



ATEX INSTRUCTIONS MANUAL
Pressure gauges
 (complement to the mounting/setting leaflet)
M5000 ... Series



SAFETY PRECAUTIONS

You must read carefully all the instructions of this manual. You must not start the installation before taking these instructions into account. This equipment might receive some hazardous voltages. If you do not consider these instructions, you risk facing serious corporal and/or material injuries.

Before setting up your installation, check the model suit your application. The wiring of this equipment must be executed with the in force rules by a qualified staff.

1 GENERAL WARNINGS

1.1 PREMISE

Before installation of the instruments follow the recommendations listed in European normative EN 837-2.

In particular is necessary to check if:

- Required security level is compatible with the safety markings indicated on instrument dial.
- Process fluid is compatible with wetted parts indicated on instrument dial.

WARNING :

When instrument is installed on dangerous fluids like oxygen, acetylene, or fluids that are inflammables or toxics or dangerous for the environment, please check carefully that instrument is suitable for these applications.

Especially for use with oxygen the instrument dial must show the word "OXYGEN" and the international symbol of "Oil-free". Pressure gauges must not come in contact with oils or greases not compatibles with oxygen.

In the event of installation in potentially explosives atmospheres, the instrument dial must show the markings foreseen from ATEX 94/9/EC directive. Installation is possible only following the rules foreseen.

1.2 NOTES ON APPLICABILITY OF PRESSURE DEVICES DIRECTIVE (PED 97/23/CE)

Georgin pressure gauges M5000 are considered "pressure accessories", according art. 1 clause 1.2.4.

Instruments with static pressure higher than 200 bar are manufactured according A module of the directive and must have CE logo on dial.

Instruments with static pressure lower than 200 bar must not be marked with CE logo but are manufactured according to art. 3 clause 3 "sound engineering practice" (SEP).

1.3 INSTRUMENT MEASURING RANGE

Verify that measuring range of instrument is suitable with working conditions of the pressure circuit/plant. Normal operating pressure must be:

- Within 75 % of dial range for steady pressures
- Within 60 % of dial range for pulsating pressures

The choice of non-suitable range, or not suitable model, or non-suitable installation, causes not proper functioning and shorter working life of instrument.

1.4 ADMITTED OVER PRESSURES

Accidental over pressures are admitted for short periods, provided that they remain within the values indicated in the catalogue.

1.5 AMBIENT TEMPERATURE

Instruments are designed to work with an ambient temperature between -40°C/+60°C (-40°F/+140°F). It is recommended to verify that the pressure gauge installation position is not subject to direct heat sources, both for convection or radiation: if this is not possible, please foresee a protective screen.

Temperature variations of sensing element, compared with reference temperature, cause indications drift (accuracy errors) lower than ±0.4 % of read value, every 10 °C of ambient temperature variation.

1.6 PROCESS FLUID TEMPERATURE

Instruments are designed to work with a process fluid temperature within -40°C/+200°C (-40°F/+392°F).

If instrument is filled with dampening fluid, maximum temperatures admitted of process fluid, are indicated in table 1.

In event of installations on steam, we recommend to follow installation sketches of Figure 1 and suggestions indicated in paragraph 2.3.

1.7 MECHANICAL VIBRATIONS

Verify that chosen position for the installation is not subjected to continuous mechanical vibrations, because this will cause accuracy errors and shorter working life of instrument. If this is not possible, it is recommended to use instruments filled with dampening liquid.

1.8 PULSATING PRESSURES

In the event that instrument is subjected to pulsating pressures, please foresee a dampening protection, like mechanical dampeners (screw type or porous disc type) or restriction screw inserted into the socket. These accessories are available upon request.

1.9 INSTALLATION IN POTENTIALLY EXPLOSIVE ATMOSPHERES (GAS AND DUST)

The instrument can be installed in potentially explosives atmospheres only if on dial are indicated the markings showed on figure 1. The temperature classification of the instrument depends only from the working conditions (maximum ambient and process fluid temperature). The differential pressure gauges series M5000 does not contain any potential ignition source

Figure 1 – Dial marking



Ambient temperature	Max process temperature			Temperature class	
	Dry	Liquid filled		Gas	Dust
		Glycerine	Silicon oil		
-40/+60°C	60°C	60°C	60°C	T6	T85°C
	85°C	85°C	85°C	T5	T100°C
	110°C	100°C	100°C	T4	T135°C
	175°C	100°C	175°C	T3	T200°C
	200°C	100°C	200°C	T2	T300°C
	200°C	100°C	200°C	T1	T450°C



2 INSTALLATION

2.1 PROCESS CONNECTIONS

For the process installation of the instrument, we recommend to use the key flat foreseen on the instrument socket.

WARNING: Do not use the case for to screw or lock the instrument to the process connection.

In the event that instrument will be surface or panel mounted, it is necessary to foresee a flexible piping to connect it to the process.

The sealing of process connection is normally guaranteed by using:

- A flat gasket, if using cylindrical connections
- A sealing material, such as PTFE tape, if using tapered connections (NPT or BSPT).

The serration torque depends only from gasket type.

WARNING: When pressure is applied for the first time to the mounted instrument, please check the sealing of the connection, especially when instrument is mounted with dangerous and/or toxic and/or aggressive fluids. Please be very careful with this check, if process fluid is dangerous.

2.2 PANEL (FLUSH) OR SURFACE (WALL) MOUNTING

For panel or surface mounting consider that a space of about 25mm. must be leaved free between the back side of instrument and the wall. This permits the exit of the safety blow out disc.

WARNING: The instruments filled with dampening liquid and with range under 25 bar, must be vented with the ambient, before installation. Follow the instructions indicated on instrument case.

2.3 MOUNTING ON STEAM APPLICATIONS (FIGURE 1)

When instrument is used on steam applications is necessary to foresee a coil siphon, mounted between process and instrument connection. The coil siphon must be filled with water, for to avoid that steam enter into the instrument.

In the event that instrument is occasionally subjected to vacuum, is necessary to shape the process piping in a way that the coil siphon remain always water filled. The possible accuracy error, given from weight of water column, could be compensated by using the micrometric adjustment on the pointer (see paragraph 4.1).

3 CALIBRATION AND CHECK

As good practice, is better to make a complete check of the instruments twice per year.

The calibration check is normally made by comparing the instrument with a suitable test instrument. Check is carried out on the main divisions of the dial, following the prescription of European normative EN 837.

It is possible to make a fast check of functioning and accuracy of the instrument, verifying the pointer indication at beginning of scale (zero indication). If zero pointer indication, at atmospheric pressure, is within the 2% of range, it will be highly probable that instrument is in good efficiency. A zero drift of more than 2% could mean a stress fatigue of the instrument.

Every pressure gauge that has been subjected to abnormal working conditions must be substituted.

WARNING: The check of the instrument, during the working operations, will be possible only if the same is equipped with relevant manifold and if the process fluid is not toxic or dangerous. (See typical installation Figures 2/7).

WARNING: Every instrument that, also apparently, shows elevated indication errors, must be immediately removed from the service, especially if process fluid is dangerous or toxic.

4 MAINTENANCE

The instrument doesn't need any particular maintenance.

Do not lubricate the moving parts because this could attract dust and to form particles and impurities that could produce malfunctions or accuracy errors.

WARNING: In event of accidental breaking of instrument transparent, it is necessary to substitute it immediately, taking care of removing all the small pieces into the case. The substitution of transparent is mandatory if instrument is mounted in potentially explosives atmospheres with dust.

4.1 ZERO ADJUSTMENT OF INSTRUMENT

If the instrument needs zero adjustment, after removing bayonet ring and transparent, is necessary to act on the micrometric screw, situated on the pointer. We suggest to use proper tools for to open the bayonet ring, if this results strongly closed. (eg. opening belt).

4.2 INSTRUMENT WITH LIQUID FILLING

The level of dampening fluid must be periodically controlled. If a further filling is necessary, we recommend however to don't fill over 75 % of case diameter.

4.3 CLEANING

External cleaning of the instrument could be done by using a sponge with soaped water.

Internal cleaning, necessary in case you need to verify calibration with an hydraulic press, could be made by using compressed air inside the socket hole. Please be careful to the process fluid traces that could remain inside the sensing element, especially if fluid is toxic or dangerous.

WARNING: The instruments that are mounted in potentially explosives atmospheres due to burnable dust, must be periodically externally cleaned for to avoid the dust accumulation.

5 PUT OUT OF SERVICE

Before to dismount the instrument from the working circuit is necessary to control that:

- Instrument is isolated from process fluid
- No pressure is present inside the instrument
- Temperature of the case is not excessive

Please be careful to the process fluid traces that could remain inside the sensing element, especially if fluid is toxic or dangerous.

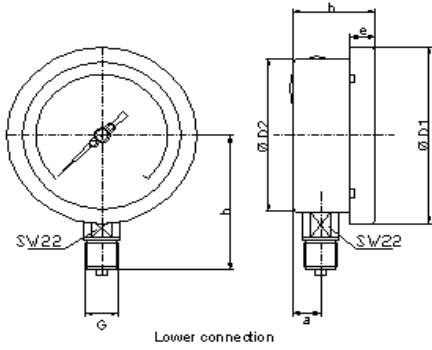
6 DEMOLITION

The instrument is essentially made in stainless steel. Therefore, after removing transparent, gasket, plugs and after removing all the process fluid traces from the wetted parts (especially if fluid is dangerous for peoples or ambient) the instrument could be recycled or scraped

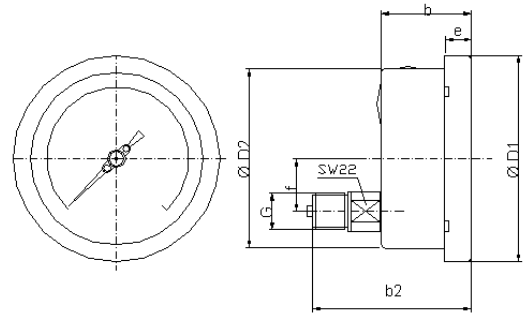
7 DIMENSIONS

PRESSURE GAUGES SERIES M5000

Outline dimensions and weights for direct mounting type

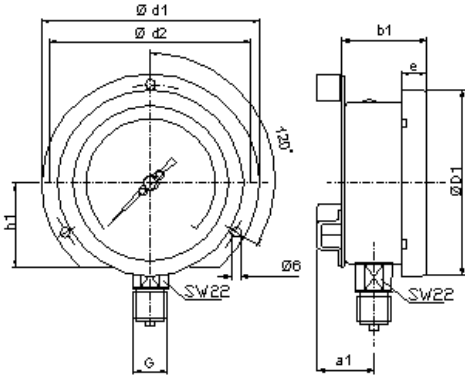


Lower connection



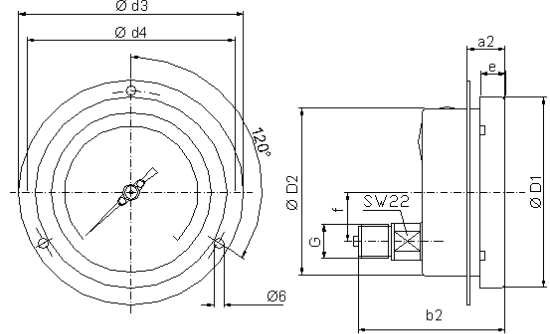
Back connection

Outline dimensions, weights for surface (wall) mounting type



Back flange

Outline dimensions, weights for panel (flush) mounting type



Front flange

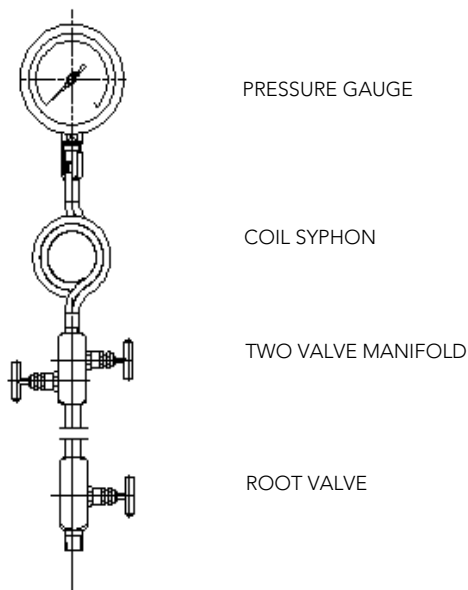
DIMENSIONS TABLE FOR M5000 model (mm)

Case Ø	a	a1	a2	b	b1	b2	D1	D2	d1	d2	d3	d4	e	f	G*	h	h1
100	16	20	23	48	61	90	110.5	100	134	118	135	118	12.5	30	½"	88	52
150	16	20	23	49	62	92	161	149.5	190	168	186	168	15	48	½"	111	85

DIMENSIONS TABLE FOR M5000 model with SOLID FRONT OPTION (mm)

Case Ø	a	a1	a2	b	b1	b2	D1	D2	d2	d3	d4	e	f	G*	h	h1
100	38	48	23	70	82	111	110.5	100	118	135	118	12.5	30	1/2	88	52
150	38	48	23	70	82	111	161	149	168	186	168	15.5	48	1/2	111	85

Figure 1 – Typical installation on steam application



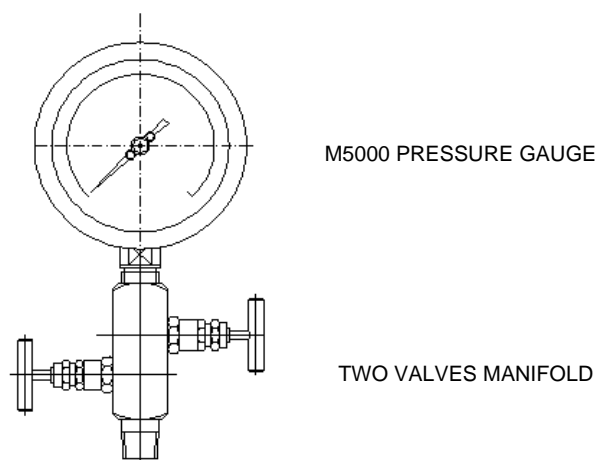
PRESSURE GAUGE

COIL SYPHON

TWO VALVE MANIFOLD

ROOT VALVE

Figure 2 - Typical installation with manifold



M5000 PRESSURE GAUGE

TWO VALVES MANIFOLD

Useful for checking the "zero" of the instrument when mounted



Safety for Industrial Processes



DECLARATION DE CONFORMITE
STATEMENT OF CONFORMITY



We, **REGULATEURS GEORGIN - 14/16 rue Pierre SEMARD - 92320 CHATILLON - FRANCE**

Declare under our own responsibility that **Manometers series M5000**, manufactured according technical specification SP 02 Rev 2 of 05/08 comply to the essential requirements of Directive **ATEX 94/9/CE**

The instruments M5000 does not contain potential source of ignition. Their maximum surface temperature depends only from the operating conditions (maximum temperature of process fluid)

The conformity to the Directive is evaluated with form VIII (manufacturing internal checks).

The technical file N° FT08/001 rev3 was deposited on 07/01/2010 at the notified body :

IMQ [Number : 0051]
Via Quintiliano 43
20138 Milano – Italia

The instruments are classified as :

Type	Marquage / Marked	Normes / Standards
M5000	II 2GD c T(see table) IP65 T(see table)	EN 13463-1 EN13463-5

The temperature classification depends only from the operating conditions, according the following table :

Ambiant temperature	Maximum operative temperature			Temperature class (Gas)	Temperature class (Dust)
	Standard	Liquid filled (Glycerin)	Liquid filled (Silicone)		
-20 ... +60°C	60	60	60	T6	T 85°C
	85	85	85	T5	T 100°C
	110	100	100	T4	T 135°C
	175	100	175	T3	T 200°C
	200	100	200	T2	T 300°C
	200	100	200	T1	T 450°C

Châtillon, le 07/01/10

The Product Manager
Cyril LINTANFF

