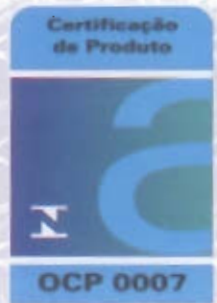




CENTRO DE PESQUISAS DE ENERGIA ELÉTRICA

Organismo de Certificação Acreditado pelo INMETRO



Certificado de Conformidade

Certificate of Conformity / Certificado de Conformidad

Número:
Number
Número

CEPEL 08.1717X

Emissão:
Issue
Expedición

12/08/2013

Validade:
Validity
Validez

17/05/2015

Produto: **EXPLOSION PROOF SOLENOID WITH JUNCTION BOX**

Product
Producto

Tipo/Modelo: **37-03 & 39-03**

Type - Model
Tipo - Modelo

Número de Série: ---

Serial Number
Número de Série

Solicitante/Endereço: **ROTEX AUTOMATION LIMITED**

Requester - Address
Solicitante - Dirección

987/11, GIDC - Makapura
Vadodra 390010
Índia

Fabricante/Endereço: **The same.**

Manufacturer - Address
Fabricante - Dirección

Norma(s) Aplicáveis:

Applicable Standards
Norma(s) de Aplicación

ABNT NBR IEC 60079-0:2008

ABNT NBR IEC 60079-1:2009

IEC 60079-31:2008

ABNT NBR IEC 60529:2009

Explosive Atmospheres - Part 0: Equipments - General Requirements;

Explosive Atmospheres - Part 1: Equipment protection by flameproof enclosures "d";

Explosive Atmospheres - Part 31: Equipment dust ignition protection by enclosure "T";

Degree of protection for enclosures of electrical equipments (IP code).

Laboratório de Ensaio:

Testing Laboratory
Laboratório de Ensayo

CEPEL - Centro de Pesquisas de Energia Elétrica

Laboratório de Acionamentos e Segurança em Equipamentos Eletroeletrônicos - AP4

Número do Relatório:

Report Number
Número del Informe

RAV-CERT-EX-1658/09, RAV-EX-4602/13 and RAV-EX-17631/13X

Marcação:

Marking
Marca

Ex d IIC T* Gb IP66

Ta = -40 °C +* (in accordance with table 1)

Ex d IIIC T Db IP66**

Ta = -40 °C +* (in accordance with table 2)

Condições de Emissão:

Conditions of Issue
Condiciones de Expedición

According to INMETRO Directive 179 dated May 18th, 2010. Model with Evaluation of the Quality System of the Manufacturer and tests on the product. Process approved on 177th Meeting of the Certification on June, 2013.

- The letters "X" or "U" after the conformity certificate's reference, mean that there is a special condition that must be analysed at the momento of installation (see remarks field).

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Número da Emissão: **02** Emissão original: **19/01/2009**

Issue number
Número de la Expedición

Original Issue
Expedición Original

Carlos Azevedo Sanguedo

SIGNATÁRIO AUTORIZADO

Authorized Signatory

Persona Autorizada



CONFORMITY CERTIFICATE CEPEL 08.1717X

The **EXPLOSION PROOF SOLENOIDS, MODELS 37-03 & 39-03**, manufactured by **ROTEX AUTOMATION LIMITED**, are bellow qualified in terms of their specifications, analysis and tests performed.

Specifications:

The Explosion proof Solenoids with junction box, sizes I/II/III/IV, are manufactured in light metal or stainless steel. The Solenoids are used in valve actuators and identified by following codes:

37-03, with cable entrance 1/2" NPT - Female
39-03, with cable entrance M20x1.5 - Female

Electrical characteristics:

Voltage of feed: 6, 12, 24, 27, 38, 42, 48, 72, 110, 125, 220, 240, 256 e 440 Vdc or Vac
(Permissible variation: $\pm 20\%$)

Frequency: (50 or 60) Hz $\pm 5\%$
Maximum power dissipation: 20 W

Analysis and tests performed:

Product assessment following the requirements of the Standards ABNT NBR IEC 60079-0:2008, ABNT NBR IEC 60079-1:2009, IEC 60079-31:2008 and ABNT NBR IEC 60529:2009. Results recorded in the Report RAV-CERT-EX-1658/09, RAV-EX-4602/13 and RAV-EX-17631/13X.

Descriptive documentation of the equipment (filed together to the equipment process - confidential):

Code	Description	Revision	Date
---	Name Plate	01	08/11/2008
WN-1434-INMETRO	Coil label for FPJB Hor. Cable entry "INMETRO"	01	10/09/2012
3.0.4	Design and Engineering Input Specification	00	21/10/2008
WN-1353	Solenoid code	23	03/11/2012
090-01-10-03C	FPJBND Coil Bott. Cover Size I-LM6	04	16/04/2004

Número da Emissão: **02** CERT-27681/12
Issue number
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CONFORMITY CERTIFICATE CEPEL 08.1717X

Marking:

The marking of the **EXPLOSION PROOF SOLENOIDS, MODELS 37-03 & 39-03**, shall contain the followings information:



<p>Segurança</p>   <p>INMETRO OCP 0007</p>
CEPEL 08.1717X
Ex d IIC T* (in accordance with table 1) Gb IP66
T_{amb} = -40 °C +* (in accordance with table 1)
Ex tb IIIC T** (in accordance with table 2) Db IP66
T_{amb} = -40 °C +** (in accordance with table 2)

Table 1-* Temperature Class for gas.

Range of environment temperature T _a (°C)	Temperature Class
-40 a +60	T4
-40 a +50	T5
-40 a +35	T6

Table 2- ** Temperature Class for combustible Dust.

Range of environment temperature T _a (°C)	Temperature Class
-40 a +60	T135 °C
-40 a +50	T100 °C
-40 a +35	T85 °C

Remarks:

- The letter "X" placed at the end of the certificate number is to indicate the following special conditions of safety use:
 - Shall be used wirings suitable to operation temperature ≥ 80 °C;
 - The accessories used in the cable entrances shall be certified in accordance with the Standards ABNT NBR IEC 60079-0, ABNT NBR IEC 60079-1, IEC 60079-31 and ABNT NBR IEC 60529 and shall to ensure the minimum index of protection IP66 and shall be suitable to operation temperature of the solenoids;

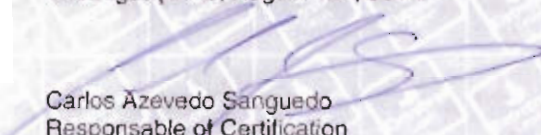
Número da Emissão: **02** CERT-27581/12
Issue number
Numero de la Expedición Page: 3/5



CONFORMITY CERTIFICATE CEPEL 08.1717X

2. The manufactory is responsible to ensure that the equipments manufactured are in accordance with the equipment specifications related in this certificate and submit then to the static overpressure routine test in the welded joint of the plunger, with a minimum pressure of 15,3 bar during the time between 10 s and 60 s;
3. This Certificate is only valid to the Solenoids with flameproof junction box effectively tested. Any modification in the design or using of the different material those defined by descriptive documentation of the equipment without CEPEL's authorization, will invalid this Certificate;
4. The activity of installation, inspection, maintenance, repair, revision and, recovery of the solenoids are responsibility of the users and shall be performed in accordance with the requirements of valid technical Standards and in accordance with the manufacturer recommendation;
5. The marking shall be done in accordance with the Standard ABNT NBR IEC 60079-0:2008 and with the Requirement for assessment of the conformity for electrical equipment for Explosive Atmospheres compound by gas and flammable steams and shall be fixed in the external surface of the equipment in a visible local. This marking shall be clear and durable considering possible chemical corrosion.

Nova Iguaçu-RJ, August 12th, 2013.


Carlos Azevedo Sanguedo
Responsible of Certification

Número da Emissão: 02 CERT-27681/12
Issue number
Número de la Expedición Page: 4/5



CONFORMITY CERTIFICATE CEPEL 08.1717X

Validity of the Certificate: 17/05/2015

Control of issue:

Date	Issue	Description
18/05/2012	01	First issue in accordance with Directive 179 issued in 18/05/2010.
12/08/2013	02	Second issue in order to include dust marking.

Número da Emissão: 02 CERT-2768172
Issue number
Número de la Expedición Page: 5/5