

## A4A Precision Pressure Gauge



### FEATURES

- $\pm 0.1\%$  F.S. accuracy – ASME B40.1, Grade 4A
- Ranges from 15-100,000 psi
- Solid front protective case
- High and low pressure limit stops
- Mirror band dial to eliminate parallax reading error
- Optional temperature compensation maintains 0.1% accuracy from  $-25$  to  $+125^\circ\text{F}$

The Ashcroft precision pressure gauge yields consistent, reliable accuracy through the use of state-of-the-art precision machining and the world's most refined bourdon tube technology. This eliminates the need for a power source and precludes the associated problems such as susceptibility to electronic line noise, power outage or potential fire hazard. In addition, this mechanical instrument is simple to operate, easy to troubleshoot, and can be readily flushed or purged to remove foreign matter or trapped gas. Accurate and reliable, the Ashcroft A4A sets a new standard for precision test gauges.

### SPECIFICATIONS

**Accuracy:**  $\pm 0.1\%$  of Span  
Includes Calibration Certificate Traceable to NIST.  
Meets requirements of MIL-STD-45662 and ASME B40.1 Grade 4A

**Repeatability:**  $\pm 0.02\%$  of Span

**Hysteresis:**  $< 0.1\%$  of Span <sup>(1)</sup>

**Sensitivity:** 0.01% of Span

**Pressure Ranges:** 0/15 psi through 0/100,000 psi

**"Unitized" Bourdon Tube Materials**

**Pressure Ranges:**

|                  |                             |
|------------------|-----------------------------|
| Beryllium Copper | 0/15 psi thru 0/40 psi      |
| 403 SS           | 0/50 psi thru 0/100,000 psi |

**Standard Pressure Inlet Type & Location:**

|  |                                 |
|--|---------------------------------|
| $\frac{1}{4}$ NPT Female – Back Connect        | 0/15 psi thru 0/10,000 psi      |
| $\frac{1}{8}$ -18 UNF-2B Female – Back Connect | Over 10,000 through 100,000 psi |

**White Dial, Knife-Edge Pointer, Mirror Ring:**

|                      |       |      |       |        |
|----------------------|-------|------|-------|--------|
| Available Dial Sizes | 6"    | 8.5" | 12"   | 16"    |
| Scale Length         | 18"   | 25"  | 31.5" | 43.25" |
| Pointer Travel       | 350°* |      |       |        |

\*Ranges over 30,000 psi have less travel

### OPTIONAL FEATURES

**"Unitized" Bourdon Tube Materials/Pressure Ranges:**

|                  |                               |
|------------------|-------------------------------|
| Beryllium Copper | 0/50 psi through 0/10,000 psi |
| 403              | 0/15 psi through 0/40 psi     |

**Optional Pressure Inlet Type and Location:**

(Specify type and location)

|   |
|---|
| $\frac{1}{4}$ NPT Female Bottom                               |
| $\frac{1}{8}$ NPT Male or Female–Back or Bottom               |
| $\frac{1}{4}$ NPT Male or Female–Back or Bottom               |
| $\frac{1}{8}$ -18 UNF-2B Female for $\frac{1}{4}$ " HP Tubing |
| MS33649-4 Female Only–Back or Bottom                          |
| MS33656-4 Male Only–Back or Bottom                            |
| MS-16142 Female Only–Back or Bottom                           |
| Mil-G-18997D Male Only–Back or Bottom                         |

**Dual Scale:** For example, psi & inches of mercury or inches of water & kPa

**Optional Pressure Types:** Absolute, Vacuum, Compound<sup>(2)</sup>

**Bimetallic Temperature Compensator:** Eliminates temperature errors from  $-25^\circ\text{F}$  to  $+125^\circ\text{F}$ <sup>(3)</sup>

**Other Engineering Units/Special Scales:** For example, tons on ram

**Slotted Link:** Protects gauge from damage due to sudden pressure release

**Peak Load Indicator:** Tracks the maximum indicated pressure measurement

**Wall Mounting Brackets:** Provides simplified wall mounted installation

<sup>(1)</sup> Hysteresis may exceed  $\pm 0.1\%$  of span for ranges equal to or greater than 75,000 psi. ( $\pm 0.3\%$  typical not to exceed  $\pm 0.4\%$  of span).

<sup>(2)</sup> Absolute gauges require manual settings of barometric pressure

<sup>(3)</sup> Recommended for precision applications where ambient temperature varies more than  $\pm 10^\circ\text{F}$

# A4A Precision Pressure Gauge

## STANDARD PRESSURE RANGES

| psi                              |                    |
|----------------------------------|--------------------|
| Standard Bourdon Tube Material** | Standard Range psi |
| BERYLLIUM<br>COPPER              | 0-15               |
|                                  | 0-20               |
|                                  | 0-25               |
|                                  | 0-30               |
|                                  | 0-40               |
| 403<br>STAINLESS<br>STEEL        | 0-50               |
|                                  | 0-60               |
|                                  | 0-75               |
|                                  | 0-100              |
|                                  | 0-150              |
|                                  | 0-200              |
|                                  | 0-250              |
|                                  | 0-300              |
|                                  | 0-400              |
|                                  | 0-500              |
|                                  | 0-600              |
|                                  | 0-750              |
|                                  | 0-1000             |
|                                  | 0-1500             |
|                                  | 0-2000             |
|                                  | 0-2500             |
|                                  | 0-3000             |
|                                  | 0-4000             |
|                                  | 0-5000             |
|                                  | 0-6000             |
|                                  | 0-7500             |
|                                  | 0-10,000           |
|                                  | 0-15,000           |
|                                  | 0-20,000           |
|                                  | 0-25,000           |
| 0-30,000                         |                    |
| 0-40,000                         |                    |
| 0-50,000                         |                    |
| 0-60,000*                        |                    |
| 0-75,000*                        |                    |
| 0-100,000*                       |                    |

\*Available in 8½", 12", 16" Dial face diameters only.  
 \*\*For optional Bourdon Tube Materials see pages 4-5 Bulletin HE-1.

| INCHES MERCURY                   |                               |
|----------------------------------|-------------------------------|
| Standard Bourdon Tube Material** | Standard Range Inches Mercury |
| BERYLLIUM<br>COPPER              | 0-30                          |
|                                  | 0-40                          |
|                                  | 0-50                          |
|                                  | 0-60                          |
|                                  | 0-75                          |
| 403<br>STAINLESS<br>STEEL        | 0-100                         |
|                                  | 0-125                         |
|                                  | 0-150                         |
|                                  | 0-200                         |
|                                  | 0-250                         |
|                                  | 0-300                         |
|                                  | 0-400                         |
|                                  | 0-500                         |
|                                  | 0-600                         |
|                                  | 0-750                         |
| 0-1000                           |                               |
| <b>VACUUM</b>                    |                               |
| BERYLLIUM<br>COPPER              | -30 to 0                      |
| <b>COMPOUND</b>                  |                               |
|                                  | <b>Vacuum-Pressure</b>        |
| BERYLLIUM<br>COPPER              | 15 in.Hg - 15 in.Hg           |
|                                  | 30 in.Hg - 30 in.Hg           |
|                                  | 30 in.Hg - 60 in.Hg           |
| 403<br>STAIN. STEEL              | 30 in.Hg - 100 in.Hg          |
| BERYLLIUM<br>COPPER              | 30 in.Hg - 150 in.Hg          |
| 403<br>STAINLESS<br>STEEL        | 30 in.Hg - 15 psi             |
|                                  | 30 in.Hg - 30 psi             |
|                                  | 30 in.Hg - 60 psi             |
|                                  | 30 in.Hg - 100 psi            |
|                                  | 30 in.Hg - 150 psi            |
|                                  | 30 in.Hg - 300 psi            |
| <b>INCHES WATER</b>              |                               |
| BERYLLIUM<br>COPPER              | 0-450                         |
|                                  | 0-500                         |
|                                  | 0-600                         |
|                                  | 0-750                         |
|                                  | 0-800                         |
|                                  | 0-1000                        |

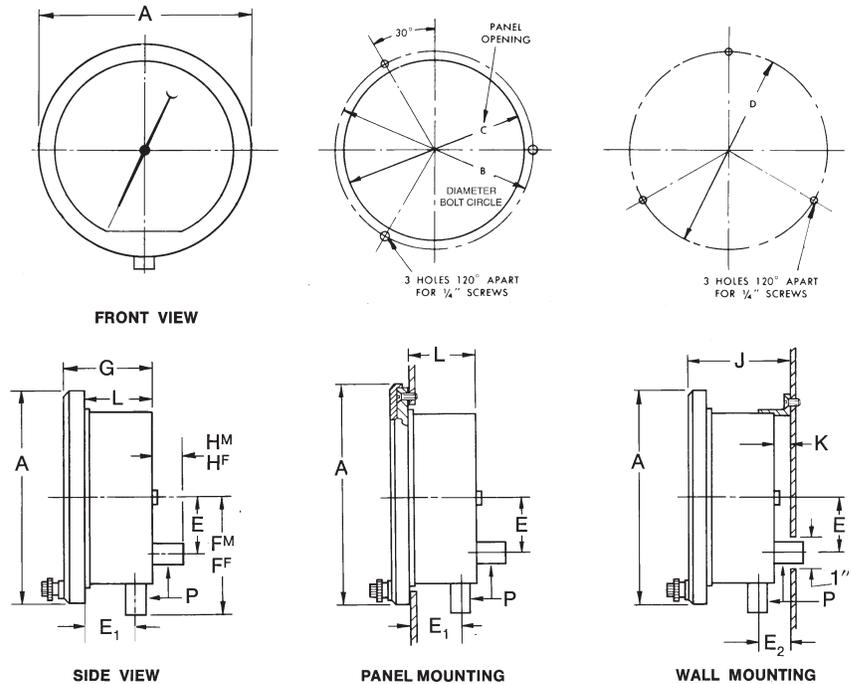
| MILLIMETERS MERCURY              |                                    |
|----------------------------------|------------------------------------|
| Standard Bourdon Tube Material** | Standard Range Millimeters Mercury |
| BERYLLIUM<br>COPPER              | 0-760                              |
|                                  | 0-1000                             |
|                                  | 0-1250                             |
|                                  | 0-1500                             |
|                                  | 0-2000                             |
|                                  | 0-2500                             |
| 403<br>STAINLESS<br>STEEL        | 0-3000                             |
|                                  | 0-4000                             |
|                                  | 0-5000                             |

| MILLIMETERS MERCURY (Cont.)      |                                    |        |     |
|----------------------------------|------------------------------------|--------|-----|
| Standard Bourdon Tube Material** | Standard Range Millimeters Mercury |        |     |
|                                  | bar                                | kPa    | mPa |
|                                  | kg/cm2                             | kp/cm2 |     |
| BERYLLIUM<br>COPPER              | 0.2-1                              | -      | -   |
|                                  | 0-1                                | 0-100  | -   |
|                                  | 0-1.6                              | 0-160  | -   |
|                                  | 0-2                                | 0-200  | -   |
|                                  | 0-2.5                              | 0-250  | -   |
|                                  | 0-3                                | 0-300  | -   |
|                                  | 0-4                                | 0-400  | -   |
|                                  | 0-5                                | 0-500  | -   |
|                                  | 0-6                                | 0-600  | -   |
|                                  | 0-7.5                              | 0-750  | -   |
| 0-10                             | 0-1000                             | 0-1    |     |
| 0-12                             | 0-1200                             | 0-1.5  |     |
| 0-16                             | 0-1600                             | 0-1.6  |     |
| 0-20                             | 0-2000                             | 0-2    |     |
| 0-25                             | 0-2600                             | 0-2.5  |     |
| 0-30                             | 0-3000                             | 0-3    |     |
| 0-40                             | 0-4000                             | 0-4    |     |
| 0-50                             | 0-5000                             | 0-5    |     |
| 0-60                             | 0-6000                             | 0-6    |     |
| 0-75                             | 0-7500                             | 0-7.5  |     |
| 0-100                            | 0-10,000                           | 0-10   |     |
| 0-125                            | -                                  | 0-12.5 |     |
| 0-160                            | -                                  | 0-16   |     |
| 0-200                            | -                                  | 0-20   |     |
| 0-250                            | -                                  | 0-25   |     |
| 0-400                            | -                                  | 0-40   |     |
| 0-500                            | -                                  | 0-50   |     |
| 0-600                            | -                                  | 0-60   |     |
| 0-750                            | -                                  | 0-75   |     |
| 0-1000                           | -                                  | 0-100  |     |
| 0-1250                           | -                                  | 0-125  |     |
| 0-1600                           | -                                  | 0-160  |     |
| 0-2500                           | -                                  | 0-250  |     |
| 0-4000                           | *-                                 | 0-400  |     |
| 0-6000                           | *-                                 | 0-600  |     |
| 0-7000                           | *-                                 | 0-700  |     |
| <b>VACUUM</b>                    |                                    |        |     |
| BERYLLIUM<br>COPPER              | -1 to 0                            | -      | -   |

\*Available in 8½", 12", 16" Dial face diameters only.

## A4A Precision Pressure Gauge

### DIMENSION DRAWINGS



| Size                            | Dim. Units | A                                | B                              | C                               | D                             | E                             | E <sub>1</sub>                 | E <sub>2</sub>                  | F <sub>M</sub>                  | F <sub>F</sub>                  | G                               | H <sub>M</sub>                | H <sub>F</sub>                 | J                               | K                              | L                               |
|---------------------------------|------------|----------------------------------|--------------------------------|---------------------------------|-------------------------------|-------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|
| 6"                              | in.        | 7 <sup>7</sup> / <sub>8</sub>    | 7                              | 6 <sup>1</sup> / <sub>2</sub>   | 7                             | 2                             | 1 <sup>7</sup> / <sub>8</sub>  | 1 <sup>1</sup> / <sub>4</sub>   | 4 <sup>9</sup> / <sub>16</sub>  | 4 <sup>1</sup> / <sub>4</sub>   | 3 <sup>1</sup> / <sub>4</sub>   | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>16</sub> | 3 <sup>27</sup> / <sub>32</sub> | 5 <sup>5</sup> / <sub>8</sub>  | 2 <sup>15</sup> / <sub>32</sub> |
|                                 | mm         | 200                              | 177.8                          | 165.1                           | 177.8                         | 50.8                          | 47.6                           | 31.8                            | 115.8                           | 107.9                           | 82.3                            | 34.9                          | 27                             | 97.6                            | 15.9                           | 62.7                            |
| 8 <sup>1</sup> / <sub>2</sub> " | in.        | 10 <sup>5</sup> / <sub>16</sub>  | 9 <sup>3</sup> / <sub>8</sub>  | 8 <sup>15</sup> / <sub>16</sub> | 9 <sup>1</sup> / <sub>2</sub> | 2                             | 1 <sup>7</sup> / <sub>8</sub>  | 1 <sup>1</sup> / <sub>4</sub>   | 5 <sup>43</sup> / <sub>64</sub> | 5 <sup>23</sup> / <sub>64</sub> | 3 <sup>1</sup> / <sub>4</sub>   | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>16</sub> | 4 <sup>1</sup> / <sub>32</sub>  | 5 <sup>5</sup> / <sub>8</sub>  | 2 <sup>21</sup> / <sub>32</sub> |
|                                 | mm         | 261.9                            | 238.1                          | 228.6                           | 241.3                         | 50.8                          | 47.6                           | 31.8                            | 144                             | 136.1                           | 82.3                            | 34.9                          | 27                             | 102.4                           | 15.9                           | 67.4                            |
| 12"                             | in.        | 13 <sup>21</sup> / <sub>32</sub> | 12 <sup>3</sup> / <sub>4</sub> | 12 <sup>3</sup> / <sub>8</sub>  | 9 <sup>1</sup> / <sub>2</sub> | 2                             | 1 <sup>7</sup> / <sub>8</sub>  | 1 <sup>1</sup> / <sub>4</sub>   | 5 <sup>43</sup> / <sub>64</sub> | 5 <sup>23</sup> / <sub>64</sub> | 3 <sup>1</sup> / <sub>4</sub>   | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>16</sub> | 4 <sup>1</sup> / <sub>32</sub>  | 5 <sup>5</sup> / <sub>8</sub>  | 2 <sup>21</sup> / <sub>32</sub> |
|                                 | mm         | 346.9                            | 329.9                          | 314.3                           | 241.3                         | 50.8                          | 47.6                           | 31.8                            | 144                             | 136.1                           | 82.3                            | 34.9                          | 27                             | 102.4                           | 15.9                           | 67.4                            |
| 16"                             | in.        | 17 <sup>23</sup> / <sub>32</sub> | 16 <sup>3</sup> / <sub>4</sub> | 16 <sup>3</sup> / <sub>8</sub>  | 9 <sup>1</sup> / <sub>2</sub> | 3 <sup>1</sup> / <sub>4</sub> | 1 <sup>5</sup> / <sub>16</sub> | 1 <sup>83</sup> / <sub>64</sub> | 5 <sup>9</sup> / <sub>16</sub>  | 5 <sup>1</sup> / <sub>4</sub>   | 3 <sup>25</sup> / <sub>64</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>16</sub> | 4 <sup>1</sup> / <sub>16</sub>  | 4 <sup>1</sup> / <sub>16</sub> | 2 <sup>21</sup> / <sub>32</sub> |
|                                 | mm         | 450.1                            | 425.2                          | 415.9                           | 241.3                         | 82.6                          | 33.3                           | 50.4                            | 141.3                           | 133.4                           | 86.1                            | 35.0                          | 27.0                           | 103.1                           | 16.3                           | 67.4                            |

|                              |  |                                    |                                    |                                     |                                     |
|------------------------------|--|------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| Inlet Pressure Connection* P | Pressure connection is illustrated in both back and bottom configurations. See page 4 for available fitting types. |                                    |                                    |                                     |                                     |
|                              | Dial Size  | 6"                                 | 8 <sup>1</sup> / <sub>2</sub> "    | 12"                                 | 16"                                 |
| Approximate Weight           | Net Weight   | 4 <sup>1</sup> / <sub>2</sub> lbs. | 7 <sup>3</sup> / <sub>4</sub> lbs. | 10 <sup>1</sup> / <sub>4</sub> lbs. | 14 <sup>1</sup> / <sub>4</sub> lbs. |
|                              | Shipping Weight  | 7 lbs.                             | 10 lbs.                            | 15 lbs.                             | 21 lbs.                             |

\*Standard Inlet Fittings: 1/4 NPT Female Back Connection for ranges up to and including 10,000 psi. AMINCO 45-11310 or AUTOCLAVE F-250-C for ranges over 10,000 psi.

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