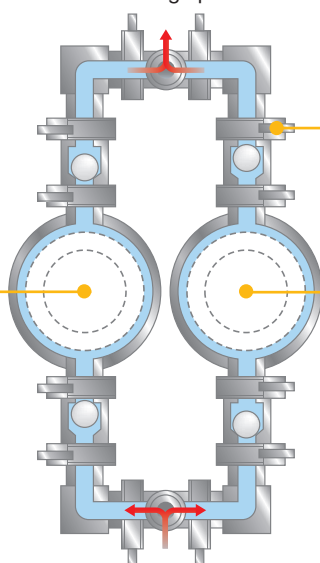
#3

Coating liquid properties are not altered in any way !

It does not cause local shear stress and prevents forming of aggregates or air bubbles.

Discharge port

Diaphragm



Suction port  
Front view of pump head

#4

Easy to disassemble

Pump head part is easily disassembled because it is fixed with eyebolts and the pipes are connected with sanitary clamps. The check valve also prevents any remaining liquid from flowing out when the pump is disassembled.

#5

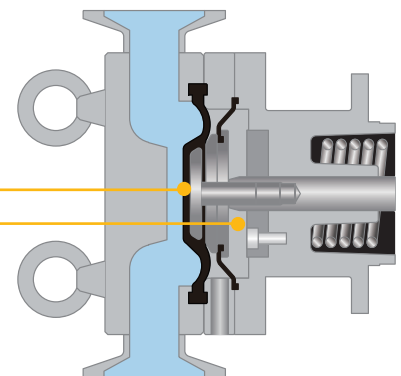
All foreign matter is barred from entering inside !

Hermetically sealed structure with no shaft seal parts in liquid-end section prevents any foreign substances entering from outside, and also prevents liquid leakage.

#2

Easy to clean and in-line cleaning is possible !

Inside surfaces of the pump head are provided with a mirror finish, making them extremely easy to clean.



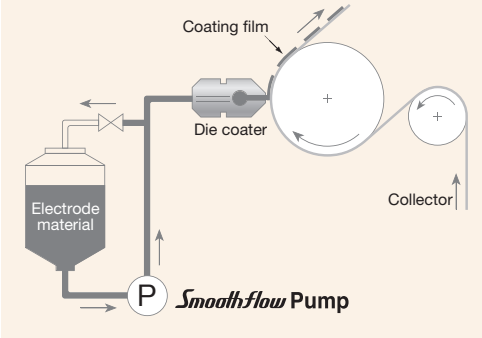
#6

No hydraulic oil is used so none of this oil will get mixed in with the pumped liquid !

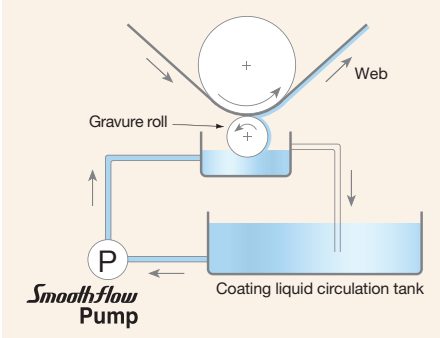
Direct-driven diaphragm is used so there is no fear that any hydraulic oil will get into the pumped liquid.

## Flow examples

- Examples showing the use of a Smoothflow pump in the process of coating cathode/anode materials



- Examples showing the use of a Smoothflow pump in a precision gravure coater



- Supplying a fixed volume of coating liquids to various coating machines
- Supplying slurry to dispersers
- Pumping slurry with magnetic substances
- Pumping carbon slurry, barium titanate and other types of slurry

## The diaphragm system enables the pump adapt to various kinds of liquids regardless of their properties.

### Slurry liquids

- Liquids handled
- Carbon slurry
  - Metal slurry
  - Cells for manufacturing fuel cells
  - Silica slurry
  - Ceramic slurry
  - Glazes
- ...and so on

### Low-viscosity liquids

- Liquids handled
- Solvents (such as IPA, acetone, toluene, and MEK)
  - Water-based paints
  - Hydrochloric acid
  - Sulfuric acid
- ...and so on

### Delicate liquids

- Liquids handled
- Water-based emulsions
  - Filler dispersion liquids
  - Fluids containing mica slurry, etc.
  - UV-cured resin
  - Coating fluids
- ...and so on

### Liquids easily vaporized, solidified or crystallized

- Liquids handled
- Organic solvents
  - Sodium hydroxide
  - Hydrogen peroxide
  - Adhesives
- ...and so on

## Specifications

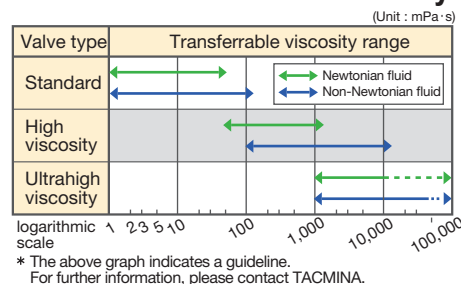
Model			01	05	09	1	2
Discharge volume	L/min		0.14	0.5	0.9	1.5	2.5
	L/h		8.4	30	54	90	150
	US G/h		2.22	7.92	14.3	23.8	39.6
Max. discharge pressure	MPa		0.5				
	bar		5				
	psi		72.5				
Stroke speed	strokes/min		8 to 75				10 to 98
Stroke length	mm		4	6			8
Connection (sanitary clamp)	Discharge side		15A			15A * <sup>1</sup>	
	Suction side		1.5S				
Use condition	Ambient temperature		Ordinary temperature				
	Transferring liquid temperature		15 to 40℃				
	Transferring liquid viscosity		See “Maximum allowable viscosity” on the right.				
	Installation location		Indoor				
Motor	Type		Flame-proof enclosures type, d2G4				
	Power supply(V) / Frequency(Hz)		3-phase / 200V(50Hz/60Hz), 220V(60Hz)				
	No. of poles(P)		4P				
	Output(kW)		0.4				
	Rated current(A) / Max. startup current(A)	200V / 50Hz	2.3A / 3A				
		200V / 60Hz	2.2A / 3A				
		220V / 60Hz	2.2A / 3A				
Insulation class		B					
Paint color			Body : Munsell (approximate) N7 / Motor : Munsell (approximate) N5.5				
Weight	kg		51			53	

\*1 The specification value for ultrahigh viscosity type is 1S.

## Liquid-end material

Type	STST	6T6T
Pump head	SUS304	SUS316
Valve seat	SUS304	SUS316
Diaphragm	PTFE	
Check ball	SUS304	SUS316
O-ring	PTFE	PTFE

## Maximum allowable viscosity



## Accessory list

Accessory	Quantity per pump
Inverter	1
Refiner unit*	1
Ferrule packing	1
Clamp(2K)	1
User's manual	1

\* One each of regulator, pressure gauge, and hexagonal nipple are supplied with the refiner.

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

ET-016 (4) 05

2015/8/FSS

