KEMPION

ISO9001 CE GOOD DESIGN

Solenoid
Metering Pumps

For Chemical Dosing by Electronic Control

SP-A Automatic or Advanced

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Combine Technology & Design

SOLENOID METERING PUMPS SP

GOOD DESIGN

■ Features

- Precise injection and flow control by the dual control of Stroke Length & Stroke Numbers
- The operation status can be checked with Status Lamp (LED)
- Sealing and Accuracy are improved by double check Valve
- Can cope with difficult environments by robust IP65 class and casing material of chemical resistance
- Various auto-control function (Option)
  - Ratio Control by input signal of PULSE
  - Multiplication & Division input signal of PULSE
  - Ratio Control by input signal of 4~20mA
  - Alarm for Low Level & Signal Error
  - Remote Run & Stop
- Easy & Safe Air Vent Valve

- Prevent Gas Lock Phenomenon Support priming
- Relief Valve (Option)

- When over pressure, valve is automatically opened and pump & piping can be protected.
- Function of Air Vent Valve is included
- Prevent damage from overload by built-in Thermal Protection

■ Applications

- Used for injection of Boiler Chemical, Chlorine Disinfectants, Food Additives, and used for dosing chemicals in various industrial fields including physico-chemical fields, semiconductor device, water treatment, waste water treatment fields, etc.

■ Control Panel

Status Lamp (LED)

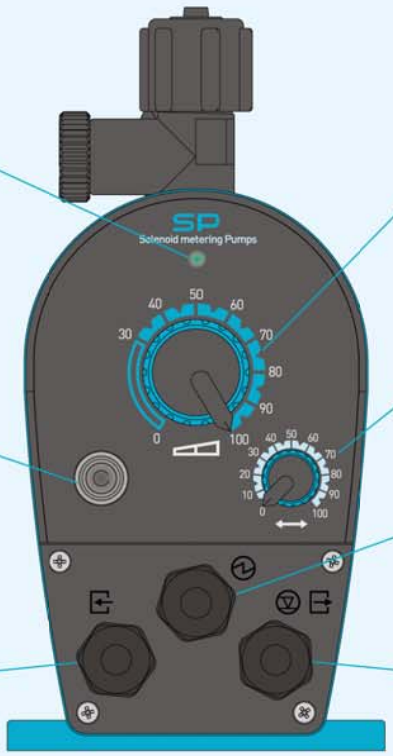
- Green (Normal operation)
- Yellow (Error)
- Red (Low level)

Toggle Switch

- Toggle Switch of 2 stages
  : RUN ⇔ STOP
- Toggle Switch of 3 stages
  : PULSE ⇔ STOP ⇔ MANUAL
- Toggle Switch of 3 stages
  : 4~20mA ⇔ STOP ⇔ MANUAL

Cable Socket for Input Signal

- Pulse
- 4~20mA



Manual control knob for stroke length

Manual control knob for stroke number

Power Cord

Cable Socket for Level Switch

- Cable Socket for Alarm Signal
- Remote RUN/STOP

Status Lamp (LED)

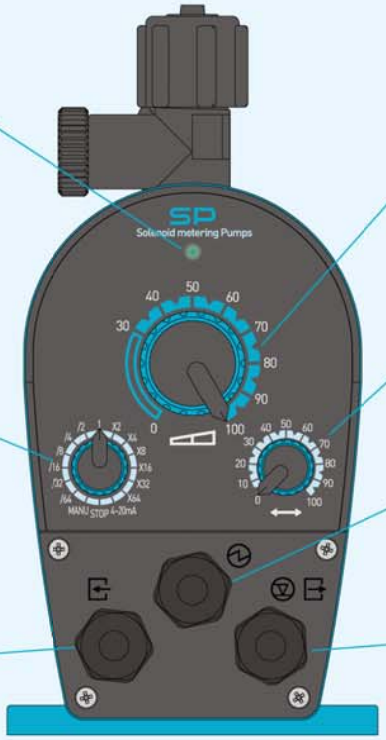
- Green (Normal operation)
- Yellow (Error)
- Red (Low level)

Rotary Switch

- 1:1
- 1/□(DVI)
- 1x□(MUL) of PULSE
- 4~20mA ⇔ STOP ⇔ MANUAL

Cable Socket for Input Signal

- Pulse
- 4~20mA



Manual control knob for stroke length

Manual control knob for stroke number

Power Cord

Cable Socket for Level Switch

- Cable Socket for Alarm Signal
- Remote RUN/STOP

■ Model Code

SP	-	A	20	-	P	F	C	-	1	W	S	-	1	1	0
①		②	③		④-A	④-B	④-C		⑤	⑥	⑦		⑧	⑨	⑩

① Series Name	SP Series
② Control Panel Type	A : Automatic or Advanced
③ Nominal Capacity	20 : 20mL/min
④ Liquid End Material	A - Pump Head P : PP F : PVDF
	B - Ball Seat F : FKM E : EPDM V : FKM (ETP) T : PTFE
	C - Check Ball C : CERAMIC S : SS316
⑤ Hose Standard	1 : ø4× ø6 2 : ø4× ø9 (Braided PVC) 3 : ø6× ø8 4 : ø6× ø11 (Braided PVC) 5 : ø5× ø8
⑥ Valve Structure	W : Standard (0~100mPa·s) V : High Viscosity (100~1000mPa·s)
	※ In case of the valve for high viscosity, spring is installed in the valve.
⑦ General Specification	S : Standard B : Boiler F : Relief Valve G : B + F
	※ In case of Boiler type, discharge hose is nylon and the body of Anti-siphon Check Valve is PPS.
⑧ Control Specification	1 : Manual 2 : Manual+Add. Func. 3 : Pulse (1:1) 4 : Pulse (1:1)+Add. Func.
	5 : 4~20mA 6 : 4~20mA+Add. Func. 7 : Pulse (DIV/MUL)+4~20mA+Add. Func.
	※ Additional Function is Input of Level Switch, Output of Alarm
⑨ Power Supply	1 : AC220 (198~242V) 2 : AC240V (216~264V) ※ Common data:1 Phase 50/60Hz
⑩ Power Cord	0 : 2m of power cord without Plug 1 : 2m of power cord & Plug

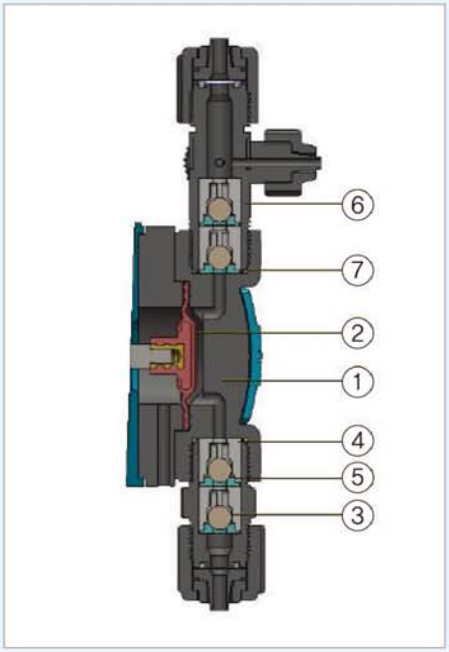
■ Specifications

Spec. \ Model		SP-A20	SP-A40	SP-A60	SP-A100	SP-A200
Max. Capacity (mL/min)		17	35	60	110	200
Max. Discharge Pressure (bar)		16	12	8	5	3
Stroke Rate (SPM)		150				
Stroke Length (mm)		1.0 (40~100%)		1.25 (30~100%)		
Hose	Suction·Discharge	Ø4×Ø6, Ø4×Ø9		Ø6×Ø8, Ø6×Ø11, Ø5×Ø8		
	Air Vent	Ø4×Ø6				
Self-priming (m)		1.5	2			
Viscosity Limit (mPa·s)	Standard	50		100		
	High Viscosity	500		1000	800	500
Weight (kg)	PP Material	2.4			2.5	
	PVDF Material	2.5			2.6	
Operation Temperature		Ambient Temperature 0~40℃ Liquid Temperature 0~50℃				

Electrical Data	Average Power Consumption (W)	Rated Current (A)	Protection Class	Insulation Class
	17	0.5	IP65	F

Note1) Repeatability is ±2%F.S.(Full Scale) and noise is within 70dB.
Note2) Setting pressure of Relief Valve is ±10% of max. discharge pressure.
Note3) Specifications can be changed for improvement without prior notice.

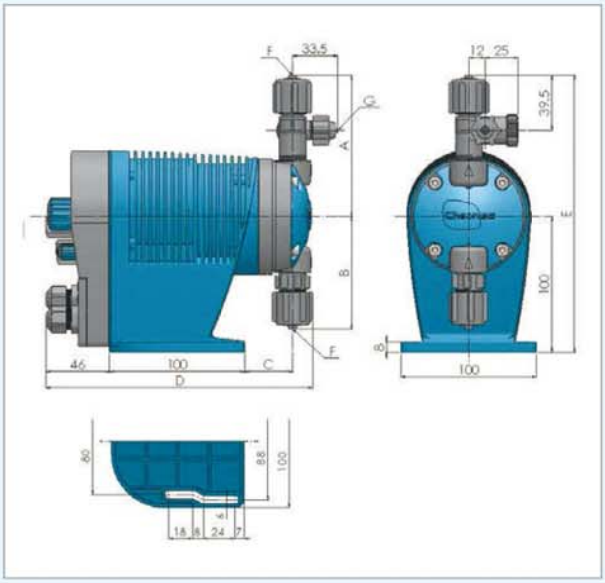
■ Liquid End Material



Part Name \ Type		PFC	PFS	PEC	FVC
① Head		PP			PVDF
② Diaphragm		PTFE			
③ Check Ball		CERAMIC	SS316	CERAMIC	
④ Ball Guide		PP			PVDF
⑤ Ball Seat		FKM		EPDM	FKM (ETP)
⑥ Joint		PP			PVDF
⑦ O-ring		FKM		EPDM	FKM (ETP)
Hose	Standard	Discharge: PE, Suction: Transparent PVC			PTFE
		Braided PVC			
	Boiler	Discharge: NYLON, Suction: Transparent PVC			

- EPDM : Ethylene propylene diene monomer rubber
- FKM : Fluoro rubber
- FKM(ETP) : Fluoro rubber of ETP type
- PE : Polyethylene
- PP : Polypropylene
- PPS : Polyphenylene sulfide
- PTFE : Polytetrafluoroethylene
- PVC : Polyvinyl chloride
- PVDF : Polyvinylidene fluoride

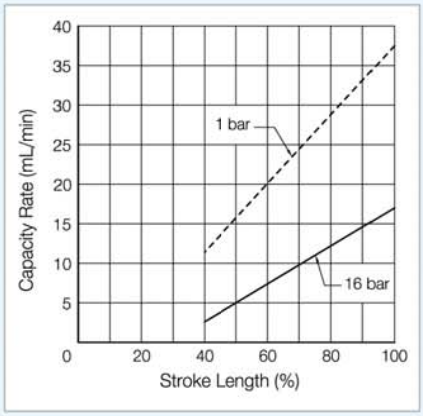
■ Dimension



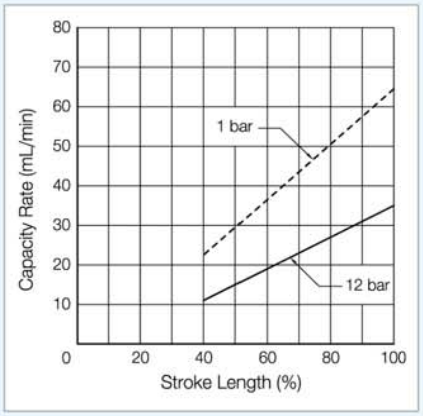
Dim. \ Model	SP-A20	SP-A40	SP-A60	SP-A100	SP-A200
A	96.5	99	101	102.5	107.5
B	76.5	79	81	82.5	87.5
C	33.5	33.5	33.5	35	35
D	194.5	194.5	194.5	196	196
E	196.5	199	201	202.5	207.5
F	Ø4×Ø6, Ø4×Ø9		Ø6×Ø8, Ø6×Ø11, Ø5×Ø8		
G	Ø4×Ø6				

■ Performance Curve

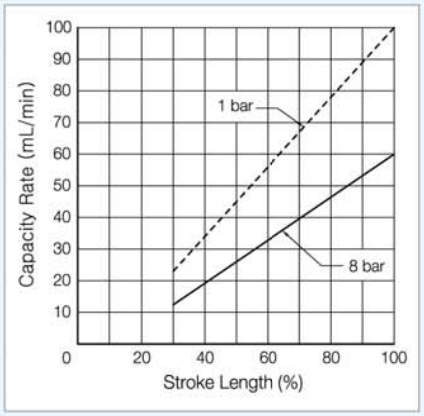
● SP-A20



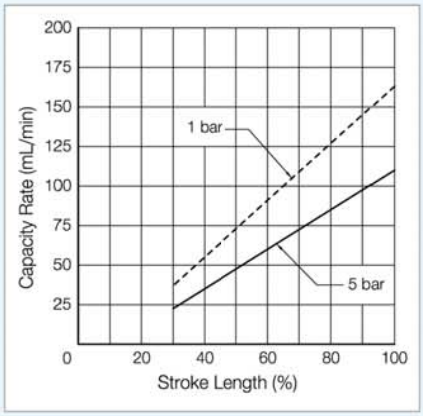
● SP-A40



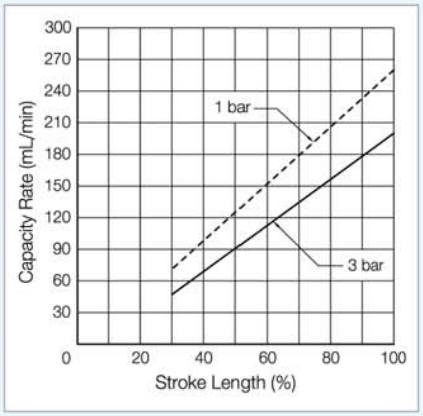
● SP-A60



● SP-A100



● SP-A200



Note) Performance curves can be somewhat different accordance with application of job site.

■ When Placing Order

In order to provide the most suitable pump, please provide the following information.

1. Specification of Liquid

(1) Liquid name (2) Ingredients (3) Concentration (4) Viscosity

2. Conditions of installation

(1) Process of use (2) Required discharge volume (3) Power source
(4) Installating location & Mounting method (5) Operating condition

3. Other

(1) Desired delivery date and place (2)Any other requirements

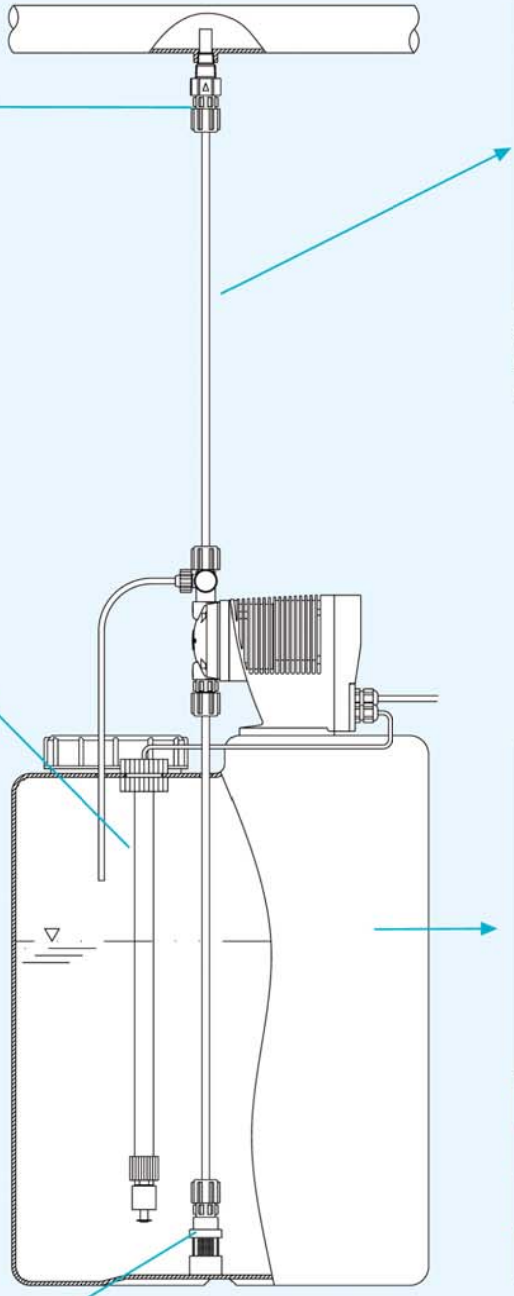
■ Accessories

● Anti-siphon Check Valve

It is installed at the end of discharge hose and prevents overfeeding, flowing backward, & siphon phenomenon.

● Hose

Suction Hose 1m,
Discharge Hose 2m,
Air Vent Hose 1m



● Level Switch (Option)

When liquid level in tank is low, it generates alarm signal.

● Liquid Tank (Option)

Model	Volume(L)	Diameter	Height
SPN-50L	50~65	420	580
SPN-100L	100~120	520	690
EN-200	200	590	860

● Strainer Foot Valve

It is installed at the end of suction hose and prevents foreign substance & flow backward.

Solenoid Metering Pumps SP

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