



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TRC 14.0017X Issue No: 0 Certificate history:
Issue No. 0 (2014-11-19)

Status: **Current** Page 1 of 3

Date of Issue: **2014-11-19**

Applicant: **Minco Products**
7300 Commerce Lane,
Minneapolis,
Minnesota 55432
United States of America

Electrical Apparatus: **Flameproof Temperature Sensors, AS8X series**
Optional accessory:

Type of Protection: **Flameproof, Increased Safety**

Marking: Ex db eb IIC TX Gb $T_{amb} = -50^{\circ}\text{C}$ to $+55^{\circ}\text{C}$

*Approved for issue on behalf of the IECEx
Certification Body:*

Stephen Winsor

Position:

Certification Team Leader

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

TRaC Global Ltd.
Unit 1 Pendle Place
Skelmersdale
West Lancashire
WN8 9PN
United Kingdom





IECEX Certificate of Conformity

Certificate No: IECEX TRC 14.0017X Issue No: 0

Date of Issue: 2014-11-19 Page 2 of 3

Manufacturer: **Minco Products (US)**
7300 Commerce Lane,
Minneapolis,
MN 55432
United States of America

Additional Manufacturing
location(s):

Minco SAS (France)
Zone Industrielle,
09310, Aston
France

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/TRC/ExTR14.0019/00](#)

Quality Assessment Report:

[NL/DEK/QAR12.0028/02](#) [FR/LCIE/QAR12.0001/03](#)



IECEx Certificate of Conformity

Certificate No: IECEx TRC 14.0017X

Issue No: 0

Date of Issue: 2014-11-19

Page 3 of 3

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The AS8X range of temperature sensor assemblies are comprised of flameproof connection head enclosures, temperature probes (sensors) and fittings. The connection head enclosures are available in three types, CH356 (Aluminium), CH357 (Stainless Steel) & CH358 (Aluminium, Epoxy Coated). The temperature probes are either RTD's or thermocouples. The RTD types can be tip sensitive, stem sensitive and magnesium oxide (MgO) powder filled. The thermocouples can be tip sensitive or MgO powder filled. All probe cases are constructed from stainless steel and are sealed with epoxy resin. The range of fitting types are – fluid seal, spring loaded (set screw, fixed or release knob) and welded types. All fittings are constructed from stainless steel. The assemblies can be supplied in varying lengths with probe extensions from 46mm to 244mm. The sensors can also be supplied with a thermowell fitting to protect the probe tips from high process temperatures. The connection head enclosures can be supplied with a ceramic two way terminal block or an array of Minco TT series temperature transmitters which convert the RTD / thermocouple outputs to 4 to 20mA or 1 to 5VDC. The temperature classification of the connection head enclosures meet T6 at the manufacturer's maximum power rating of 45VDC, 30mA, 1.35W and maximum ambient of 55°C. However the process temperature will determine the temperature classification of the whole assembly including the probe, the table in the special conditions of use can be used to establish the equipment's temperature classification and hence the equipment is marked 'TX'.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. Overall temperature class of the assemblies is determined by process temperature (see table in Annex). Alternatively the temperature class may be determined by temperature measurement on the actual installation. This must be performed when no flammable atmosphere is present. The hottest point shall be established – typically the closest part to where the equipment passes through a boundary wall into the hot zone.
2. Set Screw or Release Knob type fittings shall not be used with process temperatures $\geq 260^{\circ}\text{C}$. Magnesium oxide probe types may be used for process temperatures up to 600°C .

Annex:

[IECEx CoC Annex to IECEx TRC 14.0017X is 0 .pdf](#)



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Unit 1, Pendle Place,
Skelmersdale,
West Lancashire, WN8 9PN,
United Kingdom

Annex to IECEx Certificate of Conformity

IECEx TRC 14.0017X issue No.:0

AS8X range part number breakdown:

RTD ASSEMBLY: AS8abcdefguvwx
RTD TRANSMITTER ASSEMBLY: AS8abcdefguvwxjkt
THERMOCOUPLE ASSEMBLY: AS8abchiePguvwx
THERMOCOUPLE TRANSMITTER ASSEMBLY: AS8abchiePguvwxjkt

ALTERNATE ASSEMBLY MARKING:

RTD ASSEMBLY: AS8abcdeffg
DUPLEX RTD ASSEMBLY: AS8abcdeffg
RTD TRANSMITTER ASSEMBLY: AS8abcdeffgTTjkt
THERMOCOUPLE ASSEMBLY: AS8abchiePg
DUPLEX THERMOCOUPLE ASSEMBLY: AS8abchhiePg
THERMOCOUPLE TRANSMITTER ASSEMBLY: AS8abchiePgTTjk

a = PROBE DIAMETER A:

PROBE DIAMETER	CURRENT CODE	OLD CH357 CODE (9)	OLD CH358 CODE (9)
6.0mm (.236")	0	3	6
6.4mm (.250")	1	4	7
4.8mm (.188")	2	5	8

b = PROBE TYPE:

PROBE TYPE	SIMPLEX	DUPLEX
TIP-SENSITIVE RTD	0	1
STEM SENSITIVE RTD	2	3
MgO FILLED RTD (7) (10)	4	5
TIP-SENSITIVE THERMOCOUPLE	6	7
MgO FILLED THERMOCOUPLE (10)	8	9

c = FITTING TYPE AND PROCESS THREAD:

FITTING TYPE AND PROCESS THREAD	CODE
FLUID SEAL, 1/2 NPT	0
FLUID SEAL, G1/2	1
SET SCREW SPRING-LOADED, 1/2 NPT	2
SET SCREW SPRING-LOADED, G1/2	3
FIXED SPRING-LOADED, 1/2 NPT	4
FIXED SPRING-LOADED, G1/2	5
WELDED, 1/2 NPT	6
WELDED, G1/2	7
RELEASE KNOB SPRING-LOADED, 1/2 NPT	8
RELEASE KNOB SPRING-LOADED, G1/2	9

d = RTD SENSING ELEMENT TYPE: CA, CC, NA, NB, PA, PD, PE, PF, PM, PW.

e = INSERTION DEPTH OR THERMOWELL DEPTH IN MILLIMETERS: MINIMUM = 35.

f = NUMBER OF LEADS PER ELEMENT AND LEADS COLOR CODE: A THROUGH Z.

g = CONDUIT THREAD: 3 = 1/2 NPT, 4 = 3/4 NPT, OR 5 = M20 x 1.5-6H.

h = THERMOCOUPLE TYPE: E, J, K, OR T.

i = JUNCTION: U OR G.

j = TRANSMITTER MODEL NUMBER: SEE SHEET 9 FOR MODEL NUMBERS.

k = ONE OR TWO LETTER TEMPERATURE CODE: A THROUGH Z OR AA THROUGH ZZ.

r = RESISTANCE CURVE AND TOLERANCE: A THROUGH Z.

t = CALIBRATION: 0 THROUGH 9.

u = CONNECTION HEAD:

ALUMINUM (CH357)	A
STAINLESS STEEL (CH356)	S
ALUMINUM, EPOXY COATED (CH358)	E

v = EXTENSION TYPE/LENGTH:

NO EXTENSION	----	----	0
NIPPLE/UNION, 1/2 NPT	46mm (1.8") LONG	FG537	1
NIPPLE/UNION, 1/2 NPT	66mm (2.6") LONG	FG579L20	2
NIPPLE/UNION, 1/2 NPT	91mm (3.6") LONG	FG579L30	3
NIPPLE/UNION, 1/2 NPT	117mm (4.6") LONG	FG579L40	4
NIPPLE/UNION, 1/2 NPT	142mm (5.6") LONG	FG579L50	5
NIPPLE/UNION, 1/2 NPT	168mm (6.6") LONG	FG579L60	6
NIPPLE/UNION, 1/2 NPT	193mm (7.6") LONG	FG579L70	7
NIPPLE/UNION, 1/2 NPT	218mm (8.6") LONG	FG579L80	8
NIPPLE/UNION, 1/2 NPT	244mm (9.6") LONG	FG579L90	9

w = THERMOWELL MOUNTING TYPE AND SIZE: A0 THROUGH Z9. SEE SHEET 11 FOR MATRIX.

x = THERMOWELL MATERIAL: A THROUGH Z. SEE SHEET 11 FOR OPTIONS.



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IECEx TRC 14.0017X issue No.:0

Temperature Class / Process Temperature

T_{process} [°C]	Temperature class of the assembly	Max. surface temperature of the assembly [°C]
80	T6	85
95	T5	100
130	T4	135
190	T3	200
290	T2	300
440	T1	450
> 440	-	$T_{\text{process}} + 10$



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IECEx TRC 14.0017X issue No.:0

Routine Tests
<ol style="list-style-type: none"><li data-bbox="277 659 1375 716">1. 100% routine testing is required at ≥ 14 bar for ≥ 10s on all welded fittings and temperature probe casings. There shall be no leakage, permanent deformation or damage as a result of the test.<li data-bbox="277 722 1375 802">2. The RTD and Thermocouple temperature sensors shall be subjected to an electric strength test at 500V r.m.s. for at least 1 min between the connection leads and the sensor casing. Alternatively the test may be performed at 600V r.m.s. for at least 100ms.



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IECEx TRC 14.0017X issue No.:0

Manufacturer's Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Flameproof Assembly ATEX Approval Drawing (11 pages)	B13090	C	2013-04-29
Case Assembly Explosion proof / Flameproof Resistance Thermometer	B12507	D	2012-02-21
Flameproof Connection Head Ex II 2 G Ex d IIC CH356 Series	CH356	B	2009-05-20
Flameproof Connection Head Ex II 2 G Ex d IIC CH357/CH358 Series	CH357/CH358	D	2009-05-20
Flameproof Connection Head Approval Drawing CH356 Series (2 pages)	B13089	B	2014-10-31
Flameproof Connection Head Approval Drawing (Epoxy Coated Gray) CH358 Series (2 pages)	B13795	E	2014-10-31
Flameproof Connection Head Approval Drawing CH357 Series (2 pages)	B13794	E	2014-10-31
Reducing Bushing for CH357 / CH106 Approval Drawing	A12299	B	2008-03-17
Installation and Operation Instructions (5 pages)	1148912	F	*
*no information provided.			