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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
Ex COMPONENT CERTIFICATE

Certificate No.: **IECEx CES 14.0030U**

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Certificate history:
Issue 0 (2016-03-15)

Status: **Current**

Issue No: 1

Date of Issue: 2023-05-22

Applicant: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Ex Component: Signal and Control Operators, series M-0...

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'; Dust ignition protection 't'**

Marking: **Ex db I Mb** *(for stainless steel operators & polycarbonate lenses)*

or

Ex db IIC Gb *(for all operators & polycarbonate lenses)* *and*

Ex tb IIIC Db

IP66

PAD C3004916 (3008657) - USO AZIENDALE

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

Position: **Deputy Head of IECEx CB**

Signature: (for printed version)

Date: (for printed version) 2023-05-22

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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:

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

IECEx Certificate of Conformity

Manufacturer: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

Manufacturing locations: **CORTEM S.p.A.**
Via Aquileia 10
I - 34070 Villesse (GO)
Italy

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 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 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 60079-31:2013 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 component listed has successfully met the examination and test requirements as recorded in:

Test Reports:

IT/CES/ExTR14.0033/00 IT/CES/ExTR14.0033/01 IT/CES/ExTR14.0033/02

Quality Assessment Report:

IT/CES/QAR06.0002/17

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

The Signal and Control operators series **M-0..** are components suitable for mounting on explosion proof enclosures. The external bodies of pushbuttons and signalling buttons are made in aluminium alloy or stainless steel. The shafts and bushings are made in stainless steel. The external body of the signalling lamps are made in polycarbonate.

The operators are essentially made by an axial shaft mounted and mechanically locked in an adequate centre. This centre is formed by a bushing screwed on enclosure wall. Push buttons, signalling lamps and operating handle may be applied on all Ex-d enclosures where there is the possibility to perform threaded holes not exceeding the maximum number foreseen for applications.

The Signal and Control Operators series M-0… characteristics are further described in the Annexe of this certificate.

SCHEDULE OF LIMITATIONS:

- The Signal and Control operators series M-0.. should be assembled on the cover or walls of metallic Ex-db enclosures with minimum thickness 8mm, minimum 5 threads engaged and locked with a blocking system against accidental rotation and loosening. The enclosures should be IECEx certified, for Group I (mine), Group II (gas) and Group III (dust) with suitable degree of protection IP.
- The coupling of the Signal and Control operators with the enclosures shall be made as indicated by the manufacturer in the documents annexed to this certificate in order to respect the type of protection of the electrical apparatus on which they are mounted.
- The Signal and Control operators series M-0.. shall be installed in such a way that the temperature at the mounting point will remain within the service temperature ranges below:
  - from - 40 °C up to + 100°C for Signal operators type M-0457 with Polycarbonate lenses only.
  - from - 60 °C up to + 100°C for Signal operator types M-0457AL, M-0457IN and for all other Signal and Control operators.
  - Group I applications (Stainless steel operators only): restricted up to - 20 °C for all Signal and Control operators.

  Furthermore, the non-transmission tests have been performed for a maximum ambient temperature of:

  - +60°C for operating equipment with cylindrical joints ⌀12 and ⌀18 and for Group I applications.
  - +70°C for all other operating equipment.
- The IP 66 mechanical protection of the Signal and Control operators is obtained by inserting an O-ring made of silicon rubber in-between the mounting body and the command rod and furthermore when the mounting body is completely screwed and sealed as shown into the mounting instruction.
- It is the final assemblers/user's responsibility to ensure the threaded joint between the Signal and Control operators and the associated enclosure meets all the requirements of the applicable standards for the assembly.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Variation 1.1:

The **Signal and Control operators M-0..** originally assessed in compliance with IEC 60079-0:2011 have been re-assessed on the basis of the new edition of IEC 60079-0:2017 Standard.

Variation 1.2:

For the some models of Signal and Control operators M-0, with type of protection Ex-d, has been considered the ambient temperature range up to +70°C. For details consult "Schedule of Limitations".

Variation 1.3:

The Signal and Control operators M-0, can be supplied with external painting/coating.

Annex:

CORTEM - IECEx CES 14.0030U Issue 1 - ANNEX - Signal and Control Operators, M-0....pdf

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Prot: C3004916

Annex to certificate: **IECEx CES 14.0030U Issue No: 1** of 2023-05-22

Applicant: **CORTEM SPA.**
Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Electrical Apparatus: **Signal and control operators, series M-0..**

Description of the component

The Signal and Control operators series **M-0..** are components suitable for mounting on explosion proof enclosures. The external bodies of pushbuttons and signalling buttons are made in aluminium alloy or stainless steel. The shafts and bushings are made in stainless steel. The external body of the signalling lamps are made in polycarbonate.
The operators are essentially made by an axial shaft mounted and mechanically locked in an adequate centre. This centre is formed by a bushing screwed on enclosure wall. Push buttons, signalling lamps and operating handle may be applied on all Ex-d enclosures where there is the possibility to perform threaded holes not exceeding the maximum number foreseen for applications.
The Signal and Control operators series **M-0..** have the following temperature ranges:
Group I applications:
- operating temperature range from **-20°C up to +100°C**.

Group II applications:
- operating temperature range from **-40°C up to +100°C** for pilot lights made in polycarbonate.
- operating temperature range from **-60°C up to +100°C** for all other operating components.

The Signal and Control operators series **M-0..** have the following standard mounting thread types: cylindrical ISO Metric 965/1 and ISO 965/3 from M32x1.5 or M42x1.5. For series **M-0..** handle switches the mounting threads are ISO 228/1 from ø3/8" or ø1/2".
To the Signal and Control operators series **M-0..** the IP 66 degree of protection between the operator mounting body and the enclosure wall is achieved with sealant put at least on two complete threads engaged of the threaded coupling. For sliding or rotary operators, the IP 66 degree of protection between the operator rod and operator body is achieved with an O-ring gasket made of Silicon rubber.
The bodies of Signal and Control operators series **M-0..** are generally made of Aluminium alloy or Stainless steel (type AISI316, AISI304 and AISI303) while bushings and shafts are made of Stainless steel (type AISI316, AISI304 and AISI303). Operators with lens for pilot light are made of Polycarbonate while for signalling push buttons are made of tempered glass. Operators marked Ex db I Mb are made in Stainless steel only.
The Signal and Control operators series M-0.. can be supplied with external conductive painting; other types of painting can be used; in this case a warning label is added regarding the risk of electrostatic charge.

Electrical characteristics
Signal and Control operators series **M-0..**:

Nominal voltage:	250 V ac/dc for pilot lights.
	240 V ac/dc for led pilot lights.
	600 V for switches and buttons.
Frequency:	50/60 Hz.
Nominal current:	10 A for push buttons.
	1000 A for selector switches.
Power consumption:	max 3 W for incandescent lamps.
	max 1,5 W for led lamps.

Caution and Warning label
For products complete with external coating in non-metallic material with a thickness > 0.2 mm:

"Warning – Potential electrostatic charging hazard – for cleaning use only a damp cloth".

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Applicant: **CORTEM SPA.**
Via Aquileia, 10 - 34070 Villesse (Gorizia - Italia)

Electrical Apparatus: **Signal and control operators, series M-0..**

Identification of Signal operators

* * * * *

Code identifying the series:
- **M-0**: Signal and control operators

Code identifying the model
(*see Table 1*)

Lens or button colour:
- **R**: Red
- **V**: Green
- **I**: Colourless
- **G**: Yellow
- **B**: Blue
- **BI**: White
- **...**: other colours available

Nominal voltage AC/DC (for pilot lights only):
- **12**: 12 V
- **24**: 24 V
- **110**: 110 V
- **230**: 230 V
- **...**: other voltages available

Manufacturing material:
- **blank**: aluminium alloy body (polycarbonate lens for pilot lights only)
- **IN**: stainless steel body

Identification of Control operators

* * * *

Code identifying the series:
- **M-0**: Signal and control operators

Code identifying the model
(*see Table 1*)

Length of shaft (for switches, key handles and emergency buttons only):
- **F**: for fixed length (standard)
- **V**: for variable length

Manufacturing material:
- **blank**: aluminium alloy body
- **IN**: stainless steel body

Other suffix can be added on the code for particular configuration, type of external handles or internal lever.

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Electrical Apparatus: **Signal and control operators, series M-0..**

Types of Control operators are listed on the following **Table 1**:

Table 1:

Signal and control operators series M-0..			
Model	**Component description**	**Typical associated equipment, switchgear or lamp**	**Electrical characteristics of standard equipment**
M-0..	Operators with handle for switches	Rotary switches, Isolators/circuit breakers.	16A – 1000V
M-0428	Signalling button	BA9 incandescent, LED, Contact blocks.	Lamp: 3W – 6/250V Contacts: 10A – 600V
M-0429	Pushbuttons	Contact blocks.	10A – 600V
M-0430	Emergency button	Contact blocks.	10A – 600V
M-0445	Emergency button	Contact blocks.	10A – 600V
M-0457	Signalling lights	BA9 incandescent, LED.	3W – 6/250V BA9 incandescent lamp or 1,5W – 6/250V LED
M-0427	Double pushbutton	Contact blocks.	10A – 600V
M-093	Key switch operator	Rotary switches.	16A – 600V
M-0..	Emergency stop pushbutton	Contact blocks, Rotary switches.	Contacts: 10A – 600V Switches: 16A – 600V
M-0557	Potentiometer	Rotary potentiometer.	16A – 600V