Type AT30 Skin Type Thermocouples for Industrial Processes & Explosive Environments

APPLICATIONS
- Surface temperature measurements for steam lines in power generation processes.
- Wall temperature measurements for reactor vessels in chemical and petrochemical processes.
- Flat surface temperature measurements in industrial processes.

DESCRIPTION
The Ashcroft AT30 skin type thermocouple assembly provides accurate surface and wall temperature measurements for applications that are located in hazardous environments. Each thermocouple assembly consists of a spring loaded thermocouple, magnesium oxide, MgO, insulated insert, a connection head, lag extension, expansion loop, and weldable sensor. The assembly may also include an optional terminal block for wiring and/or transmitters.

Thermocouple assemblies are manufactured to either to IEC 60584-2 or ANSI MC 96.1.

SPECIFICATIONS
1. Ashcroft Series: AT30
2. Insert Stem Diameter:
   - 6 mm, 8mm, 3/8"
3. Stem Length:
   - Minimum: 0.05 m/2 in.
   - Maximum: 100 m/3937 in.
4. Sensor Type & Measuring Range:
   - Type J: -40 to +750°C
   - Type K: -200 to +1100°C
5. Wiring Configuration
   - AT30 Thermocouples
     - 2 wire
5. Optional Approvals (pending)
   - EN/IEC 60079-1
     - ATEX: Ex d IIC T6 Gb
     - IECEx: Ex d IIC T6 Ga
   - EN/IEC 60079-11
     - ATEX: Ex ia IIC T6 Ga
     - IECEx: Ex ia IIC T6 Ga
7. Accuracy Class:
   - (IEC 60584-2)
     - Class 1: ±1.5°C or ±0.0040*|t| (1)
     - Class 2: ±2.5°C or ±0.0075*|t| (1)
     - Class 3: N/A
   - (ANSI MC 96.1)
     - Standard: ±2.2°C or ±0.0075*|t| (1)
     - Special: ±1.1°C or ±0.0040*|t| (1)

(1) Absolute temperature in °C
### Type AT30 Thermocouples Part Number Coding

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td><strong>1. TYPE</strong></td>
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</table>
| 1 | Standard  
| 3 | Ex ia IIC T6 Ga  
| D | Ex d IIC T6 Gb  
| **2. STEM DIAMETER (e)** |  
| 3 | 3 mm  
| 8 | 8 mm  
| U | 3/8"  
| **3. SENSOR** |  
| J | Type J, (–40 to +750°C)  
| K | Type K, (–200 to +1100°C)  
| **4. ACCURACY CLASS** |  
| 1 | Class 1, IEC 60584-2  
| 2 | Class 2, IEC 60584-2  
| 3 | Class 3, IEC 60584-2  
| A | Standard, ANSI MC 96.1  
| B | Special, ANSI MC 96.1  
| **5. SENSING ELEMENT** |  
| U1 | Insulated with weld pad 1” x 1”  
| V2 | Insulated with weld pad 1” x 2”  
| W1 | Grounded with curved knife edge (diameter D)  
| Y1 | Grounded with flat knife edge  
| **6. STEM MATERIAL** |  
| 1 | AISI 316 SS  
| 3 | Inconel 600  
| 4 | AISI 466 SS  
| **7. HEAD TYPE** |  
| B | DIN B, Aluminum Alloy, IP66  
| D | BUZ, Aluminum Alloy, IP68  
| E | BUZH, Aluminum Alloy, IP68  
| F | Ex d, Aluminum Alloy, IP66  
| G | SCC, 316 SS, IP67  
| N | SCCA, Aluminum Alloy, IP67  

| **8. HEAD MOUNTING CONNECTION** |  
| 1 | 1/2 NPT Female  
| 9 | 3/4 NPT Female  
| **9. CABLE GLAND** |  
| D | Pg 16 with cable gland  
| J | 1/2 NPT, without cable gland  
| N | 3/4 NPT, without cable gland  
| L | 1/2 NPT, with Ex d cable gland for non-shielded cable  
| M | 1/2 NPT, with Ex d cable gland for shielded cable  
| R | M20 x 1.5 with cable gland  
| **10. LENGTH TO EXPANSION LOOP (B)** |  
| B | (min. 0.2- max. 45 m) M  
| | (min. 7.8- max. 1771 in.) E  
| **11. LENGTH TO WELD PAD (A)** |  
| A | (min. 0.05- max. 10 m) M  
| | (min. 2- max. 393 in.) E  
| **12. KNIFE EDGE DIAMETER (D)*** |  
| D | (min. 0.05- max. 0.254 m) M  
| | (min. 2- max. 10 in.) E  

* Diameter of pipe AT30 will be welded to.  

| **13. LAG EXTENSION TYPE** |  
| W | Nipple, 1/2 NPT male, ANSI 316  
| T = 0.10 m  
| U | Nipple-Union-Nipple, 1/2 NPT male, ANSI 316  
| T = 0.12 m  
| N | Nipple, 3/4 NPT male, ANSI 316  
| T = 0.10 m  
| L | Nipple-Union-Nipple, 3/4 NPT male, ANSI 316  
| T = 0.12 m  
| 0 | No lag extension T = 0.0 m  

| **14. FIXING CLAMPS** |  
| 00 | None  
| K | 1 clamp  
| L | 2 clamps  
| M | 3 clamps  

| **15. PROCESS CONNECTION** |  
| 00 | None  
| VZ | Threaded 1/2 NPT  
| 2E | Flanged, ANSI 1,150 lbs  
| 2F | Flanged, ANSI 1,300 lbs  
| 2G | Flanged, ANSI 1,600 lbs  
| 2H | Flanged, ANSI 1.5’ 150 lbs  
| 2J | Flanged, ANSI 1.5’ 300 lbs  
| 2K | Flanged, ANSI 1.5’ 600 lbs  
| 2L | Flanged, ANSI 2’ 150 lbs  
| 2M | Flanged, ANSI 2’ 300 lbs  
| 2N | Flanged, ANSI 2’ 600 lbs  

| **16. SENSOR MOUNTING BLOCK** |  
| 0 | Ceramic terminal block  
| 1 | Transmitter  
| 2 | Ceramic terminal with transmitter  
| 3 | No terminal block with flying leads  

| **17. APPROVALS** |  
| G | None  
| A | ATEX  
| X | IECEx  

| **18. CALIBRATION REPORT** |  
| 00 | None  
| 3P | 3 point report for single sensor  
| 5P | 5 point report for single sensor  
| 3D | 3 point report for double sensor  
| 5D | 5 point report for double sensor  

| **19. OPTIONS** |  
| NH | Metal tag  

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**Model Type (AT30)**  
**Type** (1)  
**Stem Diameter** (e)  
**Sensor** (J)  
**Accuracy Class** (2)  
**Sensing Element** (U)  
**Sensing Unit** (V)  
**Material** (S)  
**Head Type** (G)  
**Head Mounting** (H)  
**Cable Diameter** (D)  
**Length to Expansion Loop** (B)  
**Length to Weld Pad** (A)  
**Knob Edge Diameter** (D)  
**Lag Extension Type** (V)  
**Fixing Clamps** (L)  
**Process Connection** (D)  
**Sensor Mounting Block** (F)  
**Approvals** (X)  
** Calibration Report** (D)  
**Options** (O)  

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Type AT30 Thermocouples Part Number Coding

Dimension Drawing

- **e** = Stem Diameter
- **T** = Lag Extension Length
- **S** = Nominal Length
- **B** = Length to Expansion Loop
- **A** = Length to Weld Pad