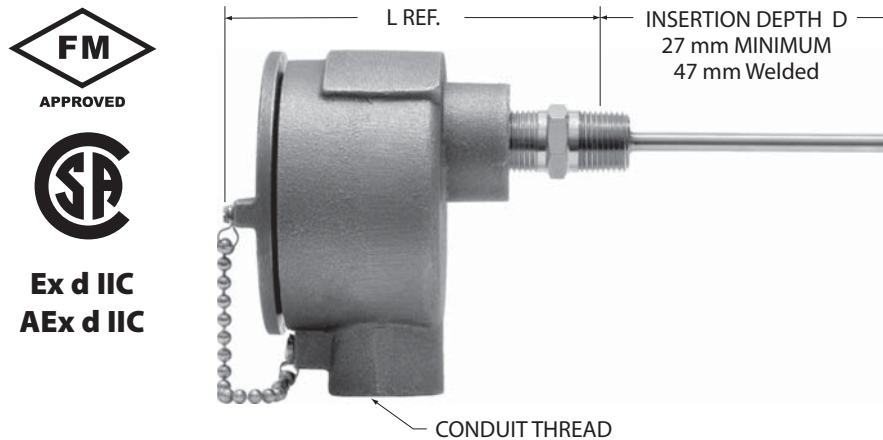


# Explosionproof/Flameproof RTD Sensors



## Overview

Explosionproof and flameproof rating for hazardous areas where accurate temperature sensing is critical.

- Tip sensitive, all stainless or MgO filled probes available
- Hazardous area rated
- High temp process temperature options (600°C) available. Contact Minco for more information.

## Specifications

### Temperature range:

- 50 to 260°C (-58 to 500°F)
- 50 to 600°C (-58 to 1112°F) for MgO Probes

### Material:

Probe: Stainless steel (tip sensitive models have copper alloy tip).  
Holder: Stainless steel.  
Connection head:  
Copper free aluminum alloy (CH104)  
316 stainless steel (CH106).

**Pressure rating:** See table on next page.

**Insulation resistance:** 10 megohms min. at 100 VDC, leads to case.

**Connection:** Terminal block for wires to 14 AWG.

**Time constant:** Typical value in moving water.

Tip sensitive:

- Single element 1.5 seconds.
- Dual element 5 seconds.

All stainless and MgO filled: 10 seconds.

## Explosionproof and flameproof ratings:

National and Canadian Electrical Code:

- Class I, Divisions 1 and 2, Groups B, C, and D,
- Class II, Groups E, F, and G,
- T6 (Ta = 40°C),
- T2 (Ta = 260°C). Ta limited to 160°C for CSA Class II locations.

National Electrical Code (Article 505):

- Class I, Zones 1 and 2, AEx d IIC,
- T6 (Ta = 40°C), T2 (Ta = 260°C).

Canadian Electrical Code (IEC 60079):

- Zones 1 and 2, Ex d IIC,
- T6 (Ta = 40°C), T2 (Ta = 260°C).

## Hazardous area requirements

For more information on how to classify a hazardous area, methods of protection, and the various standards and agencies (including FM, CSA, IECEx and ATEX), visit [www.minco.com](http://www.minco.com).

▼ = **STANDARD OPTIONS**  
Specifications subject to change

## Assembly numbers

Probe diameters	0.215" (5.5 mm)		0.236" (6.0 mm)		0.250" (6.4 mm)	
Number of elements	Single	Dual	Single	Dual	Single	Dual
Tip-sensitive	AS760	AS761	AS700	AS701	▼AS720	▼AS721
All stainless	AS762	AS763	AS702	AS703	AS722	AS723
MgO filled (platinum only)			AS704		AS724	AS725

## Connection head and fitting options

CH104: Aluminum IP65, Type 3 and 4.

CH106: 316 stainless steel IP66, Type 3, 4, and 4X.

Fitting	Process thread	Pressure Rating	L REF.	Code	Minimum Insertion Depth (mm)
Welded	1/2 - 14 NPT	200 psi (13.8 bar)	4.4" (112 mm)	0*	47
Welded	G 1/2	200 psi (13.8 bar)	4.2" (107 mm)	2*	47
Adjustable spring-loaded	1/2 - 14 NPT	50 psi (3.4 bar)	5.7" (144 mm)	▼4	27
Adjustable spring-loaded	G 1/2	50 psi (3.4 bar)	5.7" (144 mm)	6	27
Fixed spring-loaded	1/2 - 14 NPT	None	4.4" (112 mm)	8**	27

\* 0.250 diameter only for all stainless and MgO probes (not available in tip-sensitive, 0.215" diameter or 0.236" diameter probes).

\*\* 0.236 and 0.250 diameters only for fixed spring-loaded fittings.

Note: Connection head dimensions are found on pages 3-2 to 3-3.

## Sensing elements

Element	Code	Code	
		Single	Dual
Platinum (0.00392 TCR) 100 Ω ±0.5% at 0°C	PA	PAPA	
Platinum (0.00385 TCR) 100 Ω ±0.1% at 0°C (Meets EN60751, Class B)	▼PD	PDPD	
Platinum (0.00385 TCR) 100 Ω ±0.06% at 0°C (Meets EN60751, Class A)	PM	PMPM	
Platinum (0.00385 TCR) 100 Ω ±0.5% at 0°C	PE	PEPE	
Platinum (0.00375 TCR) 1000 Ω ±0.12% at 0°C	PW	PWPW	
Copper (0.00427 TCR) (dual) 10 Ω ±0.2% at 25°C 10 Ω ±0.5% at 25°C	CA		
		CCCC	
Nickel (0.00672 TCR) 120 Ω ±0.5% at 0°C	NA	NANA	
Nickel (0.00618 TCR) 100 Ω ±0.22% at 0°C	NB	NBNB	

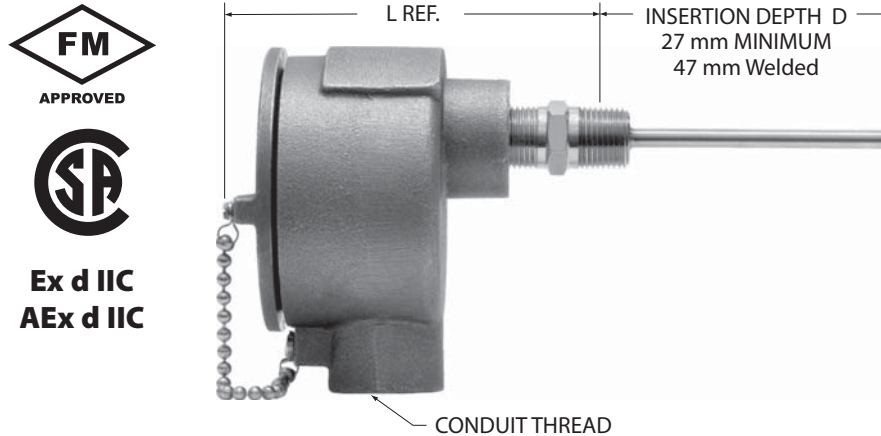
## Specification and order options

AS720	Assembly number from table
4	Fitting from table
PD	Sensing element from table
100	Insertion depth D (mm): See table for minimums ▼:76, 100, 127, 150, 178, 200, 229, 250, 279, 305, 350, 406, 457, 500, 610
Z	Leads per sensing element: Y = 2 leads (n/a for copper) ▼Z = 3 leads X = 4 leads
3	Conduit thread: ▼3 = 1/2 - 14 NPT 4 = 3/4 - 14 NPT
A	Connection head material: A = Aluminum S = 316 Stainless Steel
0	Extension: 0 = No Extension 2 = 1/2 NPT Nipple (2")/Union (2.6" length adder) 3 = 1/2 NPT Nipple (3")/Union (3.6" length adder) 4 = 1/2 NPT Nipple (4")/Union (4.6" length adder) 6 = 1/2 NPT Nipple (6")/Union (6.6" length adder)
X0X	No Thermowell
AS7204PD100Z3A0X0X= Sample part number	

▼ = STANDARD OPTIONS

Specifications subject to change

# Explosionproof/Flameproof Thermocouple Sensors



## Overview

Explosionproof and flameproof rating for hazardous areas where accurate temperature sensing is critical.

- Tip sensitive, MgO filled probes available
- Hazardous area rated

## Specifications

### Temperature range:

- 50 to 260°C (-58 to 500°F)
- 50 to 600°C (-58 to 1112°F) for MgO Probes

### Material:

Probe: Stainless steel (tip sensitive models have copper alloy tip).  
Holder: Stainless steel.  
Connection head:

- Copper free aluminum alloy (CH104)
- 316 stainless steel (CH106).

**Pressure rating:** See table on next page.

**Insulation resistance:** 10 megohms min. at 100 VDC, leads to case. Ungrounded junctions only.

**Connection:** Terminal block for wires to 14 AWG.

**Time constant:** Typical value in moving water.

Tip sensitive:

- Grounded 1.5 seconds.
- Ungrounded 7 seconds.

MgO filled:

- Grounded: 1.5 seconds.
- Ungrounded: 5.0 seconds.

## Explosionproof and flameproof ratings:

National and Canadian Electrical Code:

- Class I, Divisions 1 and 2, Groups B, C, and D,
- Class II, Groups E, F, and G,
- T6 (Ta = 40°C),
- T2 (Ta = 260°C). Ta limited to 160°C for CSA Class II locations.

National Electrical Code (Article 505):

- Class I, Zones 1 and 2, AEx d IIC,
- T6 (Ta = 40°C), T2 (Ta = 260°C).

Canadian Electrical Code (IEC 60079):

- Zones 1 and 2, Ex d IIC,
- T6 (Ta = 40°C), T2 (Ta = 260°C).

## Temperature Transmitters

Minco's Temptran™ RTD transmitters provide a 4 to 20 mA signal or HART® Protocol that can be sent over long distances with a simple 2-wire system. See Section 4 for complete temperature transmitter specifications.

Contact Minco if transmitter is required

### Hazardous area requirements

For more information on how to classify a hazardous area, methods of protection, and the various standards and agencies (including FM, CSA, IECEx and ATEX), visit [www.minco.com](http://www.minco.com).

▼ = STANDARD OPTIONS  
Specifications subject to change

## Connection head and fitting options

CH104: Aluminum IP65, Type 3 and 4.

CH106: 316 stainless steel IP66, Type 3, 4, and 4X.

Fitting	Process thread	Pressure Rating	L REF.	Code	Minimum Insertion Depth (mm)
Welded	1/2 - 14 NPT	200 psi (13.8 bar)	4.4" (112 mm)	0*	47
Welded	G 1/2	200 psi (13.8 bar)	4.2" (107 mm)	2*	47
Adjustable spring-loaded	1/2 - 14 NPT	50 psi (3.4 bar)	5.7" (144 mm)	4	27
Adjustable spring-loaded	G 1/2	50 psi (3.4 bar)	5.7" (144 mm)	6	27
Fixed spring-loaded	1/2 - 14 NPT	None	4.4" (112 mm)	8**	27

\* Welded fitting only available with 0.250 MgO filled probes [minimum insertion (2.5" 63mm)]

\*\* 0.236 and 0.250 diameters only for fixed spring-loaded fittings.

Note: Connection head dimensions are found on pages 3-2 to 3-3.

## Assembly numbers

Probe diameters	0.215" (5.5 mm)		0.236" (6.0 mm)		0.250" (6.4 mm)	
	Single	Dual	Single	Dual	Single	Dual
Number of elements						
Tip-sensitive	AS766	AS767	AS706	AS707	AS726	AS727
MgO filled			AS708	AS709	AS728	AS729

## Specification and order options

AS706	Assembly number from table
4	Fitting from table
E	Junction type from table
U	Junction Grounding: G = Grounded U = Ungrounded
100	Insertion depth D (mm): See table for minimums
P	
3	Conduit thread: 3 = 1/2 - 14 NPT 4 = 3/4 - 14 NPT
A	Connection head material: A = Aluminum S = 316 Stainless Steel
0	Extension: 0 = No Extension 2 = 1/2 NPT Nipple (2")/Union (2.6" length adder) 3 = 1/2 NPT Nipple (3")/Union (3.6" length adder) 4 = 1/2 NPT Nipple (4")/Union (4.6" length adder) 6 = 1/2 NPT Nipple (6")/Union (6.6" length adder)
X0X	No Thermowell
AS7064EU100P3A0X0X = Sample part number	

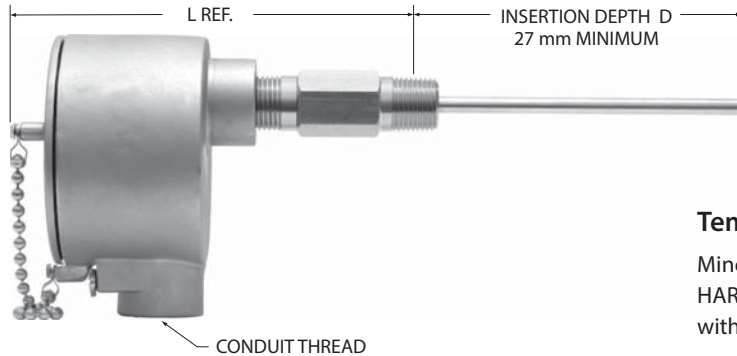
## Junction types

Thermocouple Junction	
Chromel-Constantan	E
Iron-Constantan	J
Chromel-Alumel	K
Copper-Constantan	T

▼ = STANDARD OPTIONS

Specifications subject to change

# Explosionproof/Flameproof RTDs with Transmitters



**Ex d IIC**  
**AEx d IIC**

## Overview

- Tip sensitive, all stainless or MgO filled RTD probe
- Temptran™ transmitter for long signal path

## Specifications

### Temperature range:

- 50 to 260°C (-58 to 500°F)
- 50 to 600°C (-58 to 1112°F) for MgO Probes

### Material:

- Probe: Stainless steel (tip sensitive models have copper alloy tip).
- Holder: Stainless steel.
- Connection head:
  - Copper free aluminum alloy (CH104)
  - 316 stainless steel (CH106).

**Pressure rating:** See table on next page.

**Insulation resistance:** 10 megohms min. at 100 VDC, leads to case.

**Connection:** Terminal block for wires to 14 AWG.

**Time constant:** Typical value in moving water.

Tip sensitive:

- Single element 1.5 seconds.
- Dual element 5 seconds.

All stainless and MgO filled: 10 seconds.

### Explosionproof and flameproof ratings:

- National and Canadian Electrical Code:
  - Class I, Divisions 1 and 2, Groups B, C, and D,
  - Class II, Groups E, F, and G,
  - T6 (Ta = 40°C),
  - T2 (Ta = 260°C). Ta limited to 160°C for CSA Class II locations.
- National Electrical Code (Article 505):
  - Class I, Zones 1 and 2, AEx d IIC,
  - T6 (Ta = 40°C), T2 (Ta = 260°C).
- Canadian Electrical Code (IEC 60079):
  - Zones 1 and 2, Ex d IIC,
  - T6 (Ta = 40°C), T2 (Ta = 260°C).

## Temperature Transmitters

Minco's Temptran™ RTD transmitters provide a 4 to 20 mA or HART® Protocol signal that can be sent over long distances with a simple 2-wire system.

### Leadwires:

- 2-lead RTD: TT211, TT520, TT521
- 3-lead RTD: TT520, TT521
- 4-lead RTD: TT520, TT521

**Physical:** Epoxy potted for moisture resistance.

See Section 4 for complete temperature transmitter specifications.

### Hazardous area requirements

For more information on how to classify a hazardous area, methods of protection, and the various standards and agencies (including FM, CSA, IECEx and ATEX), visit [www.minco.com](http://www.minco.com).

## Assembly numbers

Probe diameters	0.215" (5.5 mm)	0.236" (6.0 mm)	0.250" (6.4 mm)
Tip-sensitive	AS760	AS700	AS720
All stainless	AS762	AS702	AS722
MgO filled		AS704	AS724

## Sensing elements

Element		Code: Single
Platinum (0.00392 TCR)	100 Ω ±0.5% at 0°C	PA
Platinum (0.00385 TCR)	100 Ω ±0.1% at 0°C (Meets EN60751, Class B)	PD
Platinum (0.00385 TCR)	100 Ω ±0.06% at 0°C (Meets EN60751, Class A)	PM
Platinum (0.00385 TCR)	100 Ω ±0.5% at 0°C	PE
Platinum (0.00375 TCR)	1000 Ω ±0.12% at 0°C	PW
Copper (0.00427 TCR)	10 Ω ±0.2% at 25°C	CA
Nickel (0.00672 TCR)	120 Ω ±0.5% at 0°C	NA
Nickel (0.00618 TCR)	100 Ω ±0.22% at 0°C	NB

▼ = STANDARD OPTIONS  
Specifications subject to change

## Connection head and fitting options

CH104: Aluminum IP65, Type 3 and 4.

CH106: 316 stainless steel IP66, Type 3, 4, and 4X.

Fitting	Process thread	Pressure Rating	L REF.	Head	Code	Minimum Insertion Depth (mm)
Welded	1/2 - 14 NPT	200 psi (13.8 bar)	4.4" (112 mm)	CH104	0*	47
Welded	1/2 - 14 NPT	200 psi (13.8 bar)	4.2" (106 mm)	CH106	1*	47
Welded	G 1/2	200 psi (13.8 bar)	4.2" (107 mm)	CH104	2*	47
Welded	G 1/2	200 psi (13.8 bar)	4.0" (101 mm)	CH106	3*	47
Adjustable spring-loaded	1/2 - 14 NPT	50 psi (3.4 bar)	5.7" (144 mm)	CH104	4	27
Adjustable spring-loaded	1/2 - 14 NPT	50 psi (3.4 bar)	5.4" (138 mm)	CH106	5	27
Adjustable spring-loaded	G 1/2	50 psi (3.4 bar)	5.7" (144 mm)	CH104	6	27
Adjustable spring-loaded	G 1/2	50 psi (3.4 bar)	5.4" (138 mm)	CH106	7	27
Fixed spring-loaded	1/2 - 14 NPT	None	4.4" (112 mm)	CH104	8**	27
Fixed spring-loaded	1/2 - 14 NPT	None	4.2" (106 mm)	CH106	9**	27

\* 0.250 diameter only for all stainless and MgO probes.  
(not available in tip-sensitive, 0.215" diameter or 0.236" diameter probes)

\*\* 0.236 and 0.250 diameters only for fixed spring-loaded fittings.  
Note: Connection head dimensions are found on page 3-2.

## Temperature transmitter range codes

Popular ranges below. More range codes starting on page 4-20 and at [www.minco.com](http://www.minco.com)

Code	Range	
EO	-50 to 100°C	-58 to 212°F
BC	-30 to 30°C	-22 to 86°F
S	-17.8 to 37.8°C	0 to 100°F
AC	-17.8 to 93.3°C	0 to 200°F
AN	-17.8 to 148.9°C	0 to 300°F
AG	-17.8 to 260°C	0 to 500°F
AP	-6.7 to 21.1°C	20 to 70°F
A	-6.7 to 48.9°C	20 to 120°F
N	0 to 50°C	32 to 122°F
C	0 to 100°C	32 to 212°F
J	0 to 150°C	32 to 302°F
K	0 to 200°C	32 to 392°F
V	10 to 65.6°C	50 to 150°F
P	37.8 to 179.4°C	100 to 355°F
BH	50 to 150°C	122 to 302°F

▼ = STANDARD OPTIONS

Specifications subject to change

## Specification and order options

AS720	Assembly number from table
4	Fitting from table
PD	Sensing element from table
100	Insertion depth D (mm): See table for minimums ▼:76, 100, 127, 150, 178, 200, 229, 250, 279, 305, 350, 406, 457, 500, 610
Z	Leads per sensing element: Y = 2 leads (n/a for copper) ▼Z = 3 leads X = 4 leads
3	Conduit thread: 3 = 1/2 - 14 NPT 4 = 3/4 - 14 NPT
A	Connection head material: A = Aluminum S = 316 Stainless Steel
0	Extension: 0 = No Extension 2 = 1/2 NPT Nipple (2")/Union (2.6" length adder) 3 = 1/2 NPT Nipple (3")/Union (3.6" length adder) 4 = 1/2 NPT Nipple (4")/Union (4.6" length adder) 6 = 1/2 NPT Nipple (6")/Union (6.6" length adder)
X0X	No Thermowell
1	Temptran™ code: 1 = TT518: Programmable Hockey Puck (2 or 3-lead RTDs) 2 = TT519: Programmable Hockey Puck (Thermocouple only) 4 = TT211: Fixed range Rectangular (2-lead RTDs) 7 = TT521: HART® Programmable Hockey Puck (2, 3, or 4-lead RTDs or Thermocouples)
N	Temperature range code from table
1	Calibration: 1 = Nominal calibration 2 = Match calibrated, 0.75% total system accuracy. For other calibration options, contact Minco
AS7204PD100Z3A0X0X1N1 = Sample part number	