

# Hydra-Cell<sup>®</sup>

METERING SOLUTIONS<sup>™</sup>

Economical & Eco-friendly Solenoid Metering Pumps



# S Series Solenoid-driven Diaphragm Metering Pumps

S Series metering pumps provide an economical and environmentally-friendly choice for chemical injection in metering applications. Manual as well as automatic control models offer up to 300 strokes per minute.

Solenoid-driven, the S pumps feature a wide discharge-volume range, extensive choice of liquid end materials, various control functions, and a wide voltage range.

Materials of construction choices and versatile design options result in pumps perfected for specific applications including general chemicals, high-pressure boiler, high-viscosity fluids, outgassing and more.

## Versatile, Economical and Easy to Operate

- Variety of liquid end components to match specific applications
- Model available with pump head that can be moved in three directions to provide flexibility of installation
- Manual-control SM models feature a simple hand-operated dial
- SP, ST & SA models feature digital operation with simple key operations and intuitive user interface - a bright, sharp LED display is clearly visible in low-light as well as high-glare areas
- Water-proof, dust-resistant structure ideal for indoor or outdoor use
- Pump housing is molded from high-impact PPO, an engineered thermoplastic that provides dimensional stability and excellent resistance to heat.
- Power supply range for operation between AC100 and 240V ( $\pm 10\%$ )
- Fast, easy maintenance as liquid-end parts can be disassembled and replaced by simply detaching four bolts

## “Eco-friendly” Mode Reduces Power Consumption up to 55%

Unlike conventional pumps that are always turned on for a specific time period regardless of the discharge pressure, S Series “Eco-friendly” pumps with pulse control automatically cut the power-on time in accordance with the discharge pressure.

The “Eco-friendly” mode of SP/ST/SA models always monitors operation conditions and automatically shortens the power-on time during low-pressure operation in order to reduce power consumption and operating costs.



# S Series Solenoid-driven Diaphragm Metering Pumps

## Typical Applications

S Series pumps are designed to provide reliable chemical injection for processes requiring a maximum flow rate from up to 0.48 gph (1.8 lph) to 3.17 gph (12.0 lph) depending on model. Examples include:

- Water treatment for cooling towers
- Chemical injection for high-pressure boiler feed
- Municipal and industrial water and wastewater treatment
- Metering of chemicals for disinfection and pH neutralization for swimming pool treatment
- De-chlorination treatment for Reverse Osmosis (RO) film process
- Handling high-viscosity fluids
- Outgassing fluids

## Safety Features to Handle Abnormal Pressure

**Safe Mode** - liquid transfer force is controlled during no-discharge operation to prevent abnormal pressure buildup. (Not available for SP/ST/SA-200 models or for boiler and high-pressure applications.)

**Integral Relief Valve** - releases abnormal pressure automatically if the pressure exceeds the set value. (Not available for high-viscosity and high-pressure applications.)

**Abnormal Pressure Sensor** - alarm sounds if abnormal pressure builds up due to clogged pipes or if the discharge valve is closed. (Available with SP/ST/SA models only.)

## Specialized Control Functions

**Manual Operation** - SM models feature a simple hand-operated dial to set the range between 15 and 300 strokes per minute in l-stroke units. Discharge volume can be set up to the maximum flow capacity in 0.1 ml/m units.



**Digital Operation with Pulse-input Control** - SP, ST & SA models provide direct digital entry of the injection amount from 1 to 300 strokes per minute in l-stroke units. Discharge volume can be set up to the maximum flow capacity in 0.1 ml/m units. Setting range can be set from 1 to 100% (minimum setting increment 1% @ 3 strokes/min).



Pulse-input proportional control (frequency-division) enables the pump to perform the injection operation for “n” times of input pulse signals. (Setting range: n = 1 to 999.)

Pulse-input proportional control (frequency-magnification) enables the pump to perform the injection operation “n” times for a single input pulse signal. (Setting range: n = 1 to 999.)

- SP models provide full pulse-in control.
- ST models provide full pulse-in control and timer control (interval mode, day mode, week mode).
- SA models provide full pulse-in control and analog control that can set stroke frequency from an external device.

## Flow Capacities and Pressure Ratings

Model Number SM Series	Maximum Discharge Volume			Maximum Discharge Pressure	
	ml/min	gph	lph	psi	bar
SM030	30	0.48	1.8	145	10
SM060	60	0.95	3.6	116	8
SM100	100	1.59	6.0	58	4
SM03R*	30	0.48	1.8	102	7
SM06R*	60	0.95	3.6	102	7
SM10R*	100	1.59	6.0	58	4

Model Number SP/ST/SA Series	Maximum Discharge Volume			Maximum Discharge Pressure	
	ml/min	gph	lph	psi	bar
SP,ST or SA030	30	0.48	1.8	145	10
SP,ST or SA060	60	0.95	3.6	145	10
SP,ST or SA100	100	1.59	6.0	102	7
SP,ST or SA200	200	3.17	12.0	29	2
SP,ST or SA03R*	30	0.48	1.8	102	7
SP,ST or SA06R*	60	0.95	3.6	102	7
SP,ST or SA10R*	100	1.59	6.0	102	7

\*Models equipped with internal relief valve.

# S Series Manual Control - SM Models



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

# S Series Pulse Control - SP/ST/SA Models



SPO3RPES



STO3RPES



SAO3RPES



SPO60HVS



SPO3RKPS

## 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							

Order Digits	Code	SP/ST/SA Series Solenoid Pump	Application
1 - 2	SP	Digital with pulse-in control	
	ST	Digital with pulse-in control and timer	
	SA	Digital with pulse-in and analog-in control	
3-5	<b>Flow Rate</b>		
	030	30 ml/min	
	060	60 ml/min	
	100	100 ml/min	
	200	200 ml/min (only available as PE and PF)	
	03R	30 ml/min with relief valve	
	06R	60 ml/min with relief valve	
	10R	100 ml/min with relief valve	
6 - 7	<b>Materials of Construction:</b>	Head/O-ring/Valve Seat/Joint/Valve or Ball Stop (All contain PTFE diaphragms and ceramic check valve balls)	<b>Application</b>
	PE	PVC/EPDM/EPDM/PVC/PVC	General chemicals
	PF	PVC/FKM/FKM/PVC/PVC	General chemicals
	KE	PVDF/EPDM/EPDM/PVDF/PVDF (No 200 ml/min)	General chemicals
	KF	PVDF/FKM/FKM/PVDF/PVDF (No 200 ml/min)	General chemicals
	KP	PVDF/FKM/PTFE/PVDF/PTFE (No 200 ml/min)	General chemicals
	ST	316SS/PTFE/-/Ceramic/PTFE 030, 060 and 100 models only	General chemicals
	CN	Acrylic/FKM/FKM/PVC/PVC (No 200 ml/min)	Outgassing fluids without automatic degassing joint
	CD	Acrylic/FKM/FKM/PVC/PVC - Hastelloy Spring (No 200 ml/min)	Outgassing fluids with automatic degassing joint
	BH	PVC/EPDM/PTFE/PVC/PVC 030 and 03R models only	High-pressure boiler applications
	CH	PVC/EPDM/PTFE/PVC/PVC 030 models only	High-pressure chemical applications
	HV	PVC/FKM/-/PVC/- 060 and 100 models only	High-viscosity fluids
8	<b>Power Plug</b>		
	S	North American Plug	Standard
	E	European Plug	CE Europe
	B	UK Plug	CE UK
	L	Asia	Lead wire only

# S Series Components and Accessories to Enhance System Performance

## Double-ball Check Valve

Controls valve opening and closing speeds to help ensure metering accuracy and reduce the possibility of water hammer.

## Anti-siphon Check Valve

Prevents clogging at the injection point and also aids in priming.



## Flow Checker

Resistant to acids and alkalis to allow the injection operation of the pump to be verified at low cost.



## Foot Valve

Designed to prevent backflow into chemical injection systems.



## Degassing Joint

Separates absorbed air bubbles from the liquid to prevent air bubbles from entering the pump head.



## Integral Relief Valve

Safety valve that automatically releases excess pressure that builds up inside the discharge side pipes. This can occur due to clogging of the pipes or if the discharge valve is closed.



## Solution Tanks

For large-capacity chemical injection. Special features include a float switch that sounds an alarm when it is time to refill the tank, and a drain valve that drains excess moisture from the system.



30L (7.9 gal)

50L (13.2 gal)

120L (31.7 gal)

## Spare Parts Kits

Spare parts kits to help extend service life.

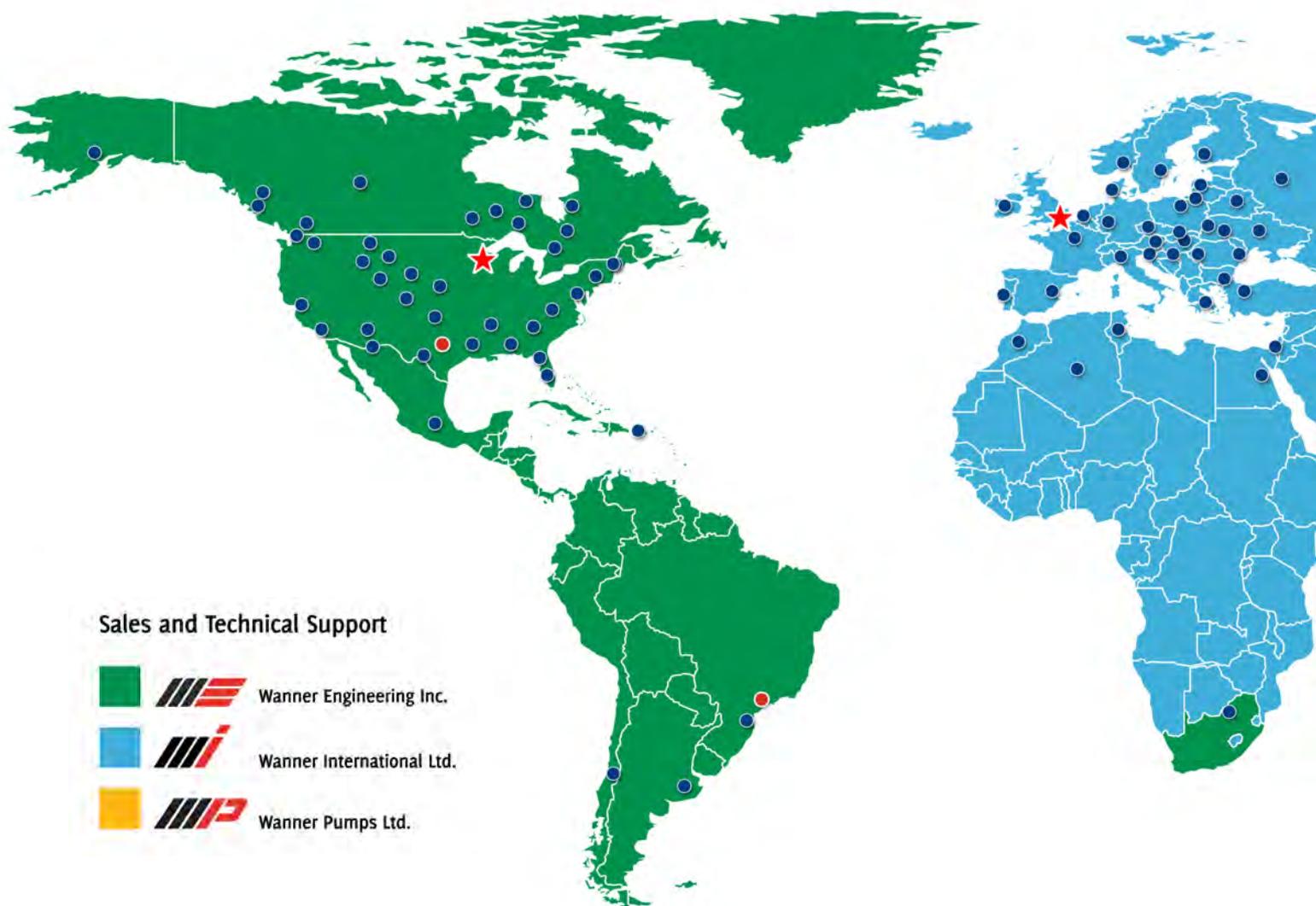


SM Series Spare Parts Kit

SP/SA/ST Series Spare Parts Kit



# Hydra-Cell® Worldwide Sales and Service



## Sales and Technical Support

-   Wanner Engineering Inc.
-   Wanner International Ltd.
-   Wanner Pumps Ltd.

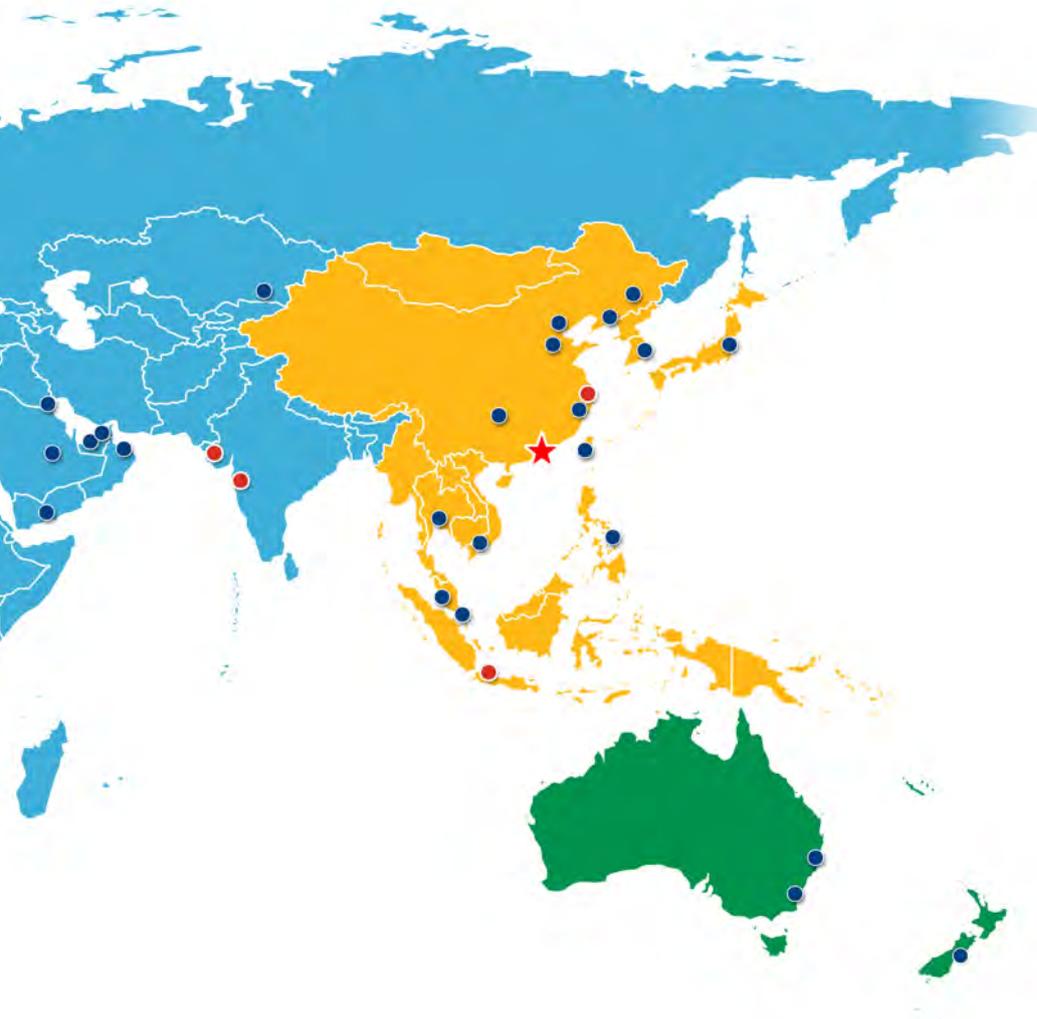
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