

UNLESS OTHERWISE SPECIFIED

APPROVALS	DATE

3D Instruments, LLC
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Products and Capabilities Brochure
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 SCALE

INSTRUMENTS • CONTROLS • VALVES

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Direct Drive Concept

At 3D Instruments, we believe that simple is beautiful!! Replacing the antiquated "C-shaped" bourdon tube in our pressure gauges is a unique helically wound bourdon... this is what we call the Direct Drive Difference. Our bourdon is coupled directly to the shaft pointer, which is the only moving part. Fewer moving parts translates to fewer gauge problems!! Regular recalibration is eliminated because there are no complex, wear-prone parts... like linkages and sectors. Linearity is built-in; no span adjustment is necessary – ever! Accuracy is maintained throughout the life of the gauge, which is much longer than those "old fashioned" gauges. Overpressure is not an issue... even 150% of span will not result in a calibration shift and the robust bourdon tube will withstand spikes of 500% of span without bursting. All 3D gauges use the finest materials of construction. The bourdon tube is made of Inconel, which is a highly elastic material with excellent corrosion resistance. All other wetted parts are in 316SS to meet the rigors of your most challenging applications.

Features

- Helically Wound Inconel Bourdon Tube
- All Wetted Components are 316 SS or Inconel
- Precision Anti-Friction Sapphire Shaft Bearings
- High Impact Resistant and UV Stabilized ABS case
- Needle Edged Pointer
- Human Engineered Dial
- Adjustable Zero Set-Point
- One Moving Part

User Benefits

- Lower "Cost of Ownership"
- No Recalibration Required
- Longer Field Service Life
- Greater Reading Accuracy
- Maintenance-Free Design
- Safer Operation
- Corrosion Resistant

Direct Drive Vs. Liquid Filled Gauges

In many severe applications "C-shaped" pressure gauge cases are filled with a silicone liquid to dampen their movements and increase service life. Besides adding cost to the gauge, the liquid fill causes other problems... loss of accuracy, discoloration and added maintenance difficulties. 3D applies a high viscosity silicone dampener, known as GAD, directly to the outer layers of the bourdon tube. This GAD dampens the pointer movement in severe vibration and/or pulsation based applications thereby eliminating the need for liquid fill. In most instances a standard 3D TLG "Tough Little Gauge" will easily replace a traditional liquid filled gauge. The 3D gauge will provide longer service life and lower field maintenance costs. When compared to liquid filled gauges, 3D gauges can last as much as 10x longer in severe vibration and pulsation service. Using 3D direct drive gauges will have a dramatically favorable impact on your gauge **cost of ownership!!**



SIX YEAR Warranty

On the

Direct Drive Difference

3D Instruments LLC. warrants to the original purchaser of any 3D Instruments Direct Drive pressure gauge that it will be free from defects in materials and workmanship for a period of six (6) years from the date of delivery to the purchaser. A copy of the full text of the 3D Instruments six year limited warranty is available upon request.

3D Helical Bourdon Tube Technology

The heart of the 3D pressure gauge is the helically wound Inconel bourdon tube. Inconel was chosen due to its excellent resistance to corrosion and its elasticity. There are two versions of helical bourdon tube: one being designed specifically for high pressures and the other designed for lower pressures. Each pressure range has subtle differences in bourdon tube design and manufacture. To the user the benefits of this painstaking high technology process are longer field life

with inherent accuracy and span. As an assembly in the Test or Process gauge, our coil provides lower cost of ownership and easier field use, simply because our gauges do not fail or require recalibration. In testing, some 3D gauges have been cycled over a million times with no appreciable wear or effect on accuracy. Some 3D gauges have been in constant service for more than 15 years, replacing traditional gauges which had failed in the same service within weeks.



DIRECT DRIVE PRESSURE GAUGES



ACCU-DRIVE ANALOG PROCESS Direct Drive Difference Pressure Gauges

Direct Drive pressure gauges are applicable to your most severe vibration and pulsation applications due to the unique helical bourdon tube and simplified 1 moving part design.

- **6 YEAR WARRANTY!!**
- Only 1 moving part — no liquid filled case
- Sizes — 2.5", 4.5" and 6"
- Field-adjustable process connection and flange on 4.5" size
- "Direct Drive" bourdon tube for long life
- Accuracy — 0.5% midscale, 1% overall
- Ranges — Vacuum to 20,000 psi

ACCU-DRIVE ANALOG TEST Direct Drive Difference Pressure Gauges

Direct Drive test gauges, with the unique helical bourdon tube design and green anti-glare dial for ease of reading, are designed to tackle your most challenging test and pressure calibration applications.

- **6 YEAR WARRANTY!!**
- Only 1 moving part —no liquid filled case
- Sizes — 2.5", 4.5", 6", 8.5" and 12"
- Field-adjustable process connection and flange on 4.5" size
- "Direct Drive" bourdon tube for long life
- Accuracy — 0.25% of full scale
- Ranges — Vacuum to 20,000 psi



ACCU-SWITCH Direct Drive Difference Mechanical Switch Gauges

Direct Drive Switch Gauges add a pair of mechanical contacts for low amperage switching applications to the robust 3D Direct Drive process gauge.

- **6 YEAR WARRANTY!!**
- Dual mechanical electrical contacts
- Field adjustable process connection
- Ranges from 0-30 to 0-10,000 psi
- "Direct Drive" bourdon for long life!!
- Only 1 moving part — no liquid filled case
- Robust 4.5" ABS case

SANITARY Direct Drive Difference Pressure Gauges

The 3D Sanitary gauge applies the compelling features of the Direct Drive design technology to the rigors of the applications found in the Sanitary markets.

- "Direct Drive" bourdon for long life!!
- 1.5" and 2" Tri-Clamp versions
- Electro-polished 300 Series SS case
- Only 1 moving part — no liquid filled case
- Various fill fluids
- 2.5" and 4.5" dial sizes



OEM/MINI Direct Drive Difference OEM and Mini Pressure Gauges

3D offers a wide range of OEM engineering and manufacturing capabilities directly adaptable to your specific requirements. **Call us today to discuss your needs!!**

- Large scale OEM capabilities
- Ranges to 10,000 psi
- Various case materials
- Long life "direct drive" versions
- Case sizes to 4"
- Many "mini-gauge" models



ACCU-CAL PLUS Digital Precision Test Gauges

This series of digital gauges is designed for accuracy and ease of use. This gauge has features you need in a Digital Test Gauge: intrinsically safe, min/max readings and more.

- CSA approved for Class 1, Division 2
- Ranges from vacuum to 10,000 psi
- NEMA-4 SS case
- 0.05% Full Scale accuracy on many ranges
- Temp. Compensation: 32°-122° F
- Password protected span and zero data
- Optional RS-232

DPG-6600/DPG-6700 Digital Process Gauges

This family of digital gauges provides economical solutions for high-end pressure applications. The DPG-6700 simulates a low-cost transmitter by supplying a 4-20 mA output.

- **DPG-6600** — High energy Lithium cell
- Large Digits with Alarms and Bargraph
- Accuracy - 0.25% of Full Scale
- **DPG-6700** — Dual electronic switches
- Field adjustable process connection
- Ranges from 0-50 psi to 0-10,000 psi



LOW PRESSURE Low Pressure Gauges

These gauges provide for high accuracy measurement in the low pressure region. High quality 316 SS internals and wetted parts expand the range of product application.

- Robust bellows bourdon
- Robust 4.5" ABS case
- Accuracy — 2% of Full Scale
- Ranges from 25" w.c to 400" w.c.

PTG Precision Test Gauges

The PTG is well known for stability, reliability and accuracy. This model is the working master reference gauge in many instrument workshops and test laboratories.

- Accuracy — 0.1% of Full Scale
- Green anti-glare dial for ease of readings
- Ranges from vacuum to 10,000 psi
- Inherent Temperature Compensation
- Dial Sizes — 7", 8.5", 12" and 16"



PRESSURE VOLUME CONTROLLER/HANDPUMPS Pressure Generation

3D offers three versions of portable easy-to-use pressure generation devices. Handpumps provide the perfect pressure generation solution for field based pressure calibrations.

Pressure Volume Controller

- V1R range: 0-1,000 psi
- V2R range: 0-6,000 psi

Handpumps

- Pneumatic model: 0-300 psi
- Hydraulic model: 0-3,000 psi
- Duplex model: -13.5-300 psi



Advanced Pressure Solutions from 3D Instruments

Today, process engineers and maintenance professionals rely on advanced pressure measurement instrumentation to provide for mission critical information about the processes that they are either evaluating, characterizing and/or controlling. 3D Instruments, based in Anaheim, California, has a 40 year history of engineering and manufacturing products for the pressure measurement industry and that uniquely positions us to provide you with proper solutions to your company's most challenging applications.



Accu-Star Pressure Calibrator

Throughout our history we have dealt with thousands of unique applications and have focused our efforts on developing a comprehensive line of products to satisfy those requirements. We are also committed to constant product development and refinement to meet your challenging pressure and temperature applications of the future.

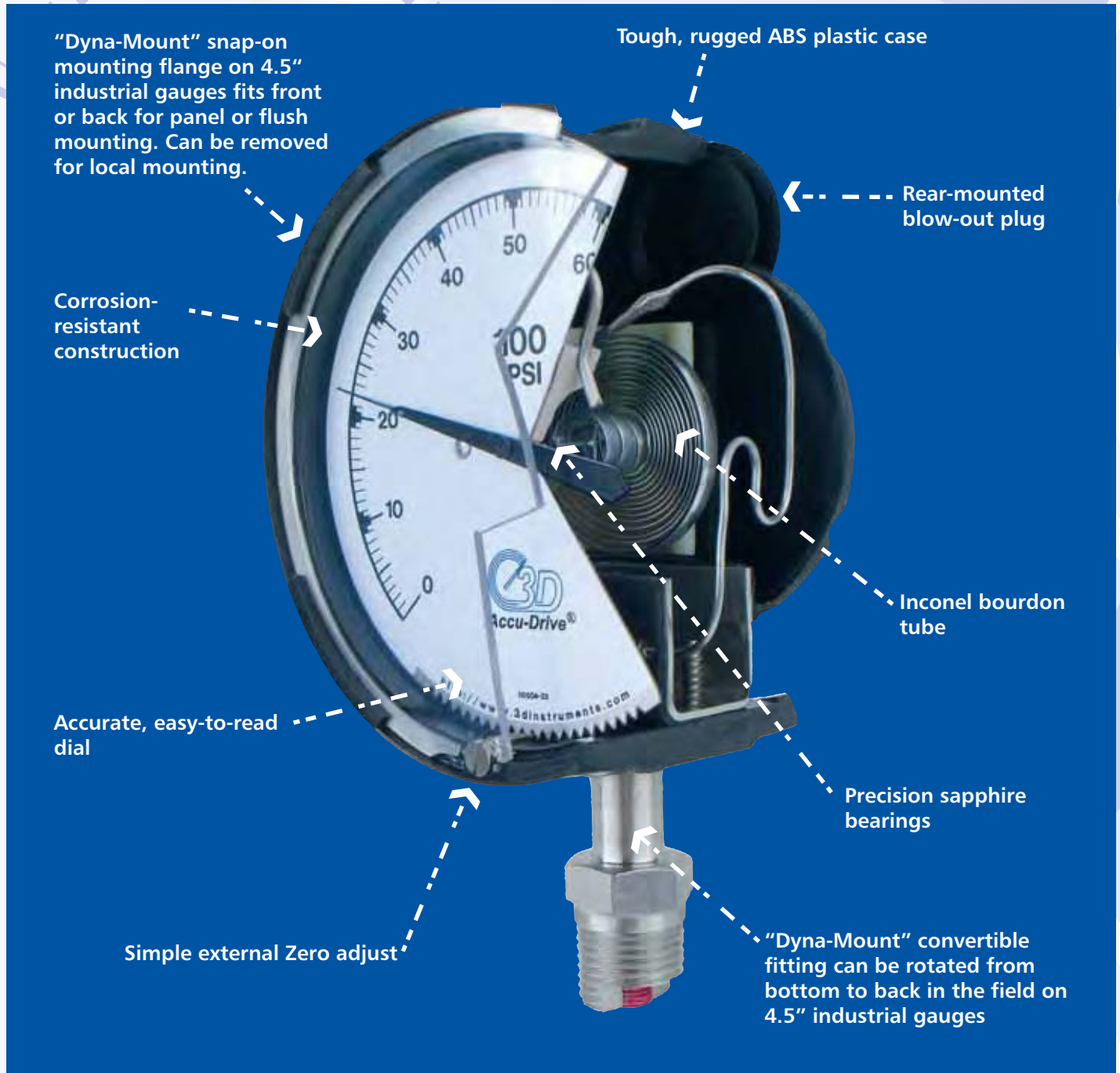
The 3D Instruments name is synonymous with high quality robust pressure instruments and gauges. All 3D products are designed and manufactured to conform to exacting performance and manufacturing standards. Our products are characterized and validated tested in accordance with stringent standards for pressure measurement and calibration and all calibrations are traceable to NIST, the National Institute of Standards and Technology. 3D offers accurate and reliable pressure gauges, calibrators, digital gauges and other products for use in

challenging applications in a variety of industries including: all of the process industries, nuclear, aerospace, oceanographic, military, food, pharmaceutical, and testing laboratories.

In addition to the standard product types outlined in this brochure, many customer-specific versions (including a variety of direct drive gauges for severe OEM applications) are available to adapt to your specific process or test/calibration applications. The following guide provides a simple overview of the 3D Instruments product line.

Please feel free to contact our local sales representative or the factory today for further information on our advanced pressure and temperature products. Additionally, we've included an ActionCard for product information requests. **3D Instruments has the right solution for you!!**

3D - The Direct Drive Difference



INSTRUMENTS, LLC
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SIERRA PRECISION



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