CESI

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

Ex COMPONENT CERTIFICATE

Certificate No.: IECEx CES 14.0006U

Issue No: 1

Certificate history:
Issue No. 1 (2019-02-01)
Issue No. 0 (2014-03-04)

Status: **Current**

Date of Issue: **2019-02-01**

Applicant: **F.P.L. Elettroceramica Industriale S.r.l.**
Via Roma, 60
I - 27053 Lungavilla - PV
Italy

Ex Component: **Empty enclosures series TTE2x., TTE3x., TTE6x., TTE7x., TTE6x.M and TTE7x.M**

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Flameproof enclosures 'd'; Increased safety 'e'; Dust ignition protection 't'**

Marking:

Ex db IIC Gb

Ex eb IIC Gb

Ex tb IIIC Db

Ex db I Mb (only series TTExx.M)

Approved for issue on behalf of the IECEx Certification Body: Mirko Balaz

Position: Head of IECEx CB

Signature:
(for printed version)

Date: 1-2-2019

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:

CESI
Centro Elettrotecnico
Sperimentale Italiano S.p.A.
Via Rubattino 54
20134 Milano
Italy

CESI

CESI S.p.A.
Testing & Certification Division
Business Area Certification
Il Responsabile
(Roberto Piccin)

PAD B9004165 (2609381) - USO AZIENDALE

IECEx Certificate of Conformity

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Manufacturer:	**F.P.L. Elettroceramica Industriale S.r.l.** Via Roma, 60 I - 27053 Lungavilla - PV **Italy**	

Additional Manufacturing location(s):

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 Component 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 Ex Component 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 Edition:7.0	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2017 Edition:5.1	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 Ex Component listed has successfully met the examination and test requirements as recorded in

Test Report:

IT/CES/ExTR14.0008/00 IT/CES/ExTR14.0008/01

Quality Assessment Report:

IT/CES/QAR11.0003/07

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Schedule

Ex Component(s) covered by this certificate is described below:

Enclosures series TTE2x., TTE3x., TTE6x., TTE7x., TTE6x.M and TTE7x.M, subject of this certificate, are empty flame proof enclosures, which can be made of aluminium alloys, stainless steel or cast iron (see annexed documents): the type of metal actually used is specified on the marking plate. These enclosures can be used for building thermometric complexes, exploiting the axial hole for the connection to the process, or for different purposes where up to three threaded entries are necessary.

The base of the enclosures has the same dimensions for all series. In it, they are drilled the two side threaded holes for the cable entries, and the threaded hole at its bottom for the possible connection to the process. In the inner wall of the bottom threaded hole it is possible to drill a calibrated cylindrical bore, having length 13.5 mm, for the realization of a cylindrical flameproof joint.

The sizes of the threads of two side holes and the bottom one and of the calibrated bore, for the realization of the cylindrical flameproof joint, are identified in the component code and written on the marking plate, placed inside the enclosure. The lid, which can be equipped with a window, is made in 3 different heights (Low, Medium, Tall), as described in the manufacturer documents.

The empty enclosures characteristics are further described in the Annexe of this certificate.

SCHEDULE OF LIMITATIONS:

- The enclosures are suitable for a service temperature range of -55°C + 100°C with the exclusion of the cast iron enclosures which are suitable for the range -20°C + 100°C;
- In case high and repeated electrostatic charging processes cannot be excluded, for the enclosures with non-conductive paintings it will be necessary an extra assessment concerning the risk of electrostatic charging;
- The enclosures are certified as they are, no extra hole can be drilled;
- The devices installed inside the enclosure shall leave at least 40% of the area of any section free for unimpeded air flow;
- To realize the cylindrical flameproof joint, process side, follow the certificate and the manufacturer's documents; the size and tolerance of the calibrated bore is written on the plate and the maximum diametral gap made by the cylindrical insert shall not exceed 0.15 mm.

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DETAILS OF CERTIFICATE CHANGES (for Issues 1 and above):

Variation 1:

- The coding of the enclosures has been reviewed and the third numeric digit of the code is intended to identify characteristics not influencing the type of protection;
- New models TTE65., TTE67., TTE75. and TTE77. in stainless steel have been added;
- It has been added the marking for group I (mines) EPL Mb using the type of protection Ex db, only for enclosures with low and blind lid; models: TTE60.M e TTE70.M (stainless steel made); TTE61.M e TTE71.M (cast iron made);
- Standards updating according to: IEC 60079-0:2017, IEC 60079-1:2014, IEC 60079-31:2013;
- It has been added the increased safety protection (Ex eb), for group II, according to the standard: IEC 60079-7:2015+A1:2017;
- It has been added the possibility of threading the entries, process side and cable entry, with the same type of thread, already foreseen, but with different sizes where the bore diameter is not greater than the one of the previous issue;
- It has been added the possibility of drilling the calibrated hole, process side, with different diameters but maintaining the maximum bore size Ø8.1 mm of the previous issue;
- Following the updating, it has been modified the marking written on the plate, as shown in the next point.

Annex:

IECEx CES 14.0006U Issue 1 - ANNEX-TTEyxx - FPL.pdf

IECEx Certificate of Conformity

Prot: B9004165

Annex to certificate: **IECEx CES 14.0006U Issue No.:1** of 2019-02-01

Applicant: **F.P.L. Elettroceramica Industriale S.r.l.**
Via Roma, 60; I - 27053 Lungavilla - PV – Italy

Electrical Apparatus: **Empty enclosures series TTE2x., TTE3x., TTE6x., TTE7x., TTE6x.M and TTE7x.M**

Description of Component:
Empty Enclosures series TTE2x., TTE3x., TTE6x., TTE7x., TTE6x.M and TTE7x.M

The characteristics of the enclosures are defined by the internal plate and by its identifying code:

TTEcc x (M) - ip.fc.ic (xx)

TTEcc *Codes identifying the enclosure model, the material, the possible window and the presence of the calibrated bore for the realization of the cylindrical flameproof joint; The full list of the models is in the table;*

X Digit for the manufacturer's use defining characteristics not influencing the type of protection;

(M) *Optional field which identifies, when present, the series suitable for the installation in mine (EPL Mb);*

ip *Character identifying the thread process side (1 digit); The relation code-thread is managed by the quality system of the manufacturer; The datum, useful for the user, is written on the marking plate;*

fc *Character identifying the calibrated bore at the bottom (1 digit); the relation code-bore is managed by the quality system of the manufacturer; the datum, useful for the user, is written on the marking plate;*

ic *Character identifying the thread of the two cable entry holes (2 digits); The relation code-thread is managed by the quality system of the manufacturer; The datum, useful for the user, is written on the marking plate;*

(xx) *Optional fields; other possible codes, not influencing the type of protection.*

In the following table it is reported the full list of the enclosures subject of this certificate.

Series	Also for group I EPL Mb		Material	Calibrated bore at the bottom		Lid				
						Lid height			Windowed	
	YES	NO		YES	NO	Low	Medium	Tall	YES	NO
TTE 20.		☑	Aluminium alloy		☑	☑				☑
TTE 25.		☑	Aluminium alloy		☑			☑		☑
TTE 27.		☑	Aluminium alloy		☑			☑	☑	
TTE 28.		☑	Aluminium alloy		☑		☑		☑	
TTE 29.		☑	Aluminium alloy		☑		☑			☑
TTE 30.		☑	Aluminium alloy	☑		☑				☑
TTE 35.		☑	Aluminium alloy	☑				☑		☑
TTE 37.		☑	Aluminium alloy	☑				☑	☑	
TTE 38.		☑	Aluminium alloy	☑			☑		☑	
TTE 39.		☑	Aluminium alloy	☑			☑			☑
TTE 60.		☑	Stainless steel	☑		☑				☑
TTE 65.		☑	Stainless steel	☑				☑		☑
TTE 67.		☑	Stainless steel	☑				☑	☑	
TTE 68.		☑	Stainless steel	☑			☑		☑	
TTE 69.		☑	Stainless steel	☑			☑			☑
TTE 70.		☑	Stainless steel		☑	☑				☑
TTE 75.		☑	Stainless steel		☑			☑		☑
TTE 77.		☑	Stainless steel		☑			☑	☑	
TTE 78.		☑	Stainless steel		☑		☑		☑	
TTE 79.		☑	Stainless steel		☑		☑			☑
TTE 60.M	☑		Stainless steel	☑		☑				☑
TTE 70.M	☑		Stainless steel		☑	☑				☑
TTE 61.M	☑		Cast iron	☑		☑				☑
TTE 71.M	☑		Cast iron		☑	☑				☑

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Applicant: **F.P.L. Elettroceramica Industriale S.r.l.**
Via Roma, 60; I - 27053 Lungavilla - PV – Italy

Electrical Apparatus: **Empty enclosures series TTE2x., TTE3x., TTE6x., TTE7x., TTE6x.M and TTE7x.M**

The enclosures series **TTExx.M-...** shall be marked as follows:
Ex db IIC Gb **Ex eb IIC Gb**
Ex tb IIIC Db
Ex db I Mb

The enclosures series **TTExx.-...** shall be marked as follows:
Ex db IIC Gb **Ex eb IIC Gb**
Ex tb IIIC Db

Ambient temperature:
-55°C < T_{amb} < +60°C (All the models but those cast iron made)
-20°C < T_{amb} < +60°C (cast iron models)

Temperature limits for use:
-55°C < T_{amb} < +100°C (All the models but those cast iron made)
-20°C < T_{amb} < +100°C (cast iron models)

Ingress protection: **IP66 (IEC 60529)**
Ingress protection IP66 is guaranteed in the connection body-lid and in the possible window sealing. The protection IP66 of the entries shall be guaranteed by the complete product. In absence of the protection level IP6x, the apparatus will not be suitable for an ambient requiring EPL Db. In case the level of protection is lower than IP54, the apparatus will not be suitable for the type of protection Ex e.

Cable entries and process connection

The accessory used for the cable entries and the connection to the process or for closing the holes not used shall be certified, according to the protection used by the complete apparatus, according to the standards IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 and guarantee a minimum ingress protection IP66, according to the standard IEC 60529.
The use of the calibrated bore, for the realization of the cylindrical flameproof joint (process side), guarantees the protection Ex d of the enclosure; the insert shall be calibrated with a diameter useful for the realization of a gap not higher than 0.15 mm.
In case cylindrical threads are foreseen, to assure anti-loosening, a thread-lock compound shall be interposed between the two parts.