GOST R CERTIFICATION SYSTEM
GOSSTANDRAT OF RUSSIA

CERTIFICATE OF CONFORMITY

No. РОСС IN.ГБ06.В00736

Period of validity from 27.01.2010 until 27.01.2013

No. 0271506

CERTIFICATION BODY РОСС RU.0001.11ГБ06
BODY FOR CERTIFICATION OF EXPLOSION PROOF MEASURING, CONTROL, AND AUTOMATIC INSTRUMENTS FGUP «VNIIFTRI» OS VSI «VNIIFTRI»
Russia,, 141570, Moscow region, Solnechnogorsk district, PO "Mendeleyevo",
FGUP «VNIIFTRI, tel./fax 744-8183

PRODUCTS SOLENOIDS Rotex
serial production
as per Ex-annex

OK 005 (ОКП) code:
41 5190

CONFORMITY WITH NORMATIVE DOCUMENTS REQUIREMENTS

GOST R 52350.0-2005, GOST R 52350.1-2005, GOST R 52350.11-2005

Customs code:
8481 90 000 0

MANUFACTURER
Rotex Automation Limited (India)
987/116 GIDC, Makarpura, Vadodara 390010, Gujarat, India

CERTIFICATE IS ISSUED TO
Rotex Automation Limited (India)
987/116 GIDC, Makarpura, Vadodara 390010, Gujarat, India
tel. +91 22 42111444; fax +91 22 66926783

ON THE BASIS OF
1. Test report No. 10.808 dated 25.01.2010
Test laboratory of VSI «VNIIFTRI» (РОСС RU.0001.21ИП09)
2. Manufacturing facility inspection report dated 25.11.2009

ADDITIONAL INFORMATION

Head of certification body *signature* G.E. Epikhina

seal

Expert *signature* N.Yu. Miroshnikova

Certificate is legally valid for the whole territory of Russian Federation

EX – ANNEX

to Certificate of Conformity **No. РОСС IN.ГБ06.В00736**

Period of Validity **from 27.01.2009 until 27.01.2012**

1 Solenoids Rotex

Russian Customs code	8481 90 000 0
OK 005 (OKP) code	41 5190

2 Manufacturer

Rotex Automation Limited (India)
987/116 GIDC, Makarpura, Vadodara 390010, Gujarat, India

3 Explosion proof mark

refer to table 1, section 5

4 Condition of use

4.1 Solenoids Rotex are to be used in accordance with explosion proof mark, requirements of GOST R 52350.14, current "Electrical plant arrangement rules" (PUE, art. 7.3), "Technical maintenance rules for electrical plants" (PTEEP, art. 3.4), other normative documents regulating application of electrical equipment in explosive areas, and manufacturer's instruction manuals IMC/002, IMC/003.

4.2 Applicable explosive areas and condition of the solenoids Rotex use categories and groups of explosive air mixtures with gases and vapors are in accordance with GOST R 52350.10, GOST R 52350.11 and requirements of "Electrical plants arrangement rules" (PUE, art.7.3).

4.3 The electrical deices connected to the solenoids Rotex of Exia-design should have intrinsically safe electrical circuit as per GOST R 52350.11, and their intrinsically safe characteristics (e.g. class of intrinsically safe electrical circuit and subgroup of electrical equipment) must comply with conditions of the solenoids use in explosive area.

4.4 The solenoids with Exd explosion proof is to be used together with certified cable glands and plugs which provide appropriate method and level of explosion protection of the enclosure.

4.5 The Rotex solenoids design modification related to explosion proof method is to be coordinated with licensed test laboratory.

5 Structure, design and specification of the products

Certificate of Conformity covers solenoids Rotex. Solenoids' explosion proof mark is given in table 1.

Table 1

Design	Explosion proof mark	Enclosure protection as per GOST 14254
36 37 39	1ExdIICT6	IP66
62 63 64 62-CO 63-CO 64-CO	0ExiaIICT6 or 1ExdIICT6	IP67
71-0 72-0 73-0 71-CO 72-CO 73-CO	1Ex[ia]dIICT6	IP67
66-CR 67-CR 68-CR 66 67 68 66-CO 67-CO 68-CO 65-CR	0ExiaIICT6	IP65 IP67

The design of the solenoids is differed by the materials of the casing (enclosure) and by the dimensions.

6 Destination and field of application

The solenoids Rotex are destined to use as control device for the valves for hydraulic and pneumatic systems.

The solenoids Rotex belongs to explosion proof equipment of Group II as per GOST R 52350.0 and destined for use in explosive areas as per described explosion proof mark.

7 Major technical data

7.1. Explosive mixtures as per GOST R 51330.11 ....categories IIA, IIB, IIC groups T1 … T6

7.2. Explosion proof type ..... spark-safe electrical circuit, level "ia" or explosion proof enclosure

7.3. Explosion proof mark ..... refer to table 1

7.4. Electrical shock protection as per GOST 12.2.007.0 ..... class III

7.5. Electrical supply parameters:

- supply voltage, V

62, 63, 64, 62-CO, 63-CO, 64-CO, 71-0, 72-0, 73-0, 71-CO, 72-CO, 73-CO, 66-CR, 67-CR, 68-CR, 66, 67, 68, 66-CO, 67-CO, 68-CO 65-CR ..... no more than 30

36, 37, 39 ..... no more than 6/12/24/27/38/42/48/72/110/125/220/240/256/440

- Watt consumption, W

36, 37, 39 ..... no more than 20

62, 63, 64, 62-CO, 63-CO, 64-CO 1,2

71-0, 72-0, 73-0, 71-CO, 72-CO, 73-CO, 66-CR, 67-CR, 68-CR, 66, 67, 68, 66-CO, 67-CO, 68-CO 65-CR 0,75

7.6 Maximum parameters of the intrinsically safe electric circuits

62, 63, 64, 62-CO, 63-CO, 64-CO, 71-0, 72-0, 73-0, 71-CO, 72-CO, 73-CO, 66-CR, 67-CR, 68-CR, 66, 67, 68, 66-CO, 67-CO, 68-CO 65-CR

- input voltage U_i, V ..... 30 / 28 / 24 / 15
- input current I_i, mA ..... 90 / 110 / 170 /300
- input power P_i, W

62, 63, 64, 62-CO, 63-CO, 64-CO 1,2

71-0, 72-0, 73-0, 71-CO, 72-CO, 73-CO, 66, 67, 68, 66-CO, 67-CO, 68-CO, 66-CR, 67-CR, 68-CR, , 65-CR 0,75

- internal capacity C_i, nF 10
- internal inductivity L_i, μHn 10

7.7 Conditions of use

- ambient temperature, °C

62, 63, 64, 62-CO, 63-CO, 64-CO, 71-0, 72-0, 73-0, 71-CO, 72-CO, 73-CO, 66-CR, 67-CR, 68-CR, 66, 67, 68, 66-CO, 67-CO, 68-CO 65-CR ..... from -40 to +70

36, 37, 39 ..... from -40 to +35

7.8 Dimensions, mm ..... as per technical documentation

7.9 Weight, kg ..... as per technical documentation

8 Description of design and explosion proof methods

8.1 Solenoids Rotex consists of two parts – main compartment and terminal compartment. In the main compartment there is a solenoid element, in the terminal compartment – terminal block. The solenoid and its electrical connections are sealed with the compound. The entrance compartment consists of the casing and cover, connected to each other by the bolts. On the side surface of the casing there is a threaded hole for installation of the cable gland.

8.2 Explosion proof of the solenoids Rotex is provided by the following means.

8.2.1 Solenoids Rotex of the Exia-design are destined for operation with electro-technical devices having intrinsically safe electric circuits as per GOST R 52350.11 and intrinsically safe parameters (level of intrinsically safe electric circuits and subgroup of electrical equipment), confirming to conditions of use in explosive area.

The current and voltage in the solenoid's electrical circuits are not exceeded of the values allowed for intrinsically safe circuits for subgroup II as per GOST R 52350.1
Maximum values of the sum electric capacity and inductivity of the intrinsically circuits are according to the requirements of the GOST R 52350.11 for electrical equipment of subgroup IIC.
Electrical gaps, current leakage ways and insulation electric strength of the intrinsically safe circuits comply with requirements of GOST R 52350.11
8.2.2 Electrical elements of the solenoids of Exd-design are enclosed into explosion proof enclosure that can bear explosion blast pressure and prevent ignition transfer into environmental explosive area.
The explosion resistance of the enclosure corresponds to the requirements of GOST R 52350.1 for the electrical equipment of subgroup IIC.
The parameters of the explosion-proof connections are correspond to the requirements of GOST R 52350.1 for the electrical equipment of subgroup IIC.
8.2.3 Maximum temperature of the solenoid surface heating does not exceed 80 ^{O}C that comply with temperature class T6 as per GOST R 52350.0.
8.2.4 Design of the casing and individual parts of the solenoids are made in accordance with general requirements of GOST R 52350.0 for electrical equipment located in the explosive areas. Components sealing and connections of the solenoids provide the ingress protection degree IP65/IP6/IP67 as per GOST 14254. Mechanical strength of the enclosure confirms to the requirements of GOST R 52350.0 for the electrical equipment of group II with the high risk of the mechanical damages. The materials of construction are provided friction and electrical safety as per GOST R 52350.0
8.3 On the casing of solenoids Rotex there is warning note "Open when de-energized" and nameplate stating explosion proof mark.

9 Data of tests

Design check results, tests of the solenoids Rotex, and conformity of explosion proof parameters to requirements of GOST R 52350.0, GOST R 52350.1, GOST R 52350.11 are stated in Protocol No. 10.808 dated 25.01.2010 issued by IL VSI "VNIIFTRI".
Maintenance documentation of the solenoids Rotex contains all the necessary instructions related to installation and safe operation.

10 Explosion proof mark

As per design and explosion proof type, manufacturer's explosion proof mark, test results, and according to requirements of GOST R 52350.0, GOST R 52350.1, GOST R 52350.11 the solenoids Rotex are given the explosion proof mark stated in table 1.

11 List of documents containing explosion proof details

11.1 Operation manual	IMC/002, IMC/003
11.2 EC-Type examination Certificate	DNV-2005-OSL-0191 CESI 03 ATEX 344
11.3 Report of Test	112A/07 112B/07
11.4 Design documentation	11-DNV-10401 11-GOST-30401-ND 11-GOST-30501-ND 11-GOST-30601-ND 11-GOST-30701-ND
11.4 Test report of IL VSI "VNIIFTRI"	10.808

Head of Certification Body _____ ***signature*** _____ G.E.Epikhina
Expert, license No.POCC RU.0001. 31015028

seal

Expert, license No. POCC RU.0001. 3101103 ***signature*** _____ N.Yu. Miroshnikova