


FGUP «VNIIFTRI» Certification Centre of explosion proof measuring, control and automatic devices, SC VSI «VNIIFTRI» Accreditation License OS No. POCC RU.0001.11ГБ06 dated 25.04.13 Accreditation License TL No. POCC RU.0001.21ИП09 dated 25.04.13 141570, Moscow region, p/o "Mendeleyevo", tel./fax +7 (495) 526-63-03			
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## Ex – ANNEX

to Certificate of Conformity      **No.TC RUC-G B.ГБ06.B.00105**

Period of validity **from 21.10.2013 to 20.10.2018**

### 1 Cable inputs, adapters, plugs, breathers of types A\*/B\*/C\*/D\*/E\*/F\*

OK 005 (OKP) code                      35 9900  
 Customs commodity Code of Russia 8538 90 990 0

### 2 Explosion proof mark

see paragraph 5, table 1

### 3 Manufacturer

**Ex Innovation Ltd T/A Raxton (Great Britain)**  
 Westgate, Aldridge, Walsall, WS9 8FS, UK

### 4 Conditions of application

- 4.1 Cable inputs, adapters, plugs and breathers must be applied in accordance to the assigned explosion proof mark, normative documents requirements regulating application of electrical equipment in underground mine openings, mines and its ground-based buildings dangerous for mine gas, requirements of CU TR 012/2011, GOST R 51330.13, valid «Rules for electrical equipment installation» (PUE ch. 7.3), «Rules for Operation of Customers' Electrical Installations» (PTEEP ch. 3.4), other normative documents, regulating application of electric equipment in explosion hazard zones and manufacturer operation manuals.
- 4.2 Possible explosion hazard zones of cable inputs, adapters, plugs and breathers application, categories and groups of explosion hazard mixtures of air with gases and vapours - in accordance with the requirements of GOST R 51330.9, GOST R 51330.11 and «Rules for electrical equipment installation» (PUE ch. 7.3)
- 4.3 Sign «U» after explosion proof mark means that cable inputs, adapters, plugs, breathers are Ex-components and are designed for application in assembly with explosion proof equipment with corresponding type of explosion protection.
- 4.4 Cable inputs type EB should be operated with enclosures, cable (wires) which temperature in the point of cable input installation stays within the limits of the range from -20 °C to +60 °C and should not be applied in the applications where exists high risk of mechanical damages.
- 4.5 Cable inputs AG, DW, DX, EW, EX, EG should not be applied in composition of explosion proof enclosures of group IIC of volume exceeding 2000 cm<sup>3</sup>.

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- 4.6 Cable inputs, adapters, plugs made of aluminum are prohibited for application in underground mine and pit openings.
- 4.7 When mounting on site it is necessary to provide protection of cable inputs, adapters, plugs and breathers against self-unfastening.
- 4.8 Cable inputs, adapters, plugs and breathers design alterations regarding explosion protection means must be conformed with the certified test organization

## 5 Composition, design and specification of the product

Certificate of conformity covers cable inputs, adapters, plugs and breathers of types A\*/B\*/C\*/D\*/E\*/F\*. Explosion proof mark depending on type of cable inputs, adapters, plugs and breathers is presented in table 1.

Table 1

Name	Type	Explosion proof mark
Cable inputs	AG, DW, DX, EW, EX, EG EB EF	ExdeIICU (metallic case) ExeIIU(case made of nylon)
Adapters	AB, AJ, BB, BJ AR, BR, AU, AX, FB, FL DG, DN	ExdIU or ExeIU or ExdIICU or ExeIIU ExdIU or ExeIU or ExdIICU or ExeIIU ExeIU or ExeIIU
Plugs	CF, CB, CK, CY, CQ	ExdIU or ExeIU or ExdIICU or ExeIIU
Breathers	CV	ExeIU or ExeIIU
	CT	ExdIU or ExeIU or ExdIICU or ExeIIU

## 6 Purpose and field of application

Cable inputs, adapters and plugs are designed for cable input in explosion proof equipment enclosures. Breathers type CV are designed for installation in explosion proof equipment cases.

Cable inputs, adapters, plugs and breathers pertain to explosion proof electrical equipment groups I and II as per GOST R 51330.0 and are assigned for application in explosion hazard zones in underground mines and pits openings and its ground-based buildings, as well as in explosion hazard zones of premises and outdoor installations as components of explosion proof electric equipment enclosure component parts in accordance to the assigned explosion proof mark.

## 7 Major technical data

- 7.1 Explosion hazard mixtures as per GOST R 51330.11 ..... categories I, IIA, IIB, IIC
- 7.2 Explosion protection type ..... explosion proof enclosure, protection type *e*
- 7.3 Explosion proof mark ..... see table 1
- 7.4 Level of protection against external influences as per GOST 14254 ..... IP6X
- 7.5 Operation conditions
  - ambient temperature, °C
  - cable inputs AG, DW, DX, EW, EX, EG .....from -20 to +60

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adapters AB, AJ, BB, BJ .....from -20 to +65  
breathers.....from -20 to +65  
- ambient temperature at placement location of breathers depending on insulation rings material is presented in table 2.

Table 2

insulation ring material	neoprene	EPDM	fluorosilicone	silicone	Viton	Nitrile
ambient temperature, °C	from -20 to +100	from -20 to +125	from -50 to +150	from -30 to +150	from -5 to +150	from -20 to +80

- ambient temperature at placement location of cable glands EF depending on insulation rings material is presented in table 2

Таблица 2

insulation ring material	neoprene	EPDM	fluorosilicone	silicone	Viton	Nitrile
ambient temperature, °C	от -20 до +80	от -30 до +105	от -50 до +130	от -30 до +160	от -5 до +160	от -20 до +60

7.6 Overall dimensions and weight ..... see technical documentation of the manufacturer

## 8 Design and explosion protection means description

8.1. Cable inputs consist of case with external and internal threading, adapter connector, angle washer for cable armor fastening, one or two elastic insulation rings and packing nut.

Adapters are adapter units for connection of cable input with the case of item with electrical insulating material in construction that allows isolation of cable input from enclosure case.

Plugs are destined to close the unused holes in enclosures.

Breathers are plugs in which the hole for gases passing is situated. Inside of breathers filter is situated that closes the hole and provides level of protection IP66 against external influences.

In explosion proof version cable inputs, plugs, adapters and breathers are made of brass, stainless steel, aluminum alloys and nylon.

8.2 Explosion protection of cable inputs, adapters, plugs and breathers is provided by the following means.

8.2.1 Protection of type «explosion proof enclosure».

Explosion stability and explosion resistance of enclosures of cable inputs, adapters, plugs and breathers of Exd-version conform to the requirements of group I and subgroup IIC as per GOST R 51330.1.

Threaded connections parameters conform to the requirements for electrical equipment of groups I and II as per GOST R 51330.1.

Insulation rings provide the required resistance to ageing, leaktightness and mechanical strength.

Cable inputs complete with enclosure provide level of protection against external influences IP6X as per GOST 14254.

8.2.2 Protection type e.

Electrical gaps, leakage passes and electrical strength of insulation conform to the requirements of GOST R 51330.8.

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Enclosure level of protection as per GOST 14254 is provided for cable inputs, adapters, plugs and breathers not lower than IP6X that conforms to the requirements of GOST R 51330.8.

8.2.3 Maximum heating temperature of parts of cable inputs, adapters, plugs and breathers at specified operation conditions is determined by equipment in which composition the Ex-components are applied.

8.2.4 Mechanical strength of cable inputs AG, DW, DX, EW, EX, EG, EF plugs, adapters and breathers corresponds to the requirements of GOST R 51330.0 for electrical equipment of groups I and II with high dangers of mechanical damages. Applied materials correspond to the requirements for provision of frictional sparking safety as per GOST R 51330.0.

8.3 On the cable inputs, adapters, plugs and breathers case the explosion proof mark is situated.

## 9 Data on tests

Elements of installation of cable inputs on enclosure and cable fastening correspond to the requirements of GOST R 51330.0, GOST R 51330.1.

Results of construction examination and tests of cable inputs, adapters, plugs and breathers on conformity of explosion protection parameters to requirements of CUTR 012/2011 GOST R 51330.0, GOST R 51330.1, GOST R 51330.8 are presented in test report by IL VSI «VNIIFTRI» No 13.14\*\*dated \*\*.\*\*.2013.

In maintenance documentation for cable inputs, adapters, plugs, breathers are presented the necessary guidelines regarding conditions of mounting and safe operation.

## 10 Explosion proof mark

Subject to results of expertise of technical and maintenance documentation, explosion proof mark of the manufacturer, examinations and tests of construction on explosion protection and in accordance to the requirements of CU TR 012/2011 GOST R 51330.0, GOST R 51330.1, GOST R 51330.8 to the cable inputs, adapters, plugs, breathers of type A\*/B\*/C\*/D\*/E\*/F\* is assigned the explosion proof mark presented in table 1.

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**11 List of documents containing information on explosion protection**

Cable glands mounting manual	without number
Technical descriptions	without number
EC-type examination certificate	SIRA 00ATEX1072X SIRA 00ATEX1073U SIRA 10ATEX1226U SIRA 10ATEX1227U SIRA 10ATEX3335U SIRA 10ATEX1225U SIRA 10ATEX3229U SIRA 00ATEX3074U SIRA 10ATEX3279U SIRA 10ATEX1224U SIRA 08ATEX1288U SIRA 11ATEX1301X
Drawings	DRG № 811,812, 813, 814,815,816,817,818, 819, 820,821,822A,822GD,824A,825A, 826A,827A,828A,829A,830A,831A,832A, 833A,836A, 860A
Test report by IL VSI «VNIIFTRI»	No 13.1549

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expert No POCC RU.0001.31015028

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