

D758-ET MiniPurge[®]

Manual

ML434

**Important Note:**

It is essential for safety that the installer and user of the Expo system follow these instructions.


Please refer to the standard for principles and definition.

These instructions apply only to the pressurizing system. it is the responsibility of the manufacturer of the pressurized enclosure to provide instructions for the enclosure.

Expo Technologies reserves the right to replace any component, with one of the equivalent functionality.

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Section 1: System Specification

	5	X	LC	/	ss	/	ET	/	OV	/	PA	/	PC	
Size 5 = MiniPurge® Purge flow rate: 6000 NI/min														PC = Pressurized Control. Automatic leakage compensation (CLAPS)
Approval / Certification ATEX Certificate: Sira 01ATEX1295X  2813 II 2(2) GD Ex [pxb] ia IIC T5 Gb Ex [pxb] ia IIIC T100°C Db T _{amb} -20°C to +55°C IECEX Certificate: IECEX SIR07.0027X Ex [pxb] ia IIC T5 Gb Ex [pxb] ia IIIC T100°C Db T _{amb} -20°C to +55°C TÜV INMETRO Certificate: TÜV 12.1462X Ex [pxb] ia IIC T5 Gb Ex [pxb] ia IIIC T100°C Db T _{amb} -20°C to +55°C CCC Certificate: 2020312304000830 Ex [px] ia IIC T5 Gb Ex [pD] iaD 21 T100°C T _{amb} -20°C to +55°C														PA = Power and Alarm Switches. Integral /PA Terminal Box OV = Purge Outlet Valve is pneumatically operated Timing Method ET = Electronic Timer MiniPurge® Housing ss = Stainless Steel 316L Pressurization Method LC = Leakage Compensation
EAC Certificate: EA3C RU C-GB.AX58.B.00906/20 1Ex [px] ia IIC T5 Gb Ex [px] ia IIIC T100°C Db (-20°C ≤ T _{amb} ≤ +55°C)														

For limitations and conditions of use refer to the applicable certificates.

MiniPurge® Control Unit Data

Action on Pressure Failure:	Alarm and Trip (isolate power to pressurized enclosure), user adjustable Alarm Only.
Type of Operation:	Automatic leakage compensation using the Closed Loop Automatic Pressurization System (CLAPS System).
Leakage Compensation Capacity	1500 NI/min max.
Enclosure Material:	Stainless Steel 316L.
Mounting Method:	Wall mounting straps. Fixing holes as per drawing.
Temperature Limits:	-20°C to +55°C
Compressed Air Supply:	Clean, dry, oil free air or inert gas. Refer to Air Supply Quality section in Installation of the System.
Supply Pressure:	5 to 16 barg (73 to 232 psi).
Main Regulator:	Set at 5 barg, 40 µm automatic drain supply inlet filter.
Logic Regulator and Gauge:	Fitted and set to 2.5 barg (36 psi).
Process Connections:	Purge supply and outlet to pressurized enclosure 1" NPT female. Minimum supply line 25 mm (1") ID tube, inlet sized appropriately for flow rate. Reference points & signals 1/8" NPT female, minimum 6 mm pipe to be used.
Visual Indicators:	Alarm (Red ●) / Pressurized (Green ●). System Purging: 4 LEDs that flash sequentially to indicate elapsed time (black when not purging).
/PA Terminal Box:	Stainless Steel, Ex e IIC T5 Gb / Ex tb IIIC T100°C Db IP66 Tamb : -20°C to +55°C with terminals, front access cover & lower removable gland plate. Stainless Steel, Ex e IIC T4 Gb Tamb : -20°C to +60°C with terminals, front access cover & lower removable gland plate.
Power Interlock Switch:	DPNO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db.
Alarm Switch:	SPCO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db.
Intermediate Switch:	SPCO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db.
System Purging Switch (Optional):	SPCO switch, contact ratings 250 Vac 4 Amps (AC-15) / 24V DC 4A, Ex d IIC T6 Gb / Ex tb IIIC T80°C Db.
Minimum Pressure Sensor:	Minimum: 0.5 mbarg. Maximum: 5.0 mbarg. Default Setting: 1.5 mbarg. Tolerance -0, +0.7 mbarg.
Intermediate Sensor:	Minimum: 2.0 mbarg. Maximum: 10 mbarg. Default Setting: 5.0 mbarg. Tolerance: -0, +10%.

Note: There must be a 1.5 mbarg difference between the minimum pressure and intermediate sensors.

Purge Flow Sensor: Set at 6.4 mbarg (Tolerance: -0, +10%).
 CLAPS Sensor: Minimum: 5.0 mbarg.
 Maximum: 15 mbarg.
 Default Setting: 10 mbarg.
 Tolerance: -0, +10%

Note: there must be a 2.5 mbarg difference between the intermediate and CLAPS sensor calibration point.
For example: Minimum pressure = 5 mbarg, intermediate pressure = 6.5 mbarg, CLAPS sensor = 9 mbarg.

Purge Time: User selectable, in 1 minute intervals, up to 99 minutes (tolerance -0, +3 seconds).
 Default Setting 99 minutes.
 Weight: 27 kg (60lb).

Relief Valve Unit and Purge Outlet Valve with integral spark arrestor

Type: RLV104/ss/FS, Design number D758RLV.
 Bore: Purge Outlet Valve Ø 104 mm, Relief Valve Ø 75 mm.
 Relief Valve Lift-Off Pressure: Minimum: 20 mbarg.
 Maximum: 50 mbarg.
 Default: 30 mbarg (+0, -20%).
 Flow Rate: Range: 2000, 3000, 4000, 5000, or 6000 NI/min.
 Default: 2000 NI/min.
 Material: Housing: Stainless steel 316L.
 Gasket: Silicone foam.
 Spark arrestor: Stainless steel mesh.
 Mounting Method: Rectangular cut-out and fixing holes as per drawing.
 Weight: 7 kg (15.4 lb).

Note: Special settings available on request, refer to Test and Inspection Sheet.

Section 2: Quick User Guide

Installation



The MiniPurge® system must be installed by a competent engineer, in accordance with relevant standards, such as IEC / EN 60079-14 and any local codes or practice.

- Mount the purge system in accordance with the hook-up drawing.
- Ensure the system is installed according to the full instructions in the "Installation of the System" section of this manual.
- All piping must be clean and free of dirt, condensation and debris prior to connection to the purge system or pressurized enclosure.
- It is strongly recommended that a local isolation valve is installed on the air supply upstream of the purge system.

Note: Most faults are due to restricted air supply, inadequate supply pipe work or drop in air supply pressure during the purge process.



Operation of the System

Once the system is installed correctly, turn on the air supply. Refer to Commissioning section.



Indicator	Colour	Status
Alarm / Pressurized	Red 	Low pressure alarm (enclosure pressure too low)
Purging	Black 	Purge flow too low or not in purge mode

The purge system commences the purge cycle:

- The purge air will enter the enclosure.
- The pressurized enclosure will obtain a positive pressure.
- The Purge Outlet Valve will open within the Relief Valve Unit.
- The air will then exit the Relief Valve Unit housing via the spark arrestor.



Indicator	Colour	Status
Alarm / Pressurized	Green 	Pressurized (minimum enclosure pressure achieved)
Purging	Black 	Purge flow too low

Open the Purge Flow Restrictor Valve until the air flow reaches the required rate; the system will initiate the timed purge cycle. Start a stopwatch when the purging indicator flashes yellow.

Indicator	Colour	Status
Alarm / Pressurized	Green 	Pressurized
Purging	Sequential flashing Yellow 	Purge flow rate above minimum

On completion of an uninterrupted purge cycle of the required length, the system will indicate purge complete.

Stop the stopwatch when the purging indicator stops flashing.

Indicator	Colour	Status
Alarm / Pressurized	Green 	Pressurized and in leakage compensation mode
Purging	Black 	No longer in purge mode

Check stopwatch timing to verify that the actual purge time is equal to or greater than the required purge time.

Note: The recorded purge time must never be less than the required purge time.

The system is now operating correctly in leakage compensation mode.

If the system has not performed as expected, check the installation thoroughly and ensure it has been carried out according to the instructions.

If an obvious problem has not been highlighted and corrected, follow the procedures in the Fault Finding section.

If all checks have been carried out and the system still does not perform as expected, contact your local distributor or Expo Technologies.

Section 3: Application Suitability

MiniPurge® systems are certified for use in hazardous locations, where the hazardous location is non-mining (above ground) and the hazard is caused by flammable gasses, vapours or dust. Depending on the model the systems may be used in IECEx and ATEX Zone 1 and/or Zone 2 - Categories 2 and 3 respectively.

MiniPurge® systems may be used for hazards of any gas group. Apparatus associated with the MiniPurge® system, such as intrinsically safe signalling circuits and flameproof enclosures containing switching devices may be limited in their gas group. The certification documentation supplied with any such devices must be checked to ensure their suitability.

This system is primarily designed for use with compressed air. Where other inert compressed gasses are used (Nitrogen, for example) the user must take suitable precautions so that the build up of the inert gas does not present a hazard to health. Consult the Control of Substances Hazardous to Health (COSHH) data sheet for the gas used. Where a risk of asphyxiation exists, a warning label must be fitted to the pressurized enclosure.

The following materials are used in the construction of MiniPurge® systems. If substances that will adversely affect any of these materials are present in the surrounding environment, please consult Expo Technologies for further guidance.

Materials of Construction		
Stainless Steel	Aluminium	Acrylic
Mild (Carbon) Steel	Nylon	Silicone
Brass	Polyurethane	Neoprene
ABS	Polycarbonate	Polyester (glass filled)

Section 4: Description and Principle of Operation

The MiniPurge[®] system is pneumatic in operation, with electrical interfaces.

Purge and pressurization is a method of protection used in Zone 1 (21) and/or Zone 2 (22) hazardous locations to ensure that the interior of an enclosure is free of flammable gas. Addition of a MiniPurge[®] system allows the electrical equipment within the enclosure to be used safely in a hazardous location.

The principle of purge and pressurization is as follows:

- Clean compressed air or inert gas is drawn from a non-hazardous location.
- The interior of the pressurized enclosure is flushed to remove any hazardous gas or dust.
- This is introduced into the pressurized enclosure to keep the internal pressure at least 0.5 mbarg above the external pressure.
- Whilst pressurized, flammable gas cannot enter the enclosure from the environment.

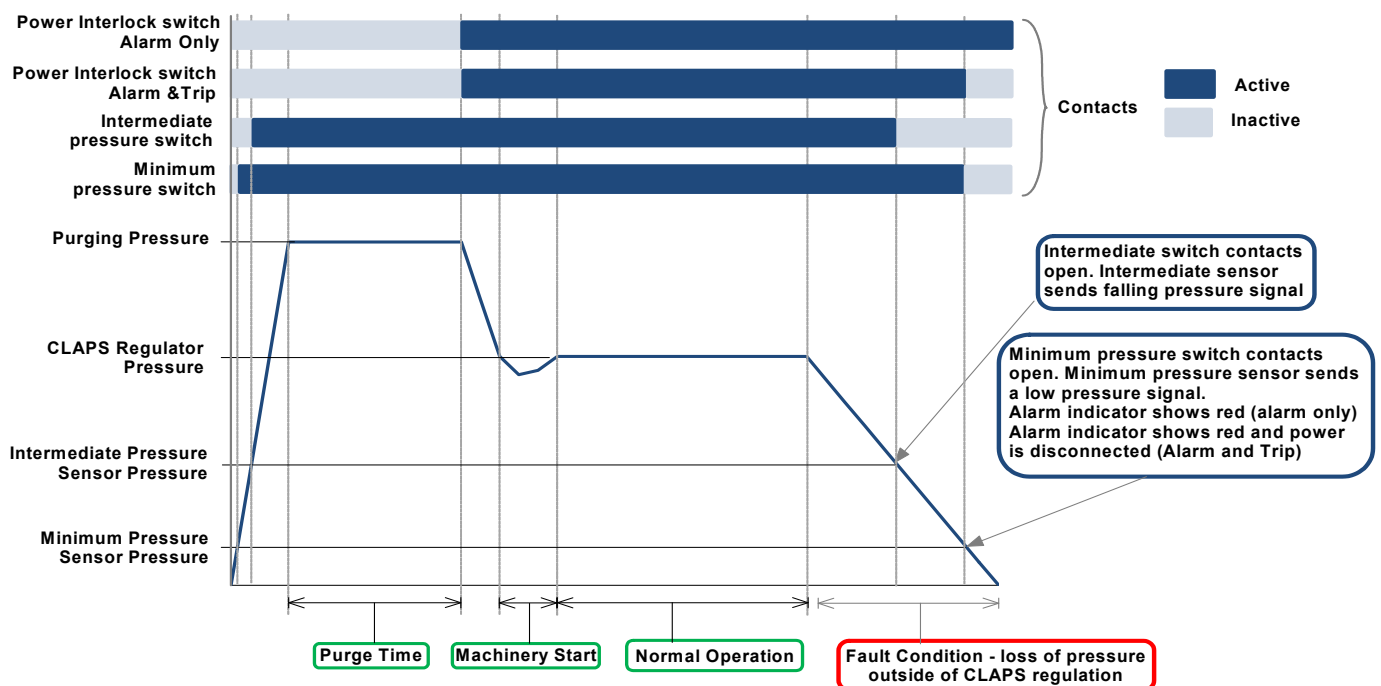
Prior to switching on the power to the electrical equipment, the enclosure must be purged to remove any flammable gas that might have entered the enclosure before pressurization. Purging is the process of removal contaminated air and replacement with air (or inert gas) known to be free from flammable gas. The duration of this purge process is normally ascertained by performing a purge test.

At the end of the purge cycle the system automatically switches to leakage compensation mode. The Purge Outlet Valve is closed and the airflow is reduced but remains high enough to compensate for the leakage of air from the enclosure whilst maintaining the minimum over pressure state.

In the event of pressure failure within the pressurized enclosure the system will raise an alarm in the form of visual indicators and a volt free contact depending on the specification of the system. The default action on loss of pressurization is alarm and automatic disconnect of power (A&T - Alarm and Trip). This can be changed by the customer to Alarm Only (/AO), please refer to section titled Main Components.

The MiniPurge[®] system incorporates a Closed Loop Automatic Pressurization System (CLAPS). This allows the system to detect a rise or fall of the enclosure's internal pressure and adjust the leakage compensation rate accordingly. Pressure variations are more likely during sudden start up of large rotating electrical machines but can also be caused by changes in running temperature. This system has been specifically designed to maintain a stable internal pressure within the enclosure.

Pressure characteristics during purge and pressurization of a pressurized enclosure using a MiniPurge[®] system that incorporates a CLAPS system:



Section 5: Main Components

Air Supply Filter / Regulator

The unit is provided with a 40 µm liquid / dust filter element as a precaution. The user of the MiniPurge[®] system must ensure that air supply is to the quality stated in Air Supply Quality paragraph found in the Installation of the System section. The regulator is factory set to 5 barg (73 psig) and regulates the pressure of an air supply between 5 and 16 barg (73 to 232 psig). A pressure gauge is fitted down stream of the filter; this should indicate no less than 5 barg (73 psig). During the purge cycle a pressure drop will be indicated on the gauge.

Logic Air Supply Regulator

This device provides the system with a stable air supply pressure to the logic system and allows consistent operation. The pressure level is factory set to 2.5 barg (36 psig) and can be verified by means of the integral pressure gauge.

Minimum Pressure Sensor

This monitors the pressure inside the pressurized enclosure. When the pressure is below the minimum required for safe operation, the pressure sensor causes the system to reset and the Alarm / Pressurized indicator turns **Red** ●. The sensor is factory calibrated and set to operate in falling pressure at or above the minimum specified pressure.

Purge Flow Sensor

The Purge Flow Sensor monitors flow through the Purge Outlet Valve. At correct purge flow rates, above the minimum specified for purging, the sensor sends a signal that activates the purge timer. This sensor is factory calibrated to operate on falling flow rate at or above the minimum specified purge flow rate.

Intermediate Sensor

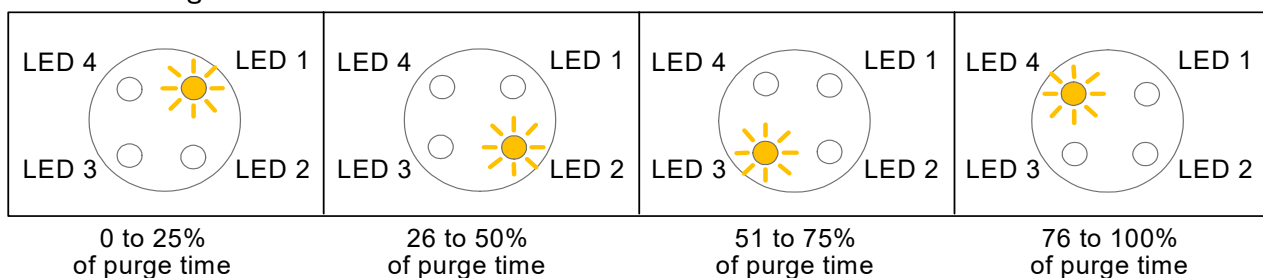
This sensor monitors the pressure inside the pressurized enclosure. It senses when the pressure is drops and provides early warning before the low pressure sensor trips the system.

Electronic Purge Timer

When both the enclosure pressure and the purge flow rate are correct, the Purge Flow Sensor activates the timer and the electronic timer starts. The timing period is selected using switches mounted on the timer module.

Note: Setting the timer to 00 minutes will cause infinite purging; the cycle will never complete.

During timing, the percentage of the purge cycle is indicated by four LEDs which flashes sequentially while the timer is running.



The Electronic Timer contains an intrinsically safe battery pack that needs regular replacement. See Commissioning section.

Purge Complete Valve

This valve receives a signal from the purge timer that indicates the completion of the purge cycle and verifies that the pressurization signal is still present. If both conditions are satisfied a signal is sent to indicate that the purge is complete. This performs two functions: to turn on the electrical supply to the pressurized enclosure and to reduce the high purge flow rate to leakage compensation mode. It also provides a hold-on signal that maintains the leakage compensation mode with the power switch on, even when the purge timer has reset ready for the next purge cycle.

OR Gate

This device provides the Purge Complete Valve with the hold-on function referred to previously. When either the timed-out signal or the purge complete signal is present it allows the pilot signal to be sent to the purge complete valve.

Alarm Only Circuit (/AO)



If the pressure in the pressurized enclosure is too low the system will normally cut off electrical power to it. In certain circumstances, where local codes of practice allow, the system can be altered to provide a hold-on circuit that will maintain the electrical power supply to the pressurized enclosure while also providing a pressure failure alarm. The user must respond to the alarm and either restore the pressure to the pressurized enclosure or otherwise make the installation safe; for example, cut off the electrical supply. The decision to use the Alarm Only facility, and the allowable length of time for non-pressurized operation, is the responsibility of the user.

Warning: It is potentially dangerous to energise the pressurized enclosure in an non-pressurized condition when it is known that there is potentially explosive gas or dust in the hazardous location.



Visual Indicators



Visual indicators are fitted to provide status information to the operator.

Alarm / Pressurized Indicator

Green* 	Pressurized
Red 	Pressure Alarm (enclosure pressure low)

System Purging Indicator

Black* 	Purge flow too low (not in purge mode)
Yellow (flashing) 	Purging (flow above minimum)

* The Green  / Black  combination indicates normal operation of the pressurized enclosure after the initial purging cycle has been completed.

Power Interlock Switch

This flameproof power switch is activated by the signal from the Purge Complete Valve. This activation can be used to turn on the electrical supply to the pressurized enclosure. The cable from the switch is terminated in the /PA terminal box.

Alarm / Pressurized Switch

This flameproof switch is operated by the pressurized signal. It allows a remote electrical system status indicator to show either pressurized or a pressure failure alarm. The cable from the switch is terminated in the /PA terminal box.

System Purging Switch (Optional)

This switch is operated by the purge flow signal that allows a remote electrical system status indicator to signal that the system is purging; sometimes referred to as “purge-in-progress”. The cable from the switch is terminated in the /PA terminal box.

Intermediate Switch

This is a flameproof switch which is activated by the signal from the Intermediate Sensor. The cable from the switch is terminated in the /PA terminal box.

Purge Valve

This changeover valve selects between purge air flow or leakage compensation. It is sized to allow sufficient air into the enclosure during purging based on: the specified air supply pressure range, the minimum specified purging outlet flow rate +10% and the expected leakage rate from the pressurized enclosure. At the end of the purge cycle, the purge valve closes in response to the “Purge Complete” signal; it remains in the closed position until the next purge cycle is initiated.

Purge Flow Restrictor

This valve restricts the purge flow to the minimum required flow rate. The Purge Flow Restrictor must be readjusted during commissioning.

CLAPS Sensor

This sensor monitors the pressure within the pressurized enclosure and sends a control signal to the CLAPS Regulator. The normal running pressure must be determined prior to system start-up so that the CLAPS Sensor may be set to the level required to control the CLAPS Regulator.

CLAPS Regulator

This is the regulator that controls the leakage compensation air flow into the enclosure after the purging is complete. It either increases or decreases the air flow into the enclosure as appropriate to maintain a stable running pressure. The CLAPS Regulator must be set at the time of commissioning.

Relief Valve Unit

The Relief Valve Unit allows the purge air to exit the enclosure safely via a built-in spark arrestor. This spark arrestor is designed to prevent the emission of arcs, sparks and incandescent particles produced within the pressurized enclosure.

Purge air passes through the Relief Valve Unit; the preset pressure differential across the appropriate orifice ensures that the purge flow sensor is activated once the selected purge flow has been attained.

During the purge cycle a pneumatic cylinder operates the Purge Outlet Valve that lets the air from inside the enclosure exhaust through the Relief Valve Unit. When the system changes to leakage compensation mode, the Purge Outlet Valve is closed and the enclosure sealed.

The Relief Valve Unit has an in-built relief valve. This is sized to ensure that, if the air supply pressure rises up from the specified maximum, the internal enclosure pressure will not exceed the specified maximum working pressure of the pressurized enclosure.

/PA Terminal Box

The Terminal Box is increased safety (Ex e) certified and incorporates the terminal connection points for the alarm and interlock switches. All contacts provided are volt free (dry).

Cable entry methods (for example conduit or cable glands) must also be certified to IECEx, ATEX and/or INMETRO standards (and must match the certification scheme for the motor). The main requirement is that IP66 (or better) ingress protection must be provided by use of seals or washers.

Section 6: Installation of the System

Installation of the System

The MiniPurge® is designed for use under normal industrial conditions of ambient temperature, humidity and vibration. Please consult Expo before installing this equipment in conditions that may cause stresses beyond normal industrial conditions. The MiniPurge® system must be installed by a competent person in accordance with relevant standards, such as IEC / EN 60079-14, and any local codes of practice.

The MiniPurge® control unit should be installed either directly on, or close to the pressurized enclosure. It should be installed such that the system indicators and certification labels are in view.

All parts of the system carry a common serial number. If installing more than one system, ensure that this commonality is maintained within each system installed.

Relief Valve Unit

To achieve effective purging, the points where air enters and exits the pressurized enclosure should normally be at opposite ends of the enclosure. The RLV unit must be mounted vertically and there should be a minimum clearance of 300 mm (12") around the spark arrestor (purge outlet).

It is important that the interior and exterior of the spark arrestor is kept clean and debris is not allowed to accumulate; this might affect the calibration of the device. In particular, the exterior of the spark arrestor should not be painted or blocked in any way.

Air Supply Quality

The MiniPurge® system should be connected to a protective gas supply, which is suitable for purging and pressurization.

The supply pipe connection to the MiniPurge® must be appropriate for the maximum input flow rate for the application.

The air supply must be regulated at a pressure less than the maximum stated inlet pressure.

The air supply must be: clean, non-flammable and from a non-hazardous location. The air should be of Instrument Air Quality. Although the purge control system will operate with lower air quality, its operational life will be adversely affected. The equipment that is being protected by the MiniPurge® may also suffer because of poor air quality.

With reference to BS ISO 8573-1: 2010, Instrument Air is typically specified as:

Particle Class 1

In each cubic metre of compressed air, the particulate count should not exceed 20,000 particles in the 0.1 to 0.5 micron size range, 400 particles in the 0.5 to 1 micron size range and 10 particles in the 1 to 5 micron size range.

Humidity or pressure dew point

The dew point, at line pressure, shall be at least 10 °C below the minimum local recorded ambient temperature at the plant site. In no case, should the dew point at line pressure exceed +3 °C.

Oil Class 2

In each cubic metre of compressed air, not more than 0.1mg of oil is allowed. This is a total level for liquid oil, oil aerosol and oil vapour.

When an inert gas is being used to supply the purge system, risk of asphyxiation exists. Refer to Application Suitability section.

Before connection of the air supply to the purge system, the supply pipe work should be flushed through with instrument quality air to remove any debris that may remain in the pipes. This must be carried out for at least 10 seconds for every meter of supply pipe.

Unless a supply shut-off valve has been fitted to the MiniPurge[®] system, an external shut-off valve with the same, or larger, thread size as the Control Unit inlet fitting should be fitted by the installer to prevent any restriction of purge flow.

The purge air from the MiniPurge[®] Control Unit should be piped within the pressurized enclosure to ensure purging of potential dead air spots.

The purge system is fitted with an internal regulator factory set to 3 bar feeding the logic.

Pipe Work

If the MiniPurge[®] is not connected directly to the pressurized enclosure, pipe work and fittings used to connect the Control Unit to the pressurized enclosure should be either metallic or appropriate to the environment into which the system is installed. No valve may be fitted in any signal pipe connecting the Control Unit to the pressurized enclosure. This pipe work must be fitted in accordance with local codes of practice where relevant.

Multiple Enclosures

This system is suitable for the purge and pressurization of the primary pressurized enclosure and its associated terminal boxes.

Provision and Installation of Alarm Devices

When the pressure inside the pressurized enclosure is above the minimum, the Minimum Pressure Sensor returns a positive (**pressurized**) signal causing the alarm indicator on the control unit to change from **red** to **green**.

When the pressure falls below the minimum permissible the positive (**pressurized**) signal is removed. This absence of signal indicates a **low pressure alarm** condition and causes the alarm indicator on the control unit to go from **green** to **red**.

There are volt free (dry) contacts available within the terminal box for remote usage.

The user must make use of this alarm facility in accordance with the local code of practice for Action on Pressure or Flow Failure. Most codes include the following recommendations:

- **Zone 1 Installations:** Alarm and Automatic Trip of Power.
- **Zone 2 Installations:** Alarm Only on pressure or flow failure with power being removed manually.

Power Supplies and their Isolation

All power entering the pressurized enclosure should have a means of isolation. This requirement also applies to any external power sources that are connected to the equipment such as volt-free (dry) contacts within the pressurized enclosure. This is commonly achieved using the Power Interlock Switch.

Power Interlock Switch

This switch is a Double Pole Normally Open, double-break switch: it provides two independent contacts that should be connected in series and used to isolate the power. This can be achieved using switchgear or other suitable switching device. These contacts are terminated and accessible to the user in the Ex e terminal box.

It is the responsibility of the user to ensure that the switch is only operated within appropriate technical limits.

The switch must be replaced after any short circuit that occurs within the main circuit; the switch is a piece of encapsulated equipment and as such it is not possible to check the state of the contacts. Technical modifications to the switch are not permitted.

Prior to commissioning, check that the Ex e terminal box is clean, the connections have been made properly, the cables laid correctly and all screws in the terminals are secure.

In all cases the application and isolation of power must be controlled by the MiniPurge[®] system using the power interlock signal.

No switches are permitted between the power switch and the MiniPurge[®] system other than an authorized manual override circuit.

The safe use of this switch is the responsibility of the user, all electrical installations must conform to local codes of practice.

Exception

Power to apparatus that is already suitable for use in hazardous locations need not be isolated by the MiniPurge[®] system.

Section 7: Commissioning

Commissioning the System

Note: The steps 11 and 15 to 21 represent detailed commissioning tests

The following equipment is needed for this process:

- Continuity meter
- Gauge manometer (0 to 200 mbarg)
- Differential manometer

If, after commissioning, the system does not perform as expected, refer to the Fault Finding Section.

Follow the steps as outlined:

1. Check all connections and that the Relief Valve Unit is fitted correctly with an unobstructed path to the purge exhaust.
2. Close the Purge Flow Restrictor Valve.
3. Fully open external supply shut-off valve where fitted.
4. Check that the internal logic pressure gauge reads 2.5 barg / 36 psi / 250 kPag.
5. Check that the pressure gauge on main air supply reads 5 barg / 73 psi / 500 kPag.
6. Check that the Pressure Relief Valve is correctly set by disconnecting the minimum pressure sensing pipe at the bulkhead fitting on the input to the MiniPurge[®]. This will disable all of the pressure sensors.
 - Using a 4 mm nylon tube, connect a manometer to the bulkhead fitting from which the minimum pressure sensing pipe was removed.
 - Open the Purge Flow Restrictor Valve very slowly, until the Pressure Relief Valve opens
 - Check the opening pressure is within calibration limits.
 - This test can be carried out several times to ensure repeatability and compliance.Refer to the Maintenance of the System section if the Relief Valve needs recalibrating.
7. Close the Purge Flow Restrictor Valve.
8. Remove the manometer and reconnect the minimum pressure sensing pipe to the bulkhead fitting.
9. Remove red plug from the top of the Minimum Pressure Sensor and connect a gauge manometer.
10. Connect a differential manometer to the test points on the flow sensor.

11. To check sensor calibration

- The internal pressure in the pressurized enclosure must be below Relief Valve lift off pressure and above the CLAPS pressure
- At this time the pressurized indicator should be **green**.
- gradually open Purge Flow Restrictor Valve until purging indicator **flashes yellow**.

Note: For large volumes it may take a long time for the purge flow to start.

- very slowly close Purge Flow Restrictor Valve until the purging indicator stops **flashing yellow**.
- Take a reading from pressure gauge.

12. To set the purge flow rate:

- Turn on the compressed air to the MiniPurge[®].
- Gradually open the Purge Flow Restrictor Valve until the **black / yellow** indicator changes to **yellow (flashing)**.
- The flashing yellow indicator confirms the correct flow rate.
- The differential pressure should be greater than 6.4 mbarg.

- The relief valve is supplied with different orifice plates for the specified flow rate. This orifice plate is held in position by two M3 screws and can easily be changed by removing the large cover plate from over the outlet valve assembly and screws.

Warning: When opening the Purge Flow Restrictor Valve, ensure the over pressure within the pressurized enclosure does not exceed the pressure relief valve setting.

13. The purge timer will start as soon as the Purging Indicator **flashes yellow**. Check that the time delay between the indicator turning to **yellow (flashing)** and returning to **black** is not less than the minimum time required for complete purging of the pressurized enclosure. Times in excess of minimum are permitted.
14. After the purge has been completed, the Purge Valve will close and the air flow into the pressurized enclosure will be controlled by the CLAPS Regulator. The initial setting may be too high or too low.
15. Gradually turn the CLAPS Regulator anti-clockwise to reduce enclosure pressure.
16. Reduce regulator until intermediate sensor causes contacts to open.
17. Check the manometer on the minimum pressure sensor.
18. Continue to reduce the CLAPS Regulator to test the minimum pressure sensor.
19. To check operation of Minimum Pressure Sensor, check readings on manometer as system will automatically re-purge when it reaches minimum pressure.
20. While the system re-purges, return the CLAPS Regulator to the initial setting.
21. If minimum pressure is below the set point, refer to the Recalibration section
22. If the setting is too high, continual rising and falling of the enclosure pressure will be seen as the CLAPS Regulator automatically shuts off and reinstates the flow. The CLAPS Regulator should be adjusted to reduce the flow into the pressurized enclosure by turning the adjuster screw anti-clockwise.
23. If the initial setting is too low the CLAPS Regulator may not provide enough air flow causing a gradual decline in enclosure pressure. To increase the flow into the pressurized enclosure, adjust the CLAPS Regulator Relief Valve unit by turning the adjuster screw clockwise.
24. To test the CLAPS settings, create a leak in the system by removing a bolt or loosening a gland plate in order to create a 15mm hole. Remember to replace bolt or retighten gland plate after testing.
25. The setting of the CLAPS Sensor is factory calibrated to the normal working pressure expected in the pressurized enclosure, typically 10 mbarg. The pressure in the pressurized enclosure should be stabilized as close as possible to this figure. This can be checked by a manometer attached to the minimum pressure sensor.
26. Tighten locknut on flow restrictor to 2.5 N/m².
27. Remove the air supply to the system, remove all test equipment and replace all plugs.

Normal Operation

For normal operation of the system, after commissioning has been carried out it is possible to turn the air supply valve on or off to start or stop the system. After this, the purge and pressurization sequence is automatic.

Section 8: Maintenance of the System

General maintenance

The maintenance of the system outlined in this manual should be supplemented with any additional requirements set out in appropriate local codes of practice.

The following checks should be carried out every 6 - 36 months dependent on environment according to IEC / EN 60079-17

- Tests outlined in the Detailed Commissioning section.
- Ensure that the Relief Valve Unit is free from contamination prior to making any adjustment. To do this:
 - Remove large cover plate using a 8 mm spanner (wrench).
 - Check that the interior and all components are clean and free from contamination.
 - Replace large cover plate.
- Check the condition of the air supply filter element. Clean or replace as necessary.

Additional maintenance checks

The following additional checks are recommended at least every 3 years:

Check that:

- Apparatus is suitable for use in the hazardous location.
- There are no unauthorised modifications.
- The air supply is uncontaminated.
- The interlocks and alarms function correctly.
- Approval labels are legible and undamaged.
- Adequate spares are carried.
- The action on pressure failure is correct.

Maintenance of Electronic Timer

This should be carried out every 3 years.

- The intrinsically safe battery pack associated with the electronic timer should be replaced and the commissioning tests repeated.
- After the timing phase has elapsed, the battery may be hot-swapped in the hazardous location without affecting the operation of the MiniPurge[®] system

Re-calibration of the Relief Valve Unit

Warning

Incorrect adjustment of the Relief Valve Unit can lead to significant over pressure and result in damage to the enclosure.

If maximum pressure setting is reached, stop adjustment, and reduce the pressure.

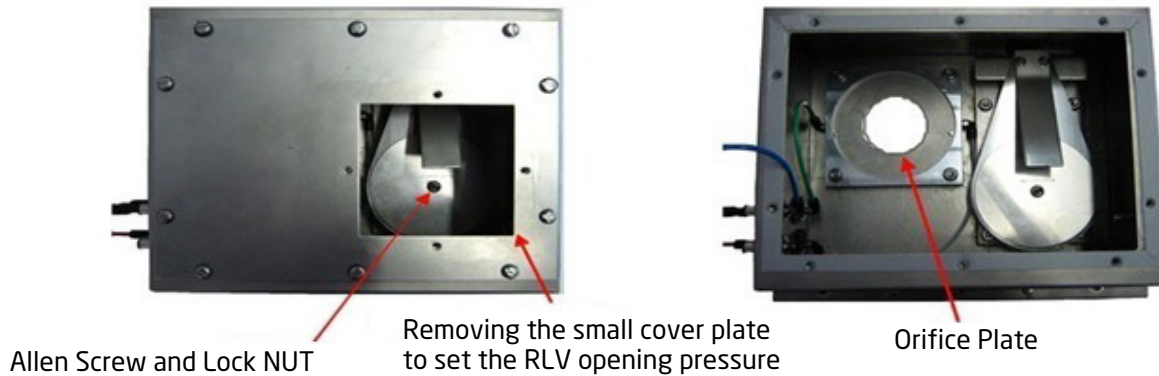
To perform the following adjustments, an 8 mm spanner (wrench) and a 2.5 mm hex key will be required. Ensure that the Relief Valve Unit is free from contamination prior to making any adjustment. To do this:

- Remove large cover plate using an 8 mm spanner (wrench).
- Check that the interior and all components are clean and free from contamination.
- Replace large cover plate

To adjust the lift off pressure of the Relief Valve:

- Attach test equipment as described in the Commissioning Section.

- Remove small cover plate.
- Whilst holding the central adjustment screw in position using the hex key, loosen the retaining nut.
- Adjust the hex key clockwise to increase, or anti-clockwise to reduce the lift off pressure.
- Before testing, retighten the locking nut whilst holding the adjustment screw in place.
- Carry out the commissioning tests to check the correct setting of the relief valve after adjustment.
- The adjustment is sensitive, and it is recommended that a $\frac{1}{4}$ turn (maximum) adjustments are applied between tests.



Re-calibration of the Pressure Sensors

The brass nozzle on the sensor is sealed into position using Loctite thread sealant. If the thread has seized up, remove to a safe area and heat slightly to soften prior to making any adjustment. This prevents potential damage to the brass of the nozzle.

- Disconnect pipe work from the sensor, including pipe located below the sensor.
- Remove sensor by unscrewing anti-clockwise.
- The nozzle is located under the sensor.
- The adjustment is sensitive, turn the nozzle in $\frac{1}{8}$ of a turn step.
- Turn clockwise to reduce the pressure setting and anti-clockwise to increase.
- Replace sensor, screwing clockwise.
- Reconnect all pipe work.

Section 9: Fault Finding

General Information

If you are having problems that cannot be corrected using one of the methods described, please call Expo or your supplier for further assistance. If the system is less than 12 months old, parts under warranty should be returned to Expo for investigation. A full report of the fault and the system serial number should accompany the parts.

It is common for problems with the MiniPurge® system to be caused by contamination of the air supply with oil, water, or dirt. To prevent these problems, the air supply must contain a dust filter and a water filter. This will ensure that the air is instrument quality and protect both the purge system and the equipment being purged. This filtration system is not provided by Expo and must be sourced separately.

Contamination can enter the system from a number of sources. To prevent this, it is essential that the procedures described in the Installation section are carried out prior to first use of the system. These procedures should also be carried out following any disconnection and re-connection of the pipe work. Failure to perform these procedures may cause damage to the system that will not be covered by the warranty.

The system has been designed for ease of fault finding and many of the components fitted are plug-in or chassis mounted. Check components by substitution only after establishing that such action is necessary.

Before carrying out the fault finding procedures, ensure that:

- Both the main air pressure to the system and for Motor Purge Systems, the regulated pressure to the logic manifold are as specified on the settings sheet.
- Air pressure does not drop below the minimum supply pressure during purging; most faults reported are due to insufficient air supply during the purge cycle.

System purges correctly but trips and auto re-purges at the end of the purge time.

This is a result of the pressure within the pressurized enclosure being below the minimum pressure sensor setting. The pressure can be checked using a manometer. The most common causes of this problem are outlined below.

Fault Location	Cause	Solution
Pressurized Enclosure	There is debris on the face of the Relief Valve disk held in place by the magnet.	<ul style="list-style-type: none"> • Remove debris and ensure RLV disk is clean.
	Enclosure leaking excessively.	<ul style="list-style-type: none"> • Ensure all doors and covers are closed and that all conduit and cable glands are properly sealed. • Seal any other leaks.
	Pressure sensing tube damaged.	<ul style="list-style-type: none"> • Replace tubing.
CLAPS Regulator	The CLAPS Regulator setting is too low.	<ul style="list-style-type: none"> • Increase the setting of the CLAPS regulator to raise the pressure in the pressurized enclosure after purging. • To do this, turn clockwise.
MiniPurge® Control Unit	the Minimum Pressure Sensor setting has drifted above the CLAPS setting	<p>The Minimum Pressure Sensor needs re-calibrating.</p> <ul style="list-style-type: none"> • Refer to Re-calibration of Pressure Sensors in the Maintenance section

Relief Valve opens (continuously or intermittently)

Fault Location	Cause	Solution
Pressurized Enclosure	Enclosure pressure is too high due to CLAPS Regulator being open to far.	Adjust the CLAPS Regulator.
Relief Valve Unit	Debris on the Relief Valve disk allowing air to leak from the valve.	Remove Relief Valve cover and clean the valve disk.

System enters purging but purge indication does not occur

Fault Location	Cause	Solution
Air Supply	Insufficient flow rate due to inadequate air supply pressure. Often due to pressure drop in the supply pipe.	Static pressure of 5 barg must be maintained during purge <ul style="list-style-type: none"> Check air supply pressure at the inlet to the control unit. Ensure that the supply pipe bore is suitable for the flow rate
Pressurized Enclosure	Excessive leakage from the pressurized enclosure.	<ul style="list-style-type: none"> Check around the enclosure while purging is taking place. Total leakage at purge outlet valve should not exceed 10% of purge flow sensor setting. Check for leakage down cables and conduit.
Pipe Work	Tubing from Relief Valve flow sensing point not airtight.	<ul style="list-style-type: none"> Ensure fitting nuts are tightened. Check for tube damage. Repair as necessary.
Relief Valve Unit	Relief Valve opening during purge.	<ul style="list-style-type: none"> Check enclosure pressure on start up is less than Relief Valve lift off pressure.
MiniPurge Control Unit	Flow sensor setting incorrect.	<ul style="list-style-type: none"> Check the pressure is correct on the flow sensor.

System begins purging but cycles fail to complete

Fault Location	Cause	Solution
Electronic Timer	Time set to 00	<ul style="list-style-type: none"> Reset timer to correct purge time.
	The intrinsically safe battery pack is discharged	<ul style="list-style-type: none"> Replace as necessary.

Flow restrictor ball valve opens/closes by itself

Fault Location	Cause	Solution
Flow restrictor	Flow restrictor locknut loose	<ul style="list-style-type: none"> Tighten locknut to 2.5 N/m²
	Flow restrictor Shakeproof washer missing/damaged	<ul style="list-style-type: none"> Replace washer - Expo part code S0019/028

Section 10: Recommended Spares List

Part Number	Description
KFL-A01N-001	Filter Kit for S0015/275 filter / regulator
S0030/606	Purge flow sensor factory set to 6.4 mbarg
S0030/016	Minimum Pressure sensor, must be factory set to the value as stated on the Customer Test and Inspection Sheet
HSI-0160-000	Intermediate pressure sensor
S0030/588	CLAPS Sensor must be factory set to the value as stated on the Customer Test and Inspection Sheet
S0015/018	Pressure gauge (Air Supply Pressure), 0 - 10 barg
S0015/135	Miniature gauge (Logic Pressure), 0-4 barg
ETM-IS31-001	IS battery pack for electronic timer module
AGE-GE00-168	Electronic Timer Assembly c/w potted Timer Switch

Section 11: Glossary

Acronym	Definition
A&T	Alarm and Trip
AO	Alarm Only
CLAPS	Closed Loop Automatic Pressurization System
CU	Control Unit
ET	Electronic Timer
FCV	Flow Control Valve
IS	Intrinsically Safe
LC	Leakage Compensation
PA	Power and Alarm
RLV	Relief Valve Unit

Section 12: Drawings and Diagrams

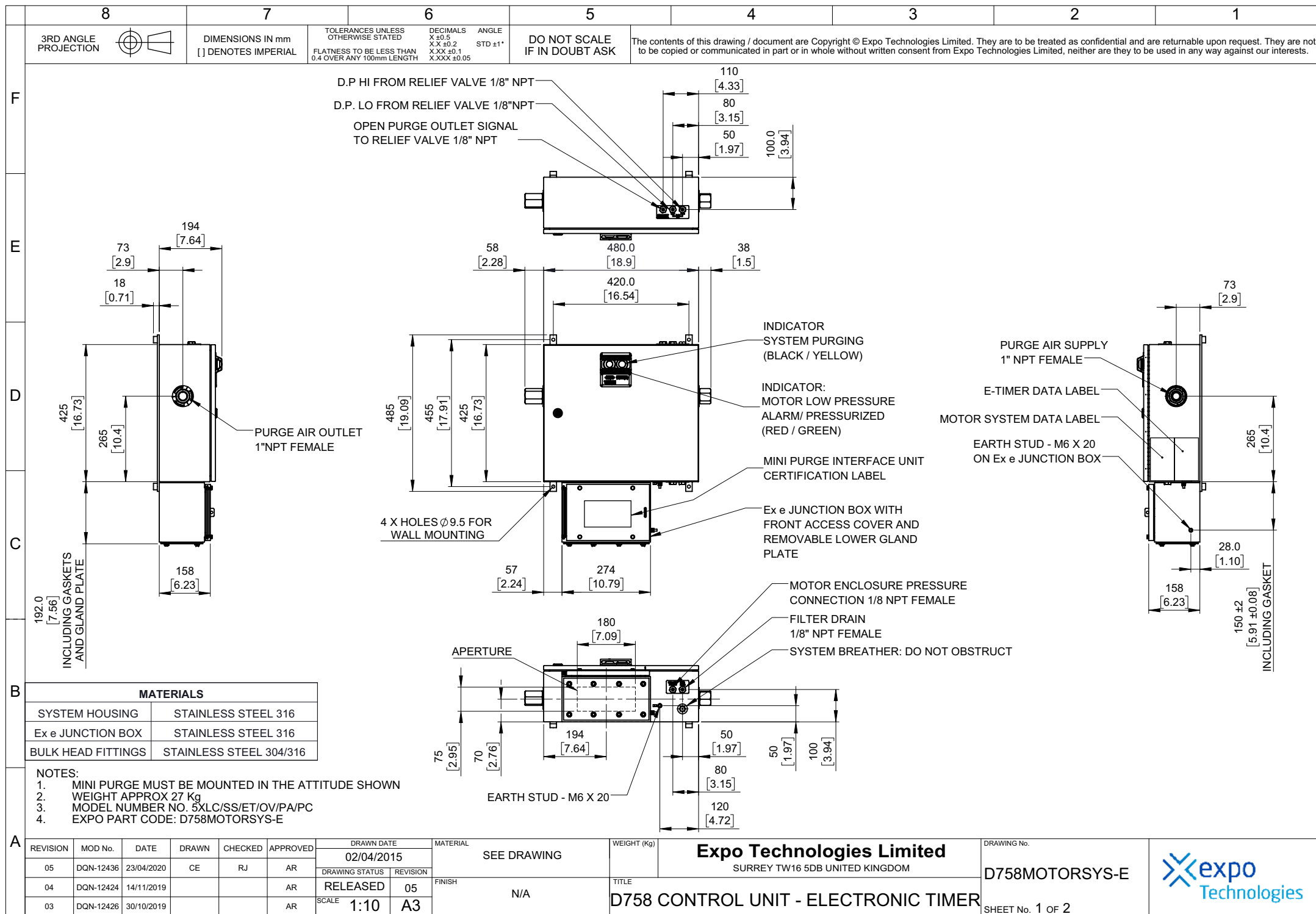
Title	Drawing Number	Number of Sheets
D758 Control Unit - Electronic Timer	D758MOTORSYS-E	2
Motorpurge Hook-Up	MOTOR-HU	1
D758-3 P and I Diagram	D758-PI	1
D758 Circuit Diagram	AGM-PA00-021	1
D758 Ex e Terminal Box Layout	AGE-WC00154	1
Manual Override Switch Hook Up	AGE-WC00-117	1
Size 5 MOTORPURGE RLV	XBR-RTD0-009	1
MiniPurge® X LC Sequence Diagram	XBR-7TD0-040	1
System Status Indication	TP-518-058-WD	1

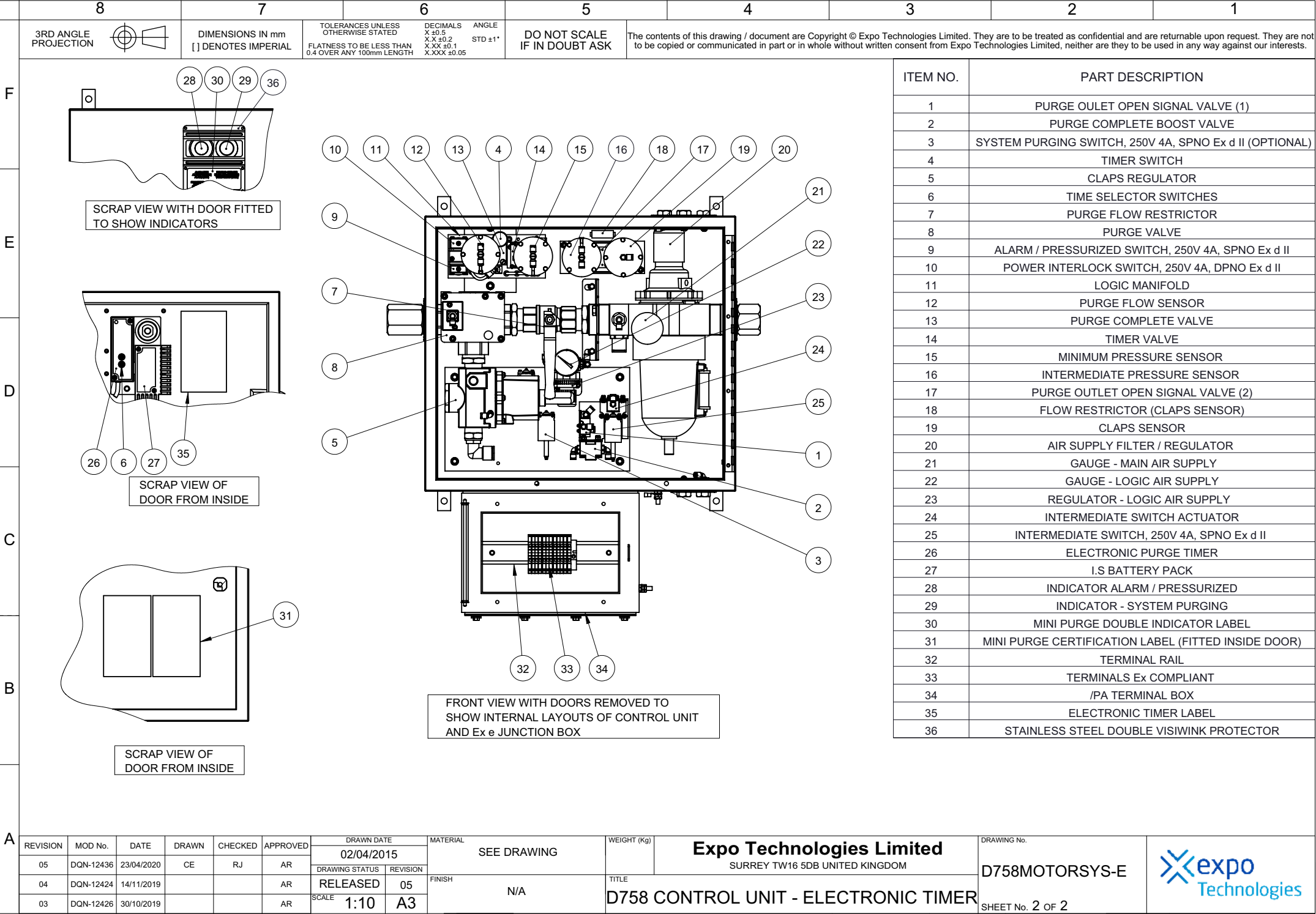
Section 13: Certifications

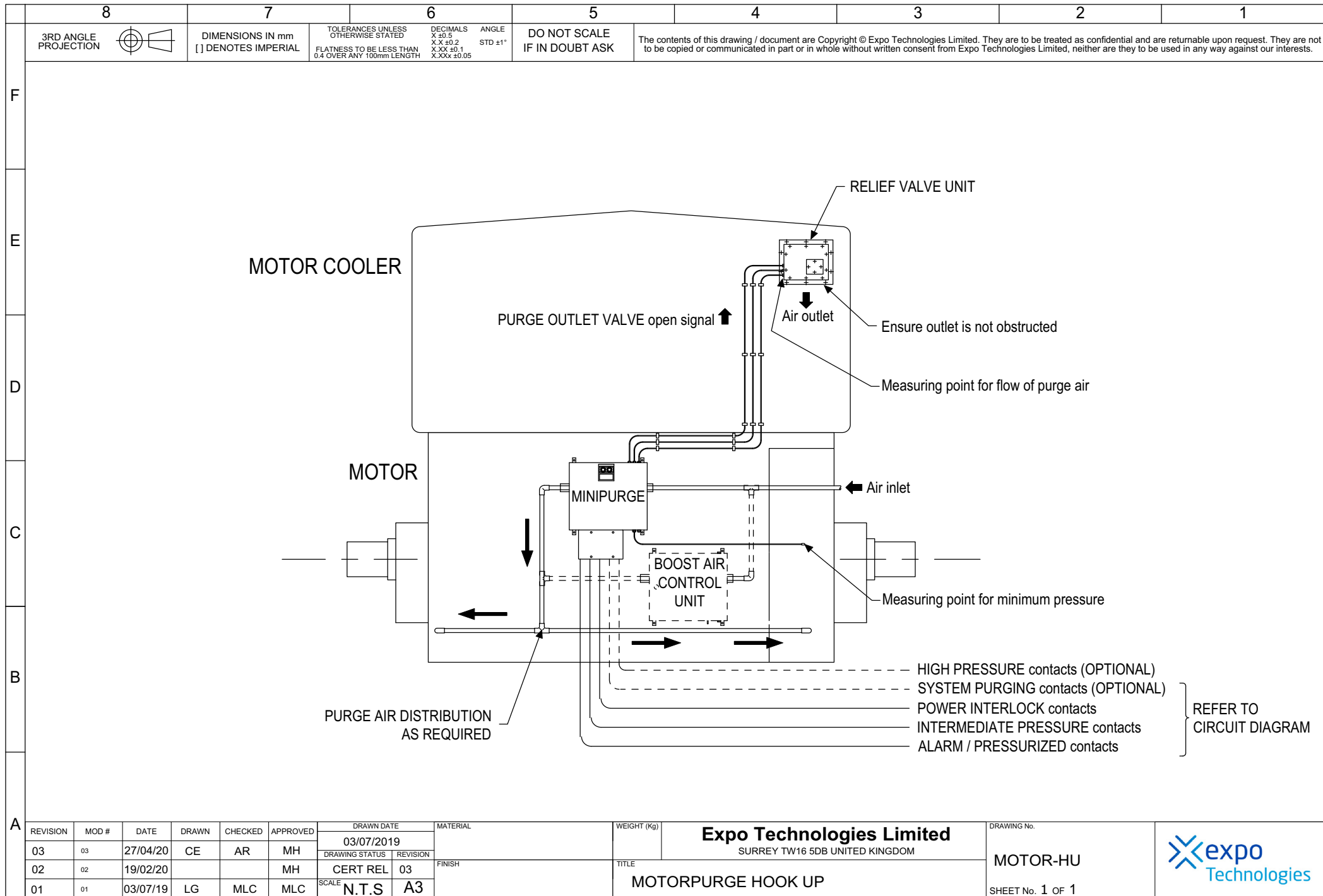
Certificates can be found in the accompanying booklet (ML497) or Download the certificates at www.expoworldwide.com.

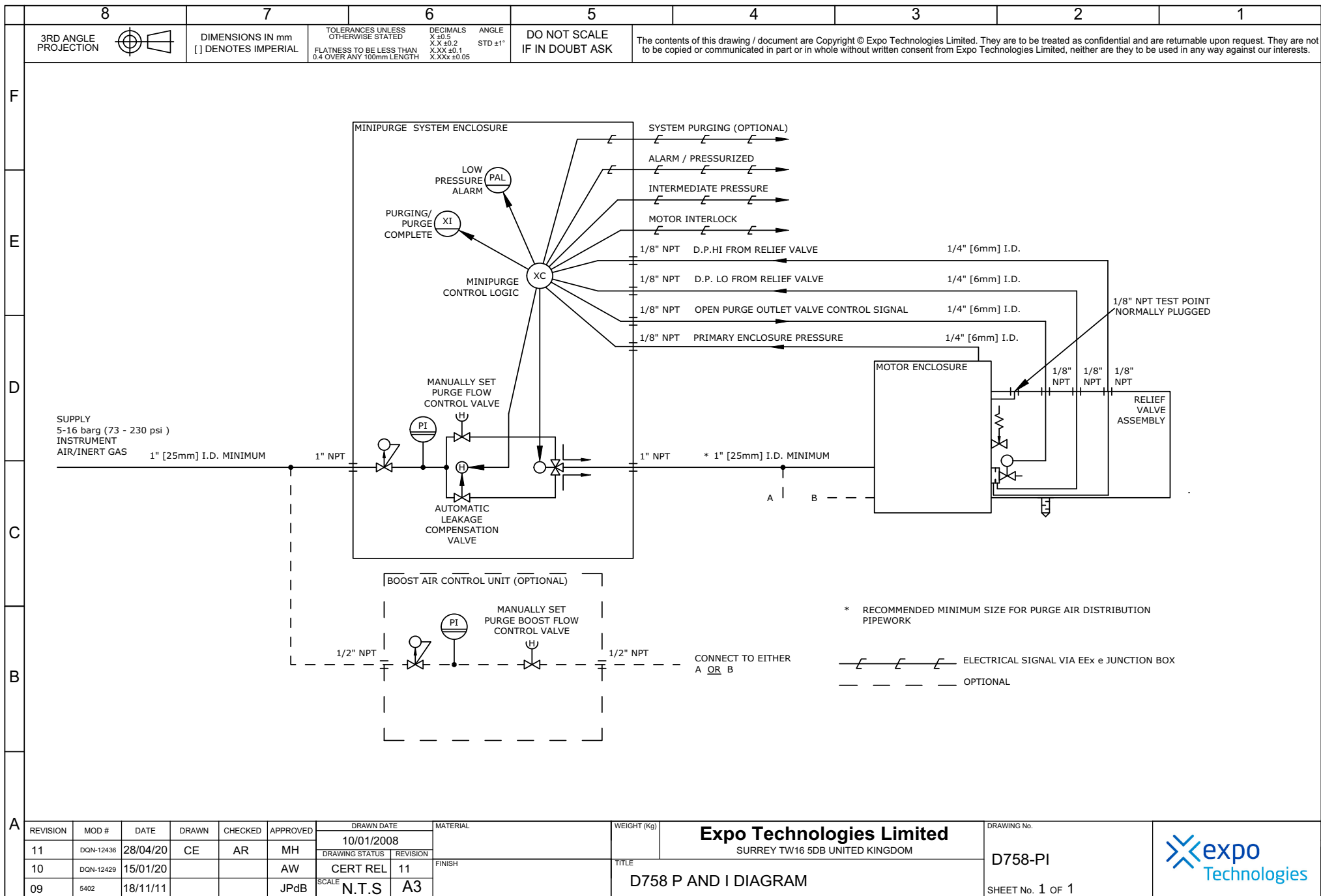
Component	Certificate	Number
Purge System	ATEX Certificate	SIRA 01ATEX1295X
	IECEX Certificate	IECEX SIR07.0027X
	INMETRO/TÜV Certificate	TÜV 12.1462X
	CCC Certificate	2020312304000830 *
	EAC Certificate	EA3C RU C-GB.AЖ58.B.00906/20 *
MIU/e Ex e Terminal Box	ATEX Certificate	ExVeritas 19 ATEX0542X
	IECEX Certificate	IECEX EXV 19.0057X
	INMETRO/TÜV Certificate	TÜV 12.1463
	CCC Certificate	2020312303000422*
Electronic Timer	ATEX Certificate	FM 10 ATEX0003X
	IECEX Certificate	IECEX FME 10.0001X
Electronic Switches	ATEX Certificate	EPS 14 ATEX 1766 X
	IECEX Certificate	IECEX EPS 14.0092X
	CCC Certificate	2020322304000843 *
	EAC Certificate	TC RU C-DE.BH02.B.00222 *

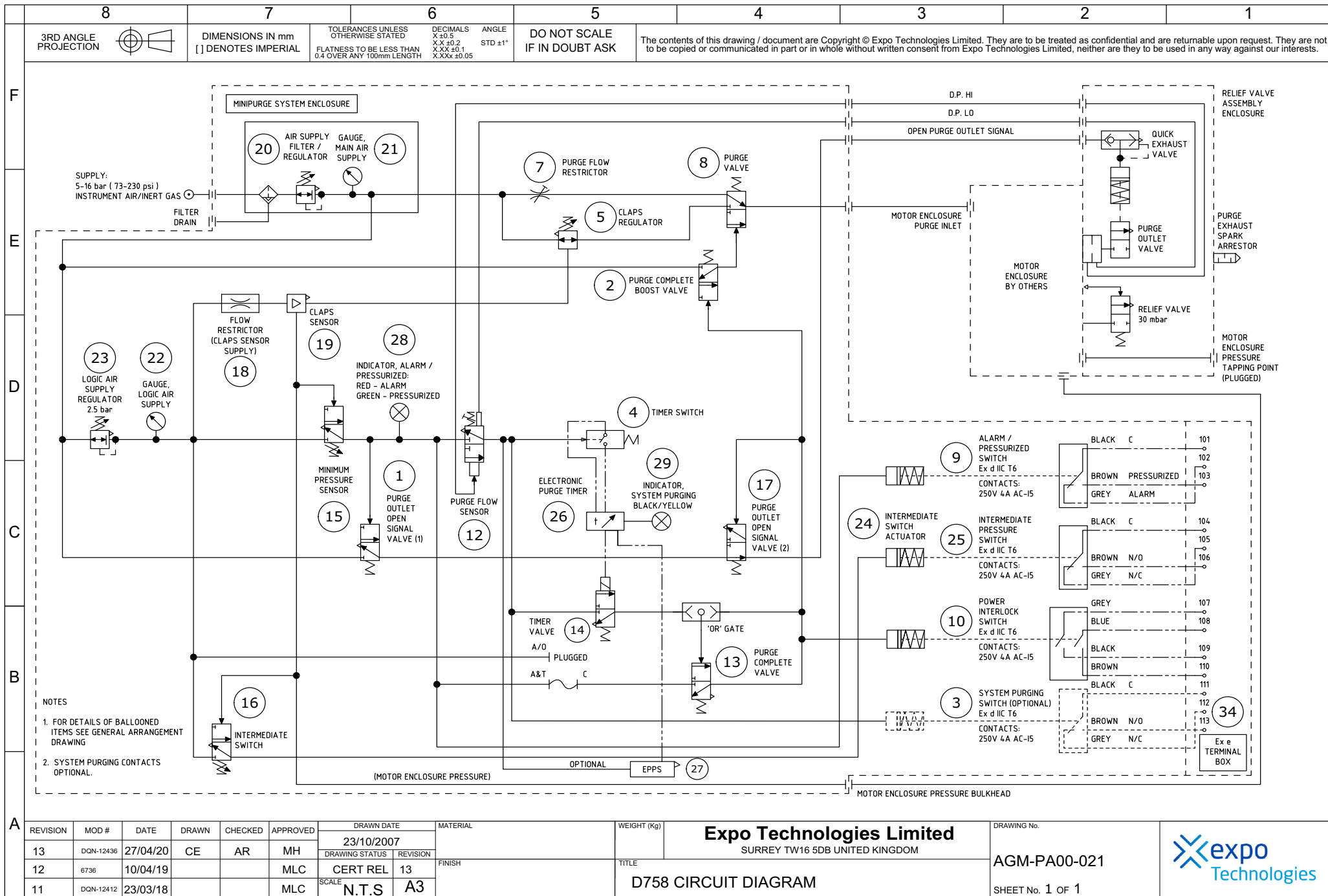
* Certificates are attached to the manual.

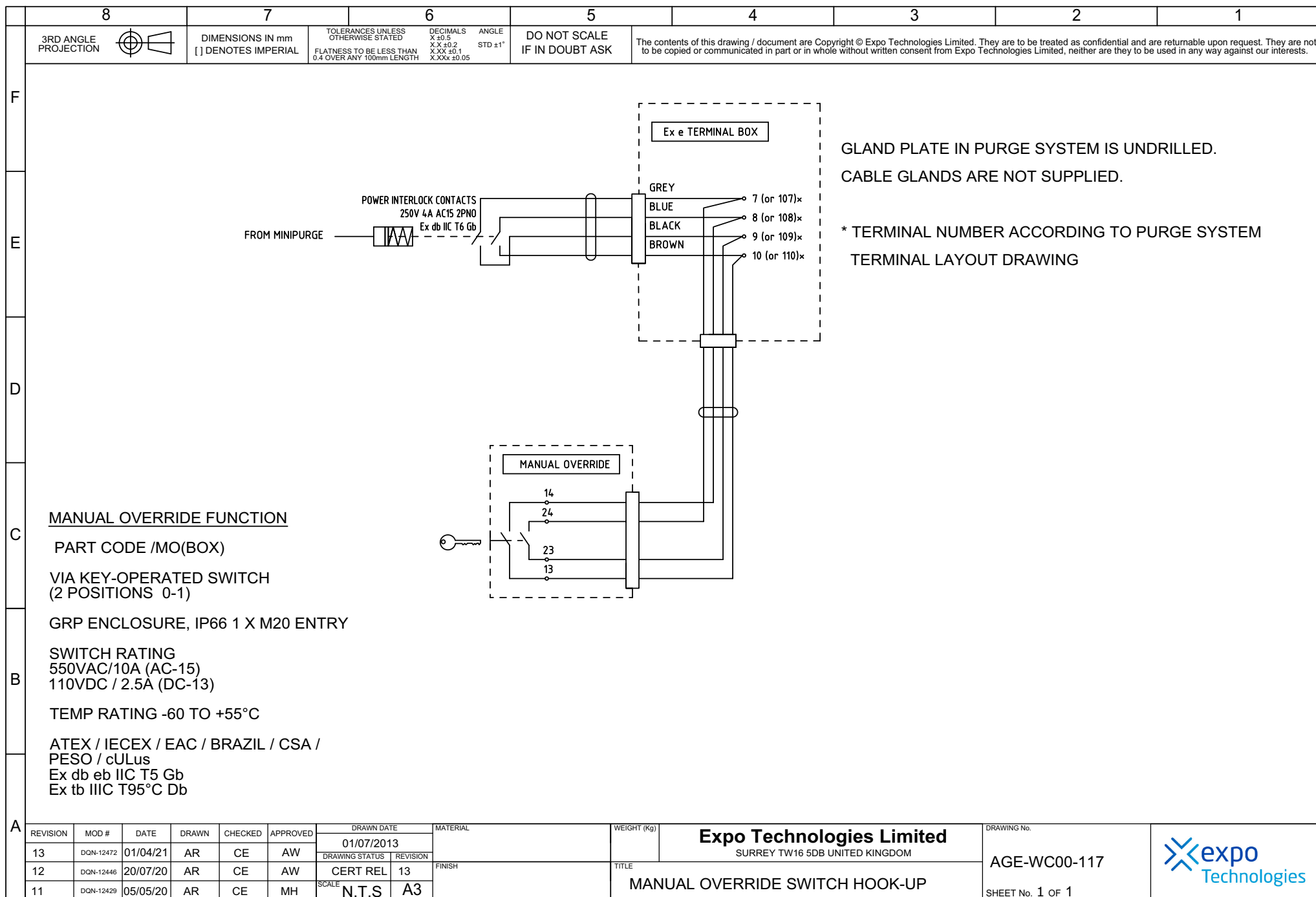


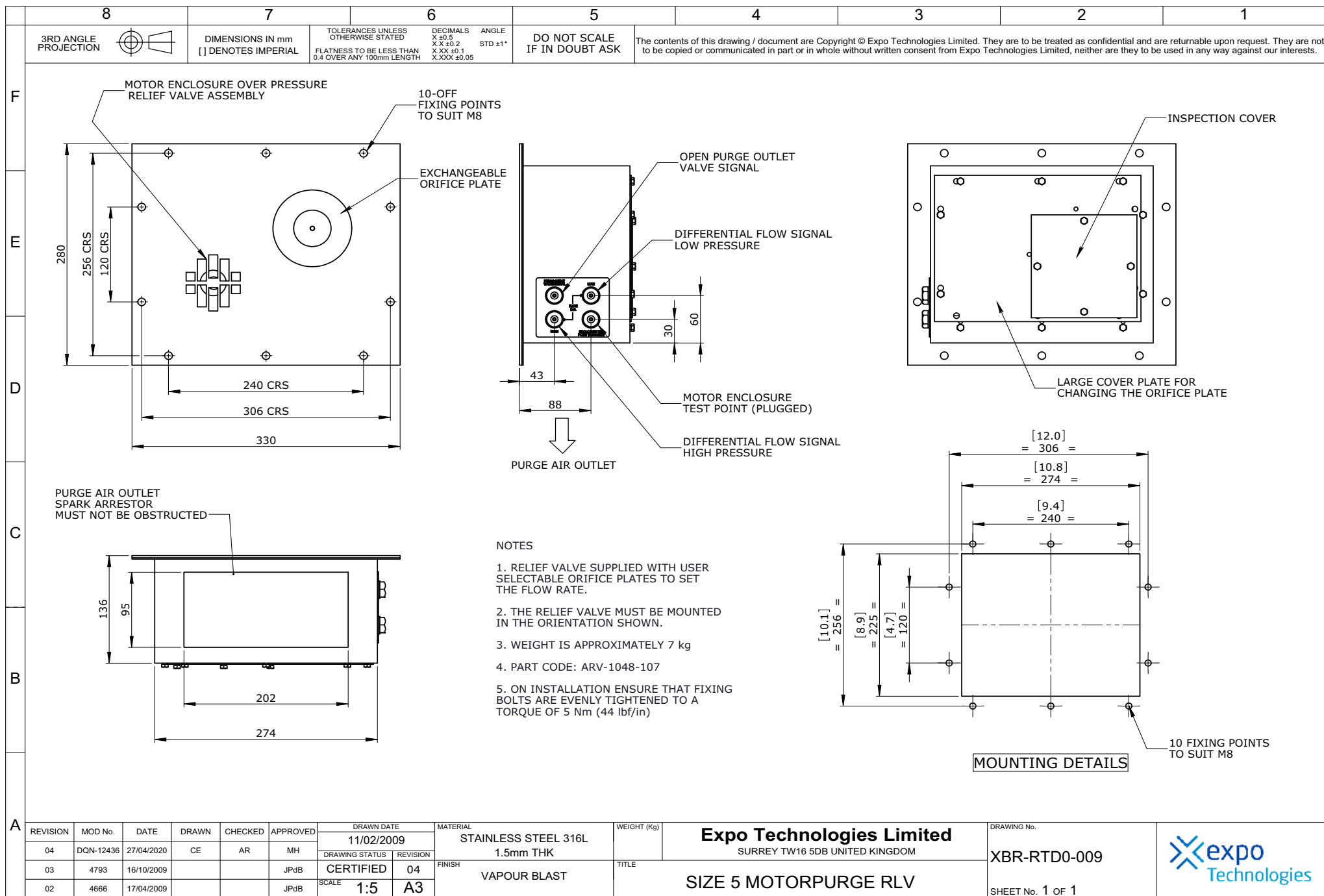


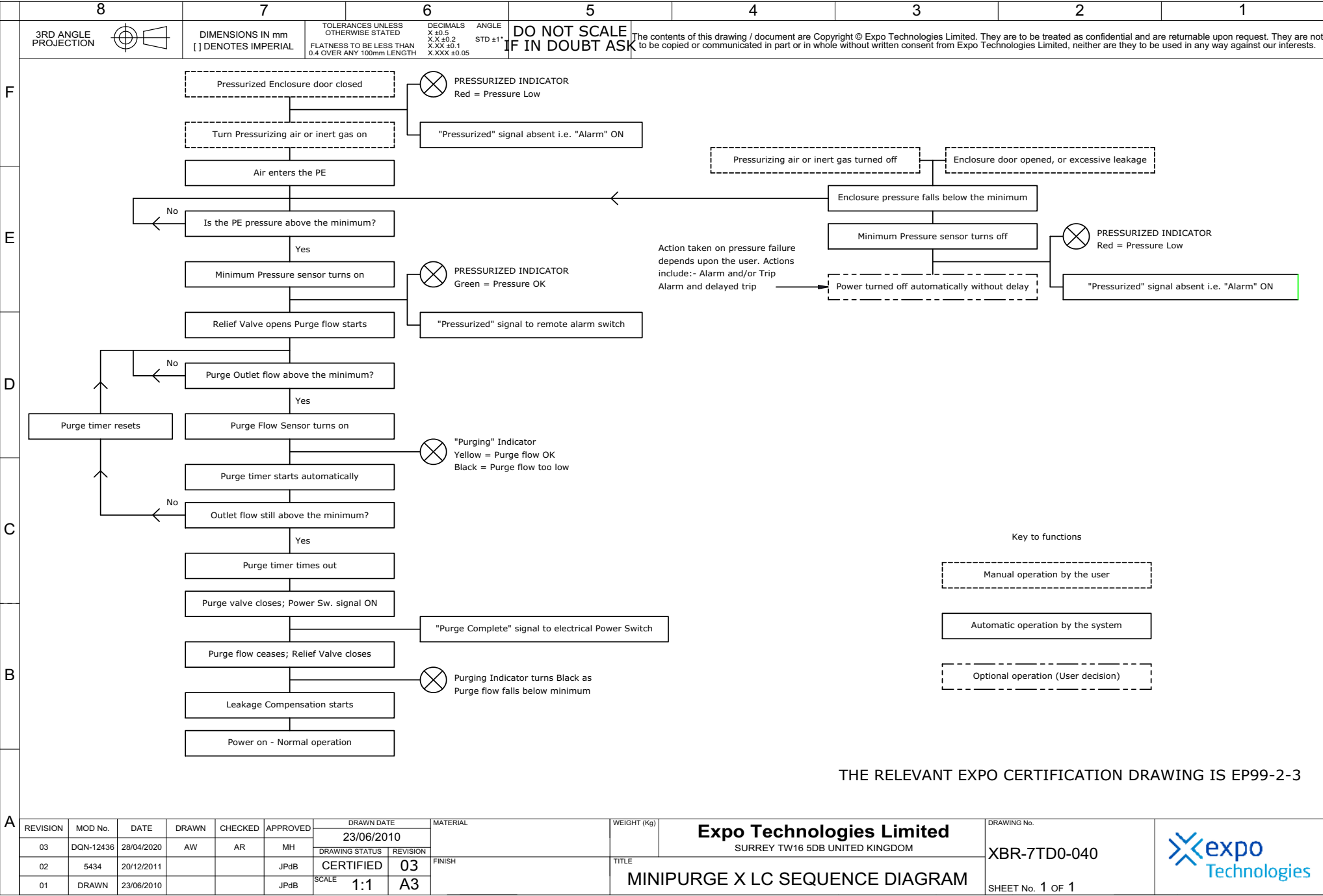












MiniPurge Interface Unit MIU/e User Instruction Manual

Manufacturer: **Expo Technologies Ltd**, Unit 2 The Summit, Sunbury on Thames. UK.

Model Type & Rating:

MIU/e1	MIU/e2	MIU/e1/MO
400V / 7A	400V / 7A	400 V / 2A

Certificates:

Hazardous Area Marking Code:

IECEx EXV 19.0057X	ExVeritas 19 ATEX 0542X	TUV 12.1463
Ex eb IIC T5 Gb Ex tb IIIC T100°C Db Tamb -20°C to +55°C	Ex II 2 G Ex eb IIC T5 Gb Ex II 2 D Ex tb IIIC T100°C Db Tamb -20°C to +55°C	Ex e IIC T5 Gb Ex tb IIIC T100° Db IP66 Tamb -20°C to +55°C
Ex eb IIC T4 Gb Tamb -20°C to +60°C	Ex II 2 G Ex eb IIC T4 Gb Tamb -20°C to +60°C	Ex e IIC T4 Gb Tamb -20°C to +60°C

APPLICATION SUITABILITY

The MiniPurge Interface Units – MIU/e are certified for use in Hazardous Areas where the Hazardous Area is non-mining (i.e. above ground) and the hazard is caused by flammable gasses or vapours.

The systems may be used in ATEX/IECEx Gas Zones 1 & 2, Gas Groups IIA, IIB & IIC and in Dust Zones 21 & 22, Dust Groups IIIA, IIIB & IIIC.

The following materials are used in the construction of MIU/e: Stainless Steel, Steel, Brass, Copper, Polyamide, Silicone. If substances that will adversely affect any of these materials are present in the surrounding environment, please consult Expo Technologies for further guidance. This equipment is designed for use under normal industrial conditions of ambient temperature, humidity and vibration. Please consult Expo Technologies before installing this equipment in conditions that may cause stresses beyond normal industrial conditions.

WARNING - Only install, commission, inspect, maintain or fault find when safe to do so.

INSTALLATION

The MIU/e shall be installed in accordance with relevant standards, such as IEC 60079-14 and any local codes of practice that are in force.

The MIU/e shall be connected to the Purge and Pressurization system in accordance with the instructions given in the handbook supplied with the pressurization system.

The external earth connection of the MIU/e shall be connected to earth using minimum 4mm² conductor.

SELECTION OF CABLE, CABLE GLANDS AND CONDUCTORS IN CONDUIT

Cable glands or other cable entry devices shall be appropriately certified and suitable for the cable and the conditions of use and be installed in accordance with the manufacturer's instructions.

When the MIU/e application requires the hazardous area marking code:

Ex eb IIC T5 Gb, Tamb -20°C to +55°C there is no further guidance for the selection of cable and cable glands or conductors in conduit.

When the MIU/e application requires the hazardous area marking code:

Ex eb IIC T4 Gb, Tamb -20°C to +60°C the user shall select cable and cable glands or conductors in conduit that have a higher temperature rating than 83.2°C.

TERMINALS

MIU/e may be fitted with a combination of:

WDU2.5 terminals certified to DEMKO 14 ATEX 1338U & IECEx ULD 14.0005U.

SAK2.5 terminals certified to KEMA 97 ATEX 1798U & IECEx KEM06.0014U.

WPE2.5 Earth terminals certified to DEMKO 14 ATEX 1338U & IECEx ULD 14.0005U.

For all type of terminals: Tightening torque range: 0.4 to 0.8 Nm (WDU & WPE) & 0.4 to 0.6 Nm (SAK).

Conductor cross section maximum 2.5 mm², minimum 1.5 mm².

Type of connection is screwed - Solid copper conductors to be used.

Stripping length shall be 10 mm.

Only one conductor is allowed at each side of a terminal. Multiple conductors shall be crimped together before screwed into the terminal.

Maximum number of terminals: For Model MIU/e1 – Up to 18 current carrying terminals.

For Model MIU/e2 – Up to 33 current carrying terminals.

For Model MIU/e1/MO – Up to 13 current carrying terminals.

COMMISSIONING

The installation of the cable glands, electrical and earth connections shall be inspected for correct installation before the unit is put into service. The lid shall be correctly fitted.

MAINTENANCE

The condition of enclosure and associated cable glands shall be inspected for damage every six months. The terminals shall be inspected for tightness and gaskets inspected for damage.

FAULT FINDING

When wiring or signal fault occurs, check each terminated wire, terminals for tightness and gaskets for damage.

External faults such as broken switches within the Control Unit may also require investigation.



EU-Declaration of Conformity

With European Directives

**This is to declare that the MiniPurge Purge Controller
is manufactured in conformity with the following
European Directives and standards:**

Electromagnetic Compatibility Directive 2014/30/EU

MiniPurge Systems with a /PO suffix in the type number are non-electrical and are outside the scope of the EMC Directive.

MiniPurge Systems with suffices /PA or /IS incorporate one or more volt-free ("dry") contacts which work in circuits specified by others. In normal operation these circuits are "benign" and no CE mark is appropriate.

MiniPurge Systems with Electronic Timer (Option /ET and /ES) are designed to conform to the EMC Directive, in compliance with EN 61000-6-4:2007 and EN 61000-6-2:2005 (Intertek Report EM10048000) and 61000-6-4:2007 + A1:2011 and EN 61000-6-2:2005 (Intertek Report 102569070LHD-001) respectively.

Low Voltage Directive 2014/35/EU

MiniPurge Systems are intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from the Low Voltage Directive.

Pressure Equipment Directive 2014/68/EU

MiniPurge Systems are classified as not higher than category I under Article 13 of this Directive and intended for use in potentially explosive atmospheres (Hazardous Areas) and are therefore excluded from the Pressure Equipment Directive. MiniPurge Systems are covered under ATEX Directive 2014/34/EU.

ATEX Directive 2014/34/EU Equipment for explosive atmospheres




MiniPurge Systems are designed to conform to the ATEX Directive in fulfilment of the essential health and safety requirements set out in Annex II, and in compliance with:

EN 60079-0: 2012 + A11:2013 EN 60079-2: 2014

MiniPurge Systems are certified by CSA Group Netherlands B.V., Utrechtseweg 310, 6812 AR, Arnhem, Netherlands, under EC Type-Examination Certificate SIRA 01ATEX1295X, in compliance with:

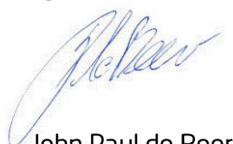
EN 60079-0: 2012 + A11:2013 EN 60079-2: 2014

According to the model, MiniPurge Systems are rated and shall be marked as follows:

MiniPurge, Type X & Type Y models	Group II Category 2G & 2D	 II 2(2) GD
Or MiniPurge, Type X	Group II Category 2G	 II 2(2) G
MiniPurge, Type Z models	Group II Category 3G & 3D	 II 2(3) GD

MiniPurge systems are manufactured under Production Quality Assurance Notification SIRA 99 ATEX M043, issued by CSA Group Netherlands B.V. (CSA), Notified Body No 2813.

Signed for and on behalf of Expo Technologies Ltd.,



John Paul de Beer
Managing Director

Date 12/11/2019

Confidential Assessment file reference SC004



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

No.: 2020312304000830

Applicant EXPO Technologies Ltd
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Manufacturer EXPO Technologies Ltd
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Production Factory EXPO Technologies Ltd
Production Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Product MiniPurge Purge Controller
Model/Type 1XLC cs DS SS AA MO FM OA TW
Ex marking See Annex
Reference Standards GB3836.1-2010, GB/T3836.5-2017, GB12476.1-2013, GB12476.7-2010

Certification mode Type Test + Initial Factory Inspection + Post-Certification Surveillance

The product(s) is verified and certified according to CNCA-C23-01: 2019 China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product and CNEX-C2301-2019 Guideline of China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product.

See Annex for the detailed product information (6 pages).

Issued on: 2020-11-04

Valid to: 2025-11-03

The validity of this certificate is maintained through the regular supervision of the issuing authority during the validity period.

Where any discrepancy arises between the English translation and the original Chinese version, the Chinese version shall prevail.

Director:

穆大玉



Nanyang Explosion Protected Electrical Apparatus Research Institute Co.,Ltd.



<http://www.ccc-cnex.com>
ccc.china-ex.com

Add: No. 20, North Zhongjing Road, Nanyang, Henan, P. R. China P.C.: 473008
Tel: 0377-63239734 Email: ccc@cn-ex.com

CN 0000298



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

(Annex)

No.: 2020312304000830

Page 1 of 6

Product information:

1. This certificate covers the following models:

- 1XLC cs DS SS AA MO FM OA TW

Nomenclature:

1	X	LC	cs	DS SS AA MO FM OA TW
a	b	cc	mm	Option codes

Model Number Designation for approved MiniPurge systems	
a	Size or Capacity Option codes (Added only if used)
1	MiniPurge with Purge Flow Capacity up to 225 NL/min
2	MiniPurge with Purge Flow Capacity up to 450 NL/min
3	MiniPurge with Purge Flow Capacity up to 900 NL/min
4	MiniPurge with Purge Flow Capacity up to 2000 NL/min
5	MiniPurge with Purge Flow Capacity up to 6000 NL/min
6	MiniPurge with Purge Flow Capacity up to 8000 NL/min
7	MiniPurge with Purge Flow Capacity above 8000 NL/min
b	Pressurization Type
X	X Pressurization
Y	Y Pressurization
Z	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

Issued on: 2020-11-04

Director:

穆大玉



Nanyang Explosion Protected Electrical Apparatus Research Institute Co.,Ltd.



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Tel: 0377-63239734 Email: ccc@cn-ex.com



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

(Annex)

No.: 2020312304000830

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DP	Dust Protection (pressurization only)
mm	Material of the Control Unit Enclosure
al	Aluminium alloy
cs	Mild steel, painted
ss	Stainless steel
bp	Back plate only
co	Chassis only
pm	Panel mounting
nm	Non-metallic
Option 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
ET	Electronic Timer (not EPPS option)
FM	Flow Meter(s) fitted
H6	High Temperature Tamb -20°C to +60°C, Air Supply Max Temp +60°C
H7	High Temperature Tamb -20°C to +60°C, Air Supply Max Temp +70°C
HP	System LC or CF with High Pressure Sensor
IS	Internal Switches suitable for Ex i circuits
LS	Local Sensing
LT	Low Temperature

Issued on: 2020-11-04

Director:

穆大王



Nanyang Explosion Protected Electrical Apparatus Research Institute Co.,Ltd.



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CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

(Annex)

No.: 2020312304000830

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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" switch(es) built-in, 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, or other non-certification related options

Relief Valve - The MiniPurge controller is supplied with an optional overpressure relief valve, which is to be fitted to the Ex p protected apparatus to prevent an internal overpressure above the maximum overpressure rating of the apparatus. There are 14 models of relief valve; the designation of each relief valve refers to its nominal bore in mm, as follows: RLV3, RLV6, RLV9, RLV12, RLV19, RLV25, RLV26, RLV52, RLV36, RLV75, RLV104, RLV125, RLV150 and RLV200;

The outlet of each relief valve is fitted with a spark arrestor, of which there are four optional types:

- ① Metal foam
- ② Tortuous path with at least 4 x 90° or 2 x 180° bends
- ③ Multi-layer stainless steel mesh

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穆大王



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④ Knitted mesh

Outlet Orifice - Three types of orifice are used:

- ① Threaded Orifices e.g. 1/4" NPT or 2" BSP with a built in spark arrester. These are selected to maintain a desired back pressure within the Ex p protected apparatus when used with the Continuous Flow options. The designation of each outlet orifice indicates the nominal inlet diameter. The designations are as follows: SA3, SA6, SA9, SA12, SA19, SA25, SA32, SA38 and SA50
- ② Plain holes in the Relief Valve disk, sized according to the flow rate required
- ③ Replaceable orifice type SAU**

High Pressure Sensor for CF Systems (HP code) - If the pressure in the pressurized enclosure rises above the setting of the High Pressure sensor, the controller resets cutting the power to the enclosure. On detecting the overpressure an optional facility is available for the generation of an alarm or indicator. On systems with a High Pressure sensor, the relief valve may be omitted.

High Pressure Sensor for LC Systems (HP code) - If the pressure in the pressurized enclosure rises above the setting of the High Pressure sensor, the purge gas flow is isolated from the pressurised enclosure. The valve isolates both the leakage compensation and the purge streams. On detecting the overpressure, an optional facility is available for the generation of an alarm or indicator. On systems with a High Pressure sensor, the relief valve may be omitted.

Pneumatically Operated Outlet Valve - The pneumatically operated outlet valve is used to positively open or close the outlet of the purged enclosure by means of a spring return pneumatic cylinder. Systems fitted with the Pneumatically Operated Outlet Valve will carry the option OV.

Note: the possible protection type of certified Ex products(components) list in Option codes(see table above) could be Ex d, Ex e, Ex ia or Ex iaD.

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Ex marking:

Standard versions: Ex [px] IIC T6 Gb, Ex [pD] 21 IP54 T85°C (Ta: -20°C~+55°C)
Ex [py] IIC T6 Gb, Ex [pD] 21 IP54 T85°C (Ta: -20°C~+55°C)
Ex [pz] IIC T6 Gc, Ex [pD] 22 IP54 T85°C (Ta: -20°C~+55°C)

Standard/ET/ES versions: Ex [px] ia IIC T5 Gb, Ex [pD] iaD 21 IP54 T100°C
(Ta: -20°C~+55°C)

Low temperature versions: Ex [px] d e IIC T3 Gb, Ex [px] d e IIC T4 Gb
(Ta: -60°C~+55°C)

Low temperature/ET/ES versions: Ex [px] d e ia IIC T3 Gb, Ex [px] d e ia IIC T4 Gb
(Ta: -60°C~+55°C)

High temperature versions - H6: Ex [px] IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +60°C)

High temperature/ET/ES versions - H6: Ex [px] ia IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +60°C)

High temperature versions - H7: Ex [px] IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +70°C)

High temperature/ET/ES versions - H7: Ex [px] ia IIC T4 Gb
(Ta: -20°C~+60°C, Purge air temp. up to +70°C)

Combined Versions

Low temp. with High temp. H6: Ex [px] d e IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +60°C)

Low temp. with High temp. H6 and ET/ES: Ex [px] d e ia IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +60°C)

Low temp. with High temp. H7: Ex [px] d e IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +70°C)

Low temp. with High temp. H7 and ET/ES: Ex [px] d e ia IIC T3/T4 Gb
(Ta: -60°C~+60°C, Purge air temp. up to +70°C)

- Producers should organize production in accordance with the technical documents approved by the certification body.

2. Specific conditions of safety use:

- When using the AO, AS and DT options, the recommendations for the additional

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requirements of Ex p apparatus shall be applied.

- The installer/user shall ensure that the MiniPurge Control Unit is installed in accordance with the equipment certificate that covers the combination of the pressurised enclosure(s) and MiniPurge Control Unit.
 - The values of the safety parameters shall be set in accordance with the equipment certificate that covers the combination of the pressurized enclosure(s) and MiniPurge Control Unit.
 - This MiniPurge Control Unit shall be incorporated into equipment and the appropriate Conformity Assessment Procedures applied to the combination. This certificate does not cover the combination.
 - The purge controller, low temperature version, shall be protected by a system that ensures that it cannot be energized if the temperature of the controller logic air or purge controller falls below -20°C. This system shall utilise the RTDs that are fitted to the purge controller to provide the appropriate level of system integrity.
 - Where a Vortex cooler is fitted the hot air outlet pipe shall be kept free from obstructions and blockage.
 - The following routine tests are to be carried out:
The vortex cooler is functioning correctly. (H6 and H7 options ONLY)
The pneumatic logic isolator is functioning correctly. (H6 and H7 options ONLY)
 - See instruction for other information.
3. Certificate related report(s):
- Type test report: CQST2009C581
 - Factory inspection report: CN2020Q010175
4. Certificate change information: None

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CERTIFICATE

In accordance with
SERCONS INTERNATIONAL
Russian Certification Authority in Europe

the company:
Expo Technologies Limited,
United Kingdom, Unit 2,
The Summit Hanworth Road,
Sunbury on Thames Surrey,
TW16 5DB

fulfills the necessary requirements to be
certified according to EAC regulations.

Valid until: 22.10.2025



ЕВРАЗИЙСКИЙ ЭКОНОМИЧЕСКИЙ СОЮЗ

СЕРТИФИКАТ СООТВЕТСТВИЯ



№ ЕАЭС RU C-GB.АЖ58.B.00906/20

Серия **RU** № **0257687**

ОРГАН ПО СЕРТИФИКАЦИИ Орган по сертификации Общества с ограниченной ответственностью Центр «ПрофЭкс».
Место нахождения: 119501, Россия, город Москва, улица Веерная, дом 4, корпус 2, этаж П, помещение 1, комната 27. Адрес места осуществления деятельности: 117246, Россия, город Москва, Научный проезд, дом 19, этаж 2, комнаты 105, 106. Телефон: +7 (495) 506-78-36, адрес электронной почты: info@profeks.ru. Уникальный номер записи об аккредитации в реестре аккредитованных лиц: RA.RU.10AJ58. Дата решения об аккредитации: 23.11.2017 года.

ЗАЯВИТЕЛЬ ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ "МИР ТЕХНОЛОГИЙ"
Место нахождения (адрес юридического лица) и адрес места осуществления деятельности: 117042, Россия, город Москва, улица Адмирала Руднева, Дом 4, Этаж 6, Помещение IV, Офис 613
Основной государственный регистрационный номер 1187746469096.
Телефон: 89154152183. Адрес электронной почты: MirTehnology@gmail.com

ИЗГОТОВИТЕЛЬ Expo Technologies Limited
Место нахождения (адрес юридического лица) и адрес места осуществления деятельности по изготовлению продукции: Соединенное Королевство, Unit 2, The Summit Hanworth Road, Sunbury on Thames Surrey TW16 5DB

ПРОДУКЦИЯ Системы контроля продувки MiniPurge
Маркировка взрывозащиты согласно приложению (бланки №№ 0767603 - 0767606).
Продукция изготовлена в соответствии с Технической документацией изготовителя.

Серийный выпуск

КОД ТН ВЭД ЕАЭС 9032810000

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ
Технического регламента Таможенного союза "О безопасности оборудования для работы во взрывоопасных средах" (ТР ТС 012/2011)

СЕРТИФИКАТ СООТВЕТСТВИЯ ВЫДАН НА ОСНОВАНИИ
- протокола испытаний № 1989ИЛПМВ от 16.10.2020 года, выданного Испытательным центром Общества с ограниченной ответственностью "ПРОММАШ ТЕСТ" (регистрационный номер аттестата аккредитации RA.RU.21BC05);
- акта анализа состояния производства от 29.07.2020 года, выданного Органом по сертификации Общества с ограниченной ответственностью Центр «ПрофЭкс».

Схема сертификации: 1с

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ Срок службы 20 лет, срок хранения 30 лет, условия хранения указаны в руководстве по эксплуатации. Стандарты, обеспечивающие соблюдение требований Технического регламента Таможенного союза ТР ТС 012/2011 "О безопасности оборудования для работы во взрывоопасных средах": согласно приложениям - бланки №№ 0767603 - 0767606.

СРОК ДЕЙСТВИЯ С 23.10.2020
ВКЛЮЧИТЕЛЬНО

ПО 22.10.2025

Руководитель (уполномоченное
лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

(подпись)
(подпись)



Михайлова Александра Николаевна

(Ф.И.О.)

М.П.

Чухин Артем Вячеславович

(Ф.И.О.)

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-GB.АЖ58.B.00906/20

Серия RU № 0767603

1. Назначение и область применения

Сертификат соответствия распространяется на Системы контроля продувки MiniPurge, изготавливаемые по технической документации изготовителя. Системы контроля продувки MiniPurge обеспечивают высокий поток продуваемого газа, обычно сжатого воздуха. Если поток достаточен, запускается таймер продувки. После завершения времени продувки поток продувки отключается, и система контролирует более низкий расход, чтобы компенсировать утечку корпуса. Таким образом, внутреннее давление поддерживается выше внешнего давления, предотвращая попадание потенциально взрывоопасного газа / пара в корпус. В этом состоянии система блокировки позволяет внешнему источнику питания подаваться на внутреннее оборудование либо напрямую, либо через отдельный интерфейс.

Системы контроля продувки MiniPurge относятся к оборудованию группы II, III и предназначены для применения в потенциально взрывоопасных зонах и наружных установках класса 1, 2 по ГОСТ IEC 60079-10-1-2011 и 21, 22 по ГОСТ IEC 60079-10-2-2011 категории IIC и IIIC в соответствии с маркировкой взрывозащиты (смотри таблицу 1), инструкциями изготовителя и другими нормативными документами, регламентирующими применение оборудования во взрывоопасных зонах.

2. Описание оборудования и средств обеспечения взрывозащиты

Идентификация типа

Номер модели: 1 X LC cs DS SS AA MO FM OA TW

Обозначения: a b cs mm. Пример кодов опций

a - Размер или Емкость

- 1 = MiniPurge с пропускной способностью продувки до 225 Nl/min
- 2 = MiniPurge с пропускной способностью продувки до 450 Nl/min
- 3 = MiniPurge с пропускной способностью продувки до 900 Nl/min
- 4 = MiniPurge с пропускной способностью продувки до 2000 Nl/min
- 5 = MiniPurge с пропускной способностью продувки до 6000 Nl/min
- 6 = MiniPurge с пропускной способностью продувки до 8000 Nl/min
- 7 = MiniPurge с пропускной способностью продувки выше 8000 Nl/min

b - тип создания повышенного давления

X - X создание повышенного давления

Y - Y создание повышенного давления

Z - Z создание повышенного давления

cs - действие после первоначальной продувки

LC - компенсация утечки только после первоначальной высокой продувки

CF2 - непрерывный поток (одна и та же скорость потока во время и после продувки)

CF2 - двухпоточная система CF с первоначальной высокой скоростью продувки, но только одной диафрагмой

CFNR - непрерывный (более низкий) поток после первоначальной высокой продувки

DP - защита от пыли (только создание повышенного давления)

mm - материал корпуса блока управления

al - алюминиевый сплав

cs - мягкая (низкоуглеродистая) сталь с окраской

ss - нержавеющая сталь

br - только задняя пластина

co - только шасси

pm - монтаж на панель

lpm - неметаллический

Опциональные коды (добавляются, только если используются)

AA - установлен выход активного аварийного сигнала

AS - цель отмены аварийного сигнала

AO - действие «Только аварийный сигнал» при неисправности давления или потока

AS - аварийный сигнал «Действие при неисправности давления или потока», селективный клапан

CS - блок контроля системы герметизации

DS - установлен дверной выключатель блокировки питания

DT - задержка срабатывания после неисправности давления или потока

ES - электронный таймер (с опцией EPPS)

ET - электронный таймер (без опции EPPS)

FM - установлен измеритель(и) потока

HP - система LC или CF с датчиком высокого давления

IS - внутренние выключатели, пригодные для цепей Ex

LS - локальное сенсорное обнаружение

LT - низкая температура

MO - установлен переход на ручное управление

MT - таймер механической продувки или задержки

OA - выключатель включения/выключения, контролирующий подачу защитного газа и логики

OB - выключатель включения/выключения, контролирующий только подачу логики

OC - выключатель включения/выключения, контролирующий только подачу защитного газа

OS - выпускной (диафрагменный) селективный клапан

OV - выпускной клапан, с пневматическим приводом

PA - встроенный выключатель(и) «Ex», с распределительной коробкой/без распределительной коробки «Ex»

PC - клапан компенсации утечки управление давлением PE (система CLAPS)

PO - выходные сигналы пневматики для управления питанием и аварийными сигналами

SP - опция вторичной подачи для создания повышенного давления

Руководитель (уполномоченное
лицо) органа по сертификацииЭксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Мазярова Александра Николаевна

(Ф.И.О.)

Вяхеславич Артем Вячеславович

(Ф.И.О.)

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Серия RU № 0767604

SS - отдельная подача для защитного газа и воздуха логики

TW - два (или более) выходов для двух или более отдельных корпусов с повышенным давлением, продуваемых параллельно.

DXXX - специальная конструкция для конкретных скоростей потока

H6 = высокая температура Tamb от -20°C до +60°C, макс. темп. подачи воздуха +60°C

H7 = высокая температура Tamb от -20°C до +60°C, макс. темп. подачи воздуха +70°C

Основные технические данные систем контроля продувки MiniPurge представлены в таблице 1.

Таблица 1

Наименование параметра	Значение
Диапазон пневматической подачи	
Минимальная подача, бар	4
Максимальная подача, бар	16
Минимальный расход газа при продувке, нормированный литр в минуту	225 (размер 1)
Время продувки, мин	1-99
Маркировка взрывозащиты Ex и температура окружающей среды	IEx [px] IIC T6 Gb Ex [px] IIIC T85°C Db IEx [py] IIC T6 Gb Ex [py] IIIC T85°C Db IEx [pz] IIC T6 Gb Ex [pz] IIIC T85°C Db
Стандартное исполнение	(-20°C ≤ Tamb ≤ +55°C) IEx [px] ia IIC T3 Gb Ex [px] ia IIIC T100°C Db
Стандартное /ET & /ES исполнение	(-20°C ≤ Tamb ≤ +55°C) IEx [px] d e mb IIC T3 Gb IEx [px] d e mb IIC T4 Gb Ex [px] IIIC T200°C Db Ex [px] IIIC T135°C Db
Низкотемпературное исполнение	(-60°C ≤ Tamb ≤ +55°C) IEx [px] d e mb ia IIC T3 Gb IEx [px] d e mb ia IIC T4 Gb Ex [px] ia IIIC T200°C Db Ex [px] ia IIIC T135°C Db
Низкотемпературное /ET & /ES исполнение	(-60°C ≤ Tamb ≤ +55°C) IEx [px] IIC T4 Gb
Высокотемпературное исполнение - H6	(-20°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +60°C IEx [px] ia IIC T4 Gb
Высокотемпературное /ET & /ES исполнение - H6	(-20°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +60°C IEx [px] IIC T4 Gb
Высокотемпературное исполнение - H7	(-20°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +70°C IEx [px] ia IIC T4 Gb
Высокотемпературное /ET & /ES исполнение - H7	(-20°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +70°C IEx [px] d e mb IIC T3/T4 Gb
Комбинированное исполнение Низкотемпературное с высокотемпературным - H6	(-60°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +60°C IEx [px] d e mb ia IIC T3/T4 Gb
Комбинированное исполнение Низкотемпературное с высокотемпературным - H6 и /ET & /ES	(-60°C ≤ Tamb ≤ +60°C) температура продуваемого воздуха до +60°C

Руководитель (уполномоченное
лицо) органа по сертификацииЭксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

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ПРИЛОЖЕНИЕ

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Серия RU № 0767605

Комбинированное исполнение Низкотемпературное с высокотемпературным - Н7	1Ex [px] d e mb IIC T3/T4 Gb (-60°C ≤ Tamb ≤ +60°C) [температура продуваемого воздуха до +70°C]
Комбинированное исполнение	1Ex [px] d e mb ia IIC T3/T4 Gb (-60°C ≤ Tamb ≤ +60°C) [температура продуваемого воздуха до +70°C]
Низкотемпературное с высокотемпературным - Н7 и /ET & /ES	

Перечень взрывозащищенного оборудования, входящего в состав систем контроля продувки MiniPurge, представлен в таблице 2.

№	Наименование	Завод-изготовитель	Маркировка
1.	Клеммные коробки модели MIU e	Expo Technologies	1Ex e IIC T5 Gb Ex tb IIC T100°C Db
2.	Клеммные коробки модели MIU d	Expo Technologies	1Ex d IIC T* Gb Ex tb IIC T* Db 1Ex d IIB+H2 T* Gb Ex tb IIC T* Db 1Ex d IIB+H2 T3 Gb
3.	Модуль электронного таймера ETM-IS	Expo Technologies	0Ex ia IIC T* Ga Ex ia IIC T* Da
4.	Нагреватель СР	Intertec-Hess GmbH	1Ex d IIC T3
5.	Клеммные коробки модели BPG	Abtech	1Ex e IIC T6 Gb Ex tb IIC T85°C Db
6.	Клеммные коробки модели ZAG	Abtech	1Ex e IIC T6 Gb Ex tb IIC T85°C Db
7.	Клеммные коробки модели OTB-122	Bartec	1Ex e IIC T6 Gb Ex tb IIC T85°C Db
8.	Клеммные коробки модели 07-51	Bartec	1Ex e IIC T6 Gb Ex tb IIC T80°C Db
9.	Концевой выключатель 07-2511	Bartec	1Ex d IIC T6 Gb

Конструкция систем контроля продувки MiniPurge обеспечивает их взрывобезопасность, что достигается выполнением ряда требований, в том числе:

- обеспечением продувки внутреннего пространства шкафов защитных под избыточным давлением по ГОСТ IEC 60079-2-2011 в случае установки компонентов системы общепромышленного исполнения во внутренний объем шкафов;

- выполнением корпусов шкафов и блоков элементов систем контроля продувки MiniPurge из материалов, имеющих высокую степень механической прочности, устойчивых к механическим воздействиям величиной до 7 Дж;

- выполнением корпусов из материалов не содержащих более 7,5 % магния;

- наличие на корпусе заземляющих зажимов;

- конструкция соединения деталей, исключают возможность прорыва уплотнений или раскрытия стыков;

- обеспечением степени защиты от внешних воздействий по ГОСТ 14254-2015;

- конструкция и применяемые материалы для исключения возможности накопления и разряда статического электричества;

- резьбовые соединения сборочных единиц, обеспечивающие взрывозащиту электрооборудования, имеют устройства для предотвращения произвольного самоослабления;

- на дверцы и крышки защищаемого оборудования нанесены предупредительные надписи: «ПРЕДОСТЕРЕЖЕНИЕ! НЕ ОТКРЫВАТЬ ПРИ ВОЗМОЖНОМ ПРИСУТСТВИИ ВЗРЫВООПАСНОЙ СРЕДЫ ИЛИ ПОД НАПРЯЖЕНИЕМ» или подобное;

- монтаж, эксплуатация, ремонт и обслуживание систем контроля продувки MiniPurge должны производиться в строгом соответствии с требованиями руководства по эксплуатации. Обслуживающий персонал должен строго соблюдать требования к параметрам окружающей и рабочей сред, установленные в руководстве по эксплуатации;

- оборудование систем контроля продувки MiniPurge при применении ее по назначению и выполнении требований к монтажу и эксплуатации по ГОСТ IEC 60079-14-2013, обеспечивает безопасность, что достигается выполнением ряда требований;

- применением взрывобезопасного электрооборудования с видами взрывозащиты "взрывонепроницаемая оболочка "d" по ГОСТ IEC 60079-1-2011, продувка оболочек под избыточным давлением "p" по ГОСТ IEC 60079-2-2011, повышенная защита вида "e" по ГОСТ Р МЭК 60079-7-2012, искробезопасная электрическая цепь "i" по ГОСТ 31610-11-2012, вид взрывозащиты «герметизация компаундом «m» по ГОСТ Р МЭК 60079-18-2012, защитой от воспламенения пыли оболочками "t" по ГОСТ IEC 60079-31-2013; конструкция которого соответствует требованиям ГОСТ 31610-0-2014 и соблюдением условий безопасного применения «Х»;

Внесение изменений в согласованные чертежи и конструкцию изделий возможно только по согласованию с ОС ООО Центр «ПроФэкс».

Данный сертификат соответствия подтверждает соответствие требованиям взрывобезопасности ТР ТС 012/2011 и не рассматривает любые другие виды безопасности при эксплуатации оборудования.

Руководитель (уполномоченное
лицо) органа по сертификацииЭксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Мамедова Александра Николаевна

(Ф.И.О.)

Рыжовин Артем Вячеславович

(Ф.И.О.)

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ЕАЭС RU C-GB.АЖ58.B.00906/20

Серия RU № 0767606

3. Системы контроля продувки MiniPurge соответствуют требованиям:

ТР ТС 012/2011

ГОСТ 31610-0-2014

ГОСТ IEC 60079-1-2011

ГОСТ IEC 60079-2-2011

ГОСТ Р МЭК 60079-7-2012

ГОСТ 31610-11-2012

ГОСТ Р МЭК 60079-18-2012

ГОСТ IEC 60079-31-2013

ГОСТ IEC 60079-14-2013

Технический регламент Таможенного союза «О безопасности оборудования для работы во взрывоопасных средах»

Взрывоопасные среды. Часть 0. Оборудование. Общие требования.

Взрывоопасные среды. Часть 1. Оборудование с видом взрывозащиты "взрывонепроницаемая оболочка "d" "

Взрывоопасные среды. Часть 2. Оборудование с видом взрывозащиты заполнение или продувка оболочек под избыточным давлением "p" "

Взрывоопасные среды. Часть 7. Оборудование. Повышенная защита вида "e" "

Электрооборудование для взрывоопасных газовых сред. Часть 11. Искробезопасная электрическая цепь "i" "

Взрывоопасные среды. Часть 18. Оборудование с видом взрывозащиты "герметизация компаундом "m" "

Взрывоопасные среды. Часть 31. Оборудование с защитой от воспламенения пыли оболочками "t" "

Взрывоопасные среды. Часть 14. Проектирование, выбор и монтаж электроустановок.

4. Маркировка взрывозащиты

Маркировка, наносимая на оборудование, включает следующие данные:

- наименование изготовителя или его зарегистрированный товарный знак;

- наименование изделия;

- маркировку взрывозащиты (смотри таблицу 1);

- температуру эксплуатации (смотри таблицу 1);

- дату выпуска;

- порядковый номер изделия по системе нумерации предприятия-изготовителя, включающий обозначение типа оборудования;

- название или знак органа по сертификации и номер сертификата соответствия;

- другие данные, которые должен отразить изготовитель, если это требуется технической документацией;

Маркировка специальным знаком взрывобезопасности и единым знаком обращения продукции в соответствии с ТР ТС 012/2011.

5. Специальные условия применения

- контроллер продувки, установленная на передней части оборудования, не должна подвергаться воздействию прямых источников ультрафиолетового излучения или прямых солнечных лучей;

- защитный газ не должен содержать горючих газов, паров и влаги, а также агрессивных примесей;

- в процессе эксплуатации запрещается изменять время предпусковой продувки, пределы срабатывания блокировок по избыточному давлению и установкам по величине расхода;

- перед вводом в эксплуатацию, после ремонта и профилактических работ необходимо выполнять проверки величин сигнала достижения защитным газом допустимого минимального или максимального избыточного давления; расхода защитного газа;

- отключать блокировки и сигнальную систему для проведения наладочных работ разрешается только при условии отсутствия взрывоопасной окружающей среды в течение всего времени отключения блокировок;

- запрещается производить ремонт электронных схем, обеспечивающих искробезопасное исполнение. В случае выхода из строя печатные платы и элементы искробезопасных электрических цепей должны заменяться новыми, поставляемыми изготовителем;

- монтаж, эксплуатацию, осмотр, обслуживание и ремонт оборудования, имеющего в маркировке знак «Х» следует осуществлять строго в соответствии с руководством по эксплуатации, изложенными в сопроводительной технической документации на данное оборудование (смотри таблицу 2), а также с учетом всех требований ГОСТ IEC 60079-14-2013 и отраслевых Правил безопасности;

Руководитель (уполномоченное
лицо) органа по сертификацииЭксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Мамедова Александра Николаевна

(Ф.И.О.)

Рыжовин Артем Вячеславович

(Ф.И.О.)



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

No.: 2020312303000422

Applicant EXPO Technologies Limited
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Manufacturer EXPO Technologies Limited
Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Production Factory EXPO Technologies Limited
Production Address Unit 2, The Summit, Hanworth Road, Sunbury on Thames Surrey TW16 5DB, United Kingdom
Product Minipurge Interface Units
Model/Type MIU/e1, MIU/e2, MIU/e1/MO
Ex marking Ex e IIC T5/T4 Gb, Ex tD A21 IP66 T100°C
Reference Standards GB3836.1-2010, GB3836.3-2010, GB12476.1-2013, GB12476.5-2013

Certification mode Type Test + Initial Factory Inspection + Post-Certification Surveillance

The product(s) is verified and certified according to CNCA-C23-01: 2019 China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product and CNEX-C2301-2019 Guideline of China Compulsory Certification Implementation Rule on Explosion Protected Electrical Product.

See Annex for the detailed product information (1 page).

Issued on: 2020-11-04

Valid to: 2025-11-03

The validity of this certificate is maintained through the regular supervision of the issuing authority during the validity period.

Where any discrepancy arises between the English translation and the original Chinese version, the Chinese version shall prevail.

Director:

穆大王



Nanyang Explosion Protected Electrical Apparatus Research Institute Co., Ltd.



<http://www.ccc-cnex.com>
ccc.china-ex.com

Add: No. 20, North Zhongjing Road, Nanyang, Henan, P. R. China P.C.: 473008
Tel: 0377-63239734 Email: ccc@cn-ex.com



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION

(Annex)

No.: 2020312303000422

Page 1 of 1

Product information:

1. This certificate covers the following models:

- MIU/e1, MIU/e2, MIU/e1/MO

Parameters:

MIU/e1, MIU/e2: 7A, 400V, IP66

MIU/e1/MO: 2A, 400V, IP66

Ex marking:

MIU/e1, MIU/e2: Ex e IIC T5/T4 Gb, Ex tD A21 IP66 T100°C (Ta: -20°C...+55/60°C)

MIU/e1/MO: Ex e IIC T5 Gb, Ex tD A21 IP66 T100°C (Ta: -20°C...+55°C)

- Producers should organize production in accordance with the technical documents approved by the certification body.

2. Specific conditions of safety use:

- Cable glands, breathers, drains and plugs shall be appropriately certified types, suitable for the cable and conditions for use and installed in accordance with their manufacturers' instructions. They shall maintain the IP66 rating of the enclosure.

- See instruction for other information.

3. Certificate related report(s):

- Type test report: CQST2009C580

- Factory inspection report: CN2020Q010175

4. Certificate change information: None

Issued on: 2020-11-04

Director:

穆大王



Nanyang Explosion Protected Electrical Apparatus Research Institute Co., Ltd.



<http://www.ccc-cnex.com>
ccc.china-ex.com

Add: No. 20, North Zhongjing Road, Nanyang, Henan, P. R. China P.C.: 473008
Tel: 0377-63239734 Email: ccc@cn-ex.com

CN 0000297



中国国家强制性产品认证证书



证书编号: 2020322304000843

认证委托人名称: 博太科防爆设备(上海)有限公司
 认证委托人地址: 上海市闵行区浦江高科技园F区新骏环路188号7号楼101、401
 生产者名称: BARTEC GmbH
 生产者地址: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany
 生产企业名称: BARTEC GmbH
 生产企业地址: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany
 产品名称: 限位及行程开关
 系列、规格、型号: 07-25 系列, 07-291 系列
 标准: GB 3836.1-2010、GB 3836.2-2010、GB 12476.1-2013、GB 12476.5-2013

上述产品符合强制性产品认证实施规则 CNCA-C23-01:2019 的要求, 特发此证。

发证日期: 2020 年 8 月 28 日 有效期至: 2025 年 8 月 27 日

首次发证日期: 2020 年 8 月 28 日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。

本证书的相关信息可通过国家认监委网站 www.cnca.gov.cn 查询



批准:

(Signature)



上海仪器仪表自控系统检验测试所有限公司

<http://www.sitiias.com.cn>

中国·上海·漕宝路103号200233

电话: +86 21 64510844

S 0000882



CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION



CERTIFICATE NO: 2020322304000843

APPLICANT: BARTEC Explosion Proof Appliances (Shanghai) Co. Ltd
 ADDRESS: New Building 7,101、401 No. 188, Xinjun Ring Rd., Shanghai
 Pujiang Hi-Tech Park(Pu Dong Area), Minhang
 District, Shanghai China
 MANUFACTURER: BARTEC GmbH
 ADDRESS: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany
 FACTORY: BARTEC GmbH
 ADDRESS: Max-Eyth-Str. 16 97980 Bad Mergentheim Germany

PRODUCTNAME: Limit and Position Switch
 SERIES,SPECIFICATION,MODEL: 07-25 Series, 07-291 Series
 STANDARDS: GB 3836.1-2010、GB 3836.2-2010、GB 12476.1-2013、GB 12476.5-2013

This is to certify that the above mentioned product(s) complies with the requirements of implementation rules for compulsory certification (REFNO. CNCA-C23-01:2019).

Valid from: August 28, 2020

Valid until: August 27, 2025

Date of original certification: August 28, 2020

The validity of this certificate is subject to positive result of the regular follow up inspection by issuing certification body until the expiry date.

This certificate is available through CNCA's website: www.cnca.gov.cn



APPROVAL:

(Signature)

Xu JianPing



Shanghai Inspection and Testing Institute of Instruments and Automation Systems Co., Ltd.

<http://www.sitiias.com.cn>

Building 9,103 Cao Bao Road, Shanghai 200233, China

Tel: +86 21 64510844

S 0000517



中国国家强制性产品认证证书



证书编号: 2020322304000843

附件

产品名称: 限位及行程开关

型号规格: 07-25 a 1 - b c d e / f g h i, 其中

a 代表外壳类型, 可选代码为: 1, 8

b 代表应用环境, 可选代码为: 1, 3, 5, 6, 7, 8

c 代表导线长度, 可选代码为: 0~9

d 代表1号腔室触点类型, 可选代码为: 1, 2, 3, 4, 6, 7

e 代表2号腔室触点类型, 可选代码为: 0, 1, 2, 3, 4, 6, 7, A, B, C, D

f, g, h, i 为与防爆无关代码

07-291 a - b c d e / f g h i

a 代表应用环境, 可选代码为: 1, 3, 5, 6, 7, 8

b 代表材料保护外壳, 可选代码为: 1

c 代表导线长度, 可选代码为: 0~9

d 代表1号腔室触点类型, 可选代码为: 1, 2, 3, 4

e 代表2号腔室触点类型, 可选代码为: 1, 2, 3, 4

f, g, h, i 为与防爆无关代码

防爆标志: Ex d IIC T6/T5 Gb, Ex tD A21 T80℃/T95℃

电气参数: 最大额定电压 AC 400V, DC 250V, 最大额定电流 AC 7A, DC 7A。

批准:



上海仪器仪表自控系统检验测试所有限公司



СЕРТИФИКАТ СООТВЕТСТВИЯ

№ TC RU C-DE.BH02.B.00222

Серия RU № 0376388

ОРГАН ПО СЕРТИФИКАЦИИ взрывозащищенных средств измерений, контроля и элементов автоматики

ФГУП «ВНИИФТРИ» (ОС ВСИ «ВНИИФТРИ»). Место нахождения: Российская Федерация, 141570, Московская область, Солнечногорский район, рабочий поселок Менделеево, промзона ВНИИФТРИ, корпус 11. Фактический адрес: Российская Федерация, 141570, Московская область, Солнечногорский район, рабочий поселок Менделеево, промзона ВНИИФТРИ, корпус климатической лаборатории; телефон/факс +7 (495) 526-63-03; e-mail: ilvsi@vniiftri.ru. Аттестат аккредитации № RA.RU.11BH02 от 08.07.2015 выдан Росаккредитацией

ЗАЯВИТЕЛЬ

Общество с ограниченной ответственностью «БАРТЕК Рус»
Адрес: Россия, 111141, г. Москва, 3-ий проезд Перова Поля, дом 8, строение 11
ОГРН-1107746415347; телефон: +7(495) 6462410; факс: +7(495) 6462410; e-mail: mail@bartec-russia.ru

ИЗГОТОВИТЕЛЬ

BARTEC GmbH (Германия)
Место нахождения: Max-Eyth-Str. 16, 97980 Bad Mergentheim, Germany
Фактический адрес производства: «BARTEC GmbH», Max-Eyth-Str. 16, 97980 Bad Mergentheim, Germany;
«Accel Elektronika», Savanoriu 271 50131 Kaunas, Lithuania

ПРОДУКЦИЯ

Выключатели, переключатели и модули переключения (Приложение на бланке № 0267682)
Техническая документация изготовителя
серийный выпуск

КОД ТН ВЭД ТС 8536 50 070 0

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ

Технического регламента Таможенного союза ТР ТС 012/2011
«О безопасности оборудования для работы во взрывоопасных средах»

СЕРТИФИКАТ ВЫДАН НА ОСНОВАНИИ

1. Протокол испытаний № 16.2242 от 22.08.2016
ИЛ ВСИ «ВНИИФТРИ» (№ RA.RU.21ИП09 от 22 июля 2015)
2. Акт о результатах анализа состояния производства от 29.10.2015

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

Условия и сроки хранения, срок службы - в соответствии с руководствами изготовителя по эксплуатации.
Сертификат действителен с Приложением на бланках № 0267682, № 0267683, № 0311251.
Схема сертификации 1с.

СРОК ДЕЙСТВИЯ С 31.08.2016 ПО 30.08.2021 ВКЛЮЧИТЕЛЬНО

М.П.

Руководитель (уполномоченное
лицо) органа по сертификации

Эксперт (эксперт-аудитор)
(эксперты (эксперты-аудиторы))

Г.Е. Епихина
(подпись)

Н.Ю. Мирошникова
(подпись)

Г.Е. Епихина
(инициалы, фамилия)

Н.Ю. Мирошникова
(инициалы, фамилия)

ПРИЛОЖЕНИЕ

К СЕРТИФИКАТУ СООТВЕТСТВИЯ № TC RU C-DE.BH02.B.00222

Серия RU № 0267682

1 Сведения о продукции, обеспечивающие ее идентификацию

Сертификат соответствия распространяется на выключатели, переключатели и модули. Маркировка взрывозащиты выключателей, переключателей и модулей переключения в зависимости от диапазона температуры окружающей среды и параметров коммутируемой электрической цепи приведена в таблице 1.

Таблица 1

Обозначение выключателей, переключателей и модулей переключения	Маркировка взрывозащиты	Температура окружающей среды, °C	Максимальные параметры коммутируемой цепи
Переключатели герконовые 07-211-**** модификаций 07-2211-1*10, 07-2211-2*20	2ExmIIT6 X Ex mD 21 T80°C	от -40 до +70	200 В и 0,5 А или 10 Вт
Выключатели встраиваемые 07-1511-****/****, 07-1521-****/****, 07-1541-****/****, 07-1581-****/****	ExdIIC U или ExdI U	от -55 до +75	250 В
Выключатели миниатюрные встраиваемые 07-1501-1****/**** модификаций 07-1501-1****/****, 07-1501-2****/****, 07-1501-4****/****, 07-1501-5****/****, 07-1501-6****/****, 07-1501-7****/****, 07-1501-8****/****	ExdIIC U или ExdI U	от -55 до +100	250 В
Выключатели миниатюрные концевые 07-2501-****/**** модификаций 07-2501-5****/****, 07-2501-6****/****, 07-2501-7****/****	1ExdIICT6 X	от -40 до +70	250 В
Выключатели встраиваемые 07-1544-****/**** модификаций	ExdIIC U или ExdI U	от -25 до +110 или от -55 до +110	300 В
Выключатели концевые 07-2511-****/**** модификаций 07-2511-****/****, 07-2581-****/****	1ExdIICT6 X	от -55 до +75	2 А
Переключатель позиционный 07-291*-****/****	1ExdIICT6 X	от -55 до +60	6 А
Переключатель позиционный 07-2931-1****/****	1ExdIICT6 X	от -20 до +60 от -50 до +75	400 В и 2 А или 250 В и 7 А
Переключатель позиционный 07-2931-1****/****	1ExdIICT6	от -20 до +60	400 В и 4 А или 240 В и 6 А
Выключатель прецизионный концевой 07-295*-**30****	1ExdIICT6 X Ex tD A21 IP65 T80°C 1ExdIICT5 X Ex tD A21 IP65 T95°C	от -20 до +60 от -20 до +90	250 В и 5 А
Выключатель прецизионный концевой 07-296*-**6****	1ExdIICT6 Ex tD A21 IP65 T80°C 1ExdIICT5 Ex tD A21 IP65 T95°C	от -20 до +65 от -20 до +90 от -20 до +75	250 В и 6 А
Модуль переключения 07-3323-3****/**** с управляющей насадкой 05-0003-00****	1ExdIICT6 X или PB ExdI X	от -55 до +70 от -55 до +70	400 В и 16 А 250 В и 11 А
Модуль переключения 07-332*-1****/**** с управляющей насадкой 05-0003-00****	ExdelIC U или PB Exdel U	от -55 до +60 от -55 до +70	400 В и 16 А
Выключатель управления 07-3331-1****/**** с управляющей насадкой 05-0003-00****	ExdelIC U	от -55 до +60	400 В и 16 А
Модуль переключения ComEx Flex 07-3323-4****/**** с управляющей насадкой 05-0003-00****	ExdelIC U Exdel U	от -55 до +60 от -55 до +70	400 В и 16 А
Модуль переключения ComEx Flex 07-3323-5****/**** с корпусом подключения ComEx Flex 05-0042-0050, с управляющей насадкой 05-0003-00****	2ExdIICT6 X Ex tD A21 IP66 T80°C	от -55 до +60	400 В и 16 А
		от -55 до +60 от -55 до +70	

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К СЕРТИФИКАТУ СООТВЕТСТВИЯ № ТС RU C-DE.BH02.B.00222

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2 Описание элементов конструкции и средств обеспечения взрывозащиты

Переключатели герконовые 07-*211-**** имеют неразборную конструкцию и состоят из пластмассовой оболочки, внутри которой размещен герконовый переключатель, залитый компаундом вместе с постоянно присоединенным кабелем.

Выключатели и переключатели состоят из механических подвижных контактов, помещенных во взрывонепроницаемую оболочку. Кабельный ввод загерметизирован компаундом. Управление контактами производится подвижным штоком, установленным в отверстие оболочки.

Модули переключения состоят из механических подвижных контактов, помещенных во взрывонепроницаемую оболочку. Подключение к внешним электрическим цепям выполнено с использованием кабельного ввода или клеммной колодки. Механическое управление контактами выполнено с использованием специальной управляющей насадки.

Выключатели, переключатели и модули переключения с комплектующими и запасными устройствами в части взрывозащиты соответствуют требованиям ТР ТС 012/2011, ГОСТ 30852.0-2002 (МЭК 60079-0:1998), ГОСТ 30852.1-2002 (МЭК 60079-1:1998), ГОСТ 30852.8-2002, ГОСТ 30852.17-2002 (МЭК 60079-18:1992), ГОСТ IEC 61241-0-2011, ГОСТ IEC 61241-1-2011, ГОСТ IEC 61241-18-2011.

Маркировка взрывозащиты, наносимая на оборудование и указанная в технической документации изготовителя, должна содержать специальный знак взрывобезопасности в соответствии с Приложением 2 ТР ТС 012/2011 «О безопасности оборудования для работы во взрывоопасных средах».

Взрывозащита выключателей, переключателей и модулей переключения обеспечивается следующими средствами.

Электрические цепи, содержащие искрящие элементы (кнопки), выполнены искробезопасными.

Подвижные контакты заключены во взрывонепроницаемую оболочку, выдерживающую давление взрыва и исключающую передачу горения в окружающую взрывоопасную среду.

Взрывоустойчивость и взрывонепроницаемость оболочек выключателей и модулей переключения соответствуют требованиям ГОСТ 30852.1-2002 (МЭК 60079-1:1998) для электрооборудования подгруппы IIC.

Параметры взрывонепроницаемых соединений оболочек соответствуют требованиям ГОСТ 30852.1-2002 (МЭК 60079-1:1998) для электрооборудования подгруппы IIC.

Параметры заливки электрических соединений и кабельного ввода переключателей герконовых 07-*211-**** выполнены в соответствии требованиями ГОСТ 30852.17-2002 (МЭК 60079-18:1992). Компаунд сохраняет свои свойства во всем диапазоне рабочих температур.

Пути утечки и электрические зазоры соединительной колодки модулей переключения соответствуют требованиям ГОСТ 30852.8-2002.

Взрывозащита от воспламенения пыли обеспечивается степенью защиты оболочки от воздействия внешней среды IP65 по ГОСТ IEC 61241-1-2011 и заливкой компаундом по ГОСТ IEC 61241-18-2011.

Механическая прочность оболочек выключателей и модулей переключения соответствует требованиям для электрооборудования II группы с высокой опасностью механических повреждений по ГОСТ 30852.0-2002 (МЭК 60079-0:1998).

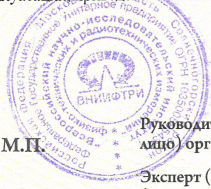
Применяемые материалы соответствуют требованиям по обеспечению фрикционной и электростатической искробезопасности по ГОСТ 30852.0-2002 (МЭК 60079-0:1998).

Максимальная температура нагрева выключателей и модулей переключения не превышает значений, соответствующих температурному классу T5 или T6 по ГОСТ 30852.0-2002 (МЭК 60079-0:1998).

На корпусах выключателей, переключателей и модулей переключения имеются маркировка взрывозащиты и знак «Х» или «U».

3 Условия применения

Выключатели, переключатели и модули переключения относятся к взрывозащищенному электрооборудованию группы II по ГОСТ 30852.0-2002 (МЭК 60079-0:1998) и предназначены для применения во взрывоопасных зонах в соответствии с установленной маркировкой взрывозащиты, требованиями ТР ТС 012/2011, ГОСТ 30852.13-2002 (МЭК 60079-14:1996), других нормативных документов, регламентирующих применение электрооборудования во взрывоопасных зонах, и руководств по эксплуатации, приведенных в таблице 3.



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Таблица 3

Наименование устройства	Руководство по эксплуатации
Переключатели герконовые 07-*211-****	01-2211-7D0001-05/14-STVT 344932
Выключатели встраиваемые 07-15*1-****/****	01-1500-7D0001/A-07/11-STVT-291766
Выключатели миниатюрные встраиваемые 07-1501-1****/****	01-1500-7D0001-05/14-STVT 370868
Выключатели миниатюрные концевые 07-2501-****/****	01-2501-7D0001-07/13-STVT 292844
Выключатели встраиваемые 07-1544-****/****	01-1544-7D0001-05/14-STVT 302245
Выключатели концевые 07-25.1-****/****	01-2500-7D0001-05/13-STVT 279811
Переключатель позиционный 07-291*-****/****	01-2911-7D0001/A-05/13-STVT 302246
Переключатель позиционный 07-2931-1****/****	01-2930-7D0001/A-07/11-STVT 291427
Выключатель прецизионный концевой 07-295*-**30/****	03-0330 – 0158/A-07/10-BCS-129310/1
Выключатель прецизионный концевой 07-296*-**6*/****	01-2960-7D0001/A-01/13-STVT 302249
Модуль переключения 07-3323-3****/****	01-2930-7D0001/A-07/11-STVT 291427
Модуль переключения 07-332*-1****/****	01-3323-7D0001/B02/13-STVT 292807
Модуль переключения 07-3331-1****/****	01-3331-7D0001/A-04/14-STVT 292824
Модуль переключения ComEx Flex 07-3323-4****/****	01-3323-7D0004-03/11-STVT 308485
Модуль переключения ComEx Flex 07-3323-5****/****	01-3323-7D0004-03/11-STVT 308485
Модуль переключения ComEx Flex 07-3323-5****/****	01-3300-7D0001-03/11-STVT-308533

Возможные взрывоопасные зоны применения, категории и группы взрывоопасных смесей газов и паров с воздухом – в соответствии с требованиями ГОСТ 30852.9-2002 (МЭК 60079-10:1995), ГОСТ 30852.5-2002 (МЭК 60079-4:1975), ГОСТ IEC 61241-10-2011.

Переключатели герконовые 07-*211-**** модификаций 07-2211-1*10, 07-2211-2*20, выключатели прецизионные концевые 07-295*-**30/****, 07-296*-**6*/****, модуль переключения ComEx Flex 07-3323-5****/**** относятся к электрооборудованию, предназначенному для применения в зонах, опасных по воспламенению горючей пыли, в соответствии с присвоенной маркировкой взрывозащиты.

Знак «U», стоящий после маркировки взрывозащиты выключателей, переключателей встраиваемых и модулей переключения, означает, что они относятся к Ex-компонентам групп I и II по ГОСТ 30852.0-2002 (МЭК 60079-0:1998) и предназначены для установки внутри оболочки, обеспечивающей необходимый вид взрывозащиты.

Знак «X», стоящий после маркировки взрывозащиты, означает, что выключатели, переключатели и модули переключения выпускаются с постоянно присоединенным кабелем. Подключение свободного конца кабеля во взрывоопасной зоне должно обеспечивать необходимый уровень взрывозащиты и выполняться в соответствии с указаниями руководства по эксплуатации.

Установка и эксплуатация выключателей, переключателей встраиваемых и модулей должны проводиться в строгом соответствии с руководствами по эксплуатации, приведенными в таблице 3.

Условия применения:

- температура окружающей среды, °C в соответствии с таблицей 1
- атмосферное давление, кПа от 66 до 106,7
- относительная влажность при 35 °C, % не более 98

Внесение в конструкцию выключателей, переключателей встраиваемых и модулей переключения изменений, касающихся средств взрывозащиты, должно быть согласовано с ОС ВСИ «ВНИИФТРИ».



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