1. GENERAL
1.1 The sudden and uncontrolled release of pressure to atmosphere (or passage of a gas through a vent) represents a potential danger.
1.2 Fire, explosion, fatique, deflagration etc. within a pressure system can lead, in some instances, to complete disintegration or melting of the pressure system.
1.3 It is the responsibility of both the manufacturer of pressure containing components and the user to protect operators from this dangerous situation. Pressure systems should be designed, built, and maintained, using suitable materials and is correctly installed, maintained and operated by properly trained and qualified personnel. 
1.4 In the UK, these responsibilities are covered by Government legislation, the European Pressure Systems Directive and ATEX are directives applicable within the EU.

2. SAFETY – INSTALLATION
2.1 Maintenance connections should be leak tight and should be gaged when the pressure medium may be corrosive.
2.2 When the pressure medium may be potentially explosive, the use of polyethylene pipe is mandatory and chamber should be sealed in polyethylene tubing and gasketed with PTFE.
2.3 If any doubt exists, it is imperative the Manufacturer is consulted.
2.5 L122 second Edition 2017
2.6 Pressure Equipment (Safety) Regulations 2016 (SI 2016 No.1105), implementing the Pressure Equipment Directive (PED) 2014/68/UE.

3. INSTALLATION
3.1 Your promptness is essential to commence work with all the equipment and the instrument should be immediately ready for installation. 
3.2 If an installed gauge fails and exhibits the symptoms described in PARA 2.14.1, the instrument connecting thread, correctly installed, will form an integral safety guard which is permanently leak tight.

4. PRESSURE GAUGES
4.1 The Pressure Gauges are supplied cleaned and degreased to meet the extreme conditions the user will have to determine, in the light of experience.
4.2 Materials in contact with Oxygen must comply with the requirements of the law.
4.3 Any shift in pressure readings greater than twice the tolerance error defined in the system, is unacceptable and must be fixed.

5. OPERATING & MAINTENANCE
5.1 The manufacturer should be advised if any static head of liquid is acting on the gauge and an allowance will be made for this during recalibration.
5.2 The Calibration sealing must be maintained in good working order and recalibration should be performed at frequent intervals.
5.3 An instrument should be chosen so that it is safe for use.

6. MAINTENANCE
6.1 Before any repair is attempted on the gauge, the manufacturer should be consulted and the immediate cause of the failure should be determined and the immediate cause of the failure should be determined 
6.2 If a vent valve is used, to ensure there are no trapped contaminants, the system must be fully depressurized before removing the gauge from the system.
6.3 Blowout release at the back plate reduces the risk of a static shock.
6.4 You are advised to be familiar with this legislation and any that apply in your country.

7. FIRE & EXPLOSION
7.1 The Gauge is used on a liquid and is mounted substantially above or below the pressure point, a head allowance may be necessary.
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8. ACCESSORIES
8.1 If an installed gauge fails and exhibits the symptoms described in PARA 2.14.1, the instrument connecting thread, correctly installed, will form an integral safety guard which is permanently leak tight.
6.5.8 Where there is danger of explosion, intrinsically safe contacts, relay and cabling must be used. (Refer to Wiebrock and Pepperl+Fuchs datasheets).

5.1.7 We recommend a relay should be used in all applications, as this will give a more efficient and safer installation.

5.1.8 Controls (i.e. motors, pumps, etc.) should be intrinsically safe (Instead of using explosion proof versions). According to the Pressure Equipment (Safety) Regulations 2016 (SI 2016 No.1105) implementing the Pressure Equipment Directive (PED) 2014/68/EU, (LV), the design has been subject to third party approval.

5.2 MAINTENANCE

5.2.1 Always disconnect power supply before carrying out any maintenance.

5.2.2 Drain housing fill fluid prior to and re-fill after maintenance.

5.2.3 Check all electrical wiring and joints for any wear or damage.

5.2.4 Refer to contacts label or diagram attached to the instrument.

6. POTENTIAL MALFUNCTIONS

6.1 FAILURE MODES

6.1.1 Fatigue Failure

6.1.2 Fatigue cracks usually result in slow movement. Housing blow-out device will eject to relieve build-up pressure to protect the instrument.

6.1.3 This failure mode is more critical with a high-pressure gas medium and can result in explosive failure of the pressure element. An explosive failure in the gauge inlet connection will reduce the effect of pressure surges and fluid flow.

6.1.4 The most common cause for such a failure is fatigue. Causes may include:

- Stress corrosion
- Corrosive forces
- Volatiles from oil

6.1.5 Fatigue Failure

6.1.6 Caused by pressure-induced mechanical stress, causing the element to develop cracks that propagate along highly stressed areas of the element.

6.1.7 Corrosion Failure

6.1.8 Caused by corrosive chemicals in the media or environment, attack and weaken the elastic element. Initial failure may appear as pinhole leakage or fatigue failure due to stress cracking, by chemical deterioration of the material. A diaphragm (chemical) seal constructed with materials compatible with the corrosive media will protect the elastic element from chemical deterioration.

6.1.9 Explosive Failure

6.1.10 Caused by a sudden release of explosive energy generated by a chemical reaction, such as adiabatic compression of oxygen in the presence of hydrogen. The magnitudes or effects of this type of failure are often catastrophic, for safety reasons.

6.1.11 The most common cause for an explosive failure is a build-up of pressure in the gauge inlet connection which may result in explosion of the pressure element or also cause Snubbagauge. III

6.1.12 Caused by stress corrosion, corrosive forces, volatiles from oil, by chemical deterioration of the material. A diaphragm (chemical) seal constructed with materials compatible with the corrosive media will protect the elastic element from chemical deterioration.

6.1.13 Pressure Failure

6.1.14 Caused by a sudden release of explosive energy generated by a chemical reaction, such as adiabatic compression of oxygen in the presence of hydrogen. The magnitudes or effects of this type of failure are often catastrophic, for safety reasons.

6.1.15 The most common cause for an explosive failure is a build-up of pressure in the gauge inlet connection which may result in explosion of the pressure element or also cause Snubbagauge. III

6.1.16 Caused by stress corrosion, corrosive forces, volatiles from oil, by chemical deterioration of the material. A diaphragm (chemical) seal constructed with materials compatible with the corrosive media will protect the elastic element from chemical deterioration.

6.1.17 Corrosion Failure

6.1.18 Caused by corrosive chemicals in the media or environment, attack and weaken the elastic element. Initial failure may appear as pinhole leakage or fatigue failure due to stress cracking, by chemical deterioration of the material. A diaphragm (chemical) seal constructed with materials compatible with the corrosive media will protect the elastic element from chemical deterioration.

6.1.19 Explosive Failure

6.1.20 Caused by a sudden release of explosive energy generated by a chemical reaction, such as adiabatic compression of oxygen in the presence of hydrogen. The magnitudes or effects of this type of failure are often catastrophic, for safety reasons.