

# SPAN<sup>TM</sup>

## INDUSTRIAL GAUGES



# SPAN LIQUID FILLED PRESSURE GAUGES

There certainly are a lot of gauges to choose from these days. Many are imported. Most have the same stainless crimped ring throw away construction. But there is one gauge that is **American Made** and totally different in construction and appearance. This catalog features that gauge - The **SPAN LIQUID FILLED PRESSURE GAUGE SERIES**.

## ONLY SPAN GAUGES OFFER THESE UNIQUE FEATURES

- **ZYTEL NYLON CASE:** Tough, corrosion resistant, impact resistant, Zytel nylon case. Over 10,000 lb. tensile strength. Removable bezel design allows repair or recalibration.
- **ALL SIZES MATCH:** All SPAN 2-1/2", 3-1/2" and 4-1/2" stem and panel mount cases are uniform and match in appearance.
- **"NO BUBBLE":** The internal "breathing diaphragm" eliminates the need for an air bubble in the mid-range of the gauge, which can distort readings and looks unsightly. The ICD is standard on some 2-1/2" and all 3-1/2" and 4-1/2" models. (Available as an option when not standard.)
- **TEMPERATURE COMPENSATED:** The ICD compensates the case (to 150°F) for changes in internal case pressure caused by fluctuations in ambient temperature. (Especially important in lower pressure and vacuum gauges.)
- **LARGER DIAL:** Because the American Made SPAN is built to ANSI/ASME B40 Standards, our dial is 2-1/2". (Our imported competition measures the case, not the dial.) See the difference for yourself. This is the easiest reading 2-1/2" gauge on the market.
- **FREEZE PROOF:** The KEM-X Socket Saver is an internal diaphragm seal to prevent freezing, clogging and corrosion. It is available on all SPAN gauges. (See Page 8 of Catalog.)
- **NON-YELLOWING GLYCERIN FILL:** Standard fill: non-yellowing, crystal clear glycerin (interlube) for temperatures -40° to 150°F. For ranges below 30 PSI used below -10°F, specify 70-30 glycerin.
- **SPECIALS:** Custom dials, logos, removable stainless steel bezels and specially manufactured instrumentation are available. Because we control the manufacturing, we can offer special options with lower quantity requirements and make a gauge exactly as you want it for your application.

**Give us a call to design one for you at 1-800-686-1789**

# SPAN™

## 2.5" LIQUID FILLED INDUSTRIAL GAUGE

### SPECIFICATIONS

- **CASE MATERIAL**  
Zytel nylon,  
with 1/2" blow out plug
- **BEZEL MATERIAL**  
Zytel nylon (optional Stainless  
Steel bezel available)
- **SOCKET**  
Brass or 316 Stainless Steel
- **BOURDON TUBE**  
Phosphor bronze  
Beryllium copper  
316 Stainless Steel
- **CONNECTION**  
1/4" NPT Male,  
Stem or center back connection
- **LENS**  
Acrylic
- **FILL FLUID**  
Glycerin
- **DIAL**  
White with black markings  
(Black with white - optional)
- **ACCURACY**  
3-2-3 % with brass internals  
1 % with Stainless Steel internals
- **TEMPERATURE  
COMPENSATION**  
Internal compensating diaphragm  
(Optional in ranges over 100 PSI)
- **PRESSURE RANGES  
AVAILABLE**  
30" Hg to 10,000 PSI  
Metric scales also available
- **MODEL NUMBERS**  
LFS-220 LFP-220 LFC-220  
LFS-224 LFP-224 LFC-224  
LFS-212 LFP-212 LFC-212



▲ LFS-220 2.5" LIQUID FILLED INDUSTRIAL GAUGE - STEM CONNECTION

▼ LFP-224 2.5" LIQUID FILLED INDUSTRIAL GAUGE - CENTER-BACK CONNECTION



# SPAN™

## 3.5" LIQUID FILLED INDUSTRIAL GAUGE

### SPECIFICATIONS

- **CASE MATERIAL**  
Zytel nylon,  
with 1/2" blow out plug
- **BEZEL MATERIAL**  
Zytel nylon (optional Stainless  
Steel bezel available)
- **SOCKET**  
Brass or 316 Stainless Steel
- **BOURDON TUBE**  
Phosphor bronze  
Beryllium copper  
316 Stainless Steel
- **CONNECTION**  
1/4" NPT Male,  
Stem or center back connection
- **LENS**  
Acrylic
- **FILL FLUID**  
Glycerin
- **DIAL**  
White with black markings  
(Black with white - optional)
- **ACCURACY**  
1 % of scale
- **TEMPERATURE  
COMPENSATION**  
Internal compensating  
diaphragm
- **PRESSURE RANGES  
AVAILABLE**  
30" Hg to 10,000 PSI  
Metric scales also available
- **MODEL NUMBERS**  
LFS-310 LFP-310 LFC-310  
LFS-314 LFP-314 LFC-314  
LFS-312 LFP-312 LFC-312



LFS-314 3.5" LIQUID FILLED INDUSTRIAL GAUGE - STEM CONNECTION ▲

LFP-310 3.5" LIQUID FILLED INDUSTRIAL GAUGE - CENTER BACK CONNECTION ▼



# SPAN™

## 4.5" LIQUID FILLED INDUSTRIAL GAUGE

### SPECIFICATIONS

- **CASE MATERIAL**  
Zytel nylon,  
with 1/2" blow out plug
- **BEZEL MATERIAL**  
Zytel nylon (optional Stainless  
Steel bezel available)
- **SOCKET**  
Brass or 316 Stainless Steel
- **BOURDON TUBE**  
Phosphor bronze  
Beryllium copper  
316 Stainless Steel
- **CONNECTION**  
1/4" NPT Male,  
Stem or center back connection
- **LENS**  
Acrylic
- **FILL FLUID**  
Glycerin
- **DIAL**  
White with black markings  
(Black with white - optional)
- **ACCURACY**  
1 % of scale
- **TEMPERATURE  
COMPENSATION**  
Internal compensating  
diaphragm
- **PRESSURE RANGES  
AVAILABLE**  
30" Hg to 10,000 PSI  
Metric scales also available
- **MODEL NUMBERS**  
LFS-410 LFP-410 LFC-410  
LFS-414 LFP-414 LFC-414  
LFS-412 LFP-412 LFC-412



▲ LFS-410 4.5" LIQUID FILLED INDUSTRIAL GAUGE - STEM CONNECTION

▼ LFP-414 4.5" LIQUID FILLED INDUSTRIAL GAUGE - CENTER-BACK CONNECTION





'SC' SERIES 63mm STAINLESS CASE LIQUID FILLED GAUGES ▲

'EC' SERIES BLACK STEEL CASE DRY ECONOMY GAUGES ▼



# SPAN™

## 'SC' SERIES 63mm STAINLESS CASE LIQUID FILLED GAUGE

SPAN 'SC' Series gauges are designed for installations requiring a 63mm case diameter. The case will fit a 2.5" panel cut-out used for most 'imported' gauges.

### SPECIFICATIONS

- **CASE MATERIAL**  
Stainless Steel, 63mm
- **INTERNAL COMPONENTS**  
Brass or 316 Stainless Steel
- **CONNECTION**  
1/4" Male NPT  
Stem or center back connection
- **FILL FLUID**  
Glycerin
- **PRESSURE RANGES AVAILABLE**  
30" Hg to 10,000 PSI  
Metric scales also available

# SPAN™

## 'EC' SERIES BLACK STEEL CASE DRY ECONOMY GAUGE

For applications not requiring a heavy duty or liquid filled gauge, SPAN offers the 'EC' Series gauges. These gauges have a black steel case, chrome bezel and brass connection.

### SPECIFICATIONS

- **CASE MATERIAL**  
Black Steel with chrome bezel  
1.5", 2", 2.5" and 3.5" sizes
- **INTERNAL COMPONENTS**  
Brass
- **CONNECTION**  
1/4" Male NPT  
Stem or center back connection
- **PRESSURE RANGES AVAILABLE**  
30" Hg to 6,000 PSI
- **OEM CUSTOM DIALS AVAILABLE**

# SPAN™

## 4.5" DUPLEX GAUGE SPECIFICATIONS

- **CASE MATERIAL** - Zytel nylon
- **BEZEL MATERIAL** - Stainless Steel
- **SOCKET** - Bronze equipped with Kem-X diaphragm protection
- **BOURDON TUBE** - 316 Stainless Steel filled with low temperature material
- **CONNECTION** - 1/4" Male NPT Lower back, side by side
- **LENS** - Acrylic
- **FILL FLUID** - Glycerin
- **DIAL** - White with black markings
- **ACCURACY** -  $\pm 1\%$  of scale
- **POINTERS** - 1 Red, 1 Black
- **TEMPERATURE COMPENSATION** Internal breathing diaphragm
- **PRESSURE RANGES AVAILABLE** 0-300, 0-400, 0-600 PSI
- **MODEL NUMBERS** - DPX-410



▲ DPX-410 - 4.5" DUPLEX LIQUID FILLED GAUGE

▼ IPS-224 - 2.5" INDICATING PRESSURE SWITCH

# SPAN™

## 2.5" INDICATING PRESSURE SWITCH

### FEATURES

- 2.5" Polished brass case
- Compact size
- Precalibrated switch point
- Easy field adjustment
- Brass or Stainless Steel internals

### SPECIFICATIONS

- **SWITCH DIFFERENTIALS** -  $5\% \pm 1\%$  of range. (Switching differential may vary on Stainless Steel or high pressure units.)
- **SWITCH TYPE** - SPDT
- **TEMPERATURE** -  $-40^{\circ}$  to  $180^{\circ}$ F
- **LOAD** - 15 Amps, 125 or 250V AC
- **LIFE EXPECTANCY** - 1,000,000 operations minimum
- **PRESSURE RANGES AVAILABLE** 200 to 5,000 PSI
- **MODEL NUMBERS**  
IPS-220    IPS-224    IPS-222



# SPAN™

## SANITARY GAUGE

SPAN Sanitary Gauges provide a Tri-Clamp® process connection with a 2-1/2" or 3-1/2" dial size.

### FEATURES

- **CASE MATERIAL**  
Zytel nylon for corrosion resistance
- **BEZEL MATERIAL**  
Polished Stainless Steel
- **INTERNAL COMPONENTS**  
316 Stainless Steel
- **INTERNAL BREATHING DIAPHRAGM**  
Reduces temperature effects and Zero Shift
- **FILL FLUID**  
Glycerin, "No-Bubble"
- **3A APPROVED DIAPHRAGM SEAL**

### SPECIFICATIONS

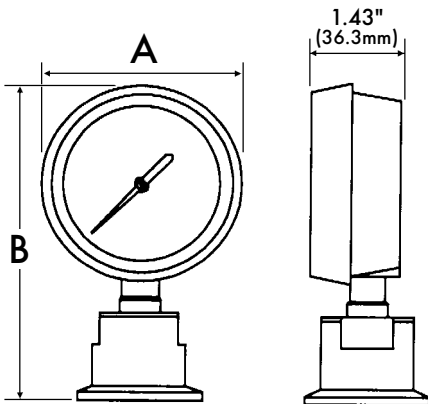
- **ACCURACY**  
±1% of scale
- **PROCESS CONNECTION**  
1.5", 2", 2.5", 3" or 4" Tri-Clamp® Stem or center back
- **PRESSURE RANGES AVAILABLE**  
30" Hg to 600 PSI
- **OPERATING TEMPERATURES**  
40° to 260°F

### FILL FLUID OPTIONS

- **NEOBEE OIL** (Standard Fill)
- **VEGETABLE OIL**
- **FOOD GRADE SILICONE**
- **GLYCERIN**

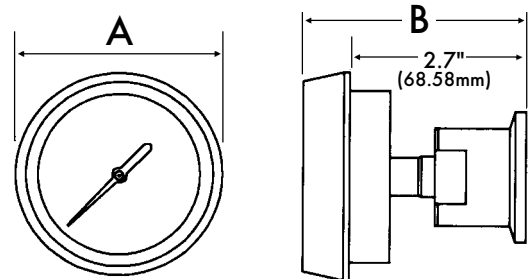


SPAN SANITARY LIQUID FILLED GAUGE ▲



STEM MOUNTED  
SANITARY GAUGES

STEM MOUNTED STANDARD GAUGE SIZES		
	2.5"	3.5"
A	3.2" (81.28mm)	4.2" (106.68mm)
B	5.1" (129.54mm)	6.1" (154.94mm)
CENTER BACK MOUNT- ED STANDARD GAUGE SIZES		
	2.5"	3.5"
A	3.2"	4.2"



CENTER BACK MOUNTED  
SANITARY GAUGES



# SPAN™

## LIGHTED, LIQUID FILLED PRESSURE GAUGES

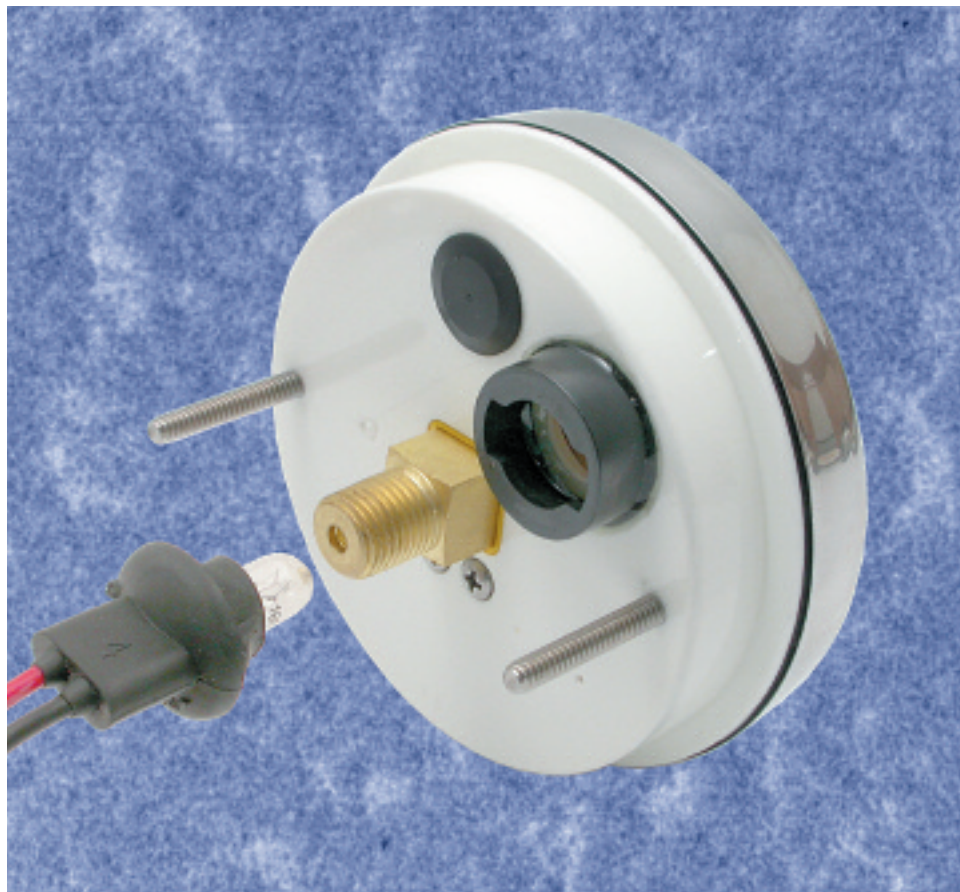
The industries first illuminated, liquid filled pressure gauge. The 'IPG' option (patent pending) is available on all **SPAN** 2.5", 3.5" and 4.5" gauges in all mounting styles.

### APPLICATIONS

- **Mobile Construction Equipment**
- **Mobile Service/Support Vehicles**
- **Low-light, In Plant Locations**

### SPECIFICATIONS

- **BULB**  
Replaceable. 12 or 24 volt
- **ELECTRICAL CONNECTION**  
18" flying leads standard
- **WATERPROOF BULB HOLDER**



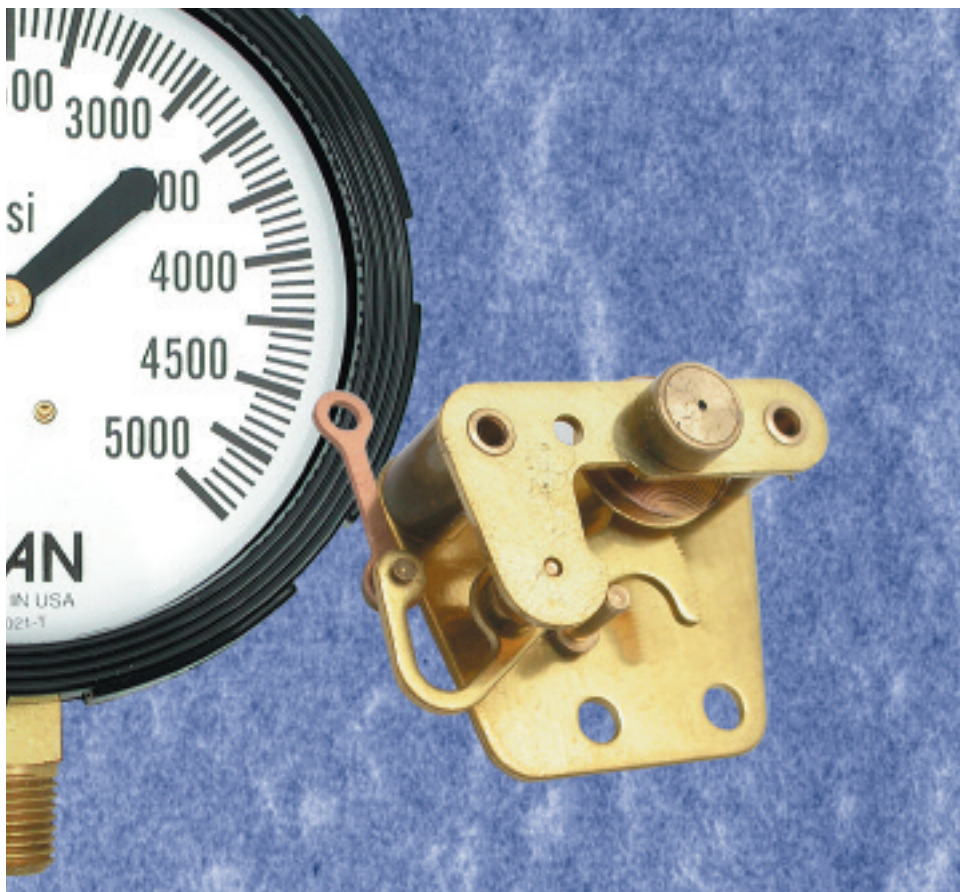
▲ LIGHTED LIQUID FILLED PRESSURE GAUGE REAR DETAIL

# SPAN™

## SHOCK RESISTANT DRY PRESSURE GAUGES

For applications where a liquid filled gauge is not desired, **SPAN** has developed its new Dash-Pot shock and vibration resistant movement. The 'DPM' option is now available on all **SPAN** 2.5", 3.5" and 4.5" gauges in all mounting styles.

This German-made precision movement offers the shock and vibration resistance of a liquid filled gauge with the convenience and cost of a dry construction.



▼ SHOCK RESISTANT PRESSURE GAUGE AND 'DPM' MOVEMENT

# SPAN™

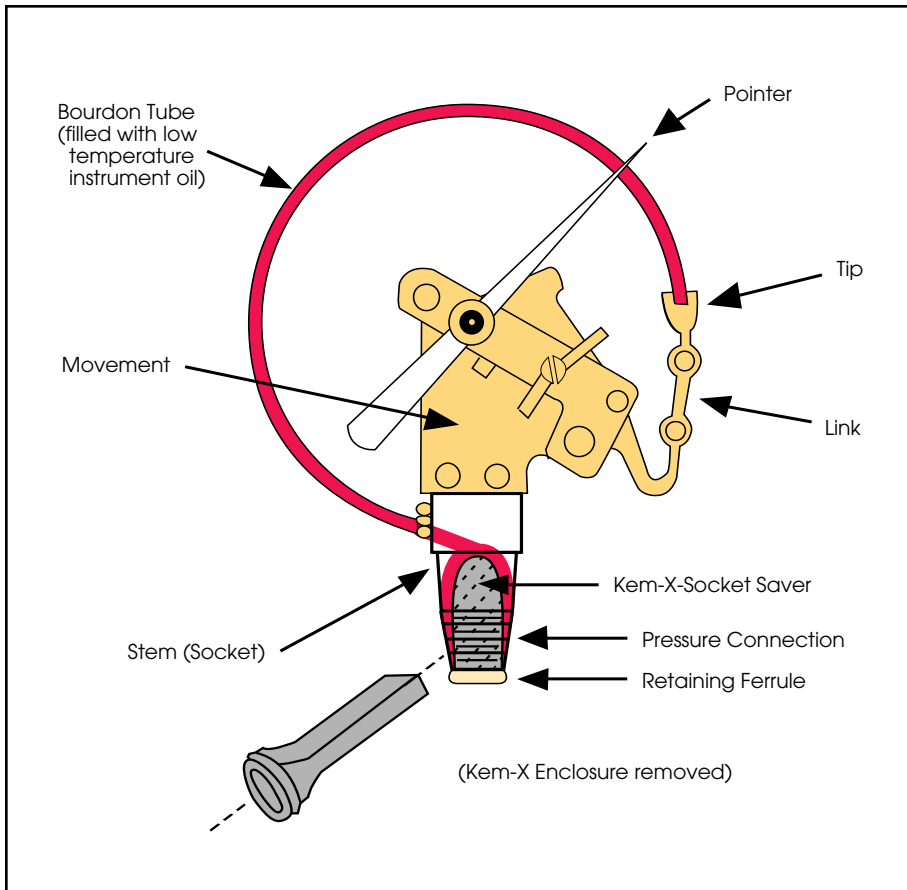
## KEM-X SOCKET SAVER

Keep service media from entering the Bourdon tube of your gauge with **SPAN's** exclusive, patented "Kem-X Socket Saver". Once the tube of the **SPAN** gauge has been evacuated and filled with instrument oil, a special elastomer 'boot' is inserted directly in the socket of the gauge and held in place by a retaining ferrule. This combination isolates any media from the wetted parts of the instrument. **SPAN's** Kem-X prevents freezing or corrosive chemicals from harming your gauge.

When the gauge is put in service and the media is pressured up inside the "Kem-X Socket Saver", the diaphragm expands inside the socket to cause a gauge reading, but the service media never enters the Bourdon tube.

Give your gauge the advantage of having a **SPAN** Kem-X Socket Saver.

- **TYPE**  
Internal isolating diaphragm
- **ELEMENT**  
Elastomer  
Buna-N, Viton or EPDM  
Other materials also available
- **PRESSURE RANGES**  
15 to 5,000 PSI
- **CAUTION**  
Installation of Kem-X Socket Saver on gauges below 30 PSI may affect the accuracy of the gauge.



KEM-X SOCKET SAVER ▲

### FEATURES

- Isolates corrosive media
- Eliminates freezing problems
- Prevents gauge clogging
- Eliminates heavy metal external isolators, which are cumbersome and expensive

### APPLICATIONS

- Agricultural Spray Equipment
- Chemical Plants
- Refineries
- Water Treatment Plants
- Power Plants
- Salt Water Service

### WARNING

**DO NOT** remove "Kem-X Socket Saver" from socket.

**DO NOT** try to simulate pressure on the Bourdon tube by inserting foreign objects into the isolator or damage will result.

# SPAN™

## MINI-SEAL

**SPAN** has developed a unique seal utilizing a specially designed elastomeric diaphragm that allows the housing to be compact, easy to use and inexpensive. The Mini-Seal should be used where process media is of a clogging, corrosive or freezing nature.

### FEATURES

- **Compact**
- **Lightweight**
- **Inexpensive**
- **Many housing materials available**
- **30 to 2000 PSI**

### SPECIFICATIONS

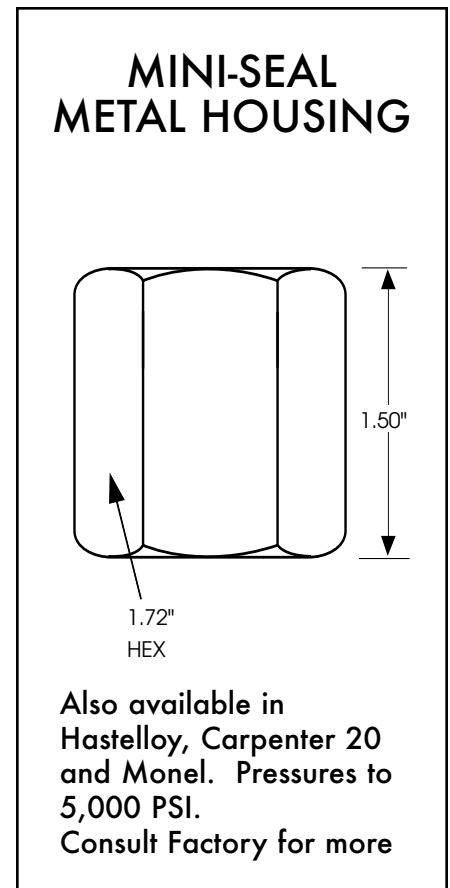
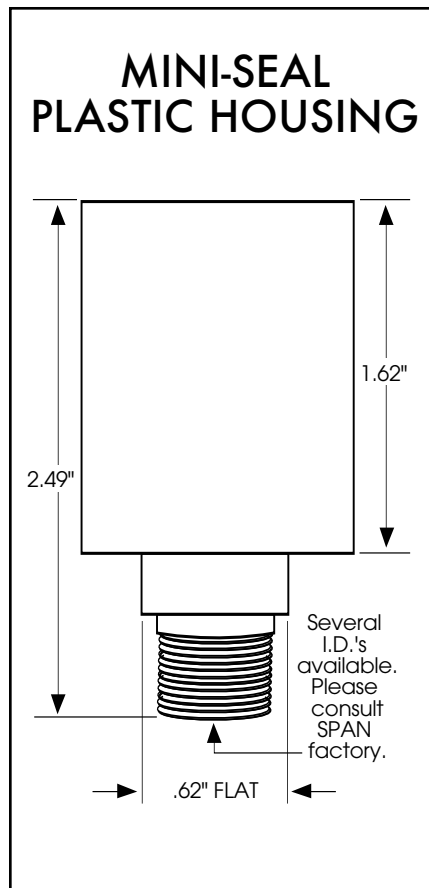
- **OPERATING PRESSURE**  
Metal.....up to 2,000 PSI  
Polypropylene .up to 300 PSI  
PVC .....up to 300 PSI  
Teflon® .....up to 300 PSI
- **OPERATING TEMPERATURES**  
-20° to 150°F
- **PROCESS CONNECTIONS**  
Metal.....1/4" NPT Female  
Plastic .....1/4" NPT Male
- **INSTRUMENT CONNECTIONS**  
1/4" NPT Female
- **FILL FLUID**  
Instrument Oil  
(Glycerin or Silicone fill optional)
- **HOUSING MATERIAL**  
316 Stainless Steel,  
Polypropylene, PVC or Teflon®
- **DIAPHRAGM**  
Buna-N, Viton, EPDM, Stainless Steel

### NOTE

Other housing or diaphragm materials available on request. Diaphragm seals must be assembled to the **SPAN** gauge or switch at our factory.



▲ MINI-SEAL



# SPAN™

## 'OPT' SERIES THIN FILM TRANSMITTER

A hermetically welded, Stainless Steel thin film measuring cell provides for leak-free operation and long-term stability. The 'OPT' provides superior resistance to shock, vibration, pressure spikes and dynamic pressure changes.

### FEATURES

- Rugged
- Inexpensive
- Excellent long-term stability

### SPECIFICATIONS

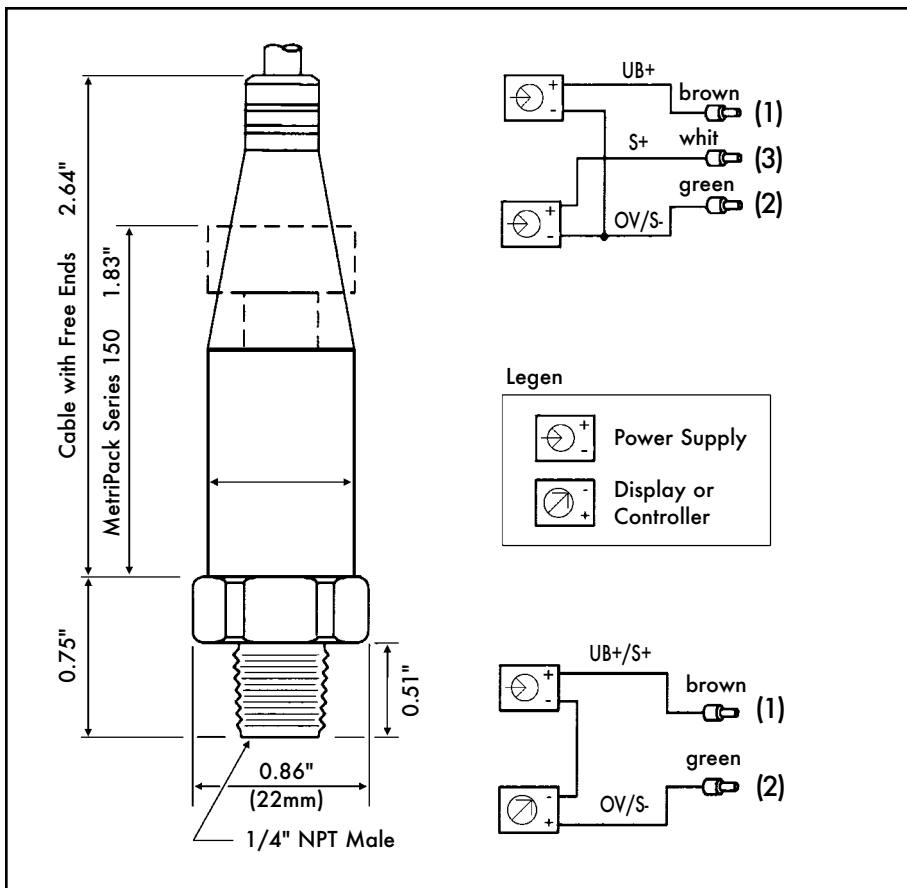
- **CONSTRUCTION**  
316L Stainless Steel wetted parts
- **CASE**  
PBT
- **PROCESS CONNECTION**  
NPT or SAE
- **ELECTRICAL CONNECTION**  
5' Cable with free ends  
MetriPak Series 150
- **SIGNAL OUTPUT**  
4-20mA, 0.5-4.5V  
1-5V, 0-10V
- **POWER SUPPLY**  
10-36V DC  
5V for 0.5-4.5V output
- **ACCURACY** - 1/2% of Span
- **REPEATABILITY** - 0.2% of Span
- **1 YR. STABILITY** - 0.3% of Span
- **OPERATING TEMP.** - -40° to 212°F
- **SHOCK RESISTANCE** - 500 g
- **VIBRATION RESISTANCE** - 20 g
- **CE APPROVAL** - EMI Protected to 100V
- **WATER PROTECTION** - NEMA 4
- **RANGES** - 60 PSI to 8,000 PSI
- **MINIMUM ORDER** - 300 pcs.

### OPTIONS

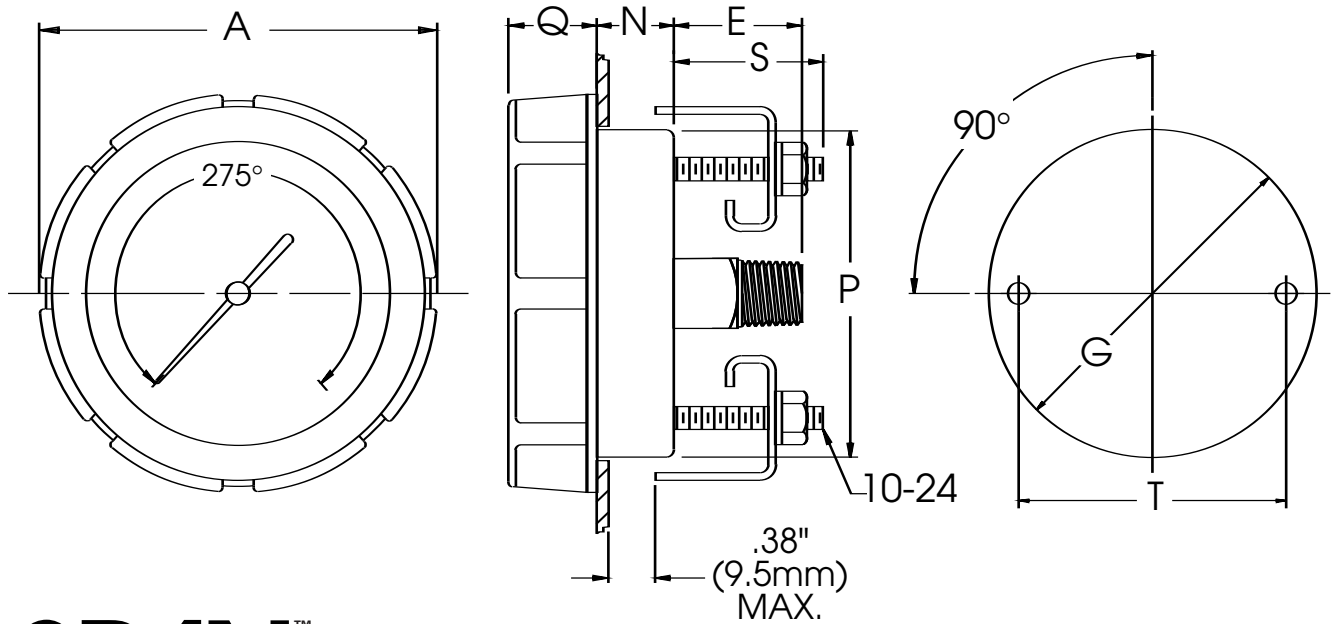
- Special electrical connections
- Special process connections
- Kem-X freeze/clog protection



'OPT' SERIES THIN FILM PRESSURE TRANSMITTER ▲



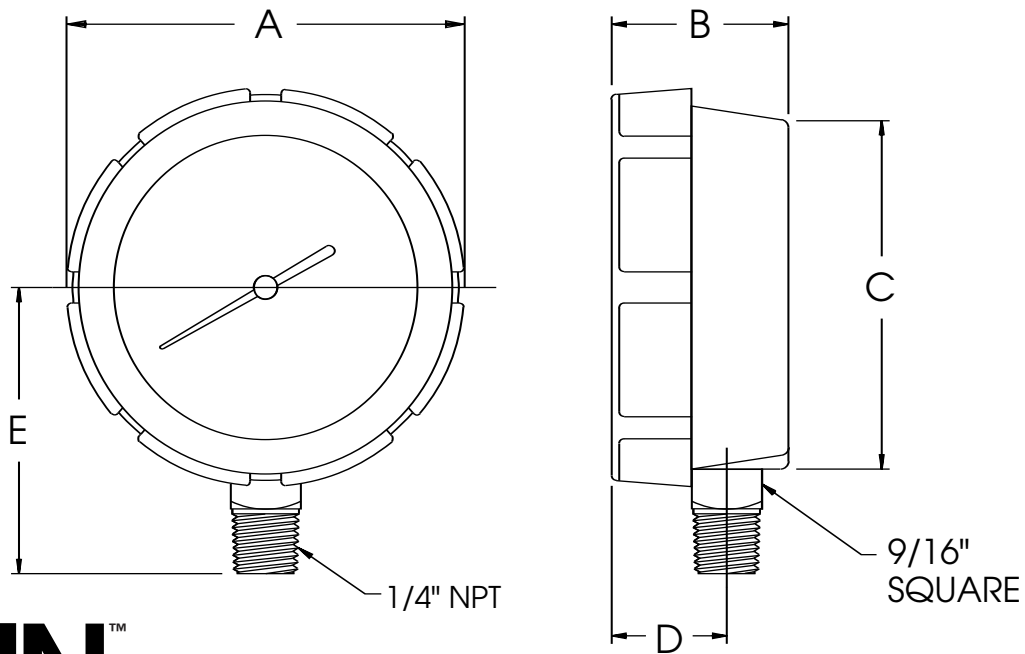
# STANDARD CASE DIMENSIONS



## SPAN™

CENTER BACK MOUNTED  
GAUGES

DIAL SIZE	A	E	G	N	P	Q	S	T
2 1/2"	3.23"	1.06"	2.69"	0.62"	2.63"	0.71"	1.20"	2.15"
3 1/2"	4.23"	1.06"	3.78"	0.62"	3.73"	0.71"	1.20"	3.18"
4 1/2"	5.30"	1.06"	4.85"	0.62"	4.80"	0.71"	1.20"	4.25"



## SPAN™

STEM MOUNTED  
GAUGES

DIAL SIZE	A	B	C	D	E
2 1/2"	3.20"	1.41"	2.80"	0.90"	2.30"
3 1/2"	4.20"	1.41"	3.81"	0.90"	2.87"
4 1/2"	5.20"	1.41"	4.83"	0.90"	3.50"

# SPAN™ Ordering Guide, Dial Ranges and Intervals for Liquid-Filled Gauges

## Ordering Guide

SPAN pressure gauges can be identified by a 6-digit model number, range, and fill designation. Each letter or number specifies a particular gauge characteristic, as follows:

### 1st Letter

L = Liquid

### 2nd Letter

F = Fillable

### 3rd Letter

S = Stem Mount (Bottom)

C = Center Back Mount

P = Panel Mount (U-Clamp)

### 1st Number (dial size)

2 = 2.5" dial

3 = 3.5" dial

4 = 4.5" dial

### 2nd Number (accuracy)

1 = 1% Accuracy

2 = 3-2-3% Accuracy

### 3rd Number (wetted parts)

0 = Phosphor Bronze Tube with Brass Socket.

2 = 316L Stainless Steel Tube and Socket.

4 = Beryllium Copper Tube with Brass Socket.

**Range** (Please Specify from Chart)

**Fill** (Please Specify)

G = Glycerin Filled

D = Dry - No Fill

### Example

LFS-410-1000-G

## Dial Ranges and Intervals

### 2.5" Brass

Range	Figure Intervals	Smallest Interval
30" Hg	5"	1"
30-0-15	10"-3 psi	2"-1 psi
30-0-30	10"-5 psi	2"-1 psi
30-0-60	30"-10 psi	5"-2 psi
30-0-150	30"-25 psi	10"-5 psi
30-0-300	30"-50 psi	15"-10 psi
30-0-600	30"-100 psi	30"-20 psi
0-15	3	.5
0-30	5	1
0-60	10	2
0-100	20	2
0-160	40	5
0-200	40	5
0-300	50	10
0-400	100	10
0-600	100	20
0-1000	200	20
0-1500	250	50
0-2000	400	50
0-3000	500	100
0-5000	1000	100
0-6000	1000	200
0-7500	1500	100

### 2.5" Stainless Steel

Range	Figure Intervals	Smallest Interval
30" Hg	5"	.5"
30-0-30	10"-5 psi	1"-.5 psi
30-0-150	30"-20 psi	5"-2 psi
30-0-600	30"-100 psi	15"-10 psi
0-15	3	.2
0-30	5	.5
0-60	10	1
0-100	10	1
0-160	20	2
0-200	20	2
0-300	50	5
0-400	50	5
0-600	100	10
0-1000	100	10
0-1500	300	20
0-2000	200	20
0-3000	500	50
0-5000	500	50
0-6000	1000	100
0-10,000	1000	100

### 3.5" 4.5"

Range	Figure Intervals	Smallest Interval
0-30" Hg	5"	.5"
30-0-30	10"-5 psi	1"-.5 psi
30-0-150	30"-20 psi	5"-2 psi
30-0-600	30"-100 psi	15"-10 psi
0-15	3	.2
0-30	5	.5
0-60	10	1
0-100	10	1
0-160	20	2
0-200	20	2
0-300	50	5
0-400	50	5
0-600	100	10
0-1000	100	10
0-1500	300	20
0-2000	200	20
0-3000	500	50
0-5000	500	50
0-6000	1000	100
0-10,000	1000	100

## Options

**SFB** = Stainless Front Bezel

**SCK** = Threaded Screw Check (push check standard)

**GL** = Glass Lens

**STUD** = Back Mount Studs on Stem (bottom) connection

**02C** = Cleaned For Oxygen

**CERT** = Charted Certificate of Calibration

**KEMX** = Kem-X Socket Saver (Buna, Viton, EPDM)

### SPECIAL DIALS AVAILABLE

Dual Scales, Customer Name On Dials, White On Black Dials, etc.

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## OTHER PRODUCTS AVAILABLE

### THERMOMETERS

- **BI-METAL THERMOMETERS:** All stainless steel construction from 2" to 5" dial sizes and ranges from -100°F to 1000°F.
- **REMOTE READING DIAL:** 2" to 6" dial size, vapor actuated thermometers. Panel or surface mounting with capillary lengths up to 50 ft. Matching liquid filled SPAN cased thermometers are also available.

### PRESSURE GAUGES

- **PROCESS GAUGES:** A full line of 'DRY' industrial and process gauges in brass and stainless steel construction are available in 4.5", 6" and 8.5" sizes in our Duro-United product line.
- **OEM UTILITY GAUGES:** Stem and panel mounted gauges in 1.5" through 3.5" dial sizes specifically for cost competitive OEM applications. Custom dials are available.



### OTHER SERVICES AVAILABLE

- **GAUGE REPAIR AND CERTIFICATION:** Gauges can be calibrated to N.I.S.T. standards with certificate. Gauge repair and Oxygen Cleaning services are also available.
- **CUSTOM TEST GAUGE KITS:** Gauges in carry cases for hydraulics, aviation, etc. are available to your specifications.

## A BIT OF SPAN HISTORY

In 1970 SPAN's founder, Leo Whitson, began making the first American Made Liquid Filled Gauges for the oil patch industry. Now, nearly 35 years later, SPAN is once again a family owned company. The Thuemling Instrument Group is committed to supplying the best liquid filled gauges in the industry with the level of personal customer service on which SPAN was originally founded.

**Give us a call at 1-800-686-1789**

**CONTINUOUS DEVELOPMENT AND REFINEMENT OF OUR PRODUCTS MAY  
RESULT IN SPECIFICATION CHANGES WITHOUT NOTICE.**

**DISTRIBUTED BY:**



**SPAN<sup>TM</sup>**

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