EURASIAN ECONOMIC UNION

CERTIFICATE OF CONFORMITY

CU No. RU C-GB.АЖ58.B.00906/20

Series RU No. 0257687

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CERTIFICATION BODY LIMITED LIABILITY COMPANY "ProfEx" Center.
Location: 119501, RUSSIA, Moscow, Veernaya Street, House 4, Building 2, Floor P, Room I-27.
Address of the place of business: 117246, RUSSIA, Moscow, Passage. Nauchny, House 19, Floor 2, Rooms 105-106.
Accreditation No. RA.RU.10АЖ58. Date of registration of the accreditation certificate: 23.11.2017.
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APPLICANT LIMITED LIABILITY COMPANY "Mir Tekhnologiy"
Location and address of the place of business: 117042, Russia, Moscow, Admiral Rudnev Street, House 4, Floor 6, Room IV, Office 613
The main state registration number is 1187746469096.
Phone: 89154152183, e-mail address: MirTekhnologiy@gmail.com

MANUFACTURER Expo Technologies Limited.
Location: Unit 2, The Summit Hanworth Road, Sunbury on Thames, United Kingdom, TW16 5DB

PRODUCTS MiniPurge purge control systems.
Ex marking (see Schedule forms No. 0767603 - 0767606).
Equipment manufactured in accordance with the technical documentation of the manufacturer for use in explosive atmospheres.

Serial production.

Customs code (TN VED TS CODE) 9032 81 000 0

MEET THE REQUIREMENTS of the Technical Regulation of the Customs Union TR CU 012/2011 “On safety of equipment intended for use in explosive atmospheres”

THE CERTIFICATE IS ISSUED ON THE BASIS OF

- Certified Expo Technologies Limited production facilities audit report dated 29.07.2020 issued by the Certification Notified Body LLC „Profex“ Center;
- Assessment and Testing Report No. 1989/1ИЛПМВ from 14.10.2020, issued by Testing Center of Limited Liability Company PROMMASH TEST, Reg. No. RA.RU.21BC05.

Certification scheme: 1C

ADDITIONAL INFORMATION:

Life time – 20 years, shelf life – 30 years, storage conditions are specified in the Instruction Manual. Standards that insure conformity with requirements of the Technical Regulations of the Customs Union TR CU 012/2011 “On safety of equipment intended for use in explosive atmospheres” according to Appendix (blank No. 0767603 - 0767606)

PERIOD OF VALIDITY from 23.10.2020 to 22.10.2025

Head (authorized person) of the certification body _____ (signature) Mamitova Alexandra Nikolaevna (initials, surname)

Expert (expert-auditor) (experts (experts-auditors)) _____ (signature) Ilyukhin Artyom Vyacheslavovich (initials, surname)

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1. Purpose and Application area

This certificate of conformity applies to MiniPurge purge control systems, manufactured according to manufacturer's technical documentation.

MiniPurge control systems provide a high flow of purge gas, usually compressed air. If flow is sufficient, the purge timer starts. When purge time is over, the purge flow is shut off, and system monitors the lower flow rate to compensate for the leakage of the enclosure. Thus, the internal pressure is maintained over external pressure, preventing potentially explosive gas / vapor from entering the enclosure. In this state, blocking system allows an external power supply to be supplied to the internal equipment either directly or through a separate interface.

MiniPurge control systems are related to Group II and III equipment and are intended for use in potentially explosive areas and outdoor installation of classes 1, 2 according to GOST IEC 60079-10-1-2011 and 21, 22 according to GOST IEC 60079-10-2-2011 categories IIC and IIIC in accordance with Ex marking (see table 1), and according to the manufacturer's instructions and other regulations governing the use of equipment in hazardous areas.

2. Description of equipment and means providing explosion protection

Type identification

Model number 1XLCcsDS SS AA MO FM OA TW
| | | | |
Designations = a b cc mm Code example

a = Size or Capacity
- 1 = MiniPurge with purge capacity up to 225 Nl / min
- 2 = MiniPurge with a purge capacity of up to 450 Nl / min
- 3 = MiniPurge with a purge capacity of up to 900 Nl / min
- 4 = MiniPurge with purge capacity up to 2000 Nl / min
- 5 = MiniPurge with purge capacity up to 6000 Nl / min
- 6 = MiniPurge with purge capacity up to 8000 Nl / min
- 7 = MiniPurge with a purge capacity over 8000 Nl / min

b = Pressurization Type
- X = Type X pressurization
- Y = Type Y pressurization
- Z = Type Z pressurization

cc = Action after initial purging
- LC = Leakage Compensation only after initial High Purge
- CF = Continuous flow (same flow rate during and after purging)
- CF2 = Two Flow CF system with initial High Purge rate, but only one orifice
- CFHP = Continuous (lower) Flow after initial High Purge
- DP = Dust Protection (pressurization only)

mm = Material of the Control Unit Enclosure
- al = Aluminium alloy
- cs = Mild carbon painted steel
- ss = Stainless steel
- bp = Back plate only
- co = Chassis only
- pm = Panel mounting
- nm = Non-metallic

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Optional codes (added only if used)

AA = Active alarm output fitted
AC = Alarm cancellation circuit
AO = “Alarm only” (action on pressure or flow failure)
AS = Alarm “Action on pressure or flow failure”, selector valve
CS = Containment system monitor
DS = Door Switch Power Interlock fitted
DT = Delayed Trip after pressure or flow failure
ES = electronic timer (with EPPS option)
ET = electronic timer (no EPPS option)
FM = Flow meter(s) fitted
HP = LC or CF system with high pressure sensor
IS = Intrinsically safe (Ex i) internal switches
LS = Local sensing
LT = Low temperature
MO = Manual override fitted
MT = Mechanical Purge or Delay timer
OA = ON/OFF switch, controlling protective gas and logic supply
OB = ON/OFF switch, controlling logic supply only
OC = ON/OFF switch, controlling protective gas supply only
OS = Outlet (orifice) selector valve
OV = Outlet valve, pneumatically operated
PA = “Ex” built-in switch(es), with/without “Ex” junction box
PC = PE Pressure control leakage compensation valve (CLAPS system)
PO = Pneumatic output signals for power and alarm control
SP = Secondary Pressurization supply options
SS = Separate supply for protective gas and logic air
TW = Twin (or more) outputs for two or more separate pressurized enclosures purged in parallel
DXXX = Special design for specific flow rates
H6 = High temperature T_{amb} = −20 °C to +60 °C, air supply maximum temperature +60 °C
H7 = High temperature T_{amb} = −20 °C to +60 °C, air supply maximum temperature +70 °C

Main technical data of MiniPurge purge control systems are shown in the Table 1.

Table 1

Parameter description	**Value**
Pneumatic feed range	
Minimum overpressure, bar	4
Maximum overpressure, bar	16
Minimum gas consumption during purging, normalized liter per minute	225
Purging time, min	1–99

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Ex marking Ex and ambient temperature	
Standard versions	1Ex [px] IIC T6 Gb Ex [px] IIIC T85°C Db 1Ex [py] IIC T6 Gb Ex [py] IIIC T85°C Db 1Ex [pz] IIC T6 Gb Ex [pz] IIIC T85°C Db (−20 °C ≤ T_{amb} ≤ +55 °C)
Standard / ET & / ES versions	1Ex [px] ia IIC T5 Gb Ex [px] ia IIIC T100°C Db (−20 °C ≤ T_{amb} ≤ +55 °C)
Low temperature versions	1Ex [px] d e mb IIC T3 Gb 1Ex [px] d e mb IIC T4 Gb Ex [px] IIIC T200°C Db Ex [px] IIIC T135°C Db (−60 °C ≤ T_{amb} ≤ +55 °C)
Low temperature / ET & / ES versions	1Ex [px] d e mb ia IIC T3 Gb 1Ex [px] d e mb ia IIC T4 Gb Ex [px] ia IIIC T200°C Db Ex [px] ia IIIC T135°C Db (−60 °C ≤ T_{amb} ≤ +55 °C)
High temperature versions – H6	1Ex [px] IIC T4 Gb (−20 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +60 °C]
High temperature versions / ET & / ES versions – H6	1Ex [px] ia IIC T4 Gb (−20 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +60 °C]
High temperature versions – H7	1Ex [px] IIC T4 Gb (−20 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +70 °C]
High temperature versions / ET & / ES versions – H7	1Ex [px] ia IIC T4 Gb (−20 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +70 °C]
Combined versions Low temperature with High temperature – H6	1Ex [px] d e mb IIC T3/T4 Gb (−60 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +60 °C]
Combined versions Low temperature with High temperature – H6 and / ET & / ES	1Ex [px] d e mb ia IIC T3/T4 Gb (−60 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +60 °C]

Combined versions Low temperature with High temperature H7	1Ex [px] d e mb IIC T3/T4 Gb (−60 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +70 °C]
Combined versions Low temperature with High temperature H7 and / ET & / ES	1Ex [px] d e mb ia IIC T3/T4 Gb (−60 °C ≤ T_{amb} ≤ +60 °C) [Purged air temperature up to +70 °C]

List of explosion-proof equipment, included in MiniPurge purge control system is presented in Table 2.

Table 2

Pos.	Description	Manufacturer	Ex marking
1.	Junction Boxes MIU e	Expo Technologies	1Ex e IIC T5 Gb Ex tb IIIC T100°C Db
2.	Junction Boxes model MIU d	Expo Technologies	1Ex d IIC T* Gb Ex tb IIIC T* Db 1Ex d IIB+H2 T* Gb Ex tb IIIC T* Db 1Ex d IIB+H2 T3 Gb
3.	Electronic Timer Module ETM-IS	Expo Technologies	0Ex ia IIC T* Ga Ex ia IIIC T* Da
4.	Heater CP	Intertec-Hess GmbH	1Ex d IIC T3
5.	Junction Boxes model BPG	Abtech	1Ex e IIC T6 Gb Ex tb IIIC T85°C Db
6.	Junction Boxes model ZAG	Abtech	1Ex e IIC T6 Gb Ex tb IIIC T85°C Db
7.	Junction Boxes model OTB-122	Bartec	1Ex e IIC T6 Gb Ex tb IIIC T85°C Db
8.	Junction Boxes model 07-51	Bartec	1Ex e IIC T6 Gb Ex tb IIIC T80°C Db
9.	Limit Switch 07-2511	Bartec	1Ex d IIC T6 Gb

Design of MiniPurge purge systems ensures their explosion safety, which is achieved by fulfilling a number of requirements, including:

- purging of the internal space of protective enclosures under overpressure according with GOST IEC 60079-2-2011 in case of installation general industrial (non Ex) components in these enclosures;
- manufacturing of the cabinets and system blocks bodies of MiniPurge system from materials with high mechanical strength, resistant to impacts up to 7 J;
- use materials containing no more than 7.5% of magnesium;
- grounding clamps on the cabinets and system blocks;
- design of the connected parts to exclude the possibility of seals breakthrough or disclosure of the joints;
- ingress protection degree according with GOST 14254-2015 (IEC 60529-2013);
- design and materials used exclude possibility of accumulation and discharge of static electricity;
- threaded connections of assembly units, providing explosion protection of electrical equipment, have devices to prevent arbitrary loosening;

- doors and covers shall be marked: WARNING! DO NOT OPEN WHEN EXPLOSIVE ATMOSPHERE MAY BE PRESENT AND UNDER POWER SUPPLY or similar;
- installation, operation, repair and maintenance of the MiniPurge controls systems must be carried out in strict accordance with requirements of the Instruction Manual. Maintenance personal must strictly follow environmental and working media requirements set forth in the Instruction Manual;

Equipment of the MiniPurge purge control systems, when applied to its intended purpose and fulfilling the requirements for installation and operation in accordance with GOST IEC 60079-14-2013, ensures safety, which is fulfilling a number of requirements;

- the use of explosion-proof electrical equipment with explosion protection “flame proof enclosures “d” in accordance with GOST IEC 60079-1-2011, protection by pressurized enclosures “p” in accordance with GOST IEC 60079-2-2011, protection by increased safety “e” in accordance with GOST IEC 60079-7-2012, intrinsic safety “i” in accordance with GOST 31610.11-2012, equipment protection by encapsulation “m” in accordance with GOST IEC 60079-18-2012, equipment dust ignition protection by enclosures “t” in accordance with GOST IEC 60079-31-2013, design of which meets the requirements of GOST 31610.0-2014 and compliance with conditions of safe use “X”.

Changes in the agreed drawings and design of products is possible only in agreement with Centre “ProfEx” LLC.

This Certificate of Conformity confirms compliance with the explosion safety requirements of TR CU 012/2011 and does not consider any other types of safety during operation of the equipment.

3. MiniPurge purge control systems meet the requirements of:

TR CU 012/2011	Technical Regulation of the Custom Union “On the safety of equipment intended for use in explosive atmospheres”
GOST 31610.0-2014	Explosive atmospheres Part 0. Equipment. General requirements.
GOST IEC 60079-1-2011	Explosive atmospheres Part 1. Equipment protection by flameproof enclosures “d”.
GOST IEC 60079-2-2011	Explosive atmospheres Part 2. Equipment protection by pressurized enclosures “p”.
GOST R IEC 60079-7-2012	Explosive atmospheres Part 7. Equipment. Protection by increased safety “e”.
GOST 31610.11-2012	Electrical equipment for explosive atmospheres. Part 11. Intrinsically safe electrical circuit “i”.
GOST R IEC 60079-18-2012	Explosive atmospheres Part 18. Equipment protection by encapsulation “m”.
GOST IEC 60079-31-2013	Explosive atmospheres Part 31. Equipment dust ignition protection by enclosures “t”.
GOST IEC 60079-14-2013	Explosive atmospheres Part 14. Electrical installation design, selection and erection.

4. Marking

The marking affixed to the equipment, shall include the following:

- name of the manufacturer or its registered trade mark;
- product name;
- Ex marking (see Table 1);
- ambient temperature range (see Table 1);
- date of manufacturing;

- Serial number according with manufacturer's numeration system, including type of equipment designation;
- name or logo of the certification body and certificate number;
- other information, which manufacturer shall specify in accordance with technical documentation;
- Special mark of explosion safety and conformity mark of the member states of the Customs Union in accordance with TR CU 012/2011.

5. Special conditions of use

- the purge controller, installed on the front side of the equipment, should not be exposed to direct sources of ultraviolet radiation or direct sunlight;
- protective gas must not contain flammable gases, vapors and moisture, as well as aggressive impurities;
- during operation do not change: time of prestart purging; limits of interlocks operation on overpressure and flow rate settings;
- before putting into operation, after repair or maintenance it is necessary to check the values: the signal of protective gas reaching the permissible minimum or maximum overpressure; protective gas flow rate;
- it is allowed to switch off interlocks and alarm system for adjustment works only if there is no explosive atmosphere during whole time of switching off of interlocks;
- repair of electronic circuits providing intrinsic safety is prohibited. Faulty circuit boards and elements of intrinsically safe circuits must be replaced with new one supplied by manufacturer;
- installation, operation, inspection, maintenance and repair of equipment marked with "X" symbol in the Ex marking should be carried out strictly in accordance with Instruction Manual and accompanying technical documentation for this equipment (see Table 2), and also according to GOST IEC 60079-14-2013 and industry safety regulations.