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 IMQ 22.0002X**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2023-10-31

Applicant: **PARKER HANNIFIN Manufacturing S.r.l**
Via Sebastiano Caboto 1, Palazzina A
Corsico (Milano) 20094
Italy

Equipment: **Electrical parts for solenoid valves. STANDARD models: 495900..; 495905..; 495905.05..; CPR models: 496555..; 496560..; OFFSHORE models: 496700..; 496800..; 496700.02..; 496800.02..**

Optional accessory:

Type of Protection: **Ex db; Ex mb; Ex tb**

Marking: Ex db mb IIC T4/T5/T6 Gb

Ex tb IIIC T130°C/T95°C/T80°C Db

Approved for issue on behalf of the IECEx Certification Body: **Mr. Mauro CASARI**

Position: **IMQ ExCB Manager**

Signature:
(for printed version)

Date:
(for printed version)

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:

Istituto Italiano del Marchio di Qualità S.p.A
Via Quintiliano 43
20138 Milano
Italy

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Manufacturer: **PARKER HANNIFIN Manufacturing S.r.l**
Via Sebastiano Caboto 1, Palazzina A
Corsico (Milano) 20094
Italy

Manufacturing locations: **PARKER HANNIFIN Manufacturing S.r.l**
Via Enrico Fermi, 5
20060 Gessate (MI)
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 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 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

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:

IT/IMQ/ExTR22.0002/00

Quality Assessment Report:

FR/LCI/QAR06.0004/14

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

The equipment is an electrical part for solenoid valves, which is made by an encapsulated coil for mounting on different models of mechanical parts (which are not part of this certificate) and a connection compartment inside a flame proof non-metallic enclosure.

The equipment is made in “Ex db mb” and “Ex tb” execution.

The “Ex d” and “Ex t” enclosure for connection compartment has an internal volume < 10 cm3 (about 8.5 cm3) and can withstand an internal pressure of 58 bar. It has a degree of protection IP66/67 granted by an o-ring. It contains:
- a case of thermoplastic material
- a cover of the same material as the case, to which it is fixed by 4 special screws threaded into co-moulded metallic inserts forming a flanged joint. The internal free space for connection compartment is isolated from the underlying electronic circuit by a cemented joint made by potting material, which also acts as an encapsulant for the Ex m part protection mode. All Ex d joints present are in accordance to IEC/EN 60079-1 standard.
- for STANDARD and CPR models, an integrated cable gland, composed by (i) a M20 x 1.5 gland nut made of thermoplastic material screwed directly into the case, (ii) a cylindro-conical rubber seal with inner diameter depending on the cable diameter range (5÷11 mm), (iii) a metallic washer in between.
- for OFFSHORE models, a co-moulded stainless steel cable gland housing, suitable for mounting of an “Ex d” already certified cable gland M20 x 1.5 or ½” NPT (not provided with the equipment).

The “Ex m” coil compartment contains:
- an encapsulated coil made of thermoplastic material
- a non-resettable thermal fuse, calibrated in accordance to coil models
- a potting encapsulating the electronic circuit, mentioned also in the description above.

Three different series:
STANDARD models: 495900..; 495905..; 495905.05..
CPR models: 496555..; 496560..
OFFSHORE models: 496700..; 496800..; 496700.02..; 496800.02..

Full details in Annex to Certificate.

SPECIFIC CONDITIONS OF USE: YES as shown below:

- The equipment can only be used in areas with low risk of mechanical damage.
- The user has to periodically clean the enclosure in order to avoid a dust deposit higher than 5 mm.
- Potential electrostatic charging hazard, clean only with wet cloth or antistatic products.
- The user has to connect the free extremity of cable either in non-explosive atmosphere or in an enclosure protected by a recognized type of protection suitable for the area.
- External protection device shall be installed, to be placed in a safe zone or inside an ATEX/IECEx certified enclosure with a type of protection suitable for the explosive atmosphere. PSCC = 1500A.
- Flameproof joints are not intended to be repaired
- Use only ISO 7048 fasteners form H, M4x20 0.7 length 20, INOX A2-70 and with tensile strength ≥ 700 N/mm2 for cover
- For STANDARD and CPR model: the coupling of the cable gland to the enclosure and torque values of cap clamping 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 cable glands are mounted.
  The cable gland installation shall be done according to safety manufacturer instructions to maintain degree of protection.
- For STANDARD and CPR model: the cable gland is suitable only for fixed installation. A clamping device, not provided with the equipment, shall be installed downstream the cable gland.
- For OFFSHORE model: The cable gland (M20 x 1.5 or ½” NPT) is not provided with the equipment. It shall be certified according to IEC 60079-0, IEC 60079-7, IEC 60079-1 and IEC 60079-31 standards, with Gb and Db minimum EPLs, and installed according IEC 60079-14. It shall guarantee the protection degree on enclosure IP66/67.

Annex:

IECEx IMQ 22.0002 X issue No. 0 Annex.pdf

General description

The equipment is an electrical part for solenoid valves, which is made by an encapsulated coil for mounting on different models of mechanical parts (which are not part of this certificate) and a connection compartment inside a flame proof non-metallic enclosure.

The equipment is made in “Ex db mb” and “Ex tb” execution.

The “Ex d” and “Ex t” enclosure for connection compartment has an internal volume < 10 cm^3 (about 8.5 cm^3) and can withstand an internal pressure of 58 bar. It has a degree of protection IP66/67 granted by an o-ring. It contains:

- a case of thermoplastic material
- a cover of the same material as the case, to which it is fixed by 4 special screws threaded into co-moulded metallic inserts forming a flanged joint. The internal free space for connection compartment is isolated from the underlying electronic circuit by a cemented joint made by potting material, which also acts as an encapsulant for the Ex m part protection mode. All Ex d joints present are in accordance to IEC/EN 60079-1 standard.
- for STANDARD and CPR models, an integrated cable gland, composed by (i) a M20 x 1.5 gland nut made of thermoplastic material screwed directly into the case, (ii) a cylindro-conical rubber seal with inner diameter depending on the cable diameter range (5÷11 mm), (iii) a metallic washer in between.
- for OFFSHORE models, a co-moulded stainless steel cable gland housing, suitable for mounting of an “Ex d” already certified cable gland M20 x 1.5 or ½” NPT (not provided with the equipment).

The “Ex m” coil compartment contains:

- an encapsulated coil made of thermoplastic material
- a non-resettable thermal fuse, calibrated in accordance to coil models
- a potting encapsulating the electronic circuit, mentioned also in the description above.

Three different series:

STANDARD models: 495900..; 495905..; 495905.05..
CPR models: 496555..; 496560..
OFFSHORE models: 496700..; 496800..; 496700.02..; 496800.02..

.. stand for coil voltage according to table:

DC voltages		AC voltages	
C1	12 VDC	A2	24Vac/50Hz
C2	24 VDC	A4	48 Vac /50 Hz
C4	48 VDC	E5	115 Vac /50 Hz
C5	110 VDC	F4	230 Vac /50 Hz
N7	28 VDC	K8	115 Vac /60 Hz
-	-	B8	240 Vac /60 Hz
-	-	P0	24 Vac /50-60 Hz
-	-	S4	48 Vac /50-60 Hz
-	-	P2	110 Vac /50-60 Hz
-	-	P9	230 Vac /50-60 Hz

Model identification, Electrical data and Ratings

STANDARD models:

Model			495900 DC	495900 AC	495905 & 495905.05
T class – Gas			T4 / T5 / T6	T4 / T5 / T6	T4
Tclass – Dust			T130°C / T95°C / T80°C	T130°C / T95°C / T80°C	T130°C
Ambient temperature			-40°C to 80°C / 65°C / 55°C	-40°C to +80°C / 60°C / 40°C	-40°C to +80°C
Degree of Protection			IP66 / IP67		
Coil Insulation Class			H (180 °C)		
Thermal fuse rating			108 °C (ELCUT X2E)	108 °C (ELCUT X2E)	115 °C (ELCUT X22)
Power	DC	Pn (hot)	2 W	-	8 W
		P (cold) 20°C	2,5 W	-	9 W
	AC	Pn (holding)	-	2,5 W	8 W
		Attraction cold	-	3W	9 W
Nominal voltage (DC)			12 to 110V DC	-	12 to 110V DC
Nominal voltage (AC)			-	24 to 240V AC	24 to 240V AC
Voltage tolerance			± 10 % of the nominal voltage		
Solenoid duty			Continuous duty (ED 100%)		

CPR models:

Model			496555	496560
T class – Gas			T4 / T5 / T6	T4
Tclass – Dust			T130°C / T95°C / T80°C	T130°C
Ambient temperature			-40°C to 65°C / 50°C / 35°C	-40°C to +65°C
Degree of Protection			IP66 / IP67	
Coil Insulation Class			H (180 °C)	
Thermal fuse rating			108 °C (ELCUT X2E)	108 °C (ELCUT X2E) for AC 115°C (ELCUT X22) for DC
Power	DC	Pn (hot)	6 W	8 W
		P (cold) 20°C	7,5 W	10,5 W
	AC	Pn (holding)	6 W	8 W
		Attraction cold	7,5 W	10,5 W
Nominal voltage (DC)			24 to 110V DC	24 to 110V DC
Nominal voltage (AC)			24 to 230V AC	24 to 230V AC
Voltage tolerance			± 10 % of the nominal voltage	
Solenoid duty			Continuous duty (ED 100%)	

OFFSHORE models:

Model			**496700 & 496700.02**	**496800 & 496800.02**
T class – Gas			T4 / T5 / T6	T4
Tclass – Dust			T130°C / T95°C / T80°C	T130°C
Ambient temperature			-40°C to 65°C / 50°C / 35°C	-40°C to +65°C
Degree of Protection			IP66 / IP67	
Coil Insulation Class			H (180 °C)	
Thermal fuse rating			108 °C (ELCUT X2E)	108 °C (ELCUT X2E) for AC 115°C (ELCUT X22) for DC
Power	**DC**	**Pn (hot)**	6 W	8 W
		P (cold) 20°C	7,5 W	10,5 W
	AC	**Pn (holding)**	6 W	8 W
		Attraction cold	7,5 W	10,5 W
Nominal voltage (DC)			24 to 110V DC	24 to 110V DC
Nominal voltage (AC)			24 to 230V AC	24 to 230V AC
Voltage tolerance			± 10 % of the nominal voltage	
Solenoid duty			Continuous duty (ED 100%)	

Specific conditions of use (X):

- The equipment can only be used in areas with low risk of mechanical damage.
- The user has to periodically clean the enclosure in order to avoid a dust deposit higher than 5 mm.
- Potential electrostatic charging hazard, clean only with wet cloth or antistatic products.
- The user has to connect the free extremity of cable either in non-explosive atmosphere or in an enclosure protected by a recognized type of protection suitable for the area.
- External protection device shall be installed, to be placed in a safe zone or inside an ATEX/IECEx certified enclosure with a type of protection suitable for the explosive atmosphere. PSCC = 1500A.
- Flameproof joints are not intended to be repaired

- Use only ISO 7048 fasteners form H, M4x20 0.7 length 20, INOX A2-70 and with tensile strength ≥ 700 N/mm^2 for cover

- For STANDARD and CPR model: the coupling of the cable gland to the enclosure and torque values of cap clamping 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 cable glands are mounted. The cable gland installation shall be done according to safety manufacturer instructions to maintain degree of protection.

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Warning:

"Do not open while energized".

“Clean with a damp cloth to avoid electrostatic discharge”.

“Cable temperature rating: see instructions”.

Routine tests:

The manufacturer has to perform:

- the visual inspection in compliance to clause 9.1 of IEC 60079-18;
- the dielectric routine test prescribed at clause 9.2 of the IEC 60079-18 standard, the applied voltage shall be at least:
  - 500 Vac for at least 1 s (when the r.m.s. working voltage “U” does not exceed 90 V);
  - (1 000 + 2*U) Vac or 1 500 Vac for at least 1 s, whichever is greater, where “U” exceed 90 V;

Alternatively, the test can be carried out at 1.2 times the test voltage, but maintained for at least 100 ms.