

## 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  
Class 2  
Class 3  
**(ANSI MC 96.1)**  
Standard  
Special

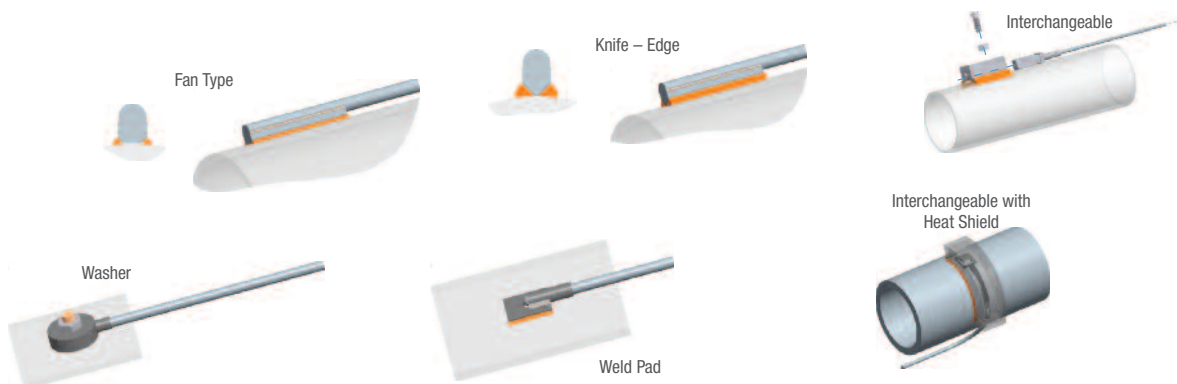
#### AT30 Thermocouples (IEC 60584-2)

	Type J	Type K
Class 1	±1.5°C or ±0.0040* <i>t</i> <sup>(1)</sup>	±1.5°C or ±0.0040* <i>t</i> <sup>(1)</sup>
Class 2	±2.5°C or ±0.0075* <i>t</i> <sup>(1)</sup>	±2.5°C or ±0.0075* <i>t</i> <sup>(1)</sup>
Class 3	N/A	±2.5°C or ±0.0040* <i>t</i> <sup>(1)</sup>

#### AT30 Thermocouples (ANSI MC 96.1)

	Type J	Type K
Standard	±2.2°C or ±0.0075* <i>t</i> <sup>(1)</sup>	±2.2°C or ±0.0075* <i>t</i> <sup>(1)</sup>
Special	±1.1°C or ±0.0040* <i>t</i> <sup>(1)</sup>	±1.1°C or ±0.0040* <i>t</i> <sup>(1)</sup>

(1) Absolute temperature in °C



## Type AT30 Thermocouples Part Number Coding

### 1. TYPE

ITEM	DESCRIPTION
1	Standard
3	Ex ia IIC T6 Ga
D	Ex d IIC T6 Gb

### 2. STEM DIAMETER (e)

ITEM	DESCRIPTION
3	3 mm
8	8 mm
U	3/8"

### 3. SENSOR

ITEM	DESCRIPTION
J	Type J, (-40 to +750°C)
K	Type K, (-200 to +1100°C)

### 4. ACCURACY CLASS

ITEM	DESCRIPTION
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

ITEM	DESCRIPTION
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

ITEM	DESCRIPTION
1	AISI 316 SS
3	Inconel 600
4	AISI 466 SS

### 7. HEAD TYPE

ITEM	DESCRIPTION
B	DIN B, Aluminum Alloy, IP66
D	BUZ, Aluminum Alloy, IP68
E	BUZH, Aluminum Alloy, IP68
F	Ex d, Aluminum Alloy, IP66
G	SCCI, 316 SS, IP67
N	SCCA, Aluminum Alloy, IP67

### 8. HEAD MOUNTING CONNECTION

ITEM	DESCRIPTION
2	1/2 NPT Female
9	3/4 NPT Female

### 9. CABLE GLAND

ITEM	DESCRIPTION
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)

ITEM	DESCRIPTION
B	(min. 0.2-max. 45 m) M (min. 7.9-max. 1771 in.) E

### 11. LENGTH TO WELD PAD (A)

ITEM	DESCRIPTION
A	(min. 0.05- max. 10 m) M (min. 2-max. 393 in.) E

### 12. KNIFE EDGE DIAMETER (D)\*

ITEM	DESCRIPTION
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

ITEM	DESCRIPTION
W	Nipple, 1/2 NPT male, AISI 316 T = 0.10 m
U	Nipple-Union-Nipple, 1/2 NPT male, AISI 316, T = 0.12 m
N	Nipple, 3/4 NPT male, AISI 316 T = 0.10 m
L	Nipple-Union-Nipple, 3/4 NPT male, AISI 316, T = 0.12 m
0	No lag extension T = 0.0 m

### 14. FIXING CLAMPS

ITEM	DESCRIPTION
00	None
K	1 clamp
L	2 clamps
M	3 clamps

### 15. PROCESS CONNECTION

ITEM	DESCRIPTION
00	None
VZ	Threaded 1 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

ITEM	DESCRIPTION
0	Ceramic terminal block
1	Transmitter
2	Ceramic terminal with transmitter
3	No terminal block with flying leads

### 17. APPROVALS

ITEM	DESCRIPTION
0	None
A	ATEX
X	IECEx

### 18. CALIBRATION REPORT

ITEM	DESCRIPTION
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

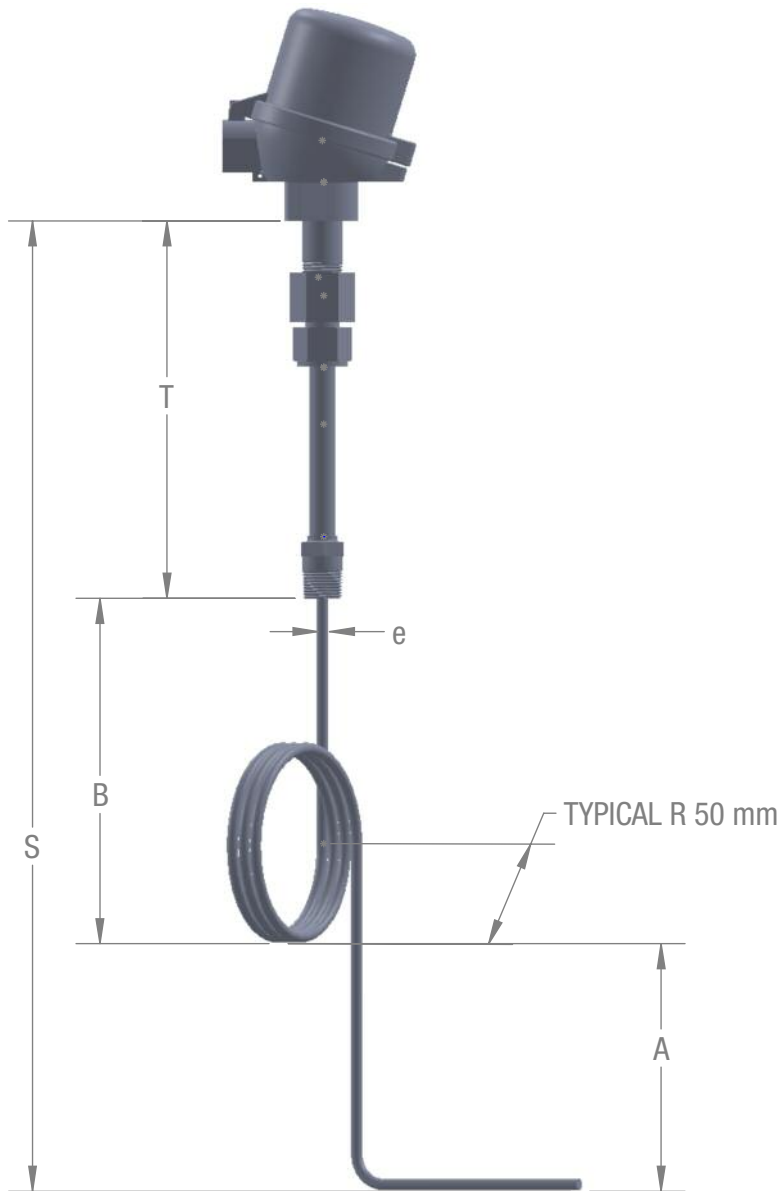
### 19. OPTIONS

ITEM	DESCRIPTION
NH	Metal tag

AT30	1	6	J	1	U1	1	B	2	M	B8E	A12E	D0E	V	00	00	0	0	00	00
Model Type (AT30)	Type (1) (3) (D)	Stem Diameter (2) (6) (8) (U)	Sensor (J) (K)	Accuracy Class (1) (2) (3) (A) (B)	Sensing Element (U1) (V2) (W1) (Y1)	Stem Material (1) (3) (4)	Head Type (B) (D) (E) (F) (G) (N)	Head Mounting Connection (2) (9)	Cable Gland (D) (J) (N) (L) (M) (R)	Length to Expansion Loop (B)	Length to Weld Pad (A)	Knife Edge Diameter (D)	Lag Extension Type (V) (W) (T) (M) (N) (K) (L) (00)	Fixing Clamps (00)	Process Connection (00), (VZ) (2E), (2F) (2G), (2H) (2J), (2K) (2L), (2M) (2N)	Sensor Mounting Block (0) (1) (2) (3)	Approvals (0) (A) (X)	Calibration Report (00) (3P) (5P) (3D) (5D)	Options (NH)

## 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

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