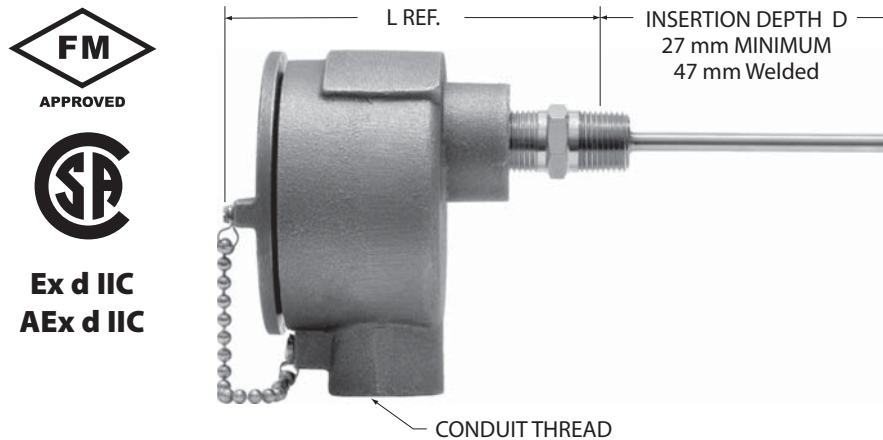


# Explosionproof/Flameproof RTD Sensors



## 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
Platinum (0.00392 TCR) 100 $\Omega$ $\pm$ 0.5% at 0°C	PA
Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.1% at 0°C (Meets EN60751, Class B)	▼PD
Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.06% at 0°C (Meets EN60751, Class A)	PM
Platinum (0.00385 TCR) 100 $\Omega$ $\pm$ 0.5% at 0°C	PE
Platinum (0.00375 TCR) 1000 $\Omega$ $\pm$ 0.12% at 0°C	PW
Copper (0.00427 TCR) 10 $\Omega$ $\pm$ 0.2% at 25°C	CA
(dual) 10 $\Omega$ $\pm$ 0.5% at 25°C	
Nickel (0.00672 TCR) 120 $\Omega$ $\pm$ 0.5% at 0°C	NA
Nickel (0.00618 TCR) 100 $\Omega$ $\pm$ 0.22% at 0°C	NB

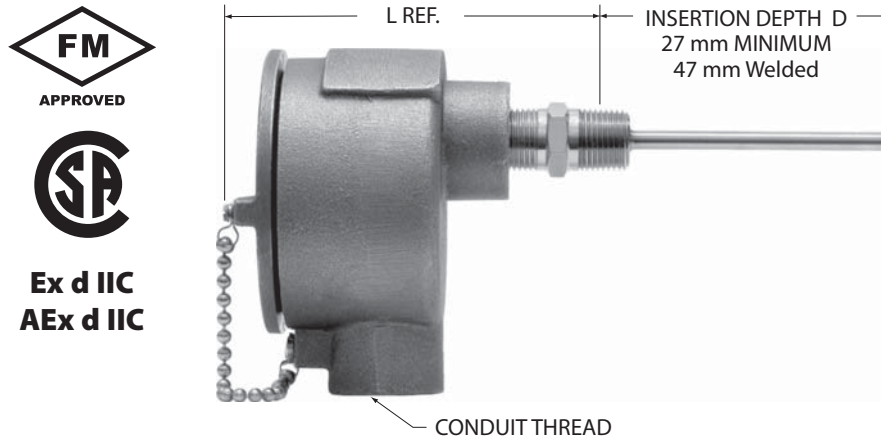
## Specification and order options

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



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

## 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	

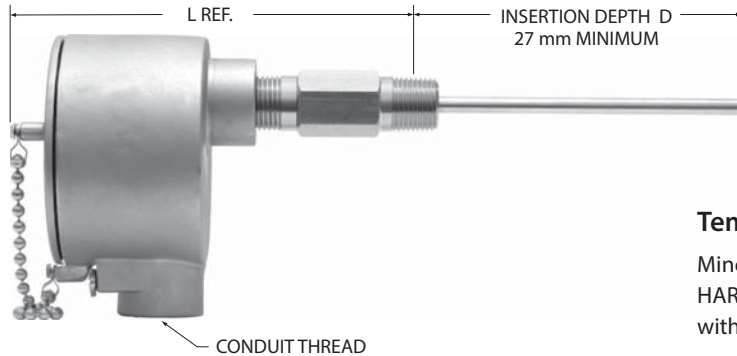
## Junction types

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

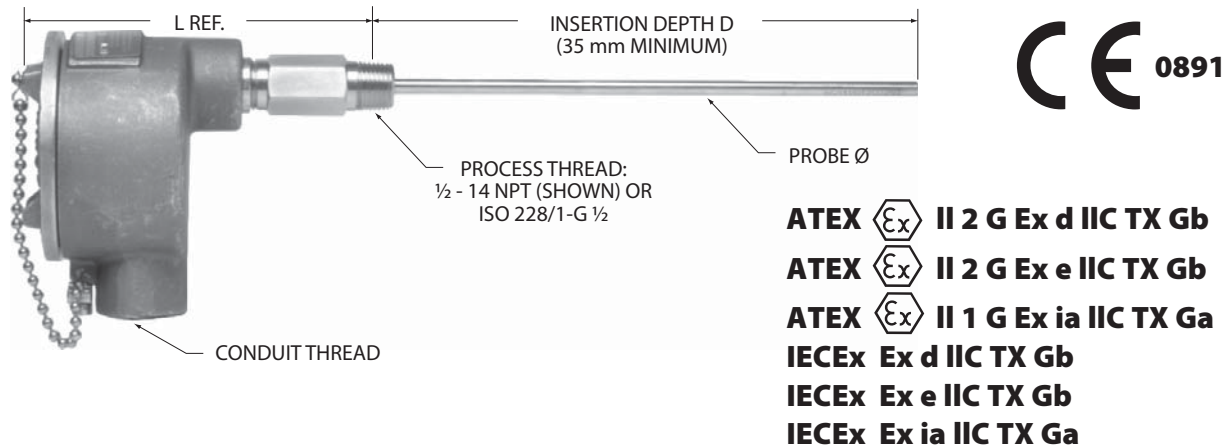
▼ = STANDARD OPTIONS

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	

# Flameproof, Increased Safety and Intrinsic Safety RTD Sensors – Per European and International Requirements



## Overview

Complies with European standards for electrical apparatus for potentially explosive atmospheres: ATEX Directive 94/9/EC and International IECEx certification schemes for explosive atmospheres.

- Flameproof assemblies can be used in Zones 1 or 2
- Increased safety assemblies can be used in Zones 1 or 2
- Intrinsic safety assemblies can be used in Zones 0, 1 or 2 when used with an appropriate barrier
- Features tip-sensitive, all stainless or MgO filled RTD probe for fast response
- Spring-loaded holder ensures good probe contact
- U.S. or metric threads

## Specifications

### Temperature range:

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

### Material:

Tip-sensitive probe: Stainless steel with copper alloy tip.  
 All stainless RTD: Stainless steel.  
 MgO filled RTD: Stainless steel.  
 Fittings: Stainless steel.

### Connection head:

- CH356: 316 stainless steel IP66, Type 3, 4, and 4X.
- CH357: Aluminum alloy IP65, Type 3 and 4.
- CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

### Pressure rating:

Spring-loaded holder: 50 psi (3.4 bar).  
 Fluid seal fitting: 100 psi (6.9 bar).

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

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

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

### Tip sensitive:

- Single element 1.5 seconds.
- Dual element 7 seconds.
- All stainless and MgO filled: 10 seconds.

## 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

## Fitting options

Fitting	Process Thread	L REF.		Code	Pressure Rating
		CH356	CH357/CH358		
Fluid Seal	1/2 - 14 NPT		4.6" (116 mm)	0*	50psi (3.4 bar)
Fluid Seal	G 1/2		4.4" (111 mm)	1*	50psi (3.4 bar)
Set screw spring-loaded	1/2 - 14 NPT	5.3" (135 mm)	5.6" (143 mm)	2	50psi (3.4 bar)
Set screw spring-loaded	G 1/2	5.0" (128mm)	5.4" (136 mm)	3	50psi (3.4 bar)
Fixed spring-loaded	1/2 - 14 NPT	4.5" (115 mm)		4	None
Welded	1/2 - 14 NPT	4.2"(107 mm)	4.5" (115 mm)	6**	200psi (13.8 bar)
Welded	G 1/2	4.0" (101 mm)	4.3" (109 mm)	7**	200psi (13.8 bar)
Release knob spring-loaded	1/2 - 14 NPT	5.4" (137 mm)	5.7" (145 mm)	8	50psi (3.4 bar)
Release knob spring-loaded	G 1/2	5.2" (132 mm)	5.5" (140 mm)	9	50psi (3.4 bar)

\* Not available with CH356 stainless steel connection head.

\*\* 0.250" (6.4mm) for all stainless and MgO only (not available in tip-sensitive or 0.236" diameter models).

## RTD Assembly Numbers

Probe Diameters	0.236" (6.0mm)		0.250" (6.4mm)	
	Single	Dual	Single	Dual
Tip Sensitive	AS800	AS801	AS810	AS811
All Stainless	AS802	AS803	AS812	AS813
MgO Platinum	AS804		AS814	AS815

### Notes:

CH356: 316 stainless steel IP66, Type 3, 4, and 4X.

CH357: Aluminum alloy IP65, Type 3 and 4.

CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

Get more information on connection heads on pages 3-2 to 3-3.

## Sensing elements

Element		Code
Platinum (0.00392 TCR)	100 Ω ±0.5% at 0°C	PA
Platinum (0.00385 TCR) (Meets EN60751, Class B)	100 Ω ±0.1% at 0°C	PD
Platinum (0.00385 TCR) (Meets EN60751, Class A)	100 Ω ±0.06% at 0°C	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
(dual)	10 Ω ±0.5% at 25°C	
Nickel (0.00672 TCR)	120 Ω ±0.5% at 0°C	NA
Nickel (0.00618 TCR)	100 Ω ±0.22% at 0°C	NB

## Specification and order options

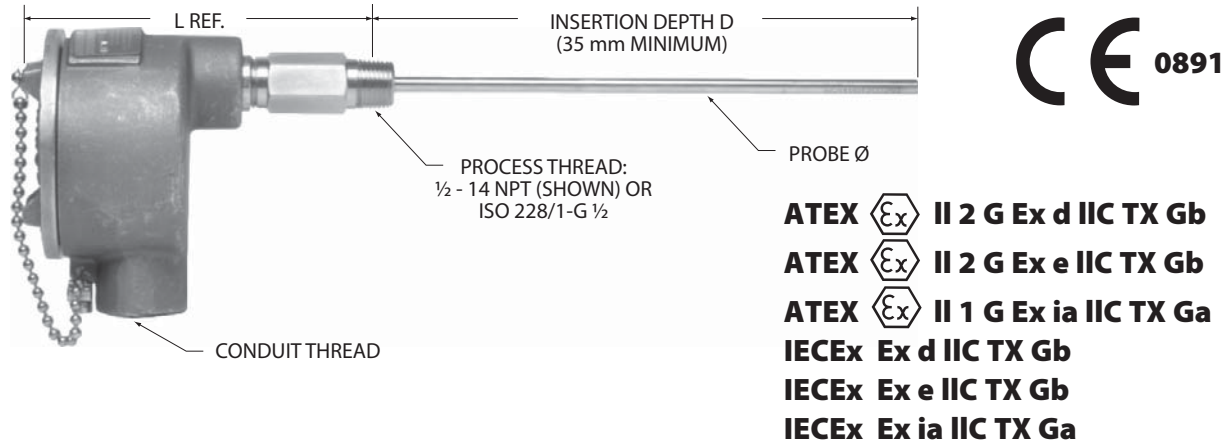
AS800	Assembly number from table
4	Fitting from table
PD	Sensing element from table
100	Insertion depth D (in mm): (35-3000 mm)
X	Leads per sensing element: Y = 2 leads (n/a for copper) Z = 3 leads X = 4 leads (n/a for dual models)
3	Conduit thread: 3 = 1/2 - 14 NPT 4 = 3/4 - 14 NPT 5 = M20 x 1.5
A	Connection head material: A = Aluminum S = 316 Stainless Steel E = Aluminum, epoxy coated
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
AS8004PD100X3A0X0X = Sample part number	

▼ = STANDARD OPTIONS

Specifications subject to change



# Flameproof, Increased Safety and Intrinsic Safety Thermocouple Sensors – Per European and International Requirements



## Overview

Complies with European standards for electrical apparatus for potentially explosive atmospheres: ATEX Directive 94/9/EC and International IECEx certification schemes for explosive atmospheres.

- Flameproof assemblies can be used in Zones 1 or 2
- Increased safety assemblies can be used in Zones 1 or 2
- Intrinsic safety assemblies can be used in Zones 0, 1 or 2 when used with an appropriate barrier
- Features tip-sensitive or MgO filled thermocouple probe for fast response
- Spring-loaded holder ensures good probe contact
- U.S. or metric threads

## Specifications

### Temperature range:

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

### Material:

- Tip-sensitive probe: Stainless steel with copper alloy tip.
- MgO filled thermocouple: Stainless steel.
- Fittings: Stainless steel.
- Connection head:
  - CH356: 316 stainless steel IP66, Type 3, 4, and 4X.
  - CH357: Aluminum alloy IP65, Type 3 and 4.
  - CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

### Pressure rating:

- Spring-loaded holder: 50 psi (3.4 bar).
- Fluid seal fitting: 100 psi (6.9 bar).

**Insulation resistance:** 100 megohms min. at 100 VDC, leads to probe case. Ungrounded junction models only on thermocouples.

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

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

Tip sensitive:

Single element 1.5 seconds.

Dual element 7 seconds.

All stainless and MgO filled: 10 seconds.

## Temperature Transmitters

Minco's Temptran™ thermocouple 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

## Fitting options

Fitting	Process Thread	L REF.		Code	Pressure Rating
		CH356	CH357/CH358		
Fluid Seal	1/2 - 14 NPT		4.6" (116 mm)	0*	50psi (3.4 bar)
Fluid Seal	G 1/2		4.4" (111 mm)	1*	50psi (3.4 bar)
Set screw spring-loaded	1/2 - 14 NPT	5.3" (135 mm)	5.6" (143 mm)	2	50psi (3.4 bar)
Set screw spring-loaded	G 1/2	5.0" (128mm)	5.4" (136 mm)	3	50psi (3.4 bar)
Fixed spring-loaded	1/2 - 14 NPT	4.5" (115 mm)		4	None
Welded	1/2 - 14 NPT	4.2" (107 mm)	4.5" (115 mm)	6**	200psi (13.8 bar)
Welded	G 1/2	4.0" (101 mm)	4.3" (109 mm)	7**	200psi (13.8 bar)
Release knob spring-loaded	1/2 - 14 NPT	5.4" (137 mm)	5.7" (145 mm)	8	50psi (3.4 bar)
Release knob spring-loaded	G 1/2	5.2" (132 mm)	5.5" (140 mm)	9	50psi (3.4 bar)

\* Not available with CH356 stainless steel connection head.

\*\* 0.250" (6.4mm) for MgO only (not available in tip-sensitive or 0.236" diameter models).

## Thermocouple Assembly Numbers

Probe Diameters	0.236" (6.0mm)		0.250" (6.4mm)	
	Single	Dual	Single	Dual
Number of elements	AS806	AS807	AS816	AS817
Tip Sensitive	AS806	AS807	AS816	AS817
MgO	AS808	AS809	AS818	AS819

### Notes:

CH356: 316 stainless steel IP66, Type 3, 4, and 4X.

CH357: Aluminum alloy IP65, Type 3 and 4.

CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

Get more information on connection heads on pages 3-2 to 3-3.

## Junction types

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

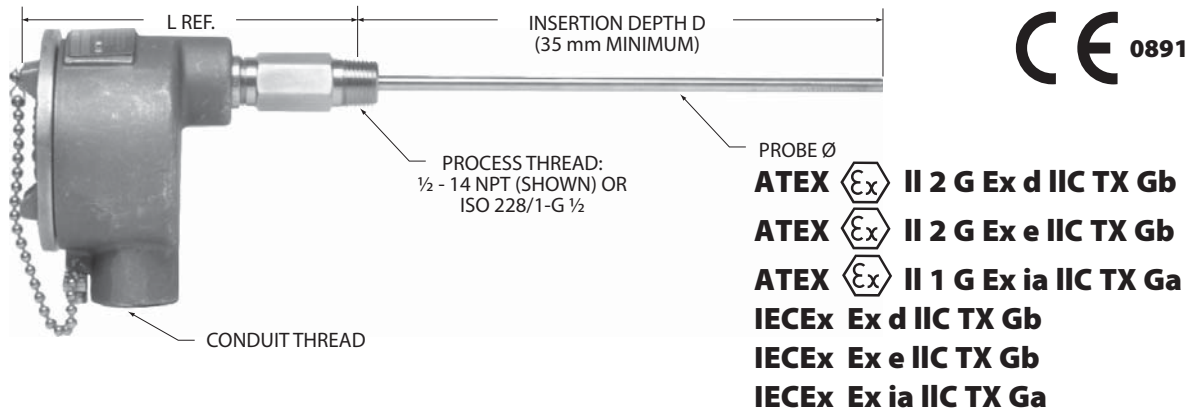
## Specification and order options

AS806	Assembly number from table
4	Fitting from table
E	Junction type from table
U	Junction Grounding: G = Grounded U = Ungrounded
450	Insertion depth D (in mm): (35-3000 mm)
P	
3	Conduit thread: 3 = 1/2 - 14 NPT 4 = 3/4 - 14 NPT 5 = M20 x 1.5
A	Connection head material: A = Aluminum S = 316 Stainless Steel E = Aluminum, Epoxy coated
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
AS8064EU450P3A0X0X= Sample part number	

▼ = STANDARD OPTIONS

Specifications subject to change

# Flameproof, Increased Safety and Intrinsic Safety RTDs with Transmitters – Per European and International Requirements



## Overview

Complies with European standards for electrical apparatus for potentially explosive atmospheres: ATEX Directive 94/9/EC and International IECEx certification schemes for explosive atmospheres.

- Flameproof assemblies can be used in Zones 1 or 2
- Increased safety assemblies can be used in Zones 1 or 2
- Intrinsic safety assemblies can be used in Zones 0, 1 or 2 when used with an appropriate barrier
- Features tip-sensitive, all stainless or MgO filled RTD probe for fast response
- Spring-loaded holder ensures good probe contact
- U.S. or metric threads

## Specifications

### Temperature range:

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

### Material:

- Tip-sensitive probe: Stainless steel with copper alloy tip.
- All stainless RTD: Stainless steel.
- MgO filled RTD: Stainless steel.
- Fittings: Stainless steel.
- Connection head:
  - CH356: 316 stainless steel IP66, Type 3, 4, and 4X.
  - CH357: Aluminum alloy IP65, Type 3 and 4.
  - CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

### Pressure rating:

- Spring-loaded holder: 50 psi (3.4 bar).
- Fluid seal fitting: 100 psi (6.9 bar).

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

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

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

Tip sensitive:

Single element 1.5 seconds.

All stainless and MgO filled: 10 seconds.

## Temperature Transmitters

Minco's Temptan™ 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).

▼ = STANDARD OPTIONS  
Specifications subject to change

## Fitting options

Fitting	Process Thread	L REF.		Code	Pressure Rating
		CH356	CH357/CH358		
Fluid Seal	1/2 - 14 NPT		4.6" (116 mm)	0*	50psi (3.4 bar)
Fluid Seal	G 1/2		4.4" (111 mm)	1*	50psi (3.4 bar)
Set screw spring-loaded	1/2 - 14 NPT	5.3" (135 mm)	5.6" (143 mm)	2	50psi (3.4 bar)
Set screw spring-loaded	G 1/2	5.0" (128mm)	5.4" (136 mm)	3	50psi (3.4 bar)
Fixed spring-loaded	1/2 - 14 NPT	4.5" (115 mm)		4	None
Welded	1/2 - 14 NPT	4.2" (107 mm)	4.5" (115 mm)	6**	200psi (13.8 bar)
Welded	G 1/2	4.0" (101 mm)	4.3" (109 mm)	7**	200psi (13.8 bar)
Release knob spring-loaded	1/2 - 14 NPT	5.4" (137 mm)	5.7" (145 mm)	8	50psi (3.4 bar)
Release knob spring-loaded	G 1/2	5.2" (132 mm)	5.5" (140 mm)	9	50psi (3.4 bar)

\* Not available with CH356 stainless steel connection head.

\*\* 0.250" (6.4mm) for all stainless and MgO only

(not available in tip-sensitive or 0.236" diameter models).

## RTD Assembly Numbers

Probe Diameters	0.236" (6.0mm)	0.250" (6.4mm)
Number of elements	Single	Single
Tip Sensitive	AS800	AS810
All Stainless	AS802	AS812
MgO Platinum	AS804	AS814

### Notes:

CH356: 316 stainless steel IP66, Type 3, 4, and 4X.

CH357: Aluminum alloy IP65, Type 3 and 4.

CH358: Epoxy coated aluminum alloy IP66, Type 3, 4, and 4X.

Get more information on connection heads on pages 3-2 to 3-3.

## Temperature transmitter range codes

Popular ranges below. More range codes on pages 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

## Sensing elements

RTD sensing element	Code
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 ±0.5% at 0°C	PE

## Specification and order options

AS800	Assembly number from table
4	Fitting from table
PD	Sensing element from table
100	Insertion depth D (in mm): (35-3000 mm)
Y	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 5 = M20 x 1.5
A	Connection head material: A = Aluminum S = 316 Stainless Steel E = Aluminum, Epoxy coated
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
AS8004PD100Y3A0X0X1N1 = Sample part number	

▼ = STANDARD OPTIONS  
Specifications subject to change