

# SOTERA<sup>™</sup>

SYSTEMS

## AIR-OPERATED DOUBLE DIAPHRAGM PUMP

### PRODUCT OVERVIEW



**SOTERA**<sup>™</sup>  
SYSTEMS



Tuthill Transfer Systems  
8825 Aviation Drive | Fort Wayne, Indiana 46809  
P (800) 634-2695 | (260) 747-7524  
F (800) 866-4861 | (260) 747-3159



[www.sotera.com/aod](http://www.sotera.com/aod)

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Sotera Systems — pumps, meters, and accessories — are produced in America by Tuthill Corporation. Our internationally recognized brands also include Fill-Rite pumps and meters. Our primary customers are in the fields of industrial manufacturing, agriculture, construction, and transportation.

With 50 years of experience making quality fluid transfer products for the fast and safe transfer of petrochemicals and industrial chemicals, we're always looking for innovative ways to provide better value to our customers. We understand the importance of quality and value. When we decided to move into air-operated diaphragm pumps, we coupled our experience with the wants of diaphragm pump users to create a world-class product.

Our engineers select only the most durable materials to produce transfer systems that are dependable and long-lasting. When you combine the highest-quality products with topnotch customer care, you get outstanding value.



Tuthill Corporation is a privately held global manufacturer of industrial goods specializing in rotating equipment such as pumps and meters. From heavy oils to motor fuels, from industrial chemicals to agricultural pesticides, we move it and measure it with a reliability that's measured in decades. But that's just half the story. Our people make the real difference. Our Conscious Company culture attracts and supports the kind of people who understand what our

customers want and what they need. Our people listen well and gain trust by following through on each and every commitment they make. We thrive on having customers who demand excellence because it's through their challenges and encouragement that we'll one day grow to be counted among the top 1 percent of the world's industrial companies. We pursue excellence because we'll accept nothing less in our products and from our people.

**Excellence at Work. Excellence in Life.**

## INDUSTRY CHANNELS

### Municipalities

From the simplest tote or drum pump and metering applications, to the more sophisticated OEM applications, Sotera Systems efficiently and accurately cover the range of difficult requirements.

### Chemical

Corrosive, abrasive, and viscous applications are no challenge. Our range of materials of construction, combined with our performance, provides the best available solution.

### Transportation

Ideal for servicing vehicle fleets, petroleum, or chemical fluids.

### OEM

The perfect OEM pump for any industry where aggressive chemicals or petrochemicals need to be transferred and metered.

## INDUSTRY NEEDS

### Minimize Downtime

Sotera products minimize downtime because of their rugged construction and reliability in even the most adverse conditions.

### Ease of Use

With their modular construction, fewer parts and unique design, Sotera makes maintenance fast and user-friendly.

### Efficiency

Sotera offers the most efficient air-operated diaphragm pumps on the market.

### Performance

Sotera air-operated double diaphragm pumps provide the highest flow in the industry, along with the lowest pulsation and leak-free operation.

## KEY APPLICATIONS USE



Oil and lubes



Concrete additives



Industrial chemicals



Adhesives



ATF, windshield-washer fluid



Inks and paints



Caustics and acids



Agricultural chemicals

## SP100 FEATURES

What started as a seed of an idea to create a revolutionary new process pump has evolved into the most advanced air-operated diaphragm pump on the market. Introducing the SP100 Series Air-Operated Double Diaphragm Pump. It's grown into something big!

In a grueling industrial process environment, your diaphragm pump needs to perform day after day, providing years of long-lasting performance. The SP100 Series Air-Operated Double Diaphragm Pump can be configured in materials that are resistant to industrial chemicals and proven to provide complete compatibility coverage for a wide range of fluids. With its extensive list of features, the SP100 Series outperforms the competition time and time again.



### REINFORCED MANIFOLD

An encapsulated stainless-steel ring embedded around the threads prevents over tightening and the potential splitting of the manifold.

### BALL CHECK AND SEATS

The ball and seat sets are matched elastomer combinations that offer a minimum 20-percent improvement in suction lift due to tighter seals.

### UNIQUE DIAPHRAGM CONSTRUCTION

A stainless-steel shaft with a reinforced diaphragm nut fully supports the diaphragm and prevents cross threading. The uniform seal hinge minimizes wear, increasing life of the diaphragm.

### EASY-OFF THREADED RING CONSTRUCTION

The unique patented QuikSeal® ring is designed for quick-turn access to clear ball checks and to replace diaphragms. This eliminates multiple fasteners, reducing complexity and parts.



### CERAMIC AIR VALVE

The innovative, patented, non-centering ceramic QuikFlow® air valve design provides an extremely fast trip-over, resulting in a 60-percent reduction in pulsation.



### FOOT MOUNT

An industry-standard foot mounting configuration retrofits into most existing mounting plates.

## MODELS CHART

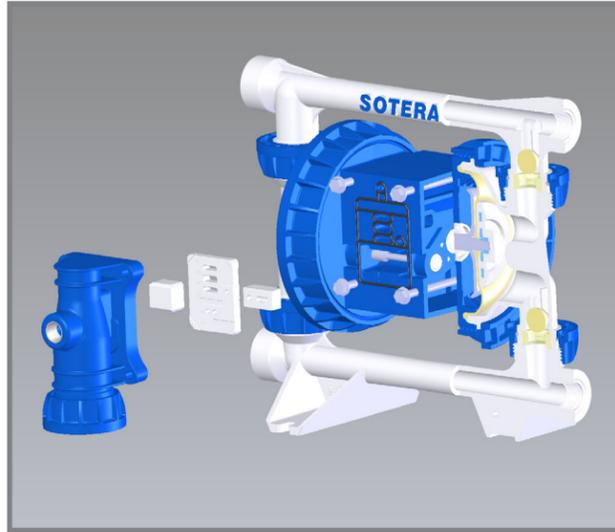
Model	SP100-05N-PP-SSS/ SP100-05B-PP-SSS
Size	1/2"
Port	NPT/BSPP
Material	Polypropylene
Diaphragm	Santoprene®
Balls	Santoprene®
Seat	Santoprene®

Model	SP100-05N-PP-TTP/ SP100-05B-PP-TTP
Size	1/2"
Port	NPT/BSPP
Material	Polypropylene
Diaphragm	PTFE® with Santoprene® backer
Balls	PTFE®
Seat	Polypropylene

Model	SP100-05N-PF-TTF/ SP100-05B-PF-TTF
Size	1/2"
Port	NPT/BSPP
Material	PVDF
Diaphragm	PTFE® with santoprene® backer
Balls	PTFE®
Seat	PVDF

Model	SP100-05N-CD-HHH/ SP100-05B-CD-HHH
Size	1/2"
Port	NPT/BSPP
Material	Groundable acetal
Diaphragm	Hytrel®
Balls	Hytrel®
Seat	Hytrel®

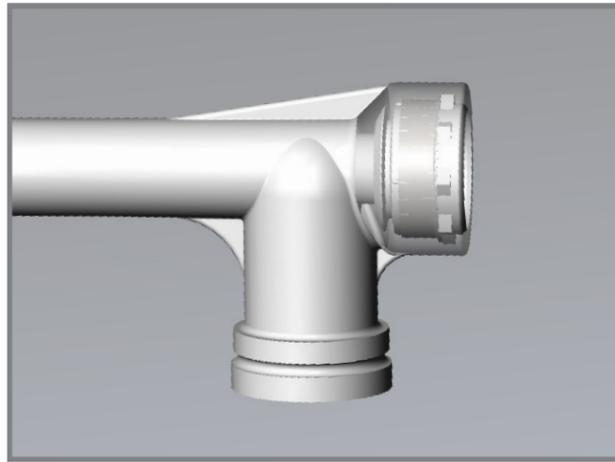
## CORE ATTRIBUTE DETAILS



### CERAMIC AIR VALVE

Innovative ceramic QuikFlow® air valve design.

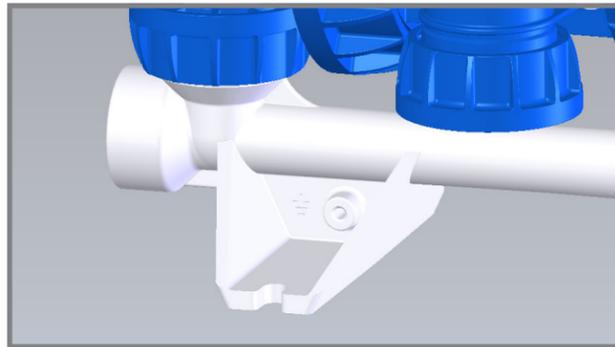
- The amazingly fast valve shift results in a 66% reduction in pulsation.
- Reduces splash back, providing consistently even laminar flow.
- Substantial improvement in meter accuracy.
- Smoother delivery of paints, inks, and finishing compounds, effectively eliminating any inconsistencies in spray patterns.



### REINFORCED MANIFOLD

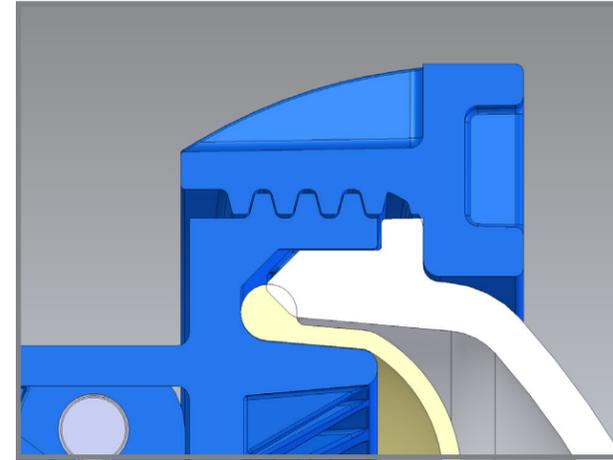
Over molded stainless-steel rings on all threaded manifold connections.

- Prevents over tightening and the potential splitting of the manifolds.
- Manifolds available in standard NPT and BSPP threads.



### FOOT MOUNT

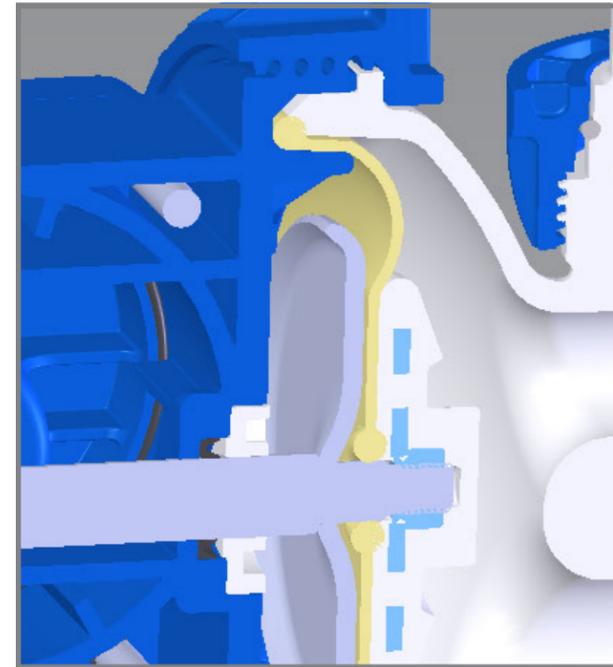
Industry standard foot mounting configuration retrofits onto most existing mounting plates.



### EASY-OFF THREADED RING CONSTRUCTION

Unique patented QuikSeal® rings are designed for quick-turn access to clear ball checks or to replace diaphragms.

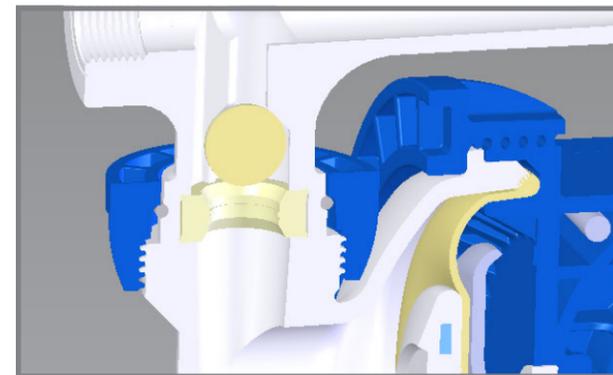
- Reduces pump complexity with up to 50% fewer parts when compared with the competition.
- Easy-on, easy-off.
- Reduces repair time.
- 360° seal vs. bolted designs.



### UNIQUE DIAPHRAGM CONSTRUCTION

Long-lasting diaphragm construction means a consistent performance and a longer operating life.

- The no-pinch clamping hinge minimizes wear, increases life of the diaphragm, and provides a uniform seal that won't leak.
- Large, reinforced piston backer plate maintains diaphragm surface area and improves flow performance, especially with higher-viscosity fluids.



### BALL CHECK AND SEATS

- Matched elastomer ball and seat sets provide tighter seals.
- Resulting in better suction lift (both wet and dry).

**15%**  
MORE FLOW  
**QUIK FLOW**

**20%**  
MORE EFFICIENT

**66%**  
LESS PULSATION

**67%**  
FEWER PARTS

**50%**  
LESS TIME TO REPAIR

**360°**  
UNIFORM SEAL  
**QUIK SEAL**

## BETTER BY DESIGN

The SP100 Series Air-Operated Double Diaphragm Pump is designed to operate under the most stringent commercial and industrial operating conditions as both a systems pump and as a transfer pump. With fully submersible mounting capabilities, this pump is capable of handling most fluids with an impressive performance that offers a substantial improvement over the competition.

With an innovative, patented method of construction, the SP100 Series is extremely reliable, yet simple, thanks to new thinking on the design of the air valve, air motor, air exhaust, diaphragm mounting, and overall assembly. This evolutionary approach has resulted in substantially higher performance specifications.

- Higher flow rate
- More efficient
- Even flow
- No leaks
- Less downtime
- Better value

The SP100 delivers!

## KITS AND ACCESSORIES

Complete your pump package with our extensive line of accessories. Whether you're pumping from a tote or from a tank, we have everything to complement your package.



Part #KIT180MPPS

### Tote Plate

The stainless-steel plate secures to the top of a 275- or 330-gallon tote.

- Mounting hardware included.
- Fits all SP100-05 models.



Part #KITS05WMA

### Wall Mount Bracket

Keep your pump in place and out of the way with this compact wall mount bracket.

- Fits all SP100-05 models.



Part #KITS05FRH

### Filter/Regulator Assembly

Provides controlled, consistent air pressure as required. The filter removes airborne solid and liquid contaminants.

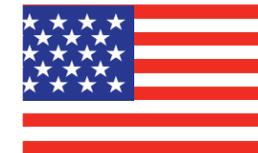
- Piggyback filter/regulator
- Quick-connect coupler
- Unions
- 5' air hose



### 825/850 Meters

Complete the package with our nutating disc digital meters. Glass-filled polypropylene housing and either EPDM or fluorocarbon seals, offering 2-20 gpm and 0.2% accuracy, these meters quickly and accurately measure pump output.

Request brochure #SSE-0411 Rev0



Part #KITS05MUF

### Muffler

Replacement muffler to keep noise to a minimum.

- Included with pump.



Part #KITS05WCH

### Assembly Wrench

Replacement wrench for assembling or disassembling the pump.

- Wrench included with pump.

# 5-YEAR WARRANTY

Tuthill warrants that the SP100 Series Air-operated Double Diaphragm Pump will be free of manufacturers defects and will perform seamlessly under normal operating conditions for a period of five years.

## MODEL DESCRIPTION INFORMATION

SP100 - 05X - XX - XXX - X

### PORT SIZE

### FLUID CONNECTION

N - 1/2-14 NPTF-1  
B - Rp 1/2 (BSPP, parallel)

### DRIVE MATERIAL OF CONSTRUCTION

P - Polypropylene  
C - Conductive Nylon

### WET-END MATERIAL OF CONSTRUCTION

P - Polypropylene  
D - Conductive Acetal  
F - PVDF

### DIAPHRAGM

S - Santoprene  
H - Hytrel  
T - Teflon with Santoprene Backer

### BALLS

S - Santoprene\*  
H - Hytrel\*  
T - Teflon\* PTFE

### SEATS

S - Santoprene\*  
H - Hytrel\*  
P - Polypropylene with TFE oring  
F - PVDF with TFE oring

### OPTIONS

### FLUID SECTION SERVICE KIT

### DIAPHRAGM

### BALLS

### SEATS & SEALS

KIT  
S05 X X X



**SANTOPRENE®:** This diaphragm is an excellent choice as a low-cost alternative to PTFE in many acidic and caustic applications such as sodium hydroxide and sulfuric or hydrochloric acids. Santoprene offers excellent abrasion resistance and durability at a cost comparable to neoprene.

**HYTREL™:** This diaphragm exhibits excellent abrasion resistance, flex life, and durability. Excellent for applications involving petroleum/oil-based fluids such as leaded gasolines, fuel oils, hydraulic oils, kerosene, turpentines, and motor oils.

**PTFE:** This diaphragm is an excellent choice when pumping highly aggressive fluids such as aromatic or chlorinated hydrocarbons, acids, caustics, ketones, and acetates. Sotera's PTFE diaphragms are backed with Santoprene to enhance flex life.



## PUMP TECHNICAL DATA

PUMP TYPE..... Non-Metallic Air-Operated Double Diaphragm  
CONSTRUCTION MATERIALS ..... See Model Description Charts  
MAXIMUM AIR INLET PRESSURE ..... 100 psig (6.9 bar)  
MAXIMUM MATERIAL INLET PRESSURE ..... 10 psig (.069 bar)  
MAXIMUM OUTLET PRESSURE ..... 100 psig (6.9 bar)  
AIR CONSUMPTION (@ 40 PSI) ..... 0.65 cfm / gallon (approx.)  
MAXIMUM FLOW RATE (FLOODED INLET) ..... 17.5 gpm (66.241 lpm)  
DISPLACEMENT / CYCLE @ 100 PSIG ..... 0.036 gal (0.14 lit)  
MAXIMUM PARTICLE SIZE ..... 3/32" dia (2.4 mm)

### MAXIMUM TEMPERATURE LIMITS (DIAPHRAGM / BALL / SEAT MATERIAL)

Acetal ..... 10° to 180° F (-12° to 82° C)  
Hytrel® ..... -20° to 150° F (-29° to 66° C)  
PVDF ..... 10° to 200° F (-12° to 93° C)  
Polypropylene ..... 35° to 175° F (2° to 79° C)  
Santoprene® ..... -40° to 225° F (-40° to 107° C)  
PTFE ..... 0° to 225° F (4° to 107° C)

CARTON DIMENSIONAL DATA ..... 11-3/4" (H) x 14-1/4" (W) x 9-1/8" (D)

NOISE LEVEL ..... 75.0 db (A) (@ 70 psi, 60 cpm)\*

