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 LCIE 15.0053X issue No.:0

Certificate history:

Status: **Current**

Date of Issue: **2016-07-29**

Applicant: **Minco SAS**
Zone industrielle
09310 Aston
France

Equipment: **Resistance Temperature Detector - Type: B215602-xxxx**
Optional accessory:

Type of Protection: **Ex ia, Ex e, Ex nA**

Marking: Ex ia IIC T… or …°C Ga
Ex e IIC T… or …°C Gb
Ex nA IIC T… or …°C Gc
IECEx LCIE 15.0053X
(Refers to attachment for full marking).

Approved for issue on behalf of the IECEx Certification Body: Julien GAUTHIER

Position: Certification Officer

Signature:
(for printed version)

Date: 2016-07-29

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.

Certificate issued by:

Laboratoire Central des Industries Electriques (LCIE)
33 Avenue du General Leclerc
FR-92260 Fontenay-aux-Roses
France

Documents relative to LCIE certification activites (Certificates, QARs, ExTRs) can be registered under the references "LCI" or "LCIE".

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Date of Issue: **2016-07-29** Issue No.: **0**

Manufacturer:

Minco SAS
Zone industrielle
09310 Aston
France

Additional Manufacturing location (s):

Minco Products Inc.
7300 Commerce Lane North
Mineapolis, MN 55432
United States of America

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 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2010 Edition: 4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
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:
FR/LCIE/ExTR15.0127/00

Quality Assessment Report:

FR/LCIE/QAR12.0001/05 NL/DEK/QAR12.0028/03

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Schedule

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

The Resistance Temperature Detector type B215602-xxxx consists of a probe and optional accessories such as compression fitting, shrink tubing, probe cap and connection head.

CONDITIONS OF CERTIFICATION: YES as shown below:

For all type of protection:
- For installation, the user shall ensure that the ambient temperature in service does not exceed the values given in the table below:

Type designation	Ambient temperature in service range (Ta)	
	Probe (process side)	Connection head
B215602-A1xx	-55°C to +200°C	-40°C to +100°C
B215602-A2xx		
B215602-A3x1		
B215602-A3A0	-55°C to +550°C*	
B215602-A3x2	-55°C to +260°C*	
B215602-B1xx	-55°C to +200°C	
B215602-B2xx		
B215602-B3x1		
B215602-B3A0	-55°C to +550°C*	
B215602-B3x2	-55°C to +260°C*	

* Note: the maximum ambient temperature is derated to 200°C for the cable and the first 50 mm part of the probe (from cable side).
- The cable used shall have an operating temperature greater than 103°C.
- The equipment shall be earthed in accordance with clause 15 of IEC 60079-0:2011.

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Additional information:

Conditions of Certification (suite):

Protection by intrinsic safety "i":

- The equipment contains more than 15% of aluminium. It must be mounted in such a manner as to eliminate the risk of sparks caused by friction or impact.
- The equipment must be only connected to a certified associated intrinsically safe equipment. This combination must be compatible as regards the intrinsically safe rules.

Protection by type of protection "n":

- Transient protection shall be provided that is set at a level not exceeding 140% of the peak rated voltage value at the supply terminals to the equipment.
- For model equipped with connection head, the user shall ensure adequate clamping of the cables efficient against pulling and twisting.
- The model without connection head shall be installed in an enclosure complying with the requirements of IEC 60079-0:2011 and with ingress protection at least IP54.

Protection by increased safety "e":

- For model equipped with connection head, the user shall ensure adequate clamping of the cables efficient against pulling and twisting.
- The model without connection head shall be installed in an enclosure complying with the requirements of IEC 60079-0:2011 and with ingress protection at least IP54.

Annex 01 to Certificate
IECEx LCIE 15.0053X issue 00

FULL EQUIPMENT DESCRIPTION

The Resistance Temperature Detector type B215602-xxxx consists of a probe and optional accessories such as compression fitting, shrink tubing, probe cap and connection head:

- The probe can be provided with three types of construction: “all stainless steel”, “tip-sensitive” or “MgO insulated”; with single or double sensing elements made of copper, platinum or nickel; with 2-, 3- or 4-wire measurement circuits.
- The connection head consists of metallic enclosure equipped with two integrated cable glands and terminals for external connection.

Installation & Operation Instructions, ref. SPI 00-0974.

MARKING

Minco SAS
Address: …
Type: B215602-xxxx (1)
Serial number: …
Year of construction: …
IECEx LCIE 15.0053X
WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS (2)

Protection by intrinsic safety “i”:
Ex ia IIC T… or …°C Ga (4)
U_i : 30 V ; P_i : 0.4 W; C_i : 28 pF/m; L_i: 1.33 µH/m (3)

Protection by increased safety “e”:
Ex e IIC T… or …°C Gb (4)
U ≤ 30 V ; P ≤ 0.4 W

Protection by type of protection “n”:
Ex nA IIC T… or …°C Gc (4)

(1): completed with type designation.
(2): only when shrink tubing or cap is used.
(3): length maximal of wire is 2350 m
(4): temperature class depending on the dissipation power, the type of construction and the ambient temperature as follows:

For type of construction “MgO” :

Type B215602-x300 (without shrink tubing or cap):

Temperature class	Dissipated power					
	100 mW		200 mW		400 mW	
	Connection head	Probe	Connection head	Probe	Connection head	Probe
T6	Ta ≤ 78°C	Ta ≤ 60°C	Ta ≤ 78°C	Ta ≤ 48°C	Ta ≤ 78°C	Ta ≤ 20°C
T5	Ta ≤ 93°C	Ta ≤ 75°C	Ta ≤ 93°C	Ta ≤ 63°C	Ta ≤ 93°C	Ta ≤ 35°C
T4	Ta ≤ 100°C	Ta ≤ 110°C	Ta ≤ 100°C	Ta ≤ 98°C	Ta ≤ 100°C	Ta ≤ 70°C
T3		Ta ≤ 175°C		Ta ≤ 163°C		Ta ≤ 135°C
T2		Ta ≤ 270°C		Ta ≤ 258°C		Ta ≤ 230°C
T1		Ta ≤ 420°C		Ta ≤ 408°C		Ta ≤ 380°C
570°C		Ta ≤ 550°C				
582°C				Ta ≤ 550°C		
610°C						Ta ≤ 550°C

Type B215602-x3B1, B215602-x3C1, B215602-x3D1 (with the FEP shrink tubing or cap):

Temperature class	Dissipated power					
	100 mW		200 mW		400 mW	
	Connection head	Probe	Connection head	Probe	Connection head	Probe
T6	Ta ≤ 78°C	Ta ≤ 60°C	Ta ≤ 78°C	Ta ≤ 48°C	Ta ≤ 78°C	Ta ≤ 20°C
T5	Ta ≤ 93°C	Ta ≤ 75°C	Ta ≤ 93°C	Ta ≤ 63°C	Ta ≤ 93°C	Ta ≤ 35°C
T4	Ta ≤ 100°C	Ta ≤ 110°C	Ta ≤ 100°C	Ta ≤ 98°C	Ta ≤ 100°C	Ta ≤ 70°C
T3		Ta ≤ 175°C		Ta ≤ 163°C		Ta ≤ 135°C

Type B215602-x3B2, B215602-x3C2, B215602-x3D2 (with the PFA shrink tubing or cap):

Temperature class	Dissipated power					
	100 mW		200 mW		400 mW	
	Connection head	Probe	Connection head	Probe	Connection head	Probe
T6	Ta ≤ 78°C	Ta ≤ 60°C	Ta ≤ 78°C	Ta ≤ 48°C	Ta ≤ 78°C	Ta ≤ 20°C
T5	Ta ≤ 93°C	Ta ≤ 75°C	Ta ≤ 93°C	Ta ≤ 63°C	Ta ≤ 93°C	Ta ≤ 35°C
T4	Ta ≤ 100°C	Ta ≤ 110°C	Ta ≤ 100°C	Ta ≤ 98°C	Ta ≤ 100°C	Ta ≤ 70°C
T3		Ta ≤ 175°C		Ta ≤ 163°C		Ta ≤ 135°C
T2		Ta ≤ 260°C		Ta ≤ 258°C		Ta ≤ 230°C

For type of construction "Tip-sensitive" (B215602-x2xx) or "All stainless" (B215602-x1xx):

Temperature class	Dissipated power					
	100 mW		200 mW		400 mW	
	Connection head	Probe	Connection head	Probe	Connection head	Probe
T6	Ta ≤ 78°C	Ta ≤ 60°C	Ta ≤ 78°C	Ta ≤ 48°C	Ta ≤ 78°C	Ta ≤ 20°C
T5	Ta ≤ 93°C	Ta ≤ 75°C	Ta ≤ 93°C	Ta ≤ 63°C	Ta ≤ 93°C	Ta ≤ 35°C
T4	Ta ≤ 100°C	Ta ≤ 110°C	Ta ≤ 100°C	Ta ≤ 98°C	Ta ≤ 100°C	Ta ≤ 70°C
T3		Ta ≤ 175°C		Ta ≤ 163°C		Ta ≤ 135°C
T2		Ta ≤ 200°C		Ta ≤ 200°C		Ta ≤ 200°C

RANGE DETAILS

Type designation:

B215602- x x x x

Shrink tubing / probe cap material:	0	No shrink tubing or cap
	1	FEP shrink tubing or cap material
	2	PFA shrink tubing or cap material
Shrink tubing / probe cap option:	A	No shrink tubing or cap
	B	Shrink tubing
	C	Cap
	D	Shrink tubing and cap
Type of construction:	1	All stainless steel
	2	Tip-sensitive
	3	MgO
Connection head option:	A	With connection head
	B	Without connection head

RATINGS

Protection by intrinsic safety "i": U_i : 30 V ; P_i : 0.4 W; C_i : 28 pF/m; L_i: 1.33 µH/m

Protection by increased safety "e" or by type of protection "n": U ≤ 30 V ; P ≤ 0.4 W

ROUTINE TESTS

Protection by increased safety "e":
Each equipment shall be submitted to a dielectric strength test under 500 V r.m.s carried out in accordance with clause 6.1 of IEC 60079-7:2006 standard.

Protection by type of protection "n":

Each equipment shall be submitted to a dielectric strength test under 500 V r.m.s carried out in accordance with clause 6.5.1 of IEC 60079-15:2010 standard.