SPAN™

MADE WITH PRIDE
USA

Industrial Gauges

Catalog 215C

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 **ORIGINAL 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.

- **"FULLY FILLED":** 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 6 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

About the Cover: SPAN Gauges are proud to be a supply partner on the US Navy Littoral Combat Ship fleet currently under construction. Pictured is LCS-3 USS Fort Worth during 'builders trials' on Lake Michigan. (Photo courtesy of Lockheed Martin by Michael Rote/Released.)

Brass Socket Gauges Pages 2-3

The 'Original' SPAN pressure gauge with brass socket and phosphor bronze bourdon tube:

- Corrosion resistant Zytel case
- 'Fully Filled' dial
- Lighted gauge option
- Temperature compensated case
- Freezeproof Kem-X socket saver option

Stainless Socket Gauges Pages 4-5

The 'Original' SPAN pressure gauge with 316 stainless steel socket and tube:

- Corrosion resistant Zytel case
- 'Fully Filled' dial
- Lighted gauge option
- Temperature compensated case
- Freezeproof Kem-X socket saver option

SPAN Gauge Options Pages 6-9

- Internal Compensating Diaphragm
- Kem-X Socket Saver
- Lighted Gauge Option
- Dash-Pot Movement
- Mini Seals
- NIST Certification
- Sanitary Gauge
- Duplex Gauge

Stainless Case Liquid Filled Gauges Pages 10-11

The SC Series SPAN pressure gauge with stainless steel case

- 2" (50mm), 2-1/2" (63mm) and 4" (100mm) metric case sizes
- Brass and stainless steel construction
- Stem and panel mounting styles available

Steel Case Dry Economy Gauges Pages 12-13

The EC Series SPAN pressure gauge with steel case

- 1-1/2", 2", 2-1/2" & 3-1/2" case sizes
- Brass construction
- Ranges from VAC - 6000 PSI
- Stem and panel mounting styles available

SPAN Pressure Transducers Pages 14-15

The 4200 Series SPAN Pressure Transducer Line

- Various voltage outputs
- Selection of electrical connectors
- Ranges from VAC - 10,000 PSI
- Kem-X clog-proof option

SPAN Sub-Sea Gauges Page 16

- Ranges from VAC - 20,000 PSI
- Special construction for Sub-Sea service
- White on Black dial

SPAN™

Liquid Filled Industrial Gauges

Overview

Span gauges are designed for rugged service applications. Liquid fill fluid dampens the gauge pointer movement for improved readings and longer life, making these gauges ideal for high shock and vibration applications.

Its Zytel case and ring offer good appearance and excellent resistance to chemical, weather, and corrosion attack.

The Span gauge has many optional features that allow a user to develop a basic or special product specification.

Benefits

- "Fully Filled": 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 2½" up to 60 PSI, optional on higher ranges.
- Temperature compensated: The ICD compensates the case (to 150F) for changes in internal case pressure caused by fluctuations in ambient temperature. (Especially critical in lower pressure and vacuum gauges.)

Options

- 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.
- Lighted Dial: Span offers the only lighted and liquid filled gauge. 12 or 24 volt incandescent and LED in white, blue, green, or red.

Applications

- Mobile Hydraulic Equipment
- Water Purification/Irrigation
- Waste Water/Slurry
- Fire Apparatus
- Bulk Transport Trailers
- Military, Marine

Construction Data

Case	Zytel Nylon – Black
Bezel	Zytel Nylon – Removable
Socket	Brass
Socket O Ring	EPDM
Bourdon Tubes	Vac to 1000 PSI Copper Alloy "C" Tube 1500 to 7500 Stainless Spiral Tube
Pressure Connection	¼" NPT Male (JIC Optional)
Lens	Acrylic
Pointer	Black Aluminum
Movement	Precision Swiss Movement
Dial	White Aluminum
Fill Fluid	High Purity Glycerin
Ranges	Vacuum, Compound to 7500 PSI

Dial Ranges and Intervals

Standard Dial Range	Numbered	Minor	Standard Dial Range	Numbered	Minor
30" Hg	5"	.5"	0-200	20	2
30-0-15	10"-3 psi	2"-1 psi	0-300	50	5
30-0-30	10"-5 psi	2"-1 psi	0-400	50	5
30-0-60	30"-10 psi	5"-2 psi	0-600	100	10
30-0-150	30"-25 psi	10"-5 psi	0-1000	100	10
30-0-300	30"-50 psi	15"-10 psi	0-1500	300	20
30-0-600	30"-100 psi	30"-20 psi	0-2000	200	20
0-15	3	.2	0-3000	500	50
0-30	5	.5	0-5000	500	50
0-60	10	1	0-6000	1000	100
0-100	10	1	0-7500	1500	100
0-160	20	2			

SPAN™ Liquid Filled Industrial Gauges 2.5", 3.5" and 4.5"

Performance Data

Accuracy	- 2.5" - 3.5" & 4.5"	3-2-3% Grade B (1% Optional) 1% Grade 1A
Design		ANSI/ASME B40.1
Ambient Temp.		-40° to 150° F

Temperature Error

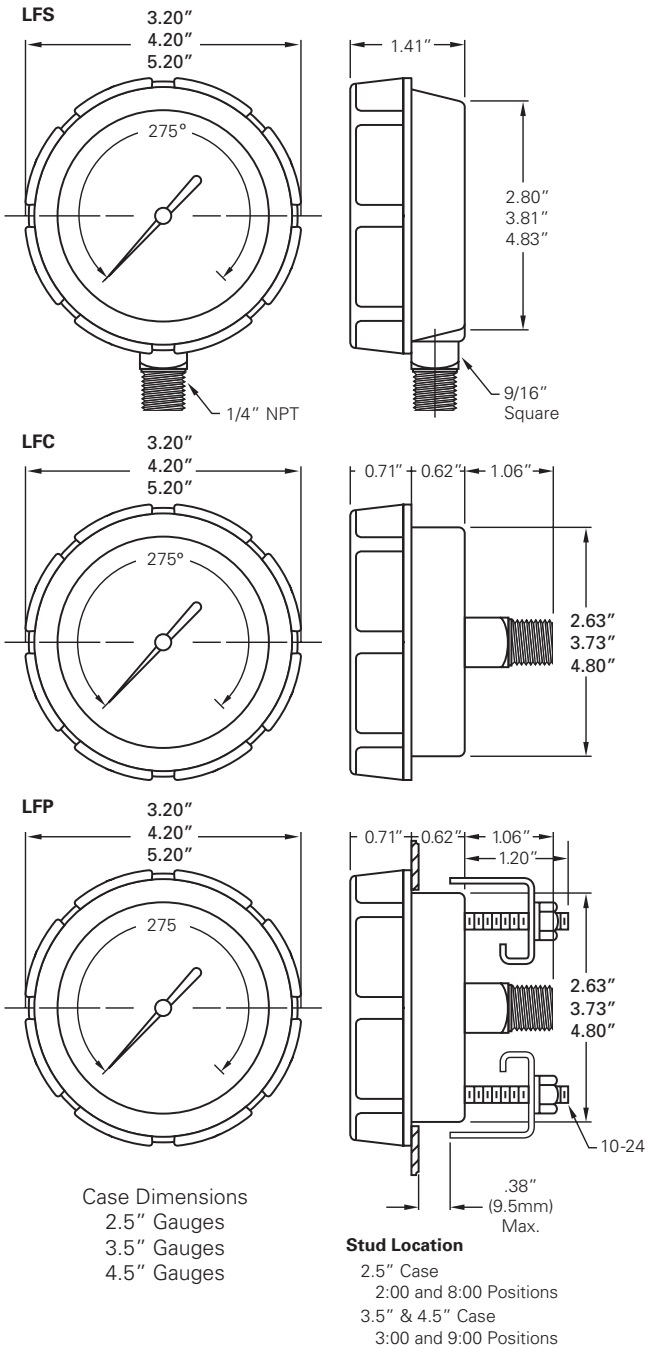
Additional error when temperature changes from reference temperature of 68F (20C) +-0.4% for every 18F (10C) rising or falling as a percentage of span.

Weather Protection

Weather tight (NEMA 4X / IP 65)

Optional Extras

ICD	=	Internal Temperature Compensating Diaphragm
IPG	=	Lighted Dial
IB1	=	KEMX Buna-N Diaphragm
IV1	=	KEMX Viton - Diaphragm
IE1	=	KEMX EPDM - Diaphragm
SCK	=	Threaded Socket Restrictor
CERT	=	NIST Certified with Calibration Points
SFB	=	Chrome Bezel
RECAL	=	Slotted Adjustable Pointer
02C	=	Oxygen Cleaning
GL	=	Glass Lens
STUD	=	Back Mount Studs for Wall Mounting
DM	=	Dampened Movement
OEM	=	Custom Dials
JIC	=	#4 JIC Process Connection
Dual Scale	=	Call for Availability



Case Dimensions
2.5" Gauges
3.5" Gauges
4.5" Gauges

Stud Location
2.5" Case
2:00 and 8:00 Positions
3.5" & 4.5" Case
3:00 and 9:00 Positions

Ordering Number for 3.5" Span Gauge – Construct by selecting one item from each of the columns below:

Configuration	Dial Size	Accuracy	Wetted Parts	Range	Fill	Options
LFS = Stem Mount Bottom	2 = 2-1/2	1 = 1% Accuracy	0 = Phosphor Bronze Tube, Brass Socket	Please Specify from Chart	G = Glycerin Filled	From Option List
LFC = Center Back Mount	3 = 3-1/2	2 = 3 - 2 - 3% Accuracy	4 = above 1000 PSI 316 Stainless Steel Tube, Brass socket		D = Dry No fill	
LFP = Panel Mount U-Clamp	4 = 4-1/2					
Example: LFS –	**3**	**1**	**0 –**	**100 –**	**G**	**IB**

(LFS-220-100-G - IB)

SPAN™

Liquid Filled Industrial Gauges

Overview

Span gauges are designed for rugged service applications. Liquid fill fluid dampens the gauge pointer movement for improved readings and longer life, making these gauges ideal for high shock and vibration applications.

Its Zytel case and ring offer good appearance and excellent resistance to chemical, weather, and corrosion attack.

The Span gauge has many optional features that allow a user to develop a basic or special product specification.

Benefits

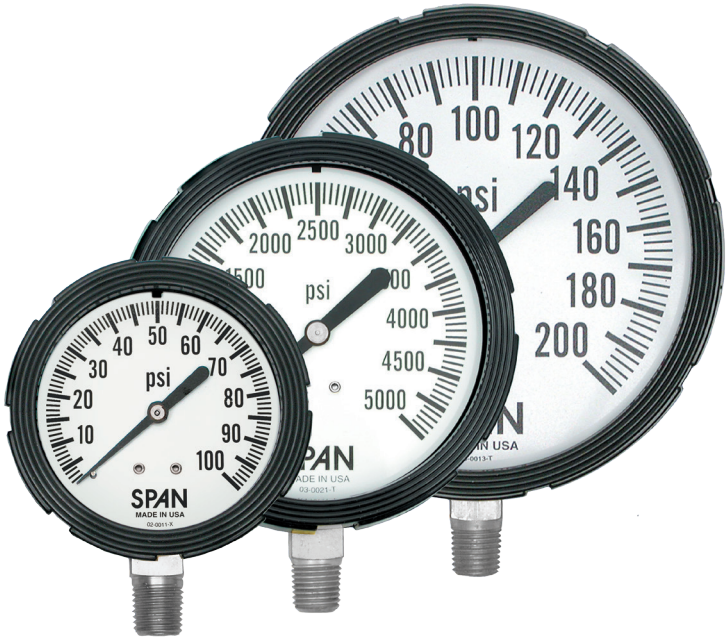
- "Fully Filled": The internal "breathing diaphragm" eliminates the need for an air bubble in the mid-range of the gauge, which can distort readings and looks unsightly. The ICD is standard on 2½" up to 60 PSI, optional on higher ranges.
- Temperature compensated: The ICD compensates the case (to 150F) for changes in internal case pressure caused by fluctuations in ambient temperature. (Especially critical in lower pressure and vacuum gauges.)

Options

- 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.
- Lighted Dial: Span offers the only lighted and liquid filled gauge. 12 or 24 volt incandescent and LED in white, blue, green, or red.

Applications

- Mobile Hydraulic Equipment
- Water Purification/Irrigation
- Waste Water/Slurry
- Chemical Processing
- Bulk Transport Trailers
- Military, Marine



Construction Data

Case	Zytel Nylon – Black
Bezel	Zytel Nylon – Removable
Socket	316 Stainless Steel - TIG Welded
Socket O-Ring	EPDM
Bourdon Tubes	Vac to 1000 PSI 316 Stainless Steel "C" Tube 1500 to 15000 Stainless Spiral Tube
Pressure Connection	¼" NPT Male (JIC Optional)
Lens	Acrylic
Pointer	Black Aluminum
Movement	Precision Swiss Movement
Dial	White Aluminum
Fill fluid	High Purity Glycerin
Ranges	Vacuum, Compound to 15000 PSI

Dial Ranges and Intervals

Standard Dial Range	Numbered	Minor	Standard Dial Range	Numbered	Minor
30" Hg	5"	.5"	0-200	20	2
30-0-15	10"-3 psi	2"-.5 psi	0-300	50	5
30-0-30	10"-5 psi	2"-.5 psi	0-400	50	5
30-0-60	30"-10 psi	2"-1 psi	0-600	100	10
30-0-150	30"-20 psi	5"-2 psi	0-1000	100	10
30-0-300	30"-50 psi	10"-5 psi	0-1500	300	20
30-0-600	30"-100 psi	15"-10 psi	0-2000	200	20
0-15	2	.2	0-3000	500	50
0-30	5	.5	0-5000	500	50
0-60	10	1	0-6000	1000	100
0-100	10	1	0-7500	1500	100
0-160	20	2	0-10000	1000	100
			0-15000	2000	200

SPAN™ Liquid Filled Industrial Gauges 2.5", 3.5" and 4.5"

Performance Data

Accuracy	1% Full Scale Grade 1A
Design	ANSI/ASME B40.1
Operating Temp.	-40 to 150F

Temperature Error

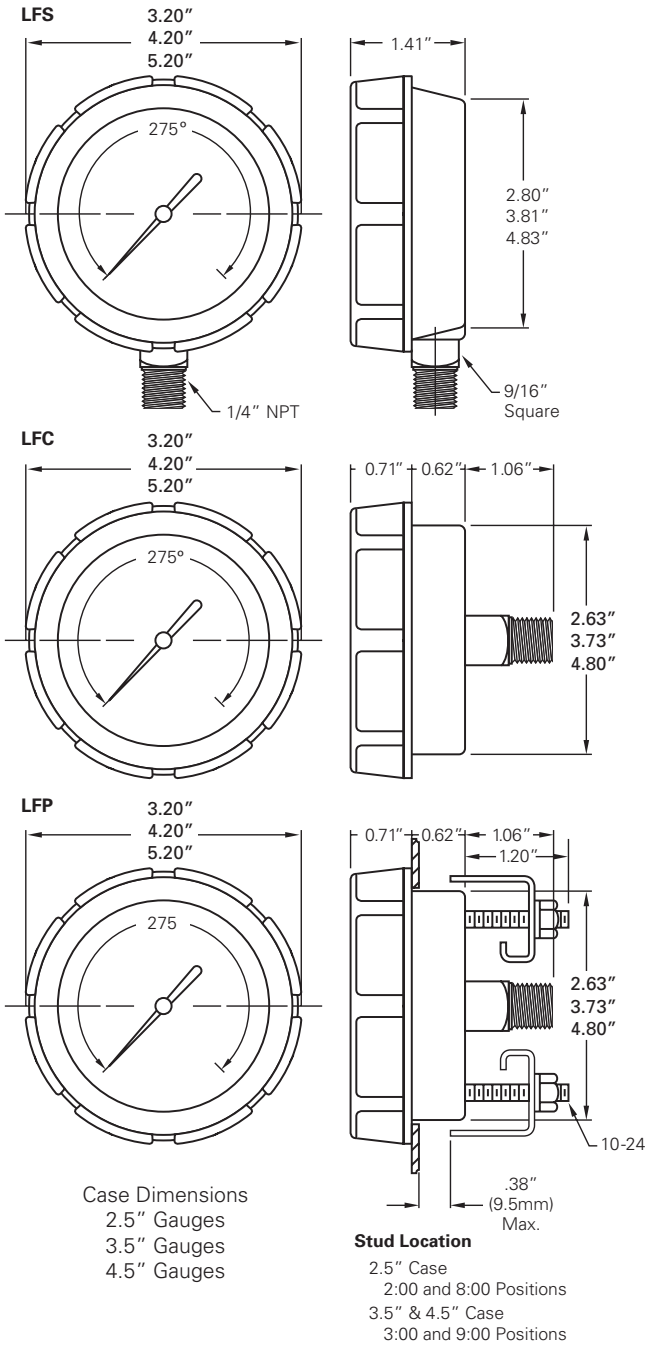
Additional error when temperature changes from reference temperature of 68F (20C) +-0.4% for every 18F (10C) rising or falling as a percentage of span.

Weather Protection

Weather tight (NEMA 4X / IP 65)

Optional Extras

ICD	=	Internal Temperature Compensating Diaphragm
IPG	=	Lighted Dial
IB1	=	KEMX Buna-N Diaphragm
IV1	=	KEMX Viton - Diaphragm
IE1	=	KEMX EPDM - Diaphragm
SCK	=	Threaded Socket Restrictor
CERT	=	NIST Certified with Calibration Points
SFB	=	Chrome Bezel
RECAL	=	Slotted Adjustable Pointer
02C	=	Oxygen Cleaning
GL	=	Glass Lens
STUD	=	Back Mount Studs for Wall Mounting
DM	=	Dampened Movement
OEM	=	Custom Dials
JIC	=	#4 JIC Process Connection
Dual Scale	=	Call for Availability



Case Dimensions
2.5" Gauges
3.5" Gauges
4.5" Gauges

Stud Location

2.5" Case
2:00 and 8:00 Positions
3.5" & 4.5" Case
3:00 and 9:00 Positions

Ordering Number for 3.5" Span Gauge – Construct by selecting one item from each of the columns below:

Configuration	Dial Size	Accuracy	Wetted Parts	Range	Fill	Options
LFS = Stem Mount Bottom	2 = 2-1/2	1=1% Accuracy	2 = 316L Stainless Steel Tube and Socket	Please Specify from Chart	G = Glycerin Filled	From Option List
LFC = Center Back Mount	3 = 3-1/2				D = Dry No Fill	
LFP = Panel Mount U-Clamp	4 = 4-1/2					
Example: LFS –	**3 –**	**1**	**2**	**5000 –**	**G**	**IB**

(LFS-312-5000-G-IB)

▲ ICD Temperature Compensating Case

SPAN™

Fully-Filled Case with Temperature Compensation

The internal "breathing diaphragm" eliminates the need for a large air bubble in the midrange of the gauge, which can distort readings and looks unsightly.

The "ICD" is standard on all 2-1/2" low pressure gauges (optional above 60 PSI), and standard on all ranges of 3-1/2" and 4-1/2" gauges.

The "ICD" also prevents accuracy shift from changes in internal case pressure caused by fluctuations in ambient temperatures from -20 to 150° F.

SPAN™

KEM-X Socket Saver

FREEZE PROOF PROTECTION (OPTION)

Keep mud, water and slurry from entering the Bourdon tube of your gauge with our exclusive, patented "Kem-X Socket Saver". Once the tube of the gauge has been evacuated and filled with instrument oil, a special BUNA-N 'boot' is inserted directly in the socket of the gauge and held in place by a retaining ferrule. This combination isolates the media from the wetted parts of the instrument. Our Kem-X prevents freezing and clogging from harming your gauge.

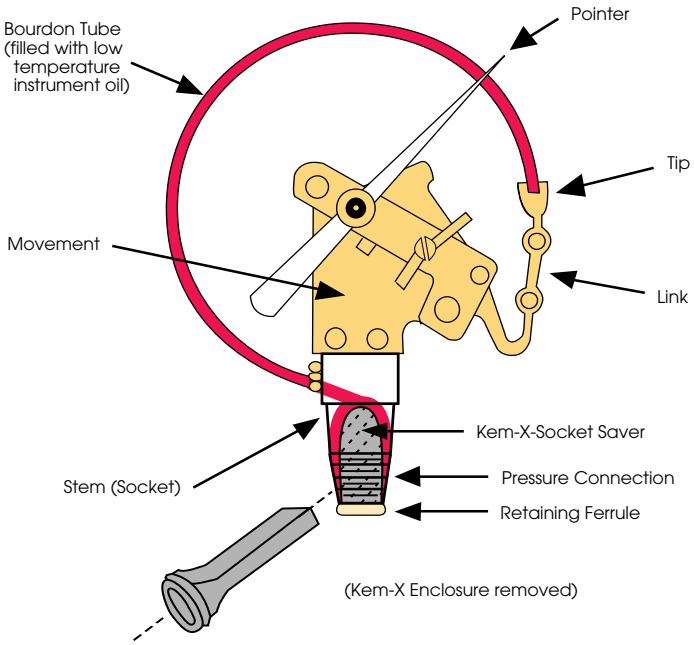
FEATURES

- 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

▼ KEM-X Socket Saver



- **TYPE**
  Internal Isolating Diaphragm
- **ELEMENT**
  Elastomer
  Buna-N, Viton or EPDM
  Other materials available
- **PRESSURE RANGES**
  15 to 15000 PSI

SPAN™

Lighted, Liquid-filled Pressure Gauges

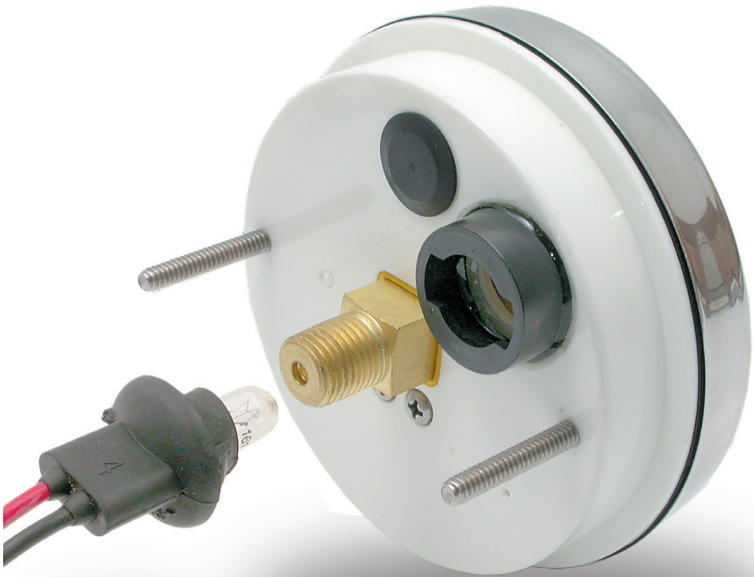
The industries first illuminated, liquid filled pressure gauge. The 'IPG' option (patent pending) is available on all SPAN 2.5", 3.5" and 4.5" gauges in all mounting styles.

APPLICATIONS

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

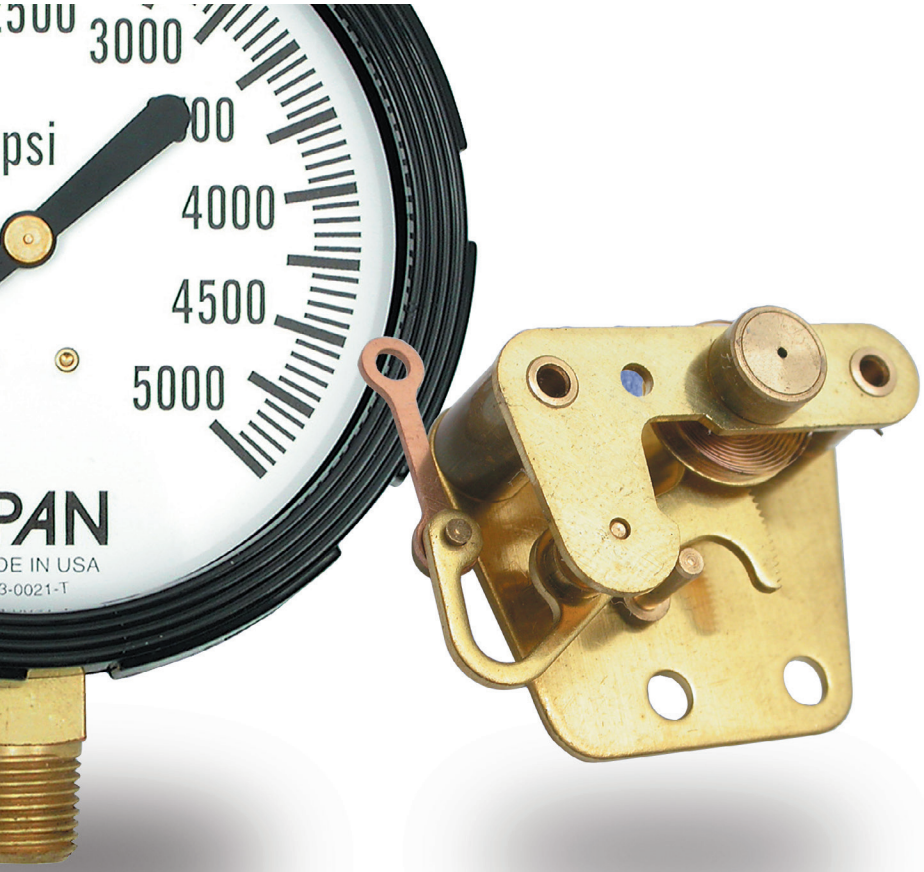
SPECIFICATIONS

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



▲ Lighted Liquid-filled Pressure Gauge - Rear Detail

▼ Shock Resistant Pressure Gauge and 'DPM' Movement



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.

▲ SPAN Mini Seals

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

NOTE

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

SPAN™

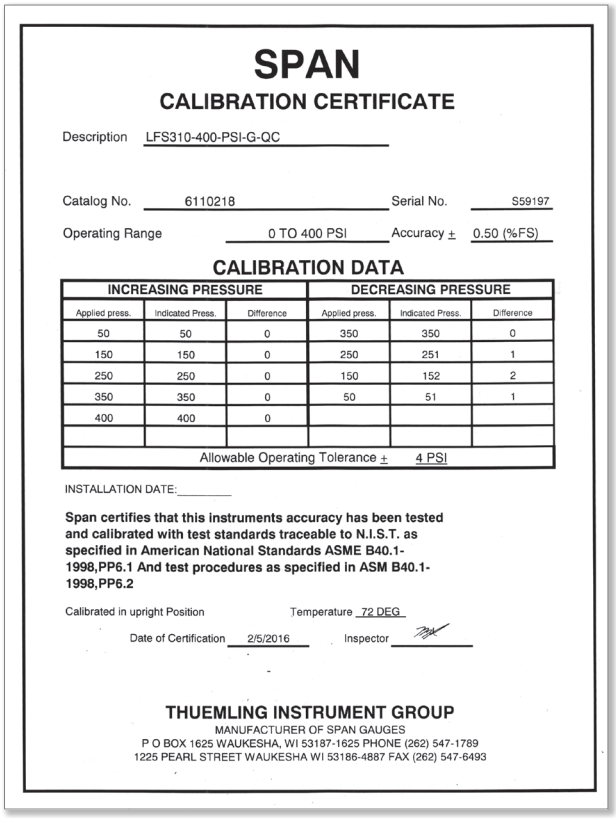
N.I.S.T. CERTIFICATION

ANY SPAN Industrial Gauge can be tested, serialized and certified traceable to N.I.S.T. accuracy standards.

We offer General Certificates of Accuracy and Calibration Certificates with Test Points.

Please ask one of our product specialists for details.

▼ NIST Certification



SPAN

CALIBRATION CERTIFICATE

Description LFS310-400-PSI-G-QC

Catalog No. 6110218 Serial No. S59197

Operating Range 0 TO 400 PSI Accuracy ± 0.50 (%FS)

CALIBRATION DATA

INCREASING PRESSURE			DECREASING PRESSURE		
Applied press.	Indicated Press.	Difference	Applied press.	Indicated Press.	Difference
50	50	0	350	350	0
150	150	0	250	251	1
250	250	0	150	152	2
350	350	0	50	51	1
400	400	0			
Allowable Operating Tolerance ± 4 PSI					

INSTALLATION DATE:_____

Span certifies that this instruments accuracy has been tested and calibrated with test standards traceable to N.I.S.T. as specified in American National Standards ASME B40.1-1998,PP6.1 And test procedures as specified in ASM B40.1-1998,PP6.2

Calibrated in upright Position Temperature 72 DEG

Date of Certification 2/5/2016 Inspector

THUEMLING INSTRUMENT GROUP

MANUFACTURER OF SPAN GAUGES

P O BOX 1625 WAUKESHA, WI 53187-1625 PHONE (262) 547-1789

1225 PEARL STREET WAUKESHA WI 53186-4887 FAX (262) 547-6493

SPAN™

Sanitary Gauge

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

FEATURES

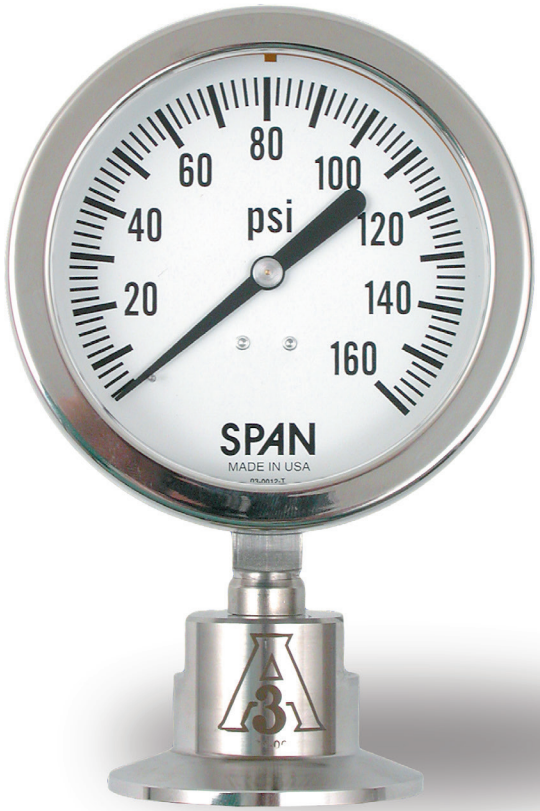
- CASE MATERIAL - Zytel Nylon for Corrosion Resistance
- BEZEL MATERIAL - Polished Stainless Steel
- INTERNAL COMPONENTS - 316 Stainless Steel
- INTERNAL BREATHING DIAPHRAGM - Reduces temperature effects and Zero Shift
- FILL FLUID - Glycerin, "Fully Filled"
- 3A APPROVED DIAPHRAGM SEAL

SPECIFICATIONS

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

SYSTEM FILL FLUID OPTIONS

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



SPAN SANITARY LIQUID FILLED GAUGE ▲

▼ DPX-410 - 4.5" DUPLEX LIQUID FILLED GAUGE

SPAN™

4.5" DUPLEX GAUGE SPECIFICATIONS

- **CASE MATERIAL -** Zytel Nylon
- **BEZEL MATERIAL -** Polished Stainless Steel
- **SOCKET -** Bronze equipped with Kem-X diaphragm protection
- **BOURDON TUBE -** Phosphor Bronze
- **CONNECTION -** 1/4" Male NPT Lower back, side by side
- **LENS -** Acrylic
- **FILL FLUID -** Glycerin
- **DIAL -** White with black markings
- **ACCURACY -** ±2% of scale
- **POINTERS -** 1 Red, 1 Black
- **TEMPERATURE COMPENSATION** Internal breathing diaphragm
- **PRESSURE RANGES AVAILABLE** 0-160, 0-400, Dual Scale Available
- **MODEL NUMBERS -** DPX-410

SPAN™

Liquid Filled Series SC Gauges 2.0", 2.5" and 4.0"

SCU63-1
Liquid Filled SC Gauge

SCS63-2
Liquid Filled SC Gauge

Overview

Series SC gauges offer a stainless steel case with brass or corrosion resistant 316 stainless steel internals. Gauges are available in sealed dry or liquid filled for high shock and vibration applications.

SC gauges are suitable for applications with media compatable with brass or 316 stainless steel wetted materials

Benefits

- Matching sealed stainless steel cases are offered in three sizes in plain or two panel mounting configurations. An optional removable bayonet ring is available
- Case dimensions are popular metric sizes. Panel mounting gauges fit existing panels using most stainless steel cased gauges
- Made in the USA, series SC gauges offer a very competitive high quality option to many imported gauges

Applications

- Intended for adverse service conditions where pulsating or vibration exists (with liquid filling)
- Hydraulics and compressors
- Applications compatible with 316 stainless steel internals (SC-2) or brass internals (SC-1)

Construction Data

Case		Stainless Steel
Bezel		Stainless Steel - crimped
Socket	SC-1	Brass
	SC-2	Stainless Steel
Bourdon Tubes	SC-1	Vac to 1000 PSI "C" tube, 1500 to 10,000, brass spiral tube
	SC-2	Vac to 1000 PSI "C" tube, 1500 to 15,000, stainless spiral tube
Pressure Connection		⅛" or ¼" npt male (JIC SAE optional)
Lens		Acrylic
Pointer		Black Aluminum
Movement		Stainless Steel
Dial		White Aluminum
Fill fluid		Glycerin -Optional dry
Ranges		Vacuum, Compound to 15,000 PSI

Dial Ranges and Intervals

Range PSI	Fig. Inter. PSI	Grad. Inter. PSI
15	3	0.2
30	5	0.5
60	10	1
100	20	2
160	20	2
200	50	5
300	50	5
400	100	10
600	100	10
800	200	20
1000	200	20
1500	300	20
2000	500	50

Range PSI	Fig. Inter. PSI	Grad. Inter. PSI
3000	500	50
5000	1000	100
7500	1000	100
10000	2000	200
15000 (SC-2 Only)	3000	200

VACUUM RANGE

30-0" Hg	5" Hg	0.5" Hg

COMPOUND RANGES

"Hg	PSI	"Hg	PSI	"Hg	PSI
30-0-	15	10	5	1	0.5
30-0-	30	10	10	2	1
30-0-	30	30	20	2	2
30-0-	100	30	20	5	2
30-0-	160	30	20	10	5
30-0-	200	30	50	10	5

SPAN™ Liquid Filled Series SC Gauge 2.0", 2.5" and 4.0"

Performance Data

Accuracy	2" & 2½": ± 2/1/2% of span (ASME B40.100 Grade A) 4": ± 1% of span (ASME B40.100 Grade 1A)
Design	ANSI/ASME B40.1
Operating Temp.	-40 to 150F

Temperature Error

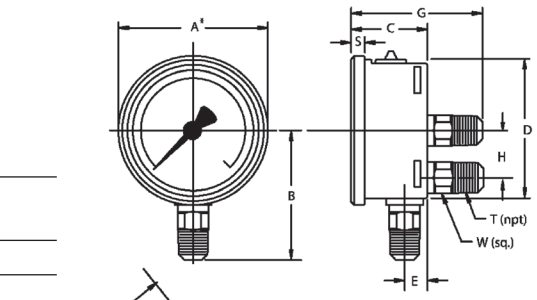
Additional error when temperature changes from reference temperature of 68F (20C) +-0.4% for every 18F (10C) rising or falling as a percentage of span.

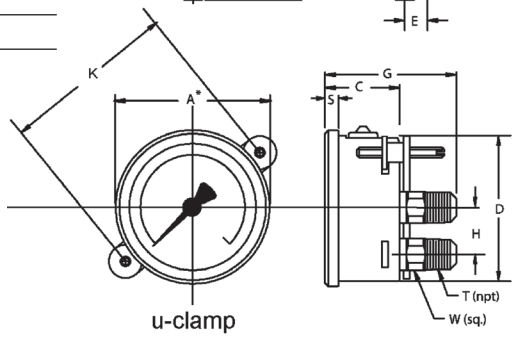
Weather Protection

Weather tight (NEMA 4X / IP 65)

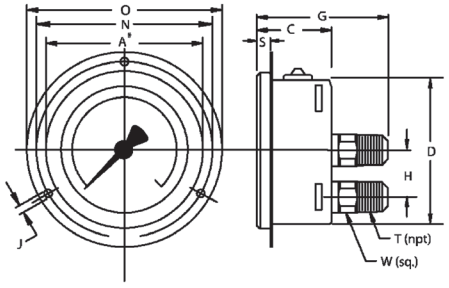
Optional Extras

SCK	=	Threaded socket restrictor
CERT	=	NIST Certified with calibration points
GL	=	Glass lens
DM	=	Dampened movement
BR	=	Bayonet bezel-removable
OEM	=	Custom dials
JIC, SAE	=	Special process connections
DBR	=	Dual scale PSI and BAR
DKG	=	Dual scale PSI and KgCm^2
DKP	=	Dual scale PSI and KpA





u-clamp



front flange

Size		A	B	C	D	E	G	H	J	K	N	O	S	T	W	Weight	
50mm	mm	55	48	30	50	12	53	-	3.6	72	60	17	5.5		14	0.27 lb.	dry
(2")	in	2.17	1.89	1.18	1.97	0.47	2.09	-	0.14	2.83	2.36	2.80	0.22	¼"	0.55	0.33 lb.	filled
63mm	mm	69	54	32	63	13	54	-	3.6	72	75	85	6.5		14	0.36 lb.	dry
(2½")	in	2.69	2.13	1.26	2.45	0.51	2.13	-	0.14	2.83	2.95	3.35	0.26	¼"	0.55	0.44 lb.	filled
100mm	mm	107	87	48	100	15.5	79.5	30	4.8	109	116	132	8		22	1.10 lb.	dry
(4")	in	4.21	3.43	1.89	3.91	0.61	3.13	1.18	0.19	4.29	4.57	5.20	0.31	½"	0.87	1.76 lb.	filled

Note: For ¼" NPT connections on 4" gauges, reduce B dimension by 5mm/0.2"

Recommended panel cut-out: 2"- U-clamp: 51mm front flange: n/a; 2½"- U-clamp: 63mm front flange: 65mm; 4"- U-clamp: 101mm front flange: 104mm

Ordering Number for SC Span Gauge – Construct by selecting one item from each of the columns below:

Configuration	Dial Size	Wetted Parts	Range	Fill	Options
SCS=Stainless Case Stem Mount Bottom	50=2.0"/50mm	1 = Brass tube and socket	Please specify from chart	G = Glycerin Filled	From option list
SCC=Stainless Case Center Back	63=2.5"/63mm	2 = 316 Stainless Steel tube and socket		D = Dry No fill	
SCU=Stainless Case U-Clamp Mount	100=4.0"/100mm				
SCF=Stainless Case Front Flange Mount					
Example: SCS –	**63-**	**2 –**	**100 –**	**G**	**DBR**

(SCS63-2-200-G-DBR)

SPAN™

Dry Steel Cased Pressure Gauge 1.5", 2.0", 2.5" and 3.5"

EC103D
Panel Mount Economy Gauge

EC101D
Stem Mount Economy Gauge

Overview

These gauges are designed for use with gas, oil and water or any media not corrosive to brass or bronze. Series EC gauges are designed for applications not requiring a liquid filled gauge. EC gauges are a good choice in applications not subject to high shock or severe vibrations.

Benefits

- Dry black steel case gauge with chrome rings
- Large inventory in stock for quick shipment
- Back-up stocking programs available to OEMs

Applications

- Pneumatic regulators
- Filters
- Low cost panel mounted gauges
- Small diameter gauges
- Tank pressures
- Air pressure measurements

Construction Data

Case	Steel - black or chrome
Bezel	Steel - chrome
Socket	Brass
Bourdon Tubes	Copper Alloy Vac to 1000 PSI "C" Tube 1500 to 6000 Copper Spiral Tube
Pressure Connection	⅛" or ¼" npt male
Lens	Acrylic
Pointer	Black aluminum
Movement	Brass movement
Dial	White aluminum
Fill fluid	None
Ranges	Vacuum, compound to 6000 PSI

Gauge Scales - dual. Inner scale is metric (kPa & bar). Outer scale is PSI.

Range	Code	Major	Minor
30"-0" VAC	A	5"	.5" hg
30"-0-15 psi	CB	10"hg & 5 psi	1"hg &.50 psi
30"-0-30 psi	CC	10"hg & 10 psi	1"hg & 1 psi
30"-0-60 psi	CD	10"hg & 10 psi	2"hg & 1 psi
30"-0-100 psi	CE	30"hg & 20 psi	5"hg & 2 psi
30"-0-150 psi	CF	30"hg & 20 psi	5"hg & 2 psi
30"-0-300 psi	CH	30"hg & 50 psi	10"hg & 5 psi
0-15 psi	B	2 psi	.20 psi
0-30 psi	C	5 psi	.50 psi
0-60 psi	D	10 psi	1 psi
0-100 psi	E	20 psi	2 psi

Range	Code	Major	Minor
0-160 psi	F	20 psi	2 psi
0-200 psi	G	40 psi	5 psi
0-300 psi	H	50 psi	5 psi
0-400 psi	I	50 psi	5 psi
0-600 psi	K	100 psi	10 psi
0-1000 psi	M	200 psi	10 psi
0-1500 psi	N	200 psi	20 psi
0-2000 psi	O	400 psi	50 psi
0-3000 psi	P	500 psi	50 psi
0-4000 psi	Q	800 psi	100 psi
0-5000 psi	R	1000 psi	100 psi
0-6000 psi	S	1000 psi	100 psi

SPAN™ Dry Steel Cased Pressure Gauge 1.5", 2.0", 2.5" and 3.5"

Performance Data

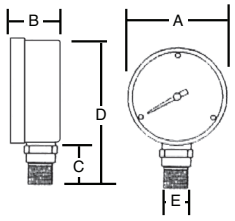
Accuracy	3-2-3% Grade B
Design	ANSI/ASME B40.1
Operating Temp.	-40 to 150F

Temperature Error

Additional error when temperature changes from reference temperature of 68F (20C) +-0.4% for every 18F (10C) rising or falling as a percentage of span.

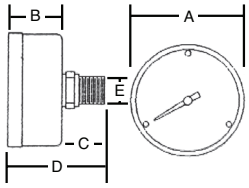
Case Styles and Dimensions

Bottom Mount Style 1



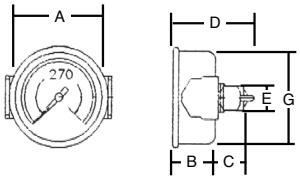
SIZE	A	B	C	D	E
1½	1.64"	.93"	.65"	2.26"	⅛" NPT
2"	2.07"	1.06"	.83"	2.83"	⅛" or ¼"
2½"	2.50"	1.13"	.88"	3.31"	¼" NPT
3½"	3.54"	1.12"	1.02"	4.49"	¼" NPT

Back Mount Style 2



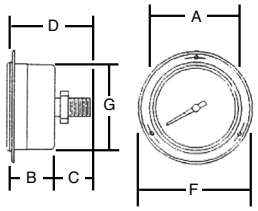
SIZE	A	B	C	D	E
1½"	1.64"	0.93"	.63"	1.51"	⅛" NPT
2"	2.07"	1.03"	.89"	1.90"	⅛" or ¼"
2½"	2.50"	1.17"	.90"	1.97"	¼" NPT
3½"	3.49"	1.22"	.83"	2.02"	¼" NPT

Panel Mount Style 3



SIZE	A	B	C	D	G	E
1½"	1.84"	1.03"	.63"	1.61"	1.61"	⅛" NPT
2"	2.31"	1.18"	.73"	1.84"	2.04"	⅛" or ¼"
2½"	2.68"	1.12"	.76"	1.87"	2.44"	¼" NPT
3½"	3.98"	1.23"	.67"	2.02"	3.59"	¼" NPT

Front Flange Style 4



SIZE	A	B	C	D	F	G	E
1½"	1.84"	1.03"	.63"	1.61"	2.23"	1.61"	⅛" NPT
2"	2.31"	1.18"	.73"	1.84"	2.81"	2.04"	⅛" or ¼"
2½"	2.68"	1.12"	.76"	1.87"	3.47"	2.44"	¼" NPT
3½"	3.98"	1.23"	.67"	2.02"	5.21"	3.59"	¼" NPT

Ordering Number for EC Series Gauge – Construct by selecting one item from each of the columns below:

Base Model	Case Style	Dry	Dial Size	Connection	Range
EC10	1 = bottom connected-plain	D	15 = 1½" Dia.	8 = ⅛" NPT male	please specify
	2 = center back connected plain		20 = 2" Dia.	4 = ¼" NPT male	from chart
	3 = back connected u-clamp panel mount		25 = 2 ½" Dia.		
	4 = back connected front flange panel mount		35 = 3 ½" Dia.		
Example: EC10	**1**		**25**	**4 –**	**E**

(EC101D-254-E)

SPAN™

Series 4200
Pressure Transducers

Overview

The **AST OEM Pressure Sensor** can be constructed as an amplified voltage output pressure transducer or 4-20mA loop powered pressure transmitter. The 4200 covers a wide variety of applications that require rugged construction, high cycle life, as well as media compatibility to deliver outstanding and long-term performance.

Krystal Bond™ Technology is the foundation of the 4200. This leading **MEMS** technology gives the flexibility to be used in virtually any OEM application. Whether measuring hydraulic pressure in a manifold or corrosive media such as sea water or hydrogen, the 4200 pressure sensor provides a thick diaphragm to maintain long-term stability and use.

Benefits

- High Strength Stainless Steel Construction and UL/cUL 508 Approved
- No Oil, Welds or Internal O-rings
- Wide Operating Temperature Range and ranges up to 10,000 PSI
- Low Static and Thermal Errors and EMI/RFI Protection
- Unparalleled Price and Performance
- Compatible with Wide Range of Liquids and Gases
- Simple Installation for Panel Builders

Applications

- Control Panels
- Hydraulic Systems
- Data Loggers
- Industrial OEM Equipment
- HVAC/R Equipment
- Pneumatics

Performance @ 25°C (77°F)

Accuracy*	< ±0.5% BFSL
Stability (1 year)	±0.25% FS, typical
Over range Protection	2X Rated Pressure
Burst Pressure	5X or 20,000 PSI (whichever is less)
Pressure Cycles	> 100 Million

* Accuracy includes non-linearity, hysteresis & non-repeatability

Environmental Data

Temperature	
Operating	-40 to 85°C (-40 to 185°F)
Storage	-40 to 100°C (-40 to 212°F)
Thermal Limits	
Compensated Range	0 to 55°C (30 to 130°F)
TC Zero	<±1.5% of FS
TC Span	<±1.5% of FS
Other	
Shock	100G, 11 msec, 1/2 sine
Vibration	10G peak, 20 to 2000 Hz.
EMI/RFI Protection	Yes
Rating	IP-66 (housing only)

Electrical Data

Output	**4-20mA**	**1-5VDC**	**0.5-4.5V Ratiometric**
Excitation	10-28VDC	10-28VDC	5VDC, regulated
Output Impedance	>10k Ohms	<100 Ohms, Nominal	<100 Ohms, Nominal
Current Consumption	20mA, typical	<10mA	<10mA
Bandwidth	(-3dB): DC to 250 Hz	(-3dB): DC to 1kHz	(-3dB): DC to 1kHz
Output Noise	-	<2mV RMS	<2mV RMS
Zero Offset	<±1% of FS	<±1% of FS	<±1% of FS
Span Tolerance	<±2% of FS	<±1.5% of FS	<±1.5% of FS
Output Load	0-800 Ohms@10-28VDC	10k Ohms, min	10K Ohms, min
Reverse Polarity Protection	Yes	Yes	Yes

SPAN™
Series 4200
Pressure Transducers

Ordering Information

4200	A	00100	P	4	D	0	000

Series Type

Configuration Interface
A= 1/4" NPT Male

Pressure Range
Insert 5-digit pressure range code*

Pressure Unit
P= PSI

Outputs
1= 0.5-4.5V ratiometric
3= 1-5V
4= 4-20mA (2 wire loop powered)

Electrical+
D= 10 ft. (3.0m)
E= Mini DIN 43650
Z= DT04 Deutsch

Wetted Material
0= 17-4PH

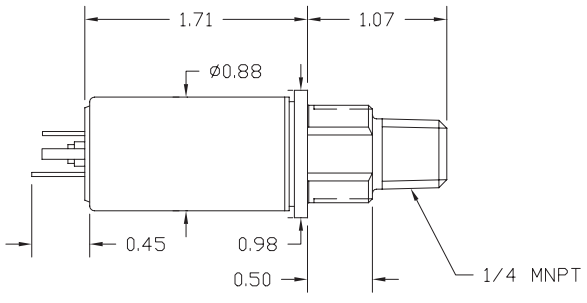
Options
Kem= KemX Barrier

Pressure Ranges*

PSIG Measurement Range	Pressure Range Code	BARG Measurement Range	Pressure Range Code
-14.7 to 25**	V0025**	-1 to 2**	V0002**
0-25	00025	0-2	00002
0-50	00050	0-5	00005
0-100	00100	0-7	00007
0-150	00150	0-10	00010
0-200	00200	0-20	00020
0-250	00250	0-35	00035
0-500	00500	0-50	00050
0-1,000	01000	0-70	00070
0-2,500	02500	0-100	00100
0-5,000	05000	0-250	00250
0-7,500	07500	0-350	00350
0-10,000	10000	0-500	00500
		0-700	00700

*Typical ranges. All ranges between 0-25 PSI and 0-10,000 PSI available.
**Compound ranges up to -14.7 to 500 PSI available. Please consult factory.

Dimensional Data




"Kem-X" option shown
(factory installation required)
Anti-Freeze / Anti-Clog elastomer barrier
Choose from Buna N, EPDM or Viton materials

Options Available

SPAN offers a complete line of transducers not shown in this catalog. Also available are compact OEM, oxygen cleaned, differential and submersible level models.

Your transducer specification can be "made to order". We welcome your inquiry.

SPAN Sub Sea Gauges

Born in the 'Oil Patch' in 1970, the **SPAN** liquid filled pressure gauge was the standard for offshore platform, ROV, panel makers and oil patch support equipment.

The **ORIGINAL** is still the **BEST!**

Case & Bezel: Zytel Nylon for Maximum Corrosion Resistance.

Size: Matching 2-1/2", 3-1/2" and 4-1/2" Dial Sizes.

Socket & Tube: Brass or Stainless Steel.

Fill: Glycerin, Fully Filled.

Accuracy: 1% Full Scale ANSI Grade 1A.

Connection: 1/4" NPT Bottom or Back. (1/2" NPT Optional)

Ranges: VAC thru 20,000 PSI. Custom Dials Available.

Styles: Stem, Center Back Mount and Panel Mounting.

'ICD' patented internal breathing diaphragm offers TOTAL liquid fill. Excellent in angled panel mounting applications. ESSENTIAL in any sub-sea or ROV deep water application.

NIST certified gauges available as option.

SPAN Sub Sea Gauges are made to order and have special construction for this application. Contact factory for specifications and ordering information.

OTHER PRODUCTS AVAILABLE

- **THERMOMETERS:** Bi-metal and remote reading dial thermometers and digital remote readouts. All sizes. OEM priced.

- **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.

- **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

Established in 1969, **SPAN**'s founder Leo Whitson began making the first American made liquid filled gauges in Plano, Texas for the "Oil Patch" industry. SPAN Instruments also pioneered the use of liquid filled pressure gauges in the fire truck industry in the 1980's. The SPAN gauge became the "standard" of the industry and was used by most fire manufacturers through-out the country.

SPAN shifted its focus in the 90's to new fields such as the growing electronic and semi-conductor marketplace. In 1998 the Thuemling Instrument Group, Inc. purchased the industrial pressure gauge portion of SPAN Instruments. The Thuemling family has been associated with **SPAN** since 1971 and had over 40 years experience in the OEM pressure and temperature gauge field. From their new facility in Waukesha, Wisconsin, over the last 13 years, Thuemling has supplied over 1 Million new generation **SPAN** gauges in the harshest environments such as construction equipment, shipbuilding, mining and process industries as well as numerous equipment manufacturers through-out North America.

Our company is built on a wealth of experience in product and application knowledge. We strive to be a resource to our customers when designing new applications or problem solving their existing ones.

An American-Made Gauge. Owned and operated by a 4th generation family company. Located in the Heart of the Midwest . . .

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

Continuous development and refinement of our products may result in specification changes without notice.

SPAN™

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