IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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

Certificate No.:	**IECEx SIR 20.0027X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2021-01-04		
Applicant:	**MINCO PRODUCTS INC.** 7300 Commerce Lane NE Minneapolis, MN 55432 **United States of America**		
Equipment:	**Type B225264 Probe Assemblies**		
Optional accessory:			
Type of Protection:	**Flameproof "db", Intrinsic Safety "ia" and Dust Protection by Enclosure "tb"**		
Marking:	Ex db IIC T6… T2 Gb Ex tb IIIC T85°C… T160°C Db Ex ia IIC T6 … T2 Ga Ta = -50°C ≤ Ta ≤ +60°C		

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

Position: **Certification Manager**

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 www.iecex.com or use of this QR Code.

Certificate issued by:

SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom

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Date of issue: 2021-01-04 Issue No: 0

Manufacturer: **MINCO PRODUCTS INC.**
7300 Commerce Lane NE
Minneapolis, MN 55432
United States of America

Additional manufacturing locations:

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014-06 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

This Certificate **does not** indicate compliance with 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/SIR/ExTR20.0230/00

Quality Assessment Report:

NL/DEK/QAR12.0028/06

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The Minco Type B225264 Probe Assemblies are comprised of a connection head, probe holder and probe for measuring process temperature. The connection heads are available in aluminium, powder coated aluminium or stainless steel. The connection heads feature either two ½" NPT or ¾" NPT entries and an M85 cover joint. The manufacturer may install a pre-certified IS transmitter within the connection head.

Spring-loaded probe holders are available as set screw, release knob and fixed. Set screw and release knob probe holders are provided with an O-ring, allowing process pressures of up to 50 lbf/in^2. Alternatively, a welded probe holder may be used, which increases the allowed process pressure to 1500 lbf/in^2.

Probes diameters have variances in both diameter and wall thickness; however, the cylindrical joint created with the probe holder is not affected. Probes may be potted, MgO powder filled or unfilled, depending on the intended application. Probe tips are either welded or, for special applications, a tellurium copper tip is available which is mechanically sealed to the stainless-steel tube.

Measuring elements are Type E, J, K and T thermocouples or RTD.

Refer to Annexe for additional information and Conditions of Manufacture.

SPECIFIC CONDITIONS OF USE: YES as shown below:
Refer to Annexe.

Annex:

IECEx SIR 20.0027X Issue 0 Annexe.pdf

EQUIPMENT AND SYSTEMS COVERED BY THIS CERTIFICATE (continued)

B225264-**abcde**, where:

a: connection head type
- A = CH504 in aluminum alloy
- E = CH504 in aluminum alloy with polyester powder coating finish
- S = CH506 in type 316 stainless steel

b: probe construction type
- 0 = stainless steel probe with copper alloy tip (tip-sensitive)
- 2 = all stainless steel probe
- 4 = stainless steel probe with MgO fill

c: probe fitting type
- A = Adjustable release knob spring-loaded holder type
- B = Welded case type
- C = Fixed spring-loaded holder type
- D = Set screw spring-loaded holder type

d: Probe diameter
- 0 = 6.375mm (.250 inches)
- 1 = 6.000mm (.236 inches)
- 2 = 5.461mm (.215 inches)
- 3 = 5.461mm (.215 inches) with hand bendable case
- 4 = 4.788mm (.188 inches)

Where e: temperature transmitter type
- A = No transmitter
- B = Minco TT111 for 2-lead RTD
- C = Minco TT518 (PRE 5333D) for 3-lead RTD
- D = Minco TT519 (PRE 5334B) for thermocouple
- E = Minco TT205 for thermocouple
- F = Minco TT246 for 3 lead RTD voltage output
- G = Minco TT520 (PRE 5331D) programmable
- H = Minco TT521 (PRE 5337D) HART programmable

The equipment has been separately tested against the requirements of IEC 60529 and it meets IP66 with a cover O-ring and IP64 without a cover O-ring.

Rating

Flameproof: 30V DC, 1.35 W
Intrinsically Safe: Ui: 30 Vdc, Ii: 120 mA, Pi: 0.84 W, Ci: 1 nF, Li: 10 µH

CONDITIONS OF MANUFACTURE

The Manufacturer shall comply with the following:

i. Every temperature probe shall be routinely over-pressured to a value of at least 89.28 bar (1,295 lbf/in^2) for a period of at least 10 seconds. At the conclusion of testing there shall be no damage, permanent deformation, displacement or leakage through the tip of the probe.

ii. Every connection head and welded probe holder shall be routinely over-pressured to a value of at least 49.23 bar (715 lbf/in^2) for a period of at least 10 seconds. At the conclusion of testing there shall be no damage, permanent deformation, or leakage through the weld of the welded probe holder.

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iii. The equipment covered by this certificate incorporates previously certified devices; it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform CSA UK of any modifications of the devices that may impinge upon the explosion safety design of the equipment.

Description	Certificate Number
PR Electronics 5333D	KEMA 03ATEX1535X & IECEx DEK 13.0036X
PR Electronics 5334B & 5331D	KEMA 06ATEX0062X & IECEx DEK13.0035X
PR Electronics 5337D	KEMA 03ATEX1537 & IECEx KEM 10.0083X

SPECIFIC CONDITIONS OF USE

i. The temperature of the equipment can reach 67°C in a 60°C ambient at the cable entry and the branching point. These temperatures may be increased further should the equipment be installed such that the connection head is subject to the effects of heating by the process fluid. This must be considered by the user when selecting field wiring and cable entry devices.

ii. Aluminium enclosures featuring a non-conducting powder coat may generate an ignition-capable level of electrostatic charges under certain extreme conditions. The user should ensure that the equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on non-conducting surfaces. Additionally, cleaning of the equipment should be done with a damp cloth.

iii. In the end application, the user shall ensure that the temperature within the connection head does not exceed 85°C; and the temperature of the process thread of the probe holder does not exceed 200°C.

iv. Flamepaths of this equipment shall not be repaired by the user.

v. For Group III environments, the process temperature shall be at least 7°C below the desired surface temperature rating of the equipment. Eg, for a surface temperature of T85°C, the process temperature shall not exceed 78°C.

vi. The temperature class of the equipment for Group II is dictated by the process temperature in the end application:

Flameproof	Intrinsically Safe
T6: -50°C ≤ $T_{process}$ ≤ +70°C	T6: -40°C ≤ $T_{process}$ ≤ +45°C
T5: -50°C ≤ $T_{process}$ ≤ +85°C	T5: -40°C ≤ $T_{process}$ ≤ +60°C
T4: -50°C ≤ $T_{process}$ ≤ +120°C	T4: -40°C ≤ $T_{process}$ ≤ +85°C
T3: -50°C ≤ $T_{process}$ ≤ +185°C	T3: -40°C ≤ $T_{process}$ ≤ +185°C
T2: -50°C ≤ $T_{process}$ ≤ +280°C	T2: -40°C ≤ $T_{process}$ ≤ +280°C

Additional conditions relevant to Intrinsically Safe installations of the equipment only:

vii. For equipment utilizing aluminium enclosures in Category 1 Ex ia applications, the equipment must be installed such that ignition sources due to impact and friction sparks are excluded.

viii. Termination of intrinsically safe circuits that are fed externally from the equipment installed in Category 1 Ex ia applications, must maintain a clearance of at least 6mm between bare live parts of separate intrinsically safe circuits and at least 3mm between bare live parts of intrinsically safe circuits and earthed parts.

ix. After integration in the end-use system, the apparatus shall be submitted to a dielectric test of 500Vrms, 50-60Hz for 60 Seconds without breakdown, according to Clause 6.3.13 of IEC No. 60079-11 Ed 6. (not applicable for grounded junction thermocouples).

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