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Manufacturer of

# STRICKLIN Model SP-2

## Pneumatic Chemical & Methanol Pump

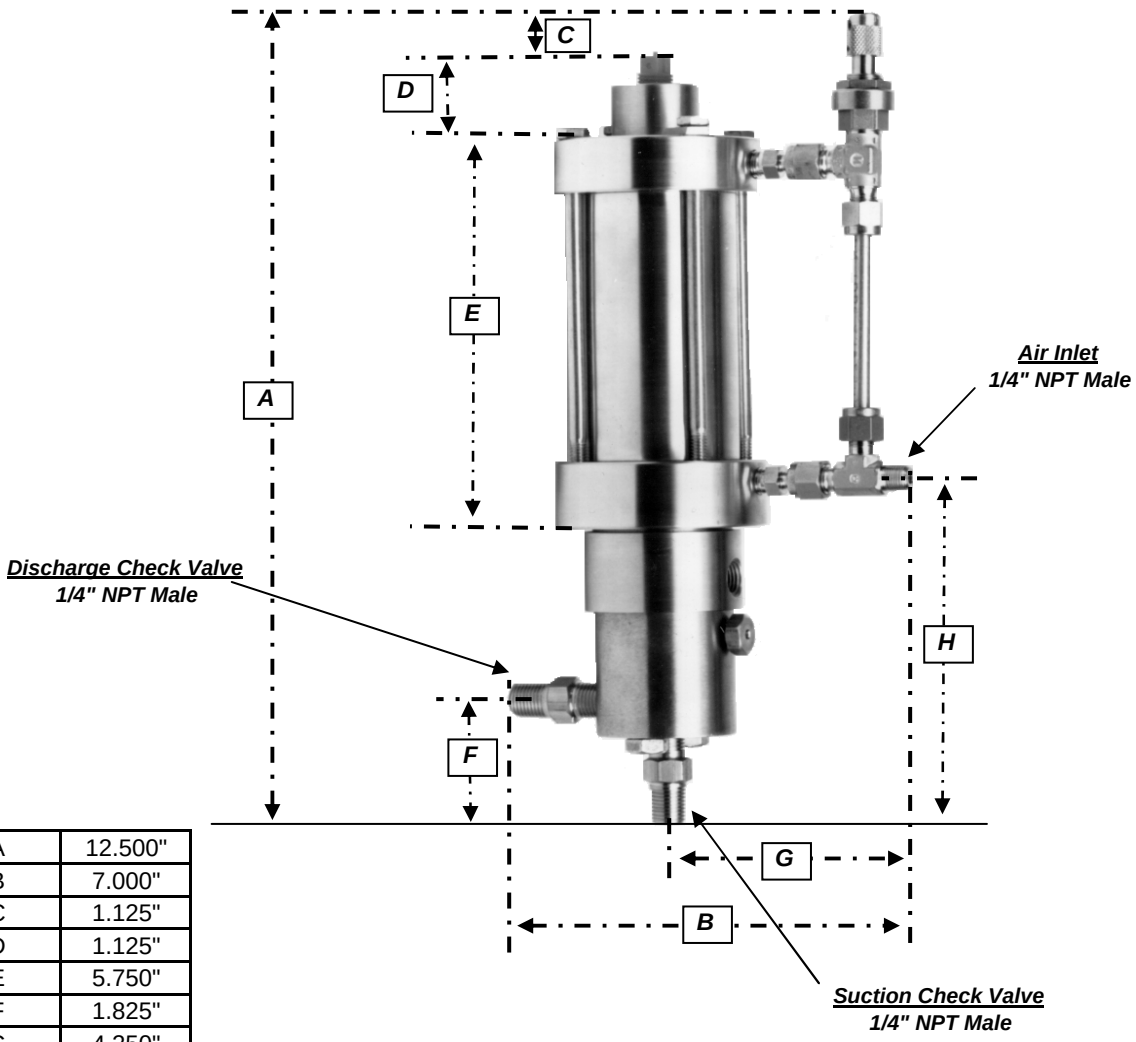
**"PUMP OF QUALITY"**

- Pump consists of 300 Series Stainless Steel Ideal for the Offshore Environment
- Special Fine Metering Speed Control Valve for pumping low amounts of Chemical
- Tubing connections on air/gas supply manifold
- Mechanical plunger and lower plate seals for extended life and simple maintenance
- For continuous operating - Maximum recommended discharge pressure - 5,000 PSI with 1/4" plunger
- Plunger stroke speed may be adjusted while pumping
- 1/4", 3/8", & 1/2" plunger sizes available
- Plunger consist of Heat Treated 440C Steel - Alternate Plunger Materials Available for Low PH Chemicals
- Operates fine on wet air/gas supply
- Weighs 12 pounds
- Pump parts interchangeable with Stonebor Model C6 pump parts

| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY (GPD) |
|---|---|---|---|
| SP-2-250 | 1/4" | 5,000 PSI | 2 Qts - 12 GPD |
| SP-2-375 | 3/8" | 2,500 PSI | 1 Gal - 26 GPD |
| SP-2-500 | 1/2" | 1,500 PSI | 2 Gal - 50 GPD |

(1) Maximum Recommended Supply Pressure 140 PSI.
(2) Maximum Discharge Chemical Delivery based on 60 Strokes per Minute.

# Stricklin Model SP-2
# Dimensions




| | |
|---|---|
| A | 12.500" |
| B | 7.000" |
| C | 1.125" |
| D | 1.125" |
| E | 5.750" |
| F | 1.825" |
| G | 4.250" |
| H | 5.125" |

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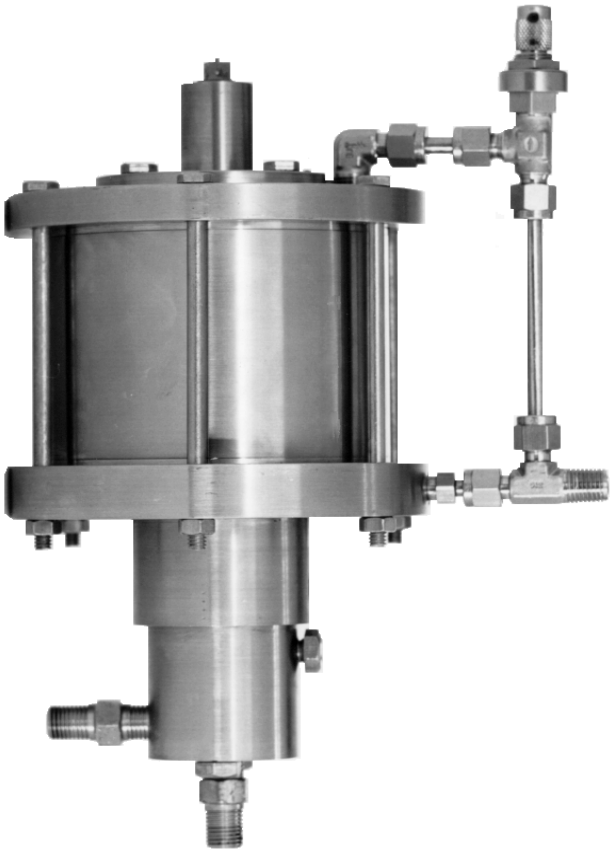
Manufacturer of

# STRICKLIN Model SP-4

## Pneumatic Chemical Injection Pump

**PRODUCT INFORMATION:**

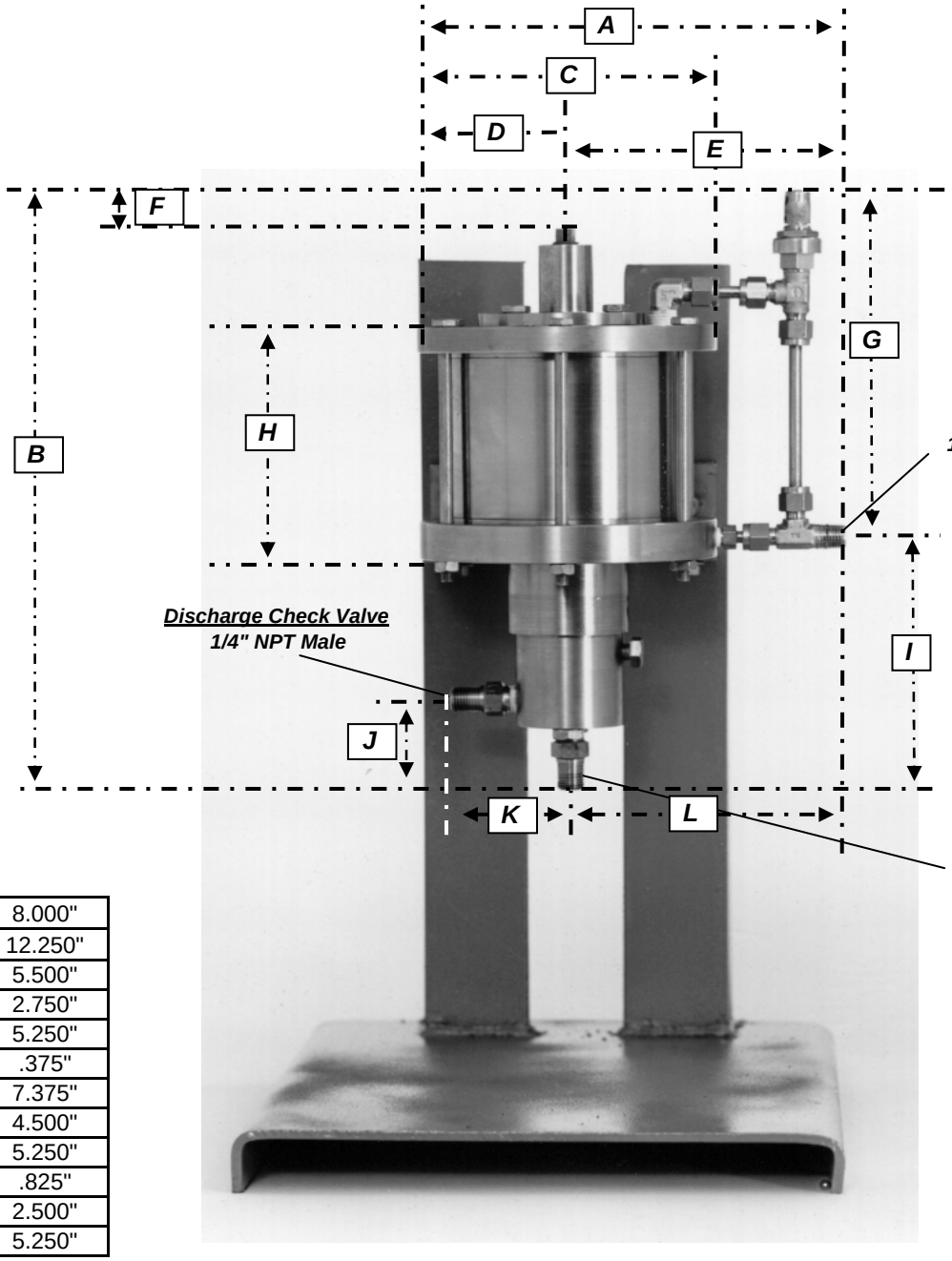
- Pump constructed of 300 Series Stainless Steel Ideal for the Offshore Environment.
- Special fine metering speed control valve for pumping low and accurate volumes of chemical.
- Plunger stroke speed may be adjusted while pump is operating.
- Tubing connections on air/gas supply manifold.
- For continuous operating - maximum recommended discharge pressure should not exceed 10,000 PSI with 1/4" plunger.
- Mechanical plunger and upper plate seals for extended life and simple maintenance.
- Varity of plunger materials available for chemical compatibility.
- Capable of operating on wet air/gas supply.
- Dry weight is 15 pounds.



| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY |
|---|---|---|---|
| SP-4-250 | 1/4" | 10,000 | 2 qts - 12 gpd |
| SP-4-375 | 3/8" | 10,000 | 1 - 26 gpd |
| SP-4-500 | 1/2" | 6,500 | 2 - 50 gpd |
| SP-4-750 | 3/4 | 2,500 | 3 - 112 gpd |

(1) Maximum recommended supply pressure 140 psi.
(2) Maximum dischare chemical delivery based on 60 strokes per minute.

# STRICKLIN Model SP-4
# Dimensions




| | |
|---|---|
| A | 8.000" |
| B | 12.250" |
| C | 5.500" |
| D | 2.750" |
| E | 5.250" |
| F | .375" |
| G | 7.375" |
| H | 4.500" |
| I | 5.250" |
| J | .825" |
| K | 2.500" |
| L | 5.250" |

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Manufacturer of

# STRICKLIN Model SP-6

## Pneumatic Chemical & Methanol Pump

**PRODUCT INFORMATION:**

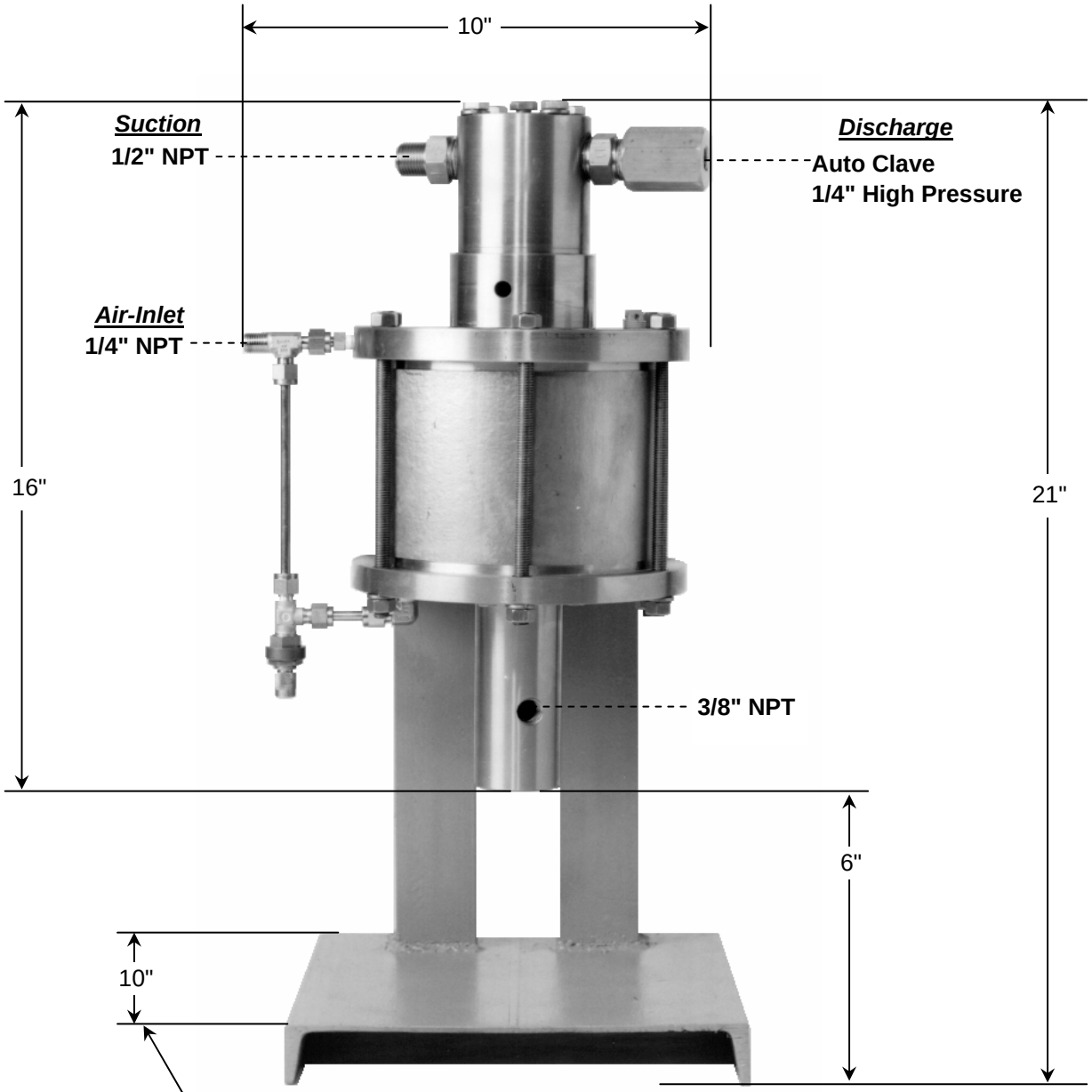
- Pump consists of 300 Series Stainless Steel Ideal for the Offshore Environment
- Special Fine Metering Speed Control Valve for pumping low and accurate amounts of Chemical
- Plunger stroke speed may be adjusted while pumping
- Tubing connections on air/gas supply manifold
- Designed to operate with low air/gas supply pressure to inject into high pressure system
- Mechanical plunger and upper plate seals for extended life and simple maintenance
- Plunger consist of heat treated 440C Steel - Alternate plunger materials available for low PH chemicals
- Operates fine on wet air/gas supply
- Weighs 38 pounds
- HP - High Pressure
- HV - High Volume

| Model No. | Plunger Size | Maximum Discharge Pressure | | Chemical Delivery | | Operation Ratio |
|---|---|---|---|---|---|---|
| | | PSI | kPg | Gallons per Day (gpd) | | |
| SP-6-HP-375 | 3/8" | 30,000 | 206,843 | 2 to 60 | 7.5 to 227.1 | 227 - 1 |
| SP-6-HP-500 | 1/2" | 20,000 | 137,895 | 3 to 90 | 11.4 to 340.6 | 136 - 1 |
| SP-6-HV-750 | 3/4 | 8,000 | 55,158 | 10 to 220 | 37.8 to 832.7 | 56 - 1 |
| SP-6-HV-1000 | 1" | 4,500 | 31,026 | 15 to 400 | 56.8 to 1,514.0 | 32 - 1 |
| SP-6-HV-1250 | 1¼" | 2,750 | 18,961 | 22 to 630 | 83.3 to 2,384.6 | 20 - 1 |
| SP-6-HV-1500 | 1½" | 2,000 | 13,790 | 35 to 925 | 132.5 to 3,501.1 | 14 - 1 |

(1) Maximum Recommended Supply Pressure 150 PSI.
(2) Maximum Discharge Chemical Delivery based on 60 Strokes per Minute.

# STRICKLIN Model SP-6

Pneumatic Chemical & Methanol Pump




**DEPTH OF THE PUMP IS 10"**

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Manufacturer of

# STRICKLIN Model SP-8

## Pneumatic Chemical Injection Pump

**PRODUCT INFORMATION:**

- Pump constructed of 300 Series Stainless Steel Ideal for the Offshore Environment.
- Special fine metering speed control valve for pumping low and accurate volumes of chemical
- Plunger stroke speed may be adjusted while pump is operating.
- Tubing connections on air/gas supply manifold.
- Minimum supply pressure of 50 PSI is required.
- Maximum supply pressure of 140 PSI.
- Mechanical plunger and upper plate seals for extended life and simple maintenance.
- Varity of plunger materials available for chemical compatibility.
- Capable of operating on wet air/gas supply.
- Dry weight is 76 pounds.

US STANDARD MEASURE (GALLONS PER DAY)

| Model No. | Plunger Size | Maximum Discharge Pressure | | Chemical Delivery | | | Operation Ratio |
|---|---|---|---|---|---|---|---|
| | | PSI | Bar | Gallons per Day (gpd) | | | |
| SP-8-1000 | 1" | 8,800.00 | 606.73 | 15.00 | to | 230.00 | 75 - 1 |
| SP-8-1250 | 1-1/4" | 4,200.00 | 289.58 | 25.00 | to | 458.00 | 38 - 1 |
| SP-8-1500 | 1-1/2" | 2,800.00 | 193.05 | 40.00 | to | 660.00 | 26 - 1 |
| SP-8-2000 | 2" | 1,650.00 | 113.76 | 50.00 | to | 1,170.00 | 15 - 1 |

(1) Maximum recommended supply pressure - 140 PSI

Manufacturer of

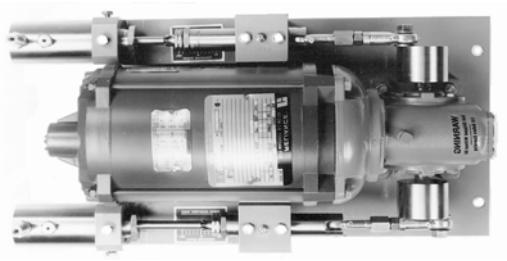
# STRICKLIN Model SE

Electric Drive Chemical Injection Pump

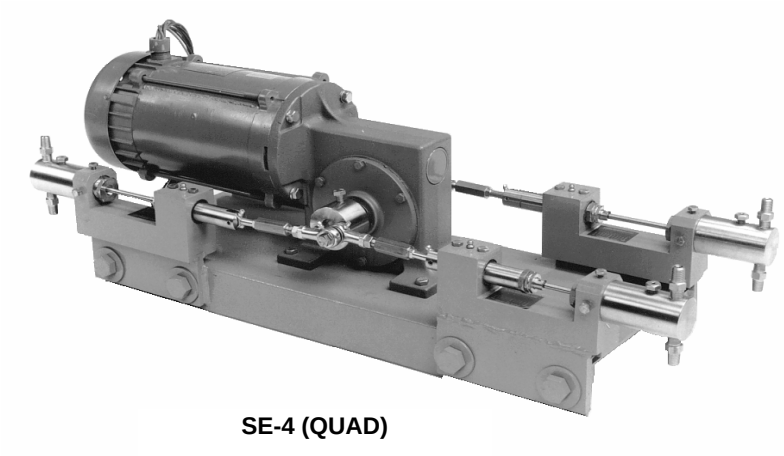
**The *STRICKLIN* Model SE Electric Drive Chemical Injection Pump Units are:**

***Economical: Low Maintenance Cost**
***Efficient: Minimum Downtime Yearly**
***Dependable: Pump Parts Fabricated of 300 Series Stainless Steel**
***Ideal for use in the Offshore Environment**

**The *STRICKLIN* Model SE is available in duplex and quad skid mounted pump units. Simplex and triplex can be quoted upon request. Powered by an electric motor through a gear reducer, positive displacement self priming plunger pump. The maxiumum discharge pressure is 3,000 PSI (with 1/4" plunger), chemical discharge volumes range from 1 quart to 125 gal per day, consult capacity and pressure chart for volume and pressure with each plunger size.**



**SE-2 (DUPLEX)**



**SE-4 (QUAD)**

**Each Fluid Head on the Model SE-4 Quad (4 headed pump) and SE-2 Duplex (2 headed pump) operates as an individual pump, to centralize your chemical treating on offshore platforms, onshore production facilities, gas processing plants, refineries and other applications where precise volumes of chemicals are needed. Select plunger size for each fluid head for chemical volumes needed to each injection point.**

| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY (GPD) PER FLUID HEAD | |
|---|---|---|---|---|
| | | | 50:1 GEAR REDUCER 35 STROKES/MIN | 25:1 GEAR REDUCER 72 STROKES/MIN |
| SE-4-125 | 1/8" | 3,000 PSI | 1 Qt - 6 GPD | 2 Qt - 12 GPD |
| SE-4-250 | 1/4" | 3,000 PSI | 1 Gal - 15 GPD | 2 Gal - 30 GPD |
| SE-4-375 | 3/8" | 2,000 PSI | 2 Gal - 35 GPD | 4 Gal - 70 GPD |
| SE-4-500 | 1/2" | 1,000 PSI | 4 Gal - 62 GPD | 8 Gal - 125 GPD |

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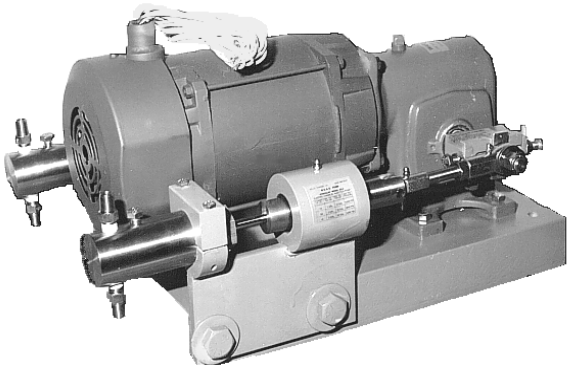
***www.mggpump.com***

Manufacturer of the

# STRICKLIN MODEL SE-2G

## HIGH PRESSURE ELECTRIC DRIVE CHEMICAL INJECTION PUMP



The High Pressure **STRICKLIN MODEL SE-2G** Chemical Injection Pump Unit is assembled with a heavy duty gear reducer, heavy duty rod end and high pressure check valves. **GENERAL DATA:** The Model SE-2G High Pressure Chemical Pump is a positive displacement self priming plunger pump, powered by an explosion proof electric motor through a gear reducer. It is designed for continuous or intermittent pumping of needed volumes of chemical, methanol or corrosive fluids to each injection point.

**CHEMICAL DELIVERY CHART CALCULATED WITH A 25 TO 1 GEAR REDUCER**

| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY (GPD) - PER HEAD | STROKES PER MINUTE |
|---|---|---|---|---|
| SE-2G-250 | 1/4" | 7,500 PSI | 2 to 30 Gallons | 70 |
| SE-2G-375 | 3/8" | 5,000 PSI | 4 to 70 Gallons | 70 |
| SE-2G-500 | 1/2" | 3,200 PSI | 8 to 124 Gallons | 70 |
| SE-2G-750 | 3/4" | 1,800 PSI | 14 to 276 Gallons | 70 |
| SE-2G-1000 | 1" | 1,000 PSI | 30 to 500 Gallons | 70 |

**CHEMICAL DELIVERY CHART CALCULATED WITH A 50 TO 1 GEAR REDUCER**

| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY (GPD) - PER HEAD | STROKES PER MINUTE |
|---|---|---|---|---|
| SE-2G-250 | 1/4" | 7,500 PSI | 1 to 15 Gallons | 35 |
| SE-2G-375 | 3/8" | 5,000 PSI | 2 to 35 Gallons | 35 |
| SE-2G-500 | 1/2" | 3,200 PSI | 4 to 62 Gallons | 35 |
| SE-2G-750 | 3/4" | 1,800 PSI | 7 to 138 Gallons | 35 |
| SE-2G-1000 | 1" | 1,000 PSI | 15 to 250 Gallons | 35 |

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Manufacturer of

# STRICKLIN Model SP-4AS

## Automated Pneumatic Chemical Injection Pump

**PRODUCT INFORMATION:**

- Equipped with our Patent Pending Automated Check Valve "ACV" which replaces the pumps discharge check valve and operates as a flow monitor for the pump.
- 24V or 12V Solenoid valve controlled by PLC/ RTU unit controlling air supply and exhaust.
- Plunger stroke speed is adjusted automatically or by remote communication.
- Tubing connections on air/gas supply manifold.
- For continuous operating - maximum recommended discharge pressure should not exceed 10,000 PSI with 1/4" plunger.
- Mechanical plunger and upper plate seals for extended life and simple maintenance. No springs or exhaust valves.
- Varity of plunger materials available for chemical compatibility.
- Pump constructed of 300 Series Stainless Steel Ideal for the Offshore Environment.
- Capable of operating on wet air/gas supply.
- Dry weight is 26 pounds.

**"PATENT PENDING DESIGN"**

| PUMP MODEL | PLUNGER SIZE | MAXIMUM DISCHARGE PRESSURE | CHEMICAL DELIVERY |
|---|---|---|---|
| SP-4-250 | 1/4" | 10,000 | 2 qts - 12 gpd |
| SP-4-375 | 3/8" | 10,000 | 1 - 26 gpd |
| SP-4-500 | 1/2" | 6,500 | 2 - 50 gpd |

(1) Maximum recommended supply pressure 140 psi.
(2) Maximum dischare chemical delivery based on 60 strokes per minute.

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# AUTOMATED CHECK VALVE

***No Flow / Flow Monitoring Device***


The **Automated Check Valve (ACV)** is a mechanical differential pressure switch specifically placed in the discharge line of the positive displacement pump. The ***ACV*** compares the pump discharge pressure with the pressure of the line into which chemical injection is desired. This device replaces the discharge check valve of your chemical injection pump eliminating false no flow alarms and limiting errors in data extracted from your data reporting system (i.e. SCADA).

CONTROL

YOUR

CHEMICAL

INJECTION

**Chemical Delivery:**
1 quart to 50 gallons per day

**Operating Pressure:**

| | |
|---|---|
| Optimal: | 2,500 psig |
| Maximum: | 10,000 psig |
| Minimum: | 100 psig |

***Note:**
Optimal Stroke Length =/> 1.0"

www.mggpump.com

# AUTOMATED CHECK VALVE "ACV"

*— PATENT PENDING —*

## TECHNICAL DATA SHEET

SERVICE: CHEMICAL MONITORING  MODEL: ACV-SS-XXX-X

### OPERATING PERFORMANCE

| | MAXIMUM | MINIMUM |
|---|---|---|
| RATED CAPACITY @ GPD: | 50 gpd | .25 gpd |
| DISCHARGE PRESSURE, PSI *(kPag)*: | 10,000 | 100 |
| SUCTION PRESSURE, kPag: | 5 | 0 |
| DIFFERENTIAL PRESSURE, (PSI): | 10,000 | 0 |

NUMBER OF FEEDS: 1

### CONSTRUCTION

| *CONNECTIONS* | SIZE | ANSI RATING | FACING |
|---|---|---|---|
| INLET | 1/4" npt | 10,000 psi | Machined |
| OUTLET | 1/4" npt | 10,000 psi | Machined |
| | | | |

### MATERIALS

| | |
|---|---|
| LIQUID END | 316 SS |
| POPPET | 316 SS |
| O-RING | Omni-Flex; Viton; Buna |
| SHIM | 17-4 SS Heat Treated |
| COMMENTS | |

### WEIGHTS (LBS)

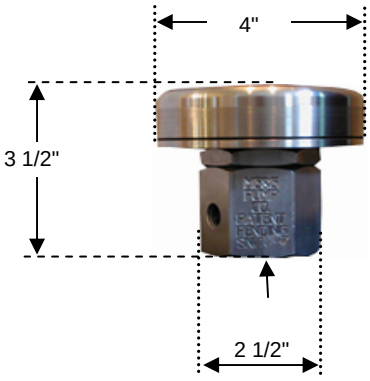
TOTAL WEIGHT: 6

### APPLICABLE SPECIFICATIONS:

- ● API 675 POSITIVE DISPLACEMENT PUMPS - CONTROLLED VOLUME
- ○ GOVERNING SPECIFICATION (IF DIFFERENT)

### CONTROLS

| TYPE: | SIGNAL: | |
|---|---|---|
| ○ PNEUMATIC | ○ MANUAL | ● REMOTE |
| ● ELECTRONIC | ● AUTOMATIC | ○ LOCAL |




PRODUCT ORDERING NUMBER

**ACV** — **Wetted Parts** — **Spring Tension** — **O-Ring Material**

| Wetted Parts | Spring Tension | O-Ring Material |
|---|---|---|
| SS - Stainless Steel | .045 | V - Viton |
| H - Hastelloy | .054 (Standard) | Vs - Viton ETP |
| | .078 | O - Omni-Flex |
| | | B - Buna |

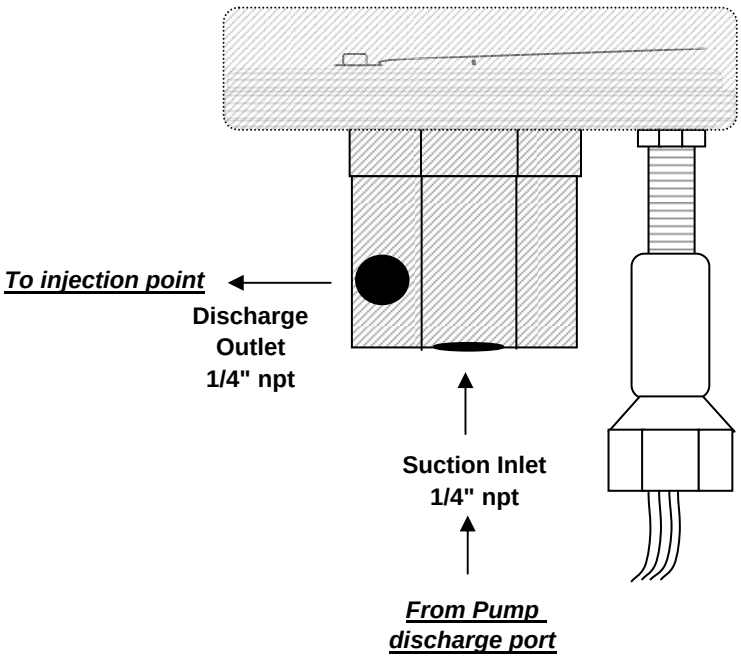
# AUTOMATED CHECK VALVE (ACV)

**"PATENT PENDING"**

## *"INSTALLATION"*

**1** Remove Discharge Check Valve (if applicable). Connect the ACV to the fluid head of the chemical pump by using the appropriate 316 Stainless steel fittings. We recommend using a 316 Stainless steel ¼" male adapter from the pump discharge port and a ¼" 316 Stainless steel male connector connected to the Suction Inlet of the ACV.

**2** Attach the appropriate size 316 Stainless steel tubing connector to the ACV discharge port. Connect the discharge tubing to Discharge outlet.




**3** Connect wiring of Magnetic Proximity Switch to operators PLC/RTU unit.

### *ACV Switch Wiring Diagram*

**· 4 Wire PVC and HiTemp Leads**

| | |
|---|---|
| N/C (normally closed) | Red |
| N/O (normally open) | Blue |
| COM | Black |
| GND | Green |

- The connection of the N/C (normally closed) lead wire is recommended in order to detect when the Shim breaks the sensing range.
  ***Please review the section labeled "ACV Proximity Switch Adjustment".***

***NOTE:*** Install the Automated Check Valve as close to the fluid head as possible. It is not recommended to install the ACV in excess of 6 inches from the fluid head.