

SM Models Manual Control

Practical Choice for Solenoid-driven Pumps

- Models for chemical injection, high-pressure boiler feed, and outgassing fluids.
- Temperatures ranges (ambient and transferring liquid) from 32°F to 104°F (0°C to 40°C).
- Light-weight models either 3.75 lbs. (1.7 kg) or 4.0 lbs. (1.8 kg).
- Low-noise, less than 85 dB.
- Stroke length fixed at 1.0 mm.
- Protective secondary diaphragm.



SM Models Manual Control

Low in Cost and Easy to Operate

SM models feature a simple hand-operated speed stroke dial. Each pump runs at a maximum of 300 strokes per minute and a minimum of 15 strokes per minute.



SM Series Flow Capacities and Pressure Ratings

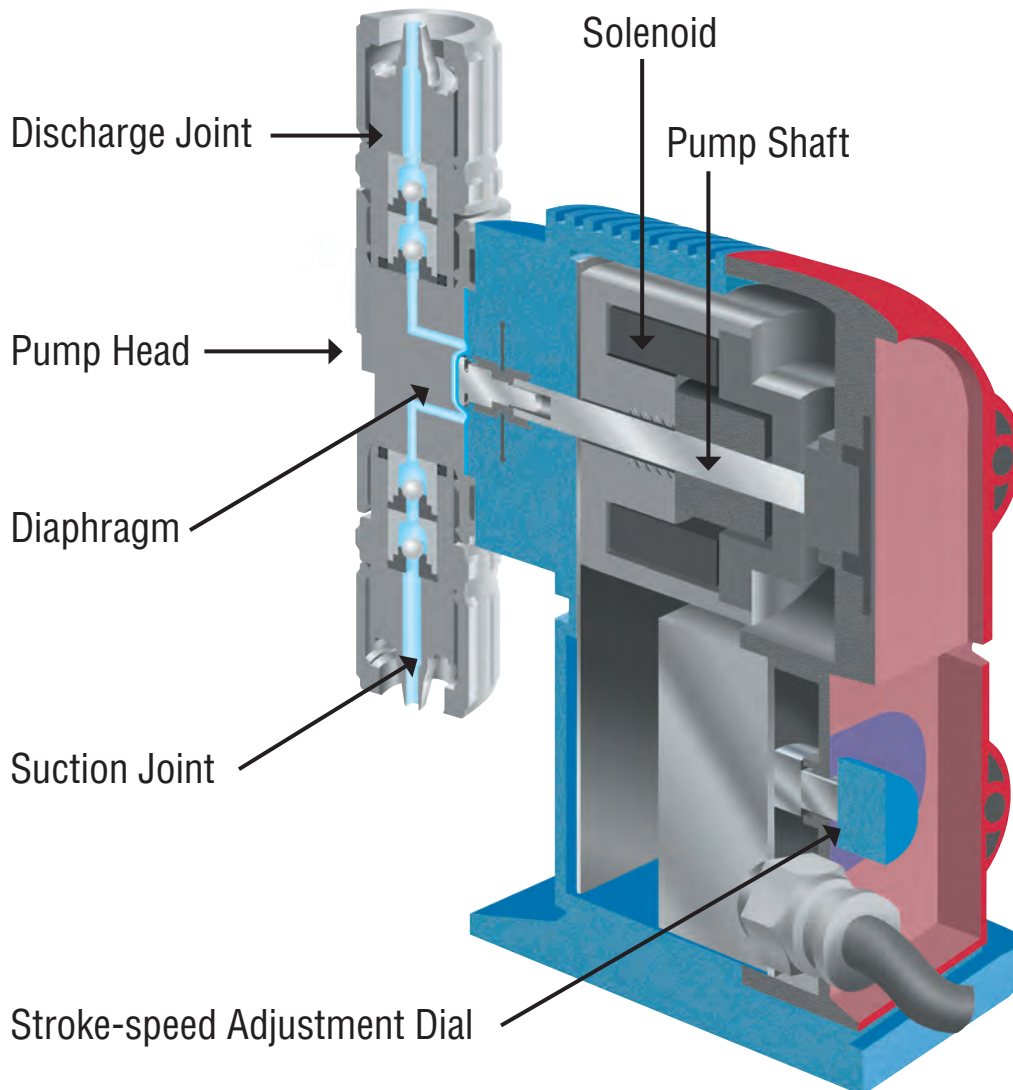
Model Number	Maximum Discharge Volume			Maximum Discharge Pressure	
	ml/min	gph	lph	psi	bar
SM030 High Pressure	28	0.44	1.68	217	15
SM030	30	0.48	1.80	145	10
SM060	60	0.95	3.60	116	8
SM100	100	1.59	6.00	58	4
SM03R* High Pressure	28	0.44	1.68	217	15
SM03R*	30	0.48	1.80	102	7
SM06R*	60	0.95	3.60	102	7
SM10R*	100	1.59	6.00	58	4

*Models equipped with integral relief valve.



SM Models Special Features

Minimal Parts for Easy Maintenance



Spare Parts Kits to Extend Pump Service Life

Two kits are available to cover spare parts needs for SM models. Individual sets are also available as spare parts:

- Diaphragm Sets
- Relief Valve Sets
- Air Release Knob Sets
- Air Release Nozzle Sets
- Head Bolt Sets



SM Models Special Features

Safety Mechanisms to Prevent Air Lock

Outgassing results when the fluid pressure drops below the saturation pressure of a gas dissolved in a liquid. If this occurs, gas comes out of the solution and builds up inside the pump. When air enters the pump head, it prevents the chemicals from being discharged.

SM model pumps for outgassing fluids (e.g. Sodium Hypochlorite) feature an innovative design to minimize dead space and prevent air entry and build-up in the pump.

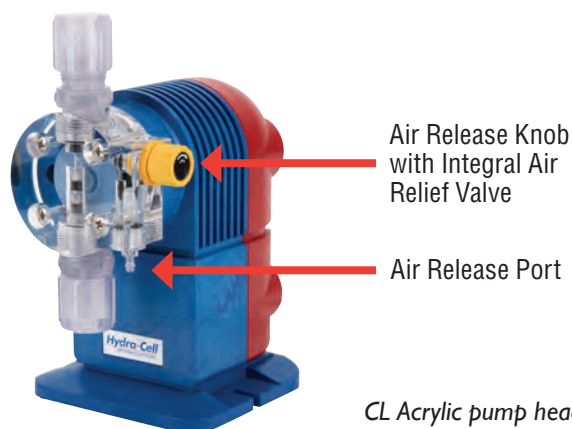
If air does enter the pump or if outgassing occurs, the CL and CA (Acrylic pump head) versions each feature mechanisms to combat air lock and outgassing.

All CL and CA pump head models feature a transparent liquid end that enables the operator to see whether air is present in the pump head.



- SM CL models 030, 060, and 100 have a manual air release knob that functions in the same manner as other SM 030, 060, and 100 models.
- Switch off the pump; attach the supplied tubing to the air release port and tank or container; switch the pump on to the maximum flow rate; and turn the knob counterclockwise 1 to 1-1/2 rotations.
- After the air is fully purged, turn the knob clockwise until tight, and then switch off the pump.

CL Acrylic pump head with manual air release knob and air release port



- SM CL models 03R, 06R, and 10R have a manual air release knob that functions in the same manner as other SM 03R, 06R, and 10R models.
- Switch off the pump; attach the supplied tubing to the air release port and tank or container; switch the pump on to the maximum flow rate; and turn the knob clockwise approximately 90 degrees.
- After the air is fully purged, turn the knob clockwise again until a “click” is heard. Then switch off the pump.

CL Acrylic pump head with integral air release valve



- Air release with the CA version of SM model pumps is simple and automatic. Entrapped gas is discharged from the air release port on top, and the chemical is discharged through a center port.
- Bubbles or gas in the chemical tank or container are sucked into the pump head. They pass through the air release joint and are fed back to the chemical tank or container along the air release pump.
- After all of the bubbles or gas are discharged from the pump head, the chemical is discharged from the discharge side.

CA Acrylic pump head with automatic degassing

SM Models Manual Control Specifications

Chemical Injection

Including High-pressure Boiler Feed

	030 & 03R Models			060 & 06R Models		100 & 10R Models	
Liquid End	PVC or PVDF	316SS	PVC (High-pressure Boiler)	PVC or PVDF	316SS	PVC or PVDF	316SS
Order Codes	PE/PF/KE/KF/KP	ST	BH	PE/PF/KE/KF/KP	ST	PE/PF/KE/KF/KP	ST
Maximum Discharge Volume	30 ml/min	27 ml/min	28 ml/min	60 ml/min	55 ml/min	100 ml/min	95 ml/min
	0.48 gph	0.43 gph	0.44 gph	0.95 gph	0.87 gph	1.59 gph	1.51 gph
	1.8 lph	1.6 lph	1.68 lph	3.6 lph	3.3 lph	6.0 lph	5.7 lph
Maximum Discharge Pressure	145 psi (10 bar)	73 psi (5 bar)	217 psi (15 bar)	145 psi (10 bar)	73 psi (5 bar)	145 psi (10 bar)	73 psi (5 bar)
Hose I.D. x O.D. mm	6 x 8 (PE)*	6 x 8 (PTFE)	4 x 6 (PA)	6 x 8 (PE)*	6 x 8 (PTFE)	6 x 8 (PE)*	6 x 8 (PTFE)
Weight	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)

*(FEP) for KP pump heads

Outgassing Fluids

Including Sodium Hypochlorite Injection

	030 Models	03R Models	060 Models	06R Models	100 & 10R Models
Liquid End	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic
Order Codes	CL/CA	CL/CA	CL/CA	CL/CA	CL/CA
Maximum Discharge Volume	30 ml/min	30 ml/min	60 ml/min	60 ml/min	100 ml/min
	0.48 gph	0.48 gph	0.95 gph	0.95 gph	1.59 gph
	1.8 lph	1.8 lph	3.6 lph	3.6 lph	6.0 lph
Maximum Discharge Pressure	145 psi (10 bar)	102 psi (7 bar)	116 psi (8 bar)	102 psi (7 bar)	83 psi (4 bar)
Hose I.D. x O.D. mm	6 x 8 (PE)	6 x 8 (PE)	6 x 8 (PE)	6 x 8 (PE)	6 x 8 (PE)
Weight	3.75 lbs. (1.7 kg)	3.75 lbs. (1.7 kg)	4.0 lbs. (1.8 kg)	4.0 lbs. (1.8 kg)	4.0 lbs. (1.8 kg)

Notes:

All "R" models include a 4 x 6 soft PVC hose for the integral relief valve air release.

All models with a degassing joint include a 4 x 6 soft PVC hose for air release.

SM Models Manual Control Specifications

General Specifications

Stroke Speed	15 to 300 strokes/minute (manual dial setting)
Stroke Length	Fixed at 1.0 mm
Maximum Allowable Viscosity	50 mPa (50 cPs)
Temperature Ranges	Ambient: 32°F to 104°F (0°C to 40°C); Transferring Liquid: 32°F to 104°F (0°C to 40°C); no freezing allowed
Ambient Humidity	35% to 85% RH
Environmental Protection	IEC standard; IP65 or equivalent (waterproof & dust-resistant)
Altitude of Installation Location	Less than 3,280 ft. (1,000 m)
Noise Level	Less than 85 dB

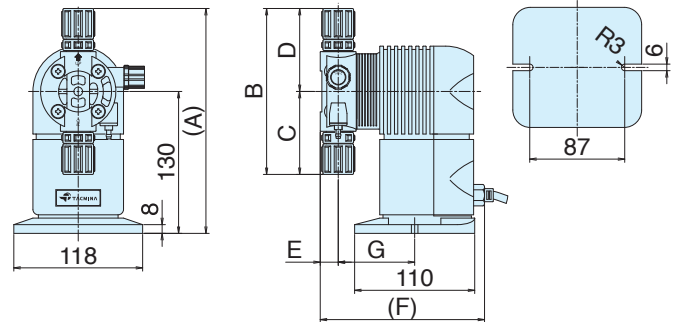
Power Supply

Rated Voltage	AC 100 to 240 V (±10%)
Phase/Frequency	1-phase/50 or 60 Hz
Maximum Current	2.0 A
Maximum Power Consumption	200 VA
Average Power Consumption	15 W

Dimensions

All dimensions in millimeters (mm).

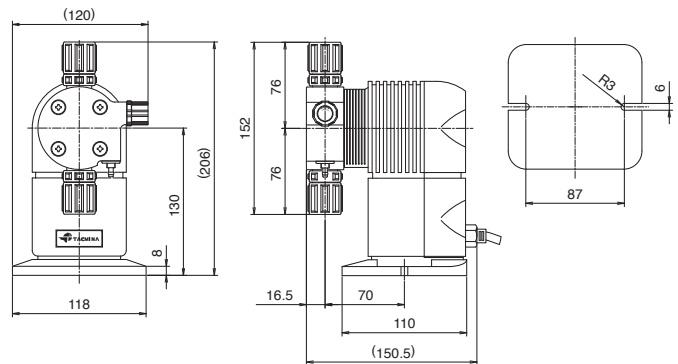
PVC, PVDF & 316SS Pump Heads



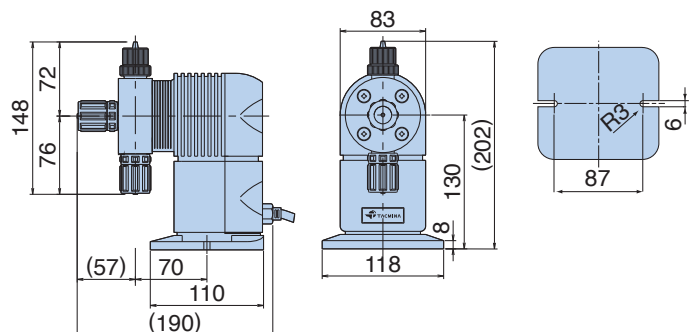
Liquid End	(A)	B	C	D	E	(F)	G
PVC	206	152	76	76	16.5	150.5	70
PVDF	227.5	195	97.5	97.5	17.5	142	69.5
316SS	193	139	76	63	16.5	150.5	70

- The shape and dimensions differ slightly depending on the liquid-end material and connection type.
- The mounting pitch allows mounting from 87 to 110 mm.

Acrylic Pump Heads



PVC (High-pressure) Pump Heads



- The mounting pitch allows mounting from 87 to 110 mm.

SM Models How to Order



SM03RPES

SM03RKPS

SM03RCLS

SM030CAS

SM030STB

SM030KPE

How to Order

A complete pump order number contains 8 digits based on the specified pump materials listed below.

1	2	3	4	5	6	7	8
S	M						

Digits	Order Code	SM Series Solenoid Pump	Application
1 - 2	SM	Manual control with stroke speed dial	
3-5	Flow Rate		
	030	30 ml/min	
	060	60 ml/min	
	100	100 ml/min	
	03R	30 ml/min with relief valve	
	06R	60 ml/min with relief valve	
	10R	100 ml/min with relief valve	
6 - 7	Materials of Construction:	Head/O-ring/Valve Seat/Joint/Valve or Ball Stop/Hose (I.D. x O.D. mm)	Application
		(All contain PTFE diaphragms and ceramic check valve balls)	
	PE	PVC/EPDM/EPDM/PVC/PVC/PE (6 x 8)	General chemicals
	PF	PVC/FKM/FKM/PVC/PVC/PE (6 x 8)	General chemicals
	KE	PVDF/EPDM/EPDM/PVDF/PVDF/PE (6 x 8)	General chemicals
	KF	PVDF/FKM/FKM/PVDF/PVDF/PE (6 x 8)	General chemicals
	KP	PVDF/FKM/PTFE/PVDF/PTFE/FEP (6 x 8)	General chemicals
	ST	316SS/PTFE-/Ceramic/PTFE/PTFE (6 x 8)	General chemicals
	CL	Acrylic/FKM/FKM/PVC/PVC/PE (6 x 8)	Outgassing fluids without automatic air release
	CA	Acrylic/FKM/FKM/PVC/PVC - Hastelloy Spring/PE (6 x 8) 030, 060, and 100 models only	Outgassing fluids with automatic air release
	BH	PVC/EPDM/PTFE/PVC/PVC/PA (4 x 6) 030 and 03R models only	High-pressure boiler
8	Power Plug		
	S	North American Plug	Standard
	B	UK Plug	CE UK
	E	European Plug	CE Europe
	L	Asia	Lead wire only