The instrument described in this manual has been designed and produced in conformity to the following standards:

EN 837-2 of the ASME B40. All components are submitted to severe quality and traceability controls. The quality management system is according to the ISO 9001 standard. This manual contains important information about the use and the installation of the gauge in safe conditions. Therefore it is highly recommended to read carefully the following instructions before using the instrument.

The instrument works in safe conditions when correctly selected and installed in the system and when the rules concerning the product as well as the maintenance procedures established by the manufacturer are respected. The staff charged with the selection, installation and maintenance of the instrument must be able to recognize the conditions that may negatively affect the instrument’s ability to normally work which may lead to premature breakage. The staff must therefore be technically qualified and properly trained, and must carry out the procedures called for in the plant regulations.

The quality management system is certified according to the ISO 9001 standard. This manual contains important information about the use and installation of the gauge in safe conditions. Therefore it is highly recommended to take proper precautions.

3. Use limits

3.1 Process and ambient temperature

This standard type instrument is designed to be used in safety conditions that is in an ambient temperature between -20°C and +65°C. As for the filled model please see the paragraph “DAMPENING LIQUID FILLING”. In case of temperatures below 0°C, it is recommended to use liquid filled gauges preventing that the components such as the measuring system tooting can freeze. The fluid must not freeze or crystallize inside the sensing element.

3.2 Working pressure

The instrument should be chosen considering the scale as well as to mechanical pressure gauges. The full scale range should be approximately double than the working pressure value.

3.3 Dynamic and cyclic pressures

In case of cyclic pressures are normally indicated by the measuring index oscillations. They reduce the sensing element’s and the amplifying device's life. In case of cyclic pulsating pressures placing a damper or a reducing valve between the process and the gauge. The harmful effect of the pulsations could also be reduced filling the case with a damping liquid. An improper choice of the instrument can bring to a breakage by stress.

3.4 Overpressure

Not applicable

3.5 Vibration

Vibrations can be detected through continuous and periodic test checks or the installation of indicator on the index or of the case. When the instrument is under vibrations it is recommended to use liquid filled pressure gauges.

4. Safety devices

4.1 Fatigue rupture

A continuous pressure variation highlighted by means of indication can cause the safety element’s fatigue. The brakeage, which could be more dangerous if occur in measuring compressed gas instead of liquids, cause a pressure increase inside the case and therefore reduce the safety device opening. In case of operation with high pressure the breakage could degenerate in an explosion. It is recommended to use damping liquid filled instruments and to narrow the pressure entrance conduit through a restrictor screw or an adjustable damper.

4.2 Vibration and shocks rupture

Vibrations most commonly cause an abnormal deterioration of the parts in movement bringing to a gradual loss of accuracy and then to a total block of the instrument.

Vibrations could also cause stress cracks in the sensing element structure causing a liquid leakage and even an explosion.

5. Maintenance

The instrument’s characteristics should be maintained during (time through a special maintenance program which should be carried out and managed by qualified technicians).

All diaphragm seals are assembled and fixed to the instrument through a seal label. If this label or the assembly are altered imploperly the whole device works won’t.

As for heavy work instruments operating in severe conditions plants (vibrations, pulsating pressures, corrosive or sedimentous fluids, fuel or inflammable fluids) we recommend to schedule their replacement according to the maintenance program schedule. In case the instrument does not work properly it is necessary to proceed to an unscheduled check procedure.

Instruments should be kept in their original packaging and stored in a dry, clean, and safe place. In particular in the zero free instruments it could occur that the null-pressure point is inside the zero span.

5.1 Routine check

In case of plants working with compressed gas it is recommended to choose an instrument with a proper characteristic according to standard EN 837-2. In case of unexpected breaking of the sensing element the compressed gas expands outside the case through the safety device.

5.2 Individual verification

In case pressure gauges are used in potentially explosive atmospheres special procedures are requested. The directive regulating theATEX products 2014/34/EU is applied to pressure gauges with electrical devices as well as systems working with compressed gas is recommended to return the instrument to NUOVA FIMA for this procedure. NUOVA FIMA will not be responsible for any non authorized intervention on the instrument. Moreover the contract warranty and the CE Conformity Declaration will be no longer valid.

6. Disposal

An inappropriate disposal can be dangerous for the environment. The components and packing materials have been designed for an eco-compatible procedure and must be in accordance to the national standards. The fluid remaining inside the instrument could be dangerous or toxic for the environment, for people and for equipment.