



# **SOTERA**<sup>™</sup>

SYSTEMS

## AIR-OPERATED DOUBLE DIAPHRAGM PUMP

### PRODUCT OVERVIEW



Sotera Systems™ pumps, meters, and accessories are produced in The United States of 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 over 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 more 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 specify 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 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 a 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 (Garage Solutions)

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 double 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.

**15%**  
MORE FLOW

**20%**  
MORE EFFICIENT

**60%**  
LESS PULSATION

**67%**  
FEWER PARTS

**50%**  
LESS TIME TO REPAIR

**360°**  
UNIFORM SEAL

## KEY APPLICATIONS USE



Oil and lubes



Concrete additives



Industrial chemicals



Adhesives



ATF, windshield-washer fluid



Inks and paints



Caustics and acids



Agricultural chemicals

**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.

## SP100 FEATURES - 1/2" NON-METALLIC

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.

### 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.

### 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.

### CERAMIC AIR VALVE

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

### EASY-OFF THREADED RING CONSTRUCTION

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

### FOOT MOUNT

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



## SP100 FEATURES - 1" NON-METALLIC

### EASY-OFF PATENTED RING

#### CONSTRUCTION

Patented ring construction.  
No bolts needed. Made from phenolic material for strength.

### AIR MOTOR CONSTRUCTION

Glass filled polypropylene or groundable Nylon for use with fluids with low flash point.

### BALL CHECK AND SEATS

Ball cage built into manifold holds shape for consistent suction lift.



### CERAMIC AIR VALVE

Patented air valve assembly.

### POLYPROPYLENE OR PVDF HOUSING

For harsh chemicals

### ELASTOMER OPTIONS

Hytrel™, Santoprene® or PTFE elastomers cover many fluid applications.

### MANIFOLD CONNECTIONS

Bolted manifolds for quick and easy maintenance.

## SP100 FEATURES - 1" METALLIC

### EASY-OFF PATENTED

#### RING CONSTRUCTION

Patented ring construction.  
No bolts needed.

### BALL CHECK AND SEATS

Ball cage built into manifold holds shape for consistent suction lift.

### AIR MOTOR CONSTRUCTION

Glass filled polypropylene or groundable Nylon for use with fluids with low flash point.



### CERAMIC AIR VALVE

Patented air valve assembly.

### ELASTOMER OPTIONS

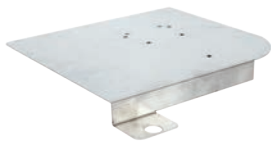
Hytrel™, Santoprene® or PTFE elastomers cover many fluid applications.

### MANIFOLD CONNECTIONS

Bolted manifolds for quick and easy maintenance.

## KITS AND ACCESSORIES

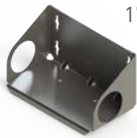
Complete your pump package with our extensive line of accessories. Whether you're pumping from a tote or from a tank, we have everything to complete your installation.



### 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.



### Wall Mount Bracket

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



### 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.



### Muffler

Replacement muffler to keep noise to a minimum.

- Included with pump.



### Assembly Wrench

Replacement wrench for assembling or disassembling the pump.

- Wrench included with pump.



## ACCESSORIES PART NUMBERS

	Tote Plate	Filter/Regulator Assembly	825/850 Meters	Muffler	Assembly Wrench	Wall Mount Bracket
1/2" Pump	KIT180MPPS	KITS05FRH	Request brochure SSE-0411_Rev0	KITS05MUF	KITS05WCH	KITS05WMA
1" Pump	N/A	KITS10FRH			KITS10WCH	KITS10WMA

**1/2" MODEL DESCRIPTION INFO**

SP100 - 05X - XX - XXX - X

**PORT SIZE****FLUID CONNECTION**

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

**DRIVE MATERIAL**

P - Polypropylene  
C - Conductive Nylon

**WET-END MATERIAL**

P - Polypropylene  
D - Conductive Acetal  
F - PVDF

**DIAPHRAGM**

S - Santoprene®  
H - Hytrel™  
T - PTFE with Santoprene® Backer

**BALLS**

S - Santoprene®  
H - Hytrel™  
T - PTFE

**SEATS**

S - Santoprene®  
H - Hytrel™  
P - Polypropylene with TFE oring  
F - PVDF with TFE o-ring  
D - Acetal

**OPTIONS****FLUID SECTION SERVICE KIT**KIT  
S05 X X X**DIAPHRAGM****BALLS****SEATS****1" NON-METALLIC DESCRIPTION INFO**

SP100 - 10X - XX - XXX - X

**PORT SIZE****FLUID CONNECTION**

F - 1" ANSI / DIN Flange

**DRIVE MATERIAL**

P - Polypropylene

**WET-END MATERIAL**

P - Polypropylene  
F - PVDF

**DIAPHRAGM**

S - Santoprene®  
H - Hytrel™  
T - PTFE with EPDM Backer

**BALLS**

S - Santoprene®  
H - Hytrel™  
T - PTFE  
M - Stainless Steel

**SEATS**

S - Santoprene®  
H - Hytrel™  
P - Poly Propylene

**OPTIONS****FLUID SECTION SERVICE KIT**KIT  
S10 X X X**DIAPHRAGM****BALLS****SEATS****1" METALLIC DESCRIPTION INFO**

SP100 - 10X - XX - XXX - X

**PORT SIZE****FLUID CONNECTION**

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

**DRIVE MATERIAL**

P - Polypropylene  
C - Groundable Nylon

**WET-END MATERIAL**

A - Aluminum

**DIAPHRAGM**

S - Santoprene®  
H - Hytrel™  
T - PTFE with Santoprene® Backer

**BALLS**

S - Santoprene®  
H - Hytrel™  
T - PTFE

**SEATS**

S - Santoprene®  
H - Hytrel™  
D - Acetal

**OPTIONS****FLUID SECTION SERVICE KIT**KIT  
S10 X X X**DIAPHRAGM****BALLS****SEATS**

**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 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.



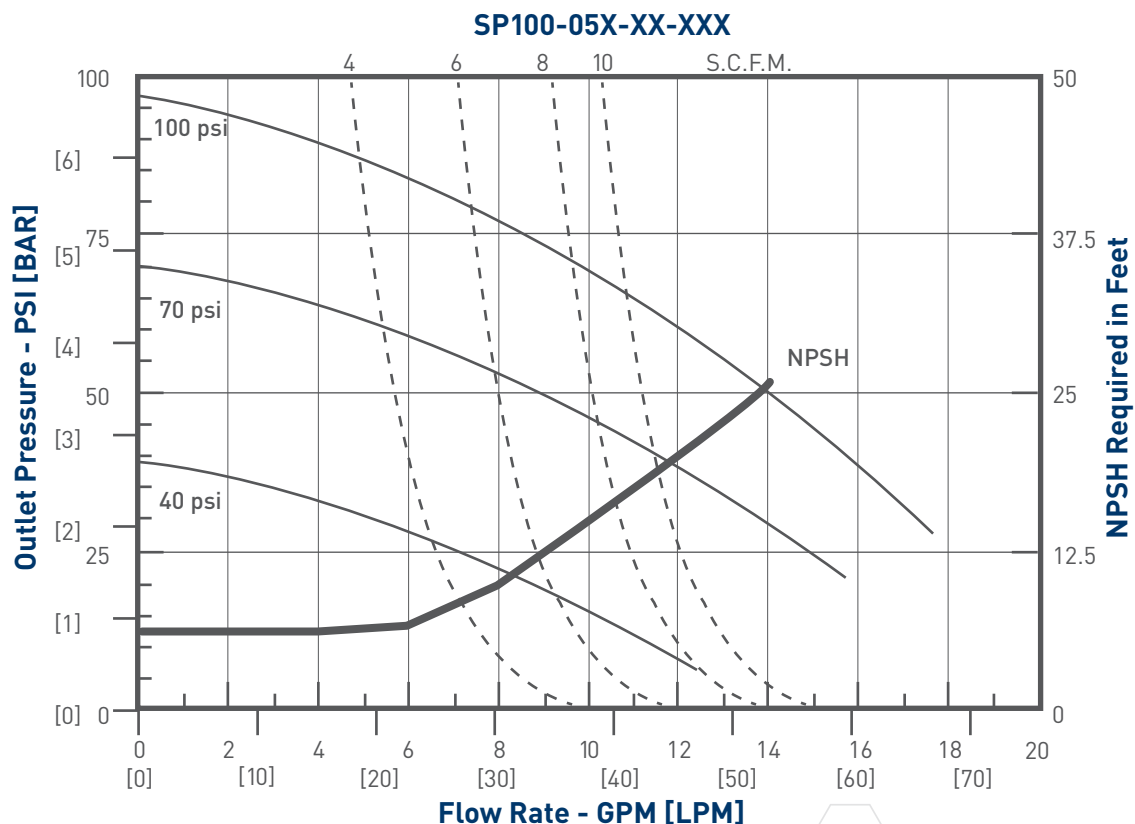
# 1/2" NON-METALLIC PUMP TECHNICAL DATA

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 (.69 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)



# 1" NON-METALLIC PUMP TECHNICAL DATA

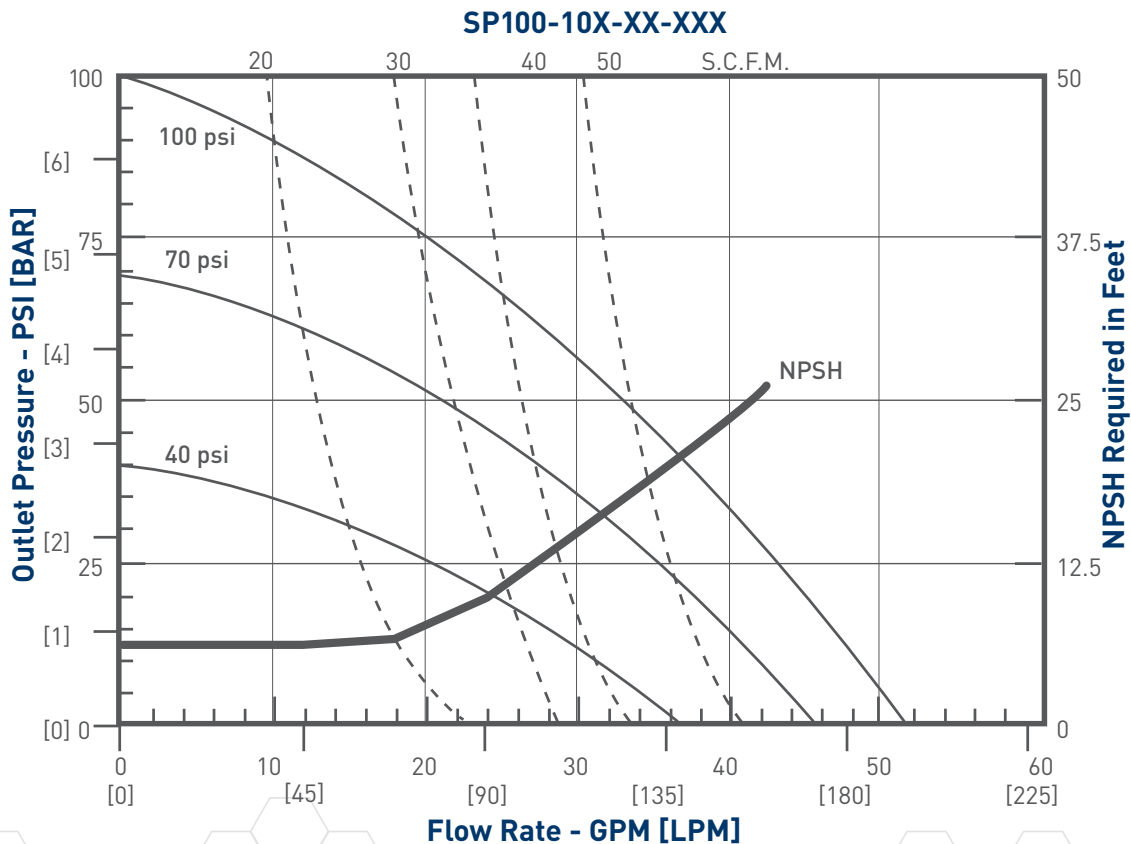
PUMP TYPE..... Non-Metallic Air-Operated Double Diaphragm  
 CONSTRUCTION MATERIALS .....See Model Description Charts  
 MAXIMUM AIR INLET PRESSURE ..... 100 psig (6.9 bar)  
 MAXIMUM MATERIAL INLET PRESSURE..... 10 psig (.69 bar)  
 MAXIMUM OUTLET PRESSURE..... 100 psig (6.9 bar)  
 AIR CONSUMPTION (@ 40 PSI) .....1.21 cfm / gallon (approx.)  
 MAXIMUM FLOW RATE (FLOODED INLET)..... 51 gpm (193 lpm)  
 DISPLACEMENT / CYCLE @ 100 PSIG.....0.21 gal (0.79 lit)  
 MAXIMUM PARTICLE SIZE.....3/16" dia (4.8 mm)

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

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

CARTON DIMENSIONAL DATA ..... 16-1/2"(H) x 17-1/2" (W) x 11-1/4" (D)

NOISE LEVEL..... 79.7 db (A) (@ 70 psi, 60 cpm)



# 1" METALLIC PUMP TECHNICAL DATA

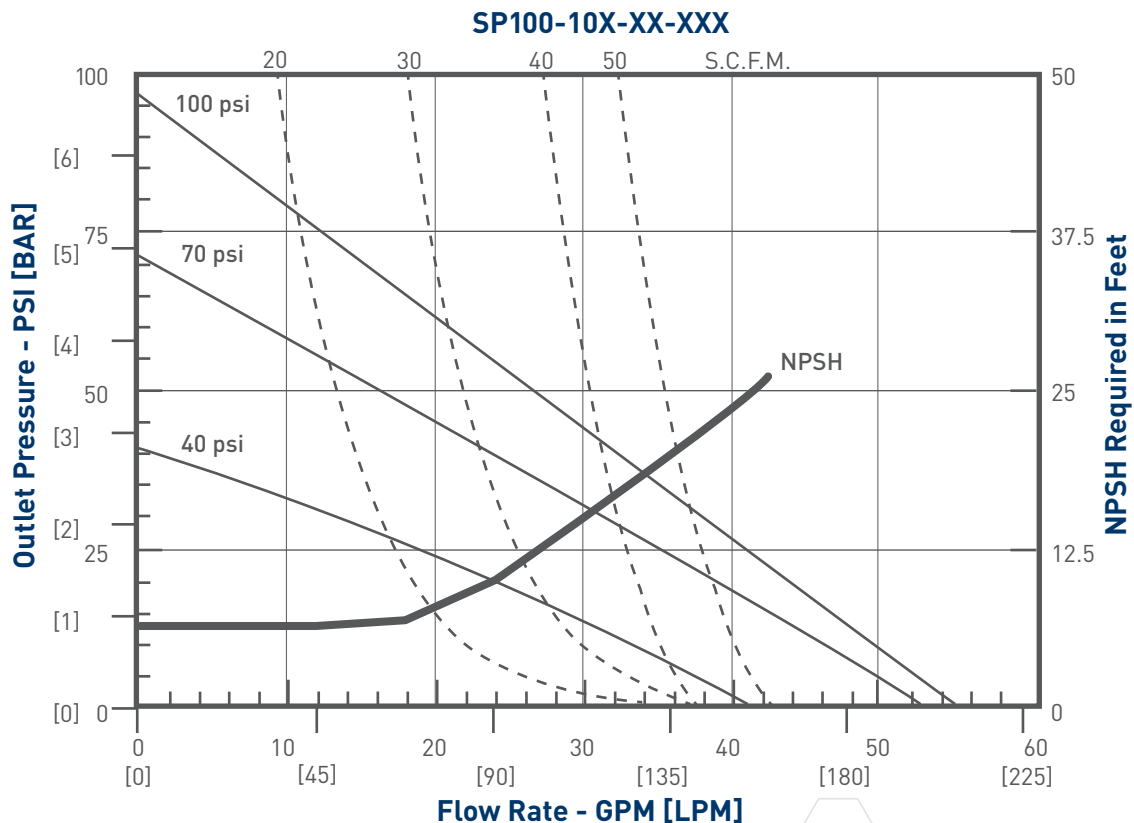
PUMP TYPE.....	Metallic Air-Operated Double Diaphragm
CONSTRUCTION MATERIALS .....	See Model Description Charts
MAXIMUM AIR INLET PRESSURE .....	100 psig (6.9 bar)
MAXIMUM MATERIAL INLET PRESSURE.....	10 psig (.69 bar)
MAXIMUM OUTLET PRESSURE.....	100 psig (6.9 bar)
AIR CONSUMPTION (@ 40 PSI).....	1.12 cfm / gallon (approx.)
MAXIMUM FLOW RATE (FLOODED INLET).....	56 gpm (211 lpm)
DISPLACEMENT / CYCLE @ 100 PSIG.....	0.22 gal (0.83 lit)
MAXIMUM PARTICLE SIZE.....	3/16" dia (4.8 mm)

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

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

CARTON DIMENSIONAL DATA.....17-1/2"(H) x 11-1/4" (W) x 13-1/2" (D)

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



# **SOTERA**<sup>™</sup>

SYSTEMS

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Excellence at work. Excellence in life.

