



Series-24 Accu-Drive Pressure Gauges

Features

- **Reliability** - “direct drive” helical bourdon tube technology featuring only one moving part ensures conformance to accuracy specifications for a period exceeding 6 years. Perfect for severe service applications....lowers on-going operational and maintenance costs!!
- **Robust Design** - solid front construction for enhanced safety
- **Safe Design** - a robust Inconel helical bourdon tube provides for an inherently safer product design in high vibration/pulsation applications.... outstanding 150% overpressure w/o calibration shift and 500% burst pressure rating
- **Rugged Enclosures** - Valox (Waterproof) and Aluminum cases are available
- **Versatility** - unique “Dyna-Mount” mounting bracketry allows for field adjustment of the process connection - from bottom to back configuration or vice versa....lowers inventory holding costs!!
- **Options** - Mounting flanges, custom scales, high temperature case, chemical/sanitary seals, internal isolators and adjustable zero set-point



Product Description

The Series-24 Accu-Drive pressure gauges incorporate the 3D Instruments signature “direct drive difference” Inconel helical bourdon system. The “direct drive” concept couples the bourdon tube directly to the shaft-pointer, thereby streamlining the design and reducing the number of moving parts from approximately 12 down to one. 30 years of industrial application have proven that this design is vastly superior to the “C shaped” bourdon tube and movement system incorporated in other pressure gauges...specially for vibration and pulsation!

In many severe service applications, the “C shaped” pressure gauge cases are filled with silicone to dampen and lubricate their movements and increase service life. Besides adding cost to the gauge, the liquid fill causes other problems....dial discoloration and added maintenance difficulties. The Series-24 “direct drive” gauges come with a dampening gel in the bearing. **This “shaft dampening” approach isolates the pointer from vibration and pulsation, thereby eliminating the requirement for liquid filling of the pressure gauge case.**

In most instances, a standard 3D Accu-Drive pressure gauge can directly replace an “old fashioned” liquid filled gauge. When compared to a liquid filled gauge, the Accu-Drive gauges have been shown to **last as much as ten times longer** in applications with extreme vibration and pulsation.

The net effect of these benefits is a dramatic lowering of your cost of ownership!! Additionally, because of a lack of gears and wear points, the Accu-Drive series of gauges maintain their rated accuracy over the entire life of the gauge without the need for costly periodic recalibration.

All Series-24 Accu-Drive gauges utilize the finest materials of construction. Gauge case materials can be either Valox or powder coated Aluminum and the bourdon tube is constructed of Inconel, a highly elastic material with excellent corrosion resistance. The wetted parts are of 316 SS. The balance of the gauge hardware is designed to minimize corrosion associated with challenging field environments.

The extremely robust bourdon tube system offers outstanding overpressure protection of 150% of full scale on pressure ranges from vacuum to 10,000 PSI. Various case styles are available with measurement accuracies ranging from 0.5% midscale for a Process gauge to 0.25% full scale for a Test gauge. Dial sizes of 2.5”, 4.5” and 6” are available.

The combination of lower cost of ownership, long service life, “no maintenance” direct drive technology, robust design platform and a wide array of pressure ranges makes the Series-24 Accu-Drive “direct drive difference” pressure gauges from 3D Instruments the ideal choice for your demanding pressure monitoring or test and calibration applications.

3D The “Direct Drive Difference” in Pressure Gauges

GENERAL SPECIFICATIONS

FEATURES

Accuracies:

Process Gauge: ± 0.5% of span at midscale and ± 1% full scale overall.

Compound ranges: ± 0.5% of span on the middle third of the pressure side, ± 1% of span on the lower & upper thirds. Vac. is ± 1% of span from 0 to -20" Hg, ± 2% of span from -21" to -30" Hg

Vacuum ranges: ± 0.5% of span from 0 to -20" Hg, ± 1% of span from -21" to -30" Hg

Test Gauge: ± 0.25% of span (w/mirror band)

Compound ranges: ± 0.25% of span accuracy on the pressure side, Vacuum is ± 0.5% of span from 0 to -20 Hg, ± 1.0% of span from -21" to -30" Hg

Vacuum ranges: Not available in this accuracy

8K and 10k PSI ranges: ± 0.25% of span upscale and ± 0.5% of span downscale

Test Gauge: ± 0.5% of span (w/mirror band)

Compound ranges: ± 0.5% of span accuracy on the pressure side, Vacuum is ± 0.5% of span from 0 to -20" Hg, ± 1% of span from -21" to -30" Hg

Vacuum ranges: ± 0.5% of span from 0 to -20" Hg, ± 1% of span from -21" to -30" Hg

Gauge accuracies includes all variations due to: friction, hysteresis and linearity

Repeatability: ± 0.025% of full scale

Sensitivity: ± 0.025% of full scale

Proof Pressure:

150% of maximum rated pressure*
* -except 10,000 PSI

Burst Pressure:

Minimum 500% of scale pressure*
* -except 10,000 PSI

Ambient Temperature:

-65° F to +190° F (-54° C to +88° C)

Service Media temperature:

-65° F to +400° F (-54° C to +204° C)

Operating Media:

Media compatible with 316SS and Inconel

Dial Sizes:

Process and Test versions - 2.5", 4.5" and 6"

Materials of Construction:

- Case - Valox or Aluminum. All case materials features field adjustable process connections.

- Bourdon Tube - Inconel

- Process Connection - 316SS

- Crystal - Polycarbonate

Flange: (optional):

Available on all dial sizes and cases other than turret...4.5"/6" models retro-fittable in the field with optional Flange kit 2.5" front or no flange models only

Zero Adjust Capability

All gauges come with a cam-adjustable pointer, which can be used to re-zero the gauge. Some of the models offer an external zero adjust screw as well:

- Test gauges - external zero adjustment is standard

- Process gauges - external zero adjustment is optional - consult factory

ORDERING INFORMATION

Example:

24504 - 33B91

Series-24 Accu-Drive Process Gauge
with black Valox case, 3000 PSI
sensor, bottom 1/4" NPT male fitting with turret mounting

① ② ③ ④ ⑤ ⑥ ⑦ ⑧
24 X X X - XX X X X XXX

Product Description:

Series-24 Accu-Drive Process and Test pressure gauges featuring "direct drive" measurement technology

① Type of Gauge:

- 1: Compound scale - combination vacuum and pressure scale - scales available from -30" Hg to 0 to 15 PSI up to 0 to 300 PSI
- 2: Vacuum Scale - only available in -30" Hg to 0 (and equivalent scales) **Note: Dial arc in only 135 degrees.**
- 5: Pressure Scale - available in ranges 0 to 30 PSI up to 0 to 10,000 PSI

② Accuracy of Gauge: (Refer above to exceptions to accuracies)

- 0: ±0.5% of span@midspan; ±1% overall
- 4: ±0.25% of span (Test Gauge with mirror band)
- 5: ±0.5% of span (Test Gauge with mirror band)

③ Size of Gauge:

- 2: 2.5" dial size (Aluminum/Valox: available in black only with either Front or No flange - Dyna-Mount fitting)
- 4: 4.5" dial size (Valox turret style: available in Black or Yellow with Dyna-Mount fitting. Powder coated aluminum: available in Black with either Front, Rear or No Flange with Dyna-Mount fitting)
- 5: 6" dial size (Powder coated aluminum: available in Black with either Front, Rear or No Flange with Dyna-Mount fitting)

④ Pressure Range Codes: (Range codes 21, 22, 23, 24, 25 and 26 can be obtained with vacuum to: 30" Hg)

- | | | | | |
|--------------------------------------|---------------|-----------------|-----------------|------------------|
| 21: -30" Hg - 0 (Vacuum) | 23: 0-100 PSI | 26: 0-300 PSI | 31: 0-1,500 PSI | 35: 0-5,000 PSI |
| 21: 0-30 PSI | 24: 0-150 PSI | 27: 0-500 PSI | 32: 0-2,000 PSI | 36: 0-6,000 PSI |
| 48: -30" Hg-0-30 PSI (compound only) | 45: 0-160 PSI | 28: 0-600 PSI | 33: 0-3,000 PSI | 37: 0-8,000 PSI |
| 22: 0-60 PSI | 25: 0-200 PSI | 29: 0-1,000 PSI | 34: 0-4,000 PSI | 38: 0-10,000 PSI |

⑤ Process Connection:

- B: 1/4" NPT male
- C: 1/2" NPT male - not available on 2 1/2" gauges (not recommended for ranges above 6000 psi)

⑥ Case Style/Fitting and Flange configuration: (For 4.5" Turret style case - use only 9 or 0 case style codes)

- | | |
|--|--|
| 1: Front Flange/Bottom Fitting (for 2.5", 4.5" or 6" dial sizes) | 2: Front Flange/Lower Back Fitting (for 2.5", 4.5" or 6" dial sizes) |
| 3: Back Flange/Bottom Fitting (4.5", or 6" dial sizes) | 4: Back Flange/Lower Back Fitting (for 4.5" or 6" dial sizes) |
| 5: No Flange/Bottom Fitting (for 2.5", 4.5" or 6" dial sizes) | 6: No Flange/Lower Back Fitting (for 2.5", 4.5" or 6" dial sizes) |
| 9: Turret Case/Bottom Fitting (for 4.5", dial size only) | 0: Turret Case/Back Fitting (for 4.5" dial size only) |

⑦ Case Color*:

- 1: Black Valox or Powder Coated Aluminum (2.5" only available in Black Alum/Valox. 4.5" Turret Case is Valox - others are Powder Coated Aluminum)
 - 4: Yellow Valox
- *Other case colors are available - may be cost or delivery penalty - consult factory

⑧ Option Codes: (Leave blank if no options are required)

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|--|--|
| ISO: Metric Scale in kPa or MPa | ISOD: Dual Scale - PSI and kPa or MPa (PSI is on outer ring) |
| ISK: Metric Scale in Kg/cm ² | ISKD: Dual Scale - PSI and Kg/cm (PSI is on outer ring) |
| ISB: Metric Scale in Bar | ISBD: Dual Scale - PSI and BAR (PSI is on outer ring) |
| GBH: Liquid O2 Clean per 3D Specification: RYY02-014 (extra charges apply) | |
| GBK: Gaseous O2 Clean per 3D Specification: RYY110-102 (extra charges apply) | |
| GCK: Stainless Steel Tag Wired to Gauge Fitting (extra charges apply) | |
| GHT: High temperature Construction (for 4.5" and 6" dial size only - extra charges apply) - increases ambient Temperature specification to 400 deg F | |

3D Instruments, LP

2900 E. White Star Ave., Anaheim, California 92806 USA

Phone: (714) 399-9200

Internet: www.3dinstruments.com E-mail: cs@3dinstruments