

# BIMETAL THERMOMETERS



## Product Selection Considerations

When selecting a bimetal thermometer, consideration must be given to the following factors:

### Warning

Selection of the appropriate instrument is the sole responsibility of the user. Improper application or installation may cause product failure, resulting in personal injury or property damage. Consult ASME B40.200 for further information.

### Construction

Miljoco Bimetal Thermometers are furnished with a welded, all-stainless steel stem assembly to ensure reliability. On ranges up to 300°F, the sensing helix is silicone-dampened to ensure smooth operation, accurate readings and excellent readability.

### Measuring Range

The measuring range should be selected so that the system temperature falls at approximately the mid-point of the scale. Care should be exercised to ensure that the instrument is not exposed to temperatures greater than the high end of the measuring range.

### Process Fluid

The composition of the process fluid should be considered to ensure that it is compatible with the wetted parts of the thermometer and/or thermowell. All thermometers specified for use with corrosive or caustic fluids, or those contained under pressure, should be installed in a thermowell of the appropriate material to protect the stem of the instrument.

### Accuracy Requirements

All Miljoco Bimetal Thermometers are accurate to within  $\pm$  one scale division.

### Installation Requirements

Miljoco 3" & 5" dial size Bimetal Thermometers are provided with a 1/2" NPT connection for well mounting within a pipeline or tank. Miljoco 2" dial size Thermometers are furnished with a 1/4" NPT connection. The stem should be immersed a minimum of halfway into the pipeline. Flange mounting is also available for air ducts.

### Thermowells

A thermowell of appropriate material compatible with the process fluid should be selected to protect the stem and also allow the thermometer to be removed from the process without shutting down the system. The length should be selected to allow the appropriate immersion into the process fluid. A lagging type thermowell is available to allow for piping insulation.

### Liquid Fill

A silicone filled case (available on B5099A, B3099A) should be considered on applications where vibration is present. The fill fluid will assist in dampening the internals of the thermometer to improve readability and help prolong the life of the instrument.

### Ambient Conditions

The ambient temperature should be considered so that the materials of construction are suited to the application. Miljoco Bimetal Thermometers are hermetically sealed and are the ideal choice for use in environments where humidity or moisture are of concern.

## Specification Selections

Miljoco Bimetal Thermometers are available in a wide variety of configurations to suit almost any application. For assistance in determining the correct product to suit your application, please contact us with the following information:

Dial Size: ☐ 1" ☐ 2" ☐ 2½" ☐ 3" ☐ 5"

Temperature Range: \_\_\_\_\_ Scale: ☐ Dual °F/°C ☐ °F Only ☐ °C Only

Connection Size: ☐ None ☐ 1/4" NPT ☐ 1/2" NPT ☐ Other \_\_\_\_\_

Connection Location: ☐ Rear ☐ Lower ☐ Adjustable Angle ☐ Other \_\_\_\_\_

Stem Length: ☐ 2½" ☐ 4" ☐ 6" ☐ 9" ☐ 12" ☐ Other \_\_\_\_\_

Lens: ☐ Glass ☐ Polycarbonate ☐ Acrylic ☐ Other \_\_\_\_\_

Recalibrator: ☐ None ☐ External Recalibrator

Liquid Fill: ☐ None ☐ Glycerin ☐ Silicone ☐ Other \_\_\_\_\_

Thermowell: ☐ Brass ☐ 316SS ☐ 304SS ☐ ½" NPT ☐ ¾" NPT ☐ Standard ☐ Lagging

Additional Requirements: \_\_\_\_\_

# BIMETAL THERMOMETER



## 3" or 5" Adjustable Angle

Miljoco adjustable angle bimetal thermometers are a favorite for their versatility. The construction industry values this instrument, where on-the-job piping requires reading the instrument from a variety of angles. The connection can be rotated 360° and the face can be angled 90° for the user's convenience. These instruments are designed to withstand vibration and other rugged abuse. The hermetically-sealed, stainless-steel case prevents moisture from entering the instrument and fogging the lens, thus allowing the operator to obtain clear, accurate readings.

### General Specifications

**CASE & RING:** Hermetically sealed 300 series stainless steel

**ADJUSTABLE BRACKET:** 300 series stainless steel

**LENS:** Double strength glass standard, with polycarbonate (250°F maximum range) optional

**DIAL:** Anti-parallax, aluminum with white finish and black markings

**POINTER:** Black

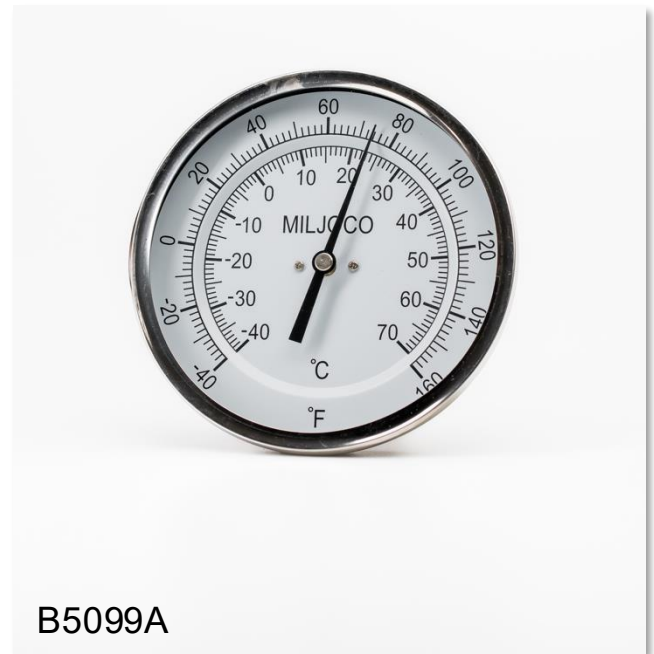
**RECALIBRATOR:** External calibrator on rear case

**CONNECTION:** 300 series stainless steel, 1/2" NPT

**STEM:** 300 series stainless steel, Ø 0.25"

**ACCURACY:** ±1 full range (ASME B40.3 Grade A)

**AMBIENT TEMPERATURE:** -40 to 250°F (-40 to 120°C).



B5099A

### Ranges

| Range Code | Range                       | °F Scale |      | °C Scale |      |
|------------|-----------------------------|----------|------|----------|------|
|            |                             | Fig.     | Div. | Fig.     | Div. |
| 39         | -40 to 160°F/-40 to 70°C    | 20°      | 2°   | 10°      | 1°   |
| 43         | 25 to 125°F/-5 to 50°C      | 10°      | 1°   | 5°       | .5°  |
| 54         | 0 to 250°F/-20 to 120°C     | 50°      | 2°   | 20°      | 2°   |
| 63         | 50 to 300°F/ 10 to 150°C    | 50°      | 2°   | 20°      | 2°   |
| 94         | 50 to 500°F/ 10 to 260°C    | 50°      | 2°   | 20°      | 2°   |
| 65         | 150 to 750°F/ 50 to 400°C   | 100°     | 10°  | 50°      | 5°   |
| 59         | 200 to 1000°F/ 100 to 530°C | 100°     | 10°  | 50°      | 5°   |

Other ranges may be available – consult factory

### Stem Lengths

| Stem Length "U" (in.) |      |      |      |      |       |
|-----------------------|------|------|------|------|-------|
| Code                  | 2    | 4    | 6    | 9    | 12    |
| "U"                   | 2.50 | 4.00 | 6.00 | 9.00 | 12.00 |

Other stem lengths available – consult factory

### To Order

**B 5 0 9 9 A**

Model Number

**4 3 - 6**

Range

Code

Stem

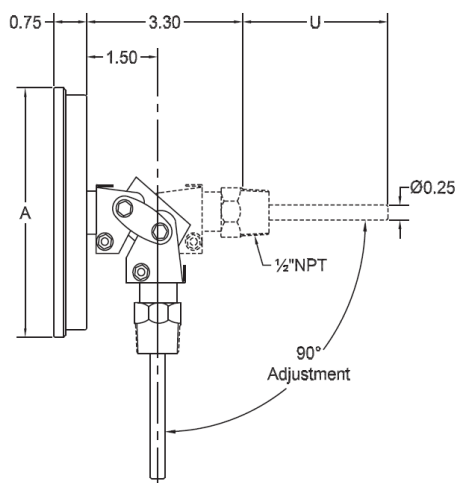
Length

### Options

☐ Polycarbonate Lens (Model B5098A or B3098A)

☐ Silicone Fill (Model BSF5099A or BSF3099A)

### Models & Dimensions (in.)



| Model  | Dial Size | Lens      | A    | B     | C    | D    |
|--------|-----------|-----------|------|-------|------|------|
| B3099A | 3"        | Glass     | 3.18 | 0.625 | 1.60 | 3.50 |
| B3098A | 3"        | Polycarb. | 3.18 | 0.625 | 1.60 | 3.50 |
| B5099A | 5"        | Glass     | 5.14 | 0.685 | 1.60 | 3.50 |
| B5098A | 5"        | Polycarb. | 5.14 | 0.685 | 1.60 | 3.50 |

# BIMETAL THERMOMETER



## 3" or 5" Rear Connection

Miljoco rear connected bimetal thermometers are economic and ideal for applications that can accept a fixed back connection. These instruments are provided with an external recalibrator on the rear of the case, for easy temperature adjustment. The hermetically-sealed, stainless-steel case prevents moisture from entering the instrument and fogging the lens, thus allowing the operator to obtain clear, accurate readings.

### General Specifications

**CASE & RING:** Hermetically sealed 300 series stainless steel

**LENS:** Double strength glass standard, with polycarbonate (250°F maximum range) optional

**DIAL:** Aluminum with white finish and black markings

**POINTER:** Black

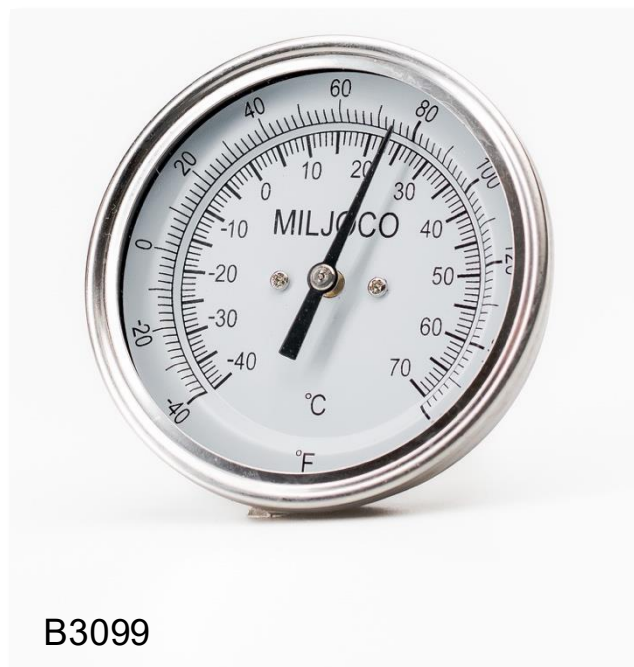
**RECALIBRATOR:** Furnished standard with external recalibrator on rear of case

**CONNECTION:** 300 series stainless steel, 1/2" NPT

**STEM:** 300 series stainless steel, Ø 0.250"

**ACCURACY:** ±1 full range (ASME B40.3 Grade A)

**AMBIENT TEMPERATURE:** -40 to 250°F (-40 to 120°C).



B3099

### Ranges

| Range Code | Range                       | °F Scale |      | °C Scale |      |
|------------|-----------------------------|----------|------|----------|------|
|            |                             | Fig.     | Div. | Fig.     | Div. |
| 39         | -40 to 160°F/-40 to 70°C    | 20°      | 2°   | 10°      | 1°   |
| 43         | 25 to 125°F/-5 to 50°C      | 10°      | 1°   | 5°       | .5°  |
| 54         | 0 to 250°F/-20 to 120°C     | 50°      | 2°   | 20°      | 2°   |
| 63         | 50 to 300°F/ 10 to 150°C    | 50°      | 2°   | 20°      | 2°   |
| 94         | 50 to 500°F/ 10 to 260°C    | 50°      | 2°   | 20°      | 2°   |
| 65         | 150 to 750°F/ 50 to 400°C   | 100°     | 10°  | 50°      | 5°   |
| 59         | 200 to 1000°F/ 100 to 530°C | 100°     | 10°  | 50°      | 5°   |

Other ranges may be available – consult factory

### Stem Lengths

| Stem Length "U" (in.) |      |      |      |      |       |
|-----------------------|------|------|------|------|-------|
| Code                  | 2    | 4    | 6    | 9    | 12    |
| "U"                   | 2.50 | 4.00 | 6.00 | 9.00 | 12.00 |

Other stem lengths available – consult factory

### To Order

**B 3 0 9 9**

Model Number

**5 4 - 4**

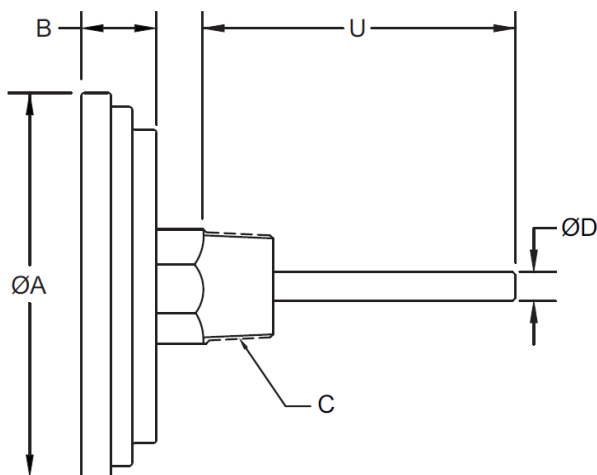
Range  
Code

Stem  
Length

### Options

☐ Polycarbonate Lens (Model B3098 or B5098)

### Dimensions (in.)



| Model | Dial Size | Lens      | A    | B     | C      | D     |
|-------|-----------|-----------|------|-------|--------|-------|
| B3099 | 3"        | Glass     | 3.18 | 0.625 | ½" NPT | 0.250 |
| B3098 | 3"        | Polycarb. | 3.18 | 0.625 | ½" NPT | 0.250 |
| B5099 | 5"        | Glass     | 5.14 | 0.685 | ½" NPT | 0.250 |
| B5098 | 5"        | Polycarb. | 5.14 | 0.685 | ½" NPT | 0.250 |

# BIMETAL THERMOMETER



## 2" Rear Connection

Miljoco 2" Rear Connected Bimetal Thermometers feature a compact design and economical price. These tamper-proof instruments are an excellent choice when an external recalibrator or pointer adjustment are not required. The hermetically-sealed, stainless-steel case prevents moisture from entering into the instrument and fogging the lens, thus allowing the operator to obtain clear, accurate readings.

### General Specifications

**CASE & RING:** Hermetically sealed 300 series stainless steel

**LENS:** Double strength glass standard, with polycarbonate (250°F maximum range) optional

**DIAL:** Aluminum, white finish and black markings

**POINTER:** Black

**RECALIBRATOR:** None

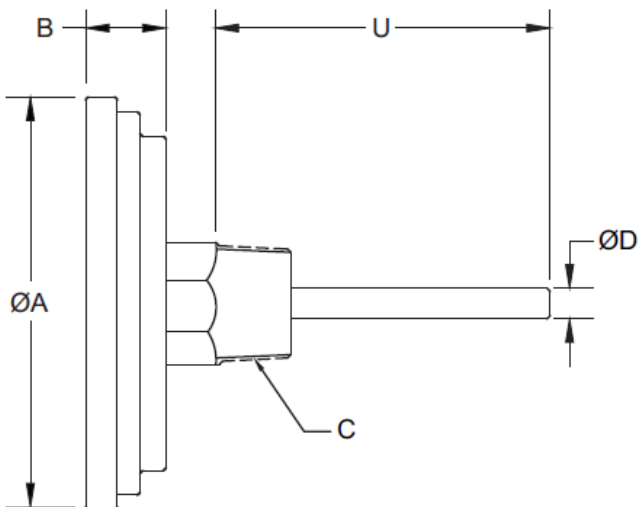
**CONNECTION:** 300 series stainless steel, 1/4" NPT

**STEM:** 300 series stainless steel, Ø 0.250".

**ACCURACY:** ±1 full range (ASME B40.3 Grade A)

**AMBIENT TEMPERATURE:** -40 to 250°F (-40 to 120°C).

### Models & Dimensions (in.)



| Model | Dial Size | Lens      | A    | B     | C        | D     |
|-------|-----------|-----------|------|-------|----------|-------|
| B2099 | 2"        | Glass     | 2.15 | 0.675 | 1/4" NPT | 0.250 |
| B2098 | 2"        | Polycarb. | 2.15 | 0.675 | 1/4" NPT | 0.250 |



B209854-4

### Ranges

| Range Code | Range                       | °F Scale |      | °C Scale |      |
|------------|-----------------------------|----------|------|----------|------|
|            |                             | Fig.     | Div. | Fig.     | Div. |
| 39         | -40 to 160°F/-40 to 70°C    | 20°      | 2°   | 10°      | 1°   |
| 43         | 25 to 125°F/-5 to 50°C      | 10°      | 1°   | 5°       | .5°  |
| 54         | 0 to 250°F/-20 to 120°C     | 50°      | 2°   | 20°      | 2°   |
| 63         | 50 to 300°F/ 10 to 150°C    | 50°      | 2°   | 20°      | 2°   |
| 94         | 50 to 500°F/ 10 to 260°C    | 50°      | 2°   | 20°      | 2°   |
| 65         | 150 to 750°F/ 50 to 400°C   | 100°     | 10°  | 50°      | 5°   |
| 59         | 200 to 1000°F/ 100 to 530°C | 100°     | 10°  | 50°      | 5°   |

Other ranges may be available – consult factory

### Stem Lengths

| Stem Length "U" (in.) |      |      |      |      |       |
|-----------------------|------|------|------|------|-------|
| Code                  | 2    | 4    | 6    | 9    | 12    |
| "U"                   | 2.50 | 4.00 | 6.00 | 9.00 | 12.00 |

Other stem lengths available – consult factory

### To Order

**B 2 0 9 8**

Model Number

**5 4 - 4**

Range  
Code

Stem  
Length

### Options

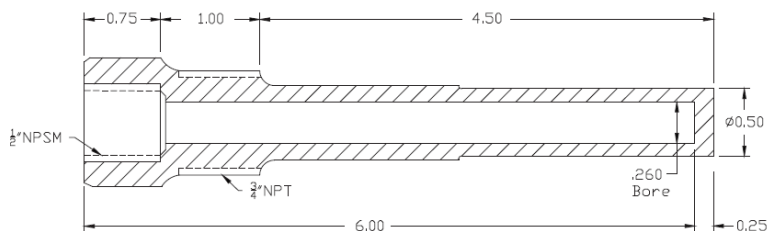
☐ Glass Lens (Model B3098 or B5098)

# BIMETAL THERMOMETER

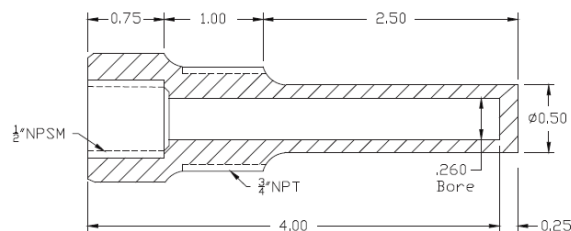


## Thermowells & Mounting Flanges

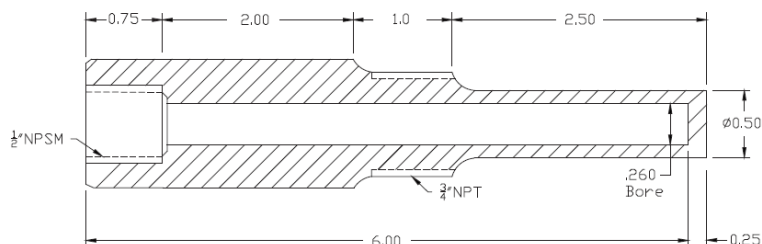
### BW06 Series



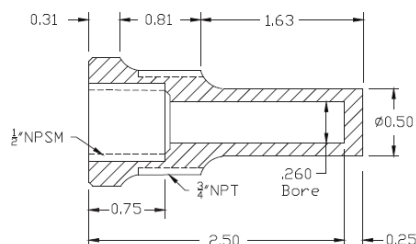
### BW04 Series



### BW62 Series



### BW02 Series



These thermowells are designed for use with Miljoco 3" & 5" Bimetal Thermometers. They are intended to separate the thermometer from the process or media being measured to allow for removal of the thermometer and protection of the thermometer stem from corrosive media. They are readily available in brass, 304 stainless, or 316 stainless steel construction to suit a wide range of applications. Other materials and designs are available on request - consult factory.

*The thermowell should be primed before thermometer installation with a heat transfer medium such as oil, graphite or paste to provide optimal accuracy and response time.*

### Models & Dimensions (in.)

| Stem Length<br>"S" | Process Conn.<br>"A" | Immersion Length<br>"U" | Lagging Ext.<br>"T" | Material |          |          |
|--------------------|----------------------|-------------------------|---------------------|----------|----------|----------|
|                    |                      |                         |                     | Brass    | 304SS    | 316SS    |
| 2 1/2"             | 3/4" NPT             | 1.63"                   | None                | BW02B    | BW02304  | BW02316  |
| 4"                 | 3/4" NPT             | 2.50"                   | None                | BW04B    | BW04304  | BW04316  |
| 6"                 | 3/4" NPT             | 4.50"                   | None                | BW06B    | BW06304  | BW06316  |
| 6"                 | 3/4" NPT             | 2.50"                   | 2.00"               | BW62B    | BW62304  | BW62316  |
| 9"                 | 3/4" NPT             | 7.50"                   | None                | BW09B    | BW09304  | BW09316  |
| 9"                 | 3/4" NPT             | 4.50"                   | 3.00"               | BW93B    | BW93304  | BW93316  |
| 12"                | 3/4" NPT             | 10.50"                  | None                | BW12B    | BW12304  | BW12316  |
| 12"                | 3/4" NPT             | 7.50"                   | 3.00"               | BW123B   | BW123304 | BW123316 |

Other stem lengths, connections sizes, and materials are available – consult factory

### DUCT MOUNTING FLANGE

| Model | Description            | Material              | Conn.    |
|-------|------------------------|-----------------------|----------|
| 65-10 | 3-Hole Mounting Flange | Zinc-Plated Cast Iron | 1/2" NPT |

### Pressure/Temperature Ratings

| Material | Temperature |          |          |          |          |          |          |
|----------|-------------|----------|----------|----------|----------|----------|----------|
|          | 70°F        | 200°F    | 400°F    | 600°F    | 800°F    | 1000°F   | 1200°F   |
| Brass    | 5000 psi    | 4200 psi | 1000 psi | -        | -        | -        | -        |
| 304SS    | 7000 psi    | 6200 psi | 5600 psi | 5400 psi | 5200 psi | 4500 psi | 1650 psi |
| 316SS    | 7000 psi    | 7000 psi | 6400 psi | 6200 psi | 6100 psi | 5100 psi | 2500 psi |

Bimetal Thermometers DS-BimetalTherm EN v1 Datasheet 0826