

PGS200



Instructions for use

Rev. 6

SOMECO

6 avenue Charles DE GAULLE
93420 VILLEPINTE - FRANCE
0033 1 49 63 16 30 - someco@someco.fr
www.someco.fr

SOMECO

Index

Part I PGS200	5
1 Premise	5
Informations related to this document	5
Terminology.....	5
Safety instructions structure	5
2 Preface	7
Generic definitions	7
Supply content.....	7
CE mark	7
Standards and requirements.....	8
Warranty	9
3 Safety	10
Use pursuant to the purpose of use	10
Responsibility.....	10
PGS200.....	10
Working safely with PGS200	11
Operator requisites.....	11
Qualified personnel definition.....	11
Safety use requirements	12
Fundamental safety instructions.....	14
General prevention measures.....	16
Security on PGS200	17
4 Description	18
PGS200 mark	18
PGS200 Structure	19
Components and functions	21
Measuring arm.....	21
Measuring head.....	21
Machine axis.....	22
Basement.....	23
Calibration sample.....	23
Command and use	24
Command panel.....	24
Accessories	25
5 Technical data	26
PGS200	26
6 Putting into service	27
Put into service preparation	27
Connecting the power supply.....	28
Connecting the usb socket.....	28
Turning on the PGS200	29
Safety measurements and advices.....	29
Turning on sequence.....	30
Attaching the measurement rod	31
Placing the piece	33
Safety instructions.....	33
Prevention measures.....	35
Procedures	35
Positioning and locking the piece with optional components.....	36

	Placing the piece.....	37
	Positioner	37
	Inserting and locking the positioner.....	37
	Positioner axis regulation.....	38
	Locking the piece.....	41
	Positioner	41
	Vice	41
	Inserting and locking the vice.....	41
7	Installation and transport.....	44
	Installation	44
	Installation Requirements.....	44
	Required space.....	44
	Installation surface.....	45
	Pathways	45
	Environmental conditions	45
	General protection measures.....	46
	Transport	46
	Safety measures and advices.....	46
	Transport with vehicles.....	46
	Hand carriage.....	46
8	Putting out of service and disposal.....	47
	Put out of service	47
	Disposal	47
	Packaging.....	47
	PGS200.....	47
9	Maintenance and care.....	49
	Maintenance	49
	Care	50
	Important informations.....	50
	Prevention activities	51
	Overview.....	52
	Care activities	53
	Monitoring measures	54
	Check the probing system.....	54

Part 1

PGS200

1.1 Premise

1.1.1 Informations related to this document

In those Instructions for use is described the measurement instrument profilometer PGS200.

Those instructions for use are aimed both to the end user and the operator of the measurement instrument.

1.1.1.1 Terminology

In this document is used the terminology for measurement instruments according to the EN ISO 10360-1 standard.

1.1.2 Safety instructions structure

Safety instructions indicates an health danger. There are three levels: danger, warning and attention. All three safety warnings are marked with the same warning symbol. Beside the symbol it is found the denomination of the safety warning. Below are described the safety warnings used.

Structure of a safety instruction

A safety instruction can contain the following components:

- Instruction symbol and safety instruction denomination (alert word): danger, warning or attention.
- Source and cause of the danger.
- Consequences for the user in case of non compliance with safety warnings.
- Actions to be taken from the user to avoid the possible consequences.

Health danger



 **DANGER**

The term "Danger" indicates a serious danger for health and life.

Non compliance with safety instruction when the described danger is verified causes death or serious injuries.

Example : electric shock due to high voltage.



 **WARNING**

The term "Warning" indicates a potential danger for life and health.

Non compliance with safety instruction when the described danger is verified could cause death or serious injuries.

Example : serious body crush danger due to heavy loads.



 **ATTENTION**

The term "Attention" indicates an health danger.

Non compliance with safety instruction when the described danger is verified could cause light to medium injuries.

Example : light limb crush danger due to light loads.

Danger of material damages

If there isn't any health danger, but a danger of damage for the PGS200 or one of its components, the following note is pointed out.



The symbol above indicates a possible damage to the PGS200.

Non compliance with safety instruction when the described event is verified could cause damages to the PGS200 or its components.

Example : collision between arm and piece.

1.2 Preface

1.2.1 Generic definitions

1.2.1.1 Supply content

In the standard version, the measurement instrument PGS200 is supplied with the following components:

- PGS200 profile measurement instrument.
- Gauge and measurement arm.
- Personal computer with peripherals.
- Software Profile Studio.
- Documentation.
- Reference sample.

1.2.1.2 CE mark

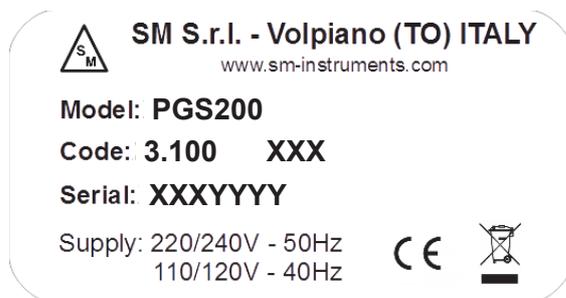
Ce Conformity declaration under 2006/42/CE Directive, Annex II, part 1, section A

With the present we declare that the machine previously described as a result of its design or construction as well as the country in which it has been put in the market complies with the 2006/42/CE directive requisites and of the other CE directives indicated below.

This declaration loses validity in case of modifications to the machine.

Machine Denomination	Polar type measuring instrument
Machine type	PGS200
Additional CE Directives	(2014/30/UE) EMC Directive
Applied harmonised standards , in particular	<ul style="list-style-type: none">▪ EN 60204-1▪ EN 61326-1 table 2, class A▪ EN 61010-1▪ EN ISO 12100-1/-2▪ 2014/35/UE Directive

The product has CE symbol on the identification label.



1.2.1.3 Standards and requirements

PGS200 has been built and tested according to the following standards:

- **EN (IEC) 61010-1:**
Electrical Equipment for Measurement, Control, and Laboratory Use

- **EN (IEC) 60204-1:**
Safety of machinery - Electrical equipment of machines
- **EN ISO 12100:**
Safety of machinery -- General principles for design -- Risk assessment and risk reduction
- **EN (IEC) 61326-1:**
EMC - Immunity; Table 2, interferences emission, class A
- **2014/35/UE Directive:**
Electrical equipment in low voltage
- **2014/30/UE Directive:**
EMC Electromagnetic Compatibility

1.2.2 Warranty

Warnings

Subject to modifications to the model and to the supply content of the PGS200 measurement instrument as well as its optionals, its software and attached documentation.

Are **excluded** from warranty:

- Consumables.
- Parts subject to wear.

Exclusion from warranty

Warranty is invalid:

- if following instructions for use are not observed.
- if "installation instructions" are not observed.
- if the instrument version supplied by us is modified in any of this part.
- if maintenance activities aren't execute by SM qualified personnel.
- if calibrations aren't performed by user or operator according to the given indications.
- if for maintenance activities original spare parts are not used.

1.3 Safety

1.3.1 Use pursuant to the purpose of use

1.3.1.1 Responsibility

The measurement instrument PGS200 must be used only in accordance with the purpose of use.

Responsibility for damages caused by a predictably wrong use is exclusively in charge of the user.

1.3.1.2 PGS200

The PGS200 lets to detect geometrical quantities of a piece. Pieces can be metallic or of synthetic materials.

PGS200 has moving axis and can probe the piece towards the directions of X and Z coordinates.

For geometrical quantities shall mean for example the dimensions of width, length, height and diameter.

Basing on measured data, it is possible to calculate for example the distance between two points of a straight line or an arc radius.

ADVICE

The PGS200 must be used only for detecting geometrical quantities on pieces. It must not perform other functions other than those indicated below.

Do not place pieces or objects on the measuring basement that are not required for the measure.

PGS200 functions

- Probing the piece towards Z direction.

This is made possible through the polar movement of the arm. Probing is done through a scalpel shape tip with appropriate measurement radius. For the measurement it is necessary to lock pieces on the basement.

The basement has the following functions:

- Lean and locking of one or more pieces.
- Lean and locking of the calibration tools.
- Lean and locking of the positioner.
- Use of the "T" hollow for locking the pieces and the tools.

Wrong and reasonably predictable use

ADVICE

The measurement instrument PGS200 must be used only in accordance with the purpose of use. Responsibility for damages resulting from a wrong predictable use is exclusively in charge to the user.

The PGS200 must not be used for purposes not compliant to the intended one.

1.3.2 Working safely with PGS200

1.3.2.1 Operator requisites

User must guarantee the following:

- The requisites of the installation site must be satisfied.
- User must be instructed in working with the PGS200 and in command of the equipment.
- Instructions related to work with the PGS200 drawn up on the basis of the user guide must be delivered to the user. Instructions must take account of local and business conditions and of the operator personnel language. Instructions must be available nearby the PGS200.
- User must know and follow the safety instructions.
- All the maintenance activities on electrical systems must be performed exclusively by qualified personnel.

1.3.2.2 Qualified personnel definition

Qualified personnel performs safely the necessary operations and is able to recognize and avoid potential dangers.

Following rules apply to the execution of a work:

- Qualified personnel must be authorized by a responsible for machine security to perform the necessary operations.
- Qualified personnel must have the necessary formation and experience level .
- Qualified personnel must have been instructed on the use with the machine.
- Qualified personnel must know all the standards, provisions, safety regulations and operating conditions.

Qualified personnel duties

- PGS200 installation.
- Maintenance operations on PGS200.
- Operation on electrical systems .
- Preparing the system for measurement: positioning the piece, calibrate the machine and create CNC programs.

1.3.2.3 Safety use requirements

Read the documentation

A proper use of the PGS200 is necessary to make measurements in a safe way. It is assumed the knowledge of the supplied documentation. Read the documentation related to the PGS200.

Conditions

To work in a a safe way with the PGS200 instrument it is necessary to satisfy some fundamental requisites.

Make the following points:

1. Make sure that the PGS200 instructions for use are available at the PGS200.
2. Respect the safety regulations and the safety warnings .

3. Wear only garment fit for work.
4. Respect the maximum weight allowed for the piece.
5. Work with the PGS200 only under good light conditions.
6. Use the PGS200 only if complete of all the provided safety devices. Don't remove the covering parts, the safety devices nor the warning signs.
7. Avoid paths through the working area.
8. Define the working area.
9. Perform a visual inspection before putting into service.
10. Use exclusively cables and plugs in perfect conditions.
11. Don't bend nor cut or deform cables.
12. Don't touch power supply cables or machine parts with wet hands.
13. Verify that there aren't electricity supply elements that can be dangerous for measurements and vice-versa.
14. Verify that electrical systems, earthing systems, and lightning protection devices, when required, are designed in compliance with the prevention regulation rules and those of good technique approved.
15. Arrange with care the electric conductors, avoiding to hamper the passages, the spreading on the ground or that they can be anyway damaged.
16. Always verify the integrity of the insulations before using electrical conductors for lacing machines or tools.
17. Lacing of tools, machines, etc., must be done on the proper outlets.
18. Don't insert or remove machines or tools on live outlets.
19. If the machine is laced and started, don't work properly or causes the intervention of an electrical protection (valve, automatic switch or earth leakage circuit breaker) it is necessary to instantly inform the district manager.
20. Insert the plugs only in electrically grounded outlets.
21. Clean the machine basement and the piece.
22. Lock the piece on the basement.
23. Don't exceed the measurement volume.
24. Don't get away from the machine during the use of the command panel so that you can press the EMERGENCY STOP button if needed.
25. Follow the indications to finish the measurement.

No warranty

The manufacturer don't take any responsibility for damages caused by not authorized interventions on the measurement system. In case of not authorized modifications, the warranty rights towards the

manufacturer and the supplier cannot be exercised and the CE declaration of conformity shall lapse.

1.3.2.4 Fundamental safety instructions

Electrical voltage



 **WARNING**

Risk of electric shock on the machine electrical lines

Heart failure burns and death.

- Operations on electrical parts can be performed only by specialized electricians. Machine coating can be removed only if the PGS200 is out of service. To put the instrument out of service do the following operations:
 - Disable actuations by pressing the EMERGENCY STOP button.
 - Disable machine main switch and make sure it can't be involuntary activated.
 - Unplug the power supply plug.

Movements

During all the axis movements of the PGS200 there is injuries danger.



 **WARNING**

Risk of Injury due to high axis movement speed

Crushing and cutting of body parts.

Danger for eyes due to gauges. During movements, gauges can hit the eyes if the user approaches too much his head to the piece.

Danger for hands and arms due to the traverse unit body. During the vertical column movement the traverse unit body could crush hands or arms if they are positioned under it and near the piece.

- In manual mode, keep at a safe distance from moving pieces.
- Make sure that in manual mode people are not put in a danger situation.
- Respect the safe distance from the PGS200 when in automatic measurement mode.

CNC Program

During the execution of a CNC program, the PGS200 moves on all axis at maximum speed. In this moment there is high level danger for people and for the PGS200 itself.



WARNING

Risk of injury in case of collision due to defective or badly structured CNC programs or high movement speeds

Crushing and cutting of body parts.

Damages to PGS200 and piece.

- Keep at a safe distance from all the movement parts of the PGS200.
- Stay near the command panel to activate the EMERGENCY STOP button when needed.

Proper garments

Not proper garments could cause injuries during the execution of some activities on the PGS200. This is mainly valid for the loading and the positioning of the piece on the measuring plate.



**ATTENTION**

Risk of injuries due to heavy or angular pieces
finger cuts and feet crushing.

- Wear orthotics.
- Wear safety gloves.

1.3.2.5 General prevention measures

Define working area

it is appropriate to define the PGS200 working area. The definition zone must be large enough to prevent a person to reach with his hands the PGS200 danger area.

Don't modify the PGS200

If the PGS200 version provided by us is modified in any of this parts, it could no longer work properly.

- Don't make any modification to the PGS200.

Maintenance works

Modifications and maintenance works on PGS200 can be performed only by qualified personnel authorized by SM S.r.l. and SOMECO sas

Good illumination

To work safely with the PGS200 it is required a good illumination level.

- Make sure that there is enough illumination before using the PGS200.

Visual inspection

Before using the PGS200 it is necessary to visually inspect it. It is allowed to use the PGS200 only if it is in perfect conditions.

Protection circuit

it is necessary to regularly check the operating of the of the electrical system protection circuit (earth leakage circuit breaker) since it guarantees a safe work with PGS200 during probing.

- Check every three months the operating of the protection circuit.

Eyes protection

During movements the gauge can hit the eyes if the user approaches its head to the piece during the measurement.

- Keep a safe distance from the gauge.
- Wear safety gloves.

Hands protection

During vertical movements the traverse unit body could crush the hands if the user approaches his hands to the piece.

- Keep a safe distance from the traverse unit body.

1.3.3 Security on PGS200

Security symbols on the PGS200

On the PGS200 and/or command unit there are the following security symbols applied.



Electrical voltage danger symbol:
this symbol indicates death danger.



Generic danger symbol:
this symbol warns about a danger for people, for PGS200 and its components.

Safety devices

The measurement instrument PGS200 is equipped with the following safety devices:

- EMERGENCY STOP button on the command panel.
- Main switch with EMERGENCY STOP function in the rear side of the PGS200.

EMERGENCY STOP BUTTON

On the command panel there is the EMERGENCY STOP button. In case of emergency it is possible to stop the operations, to do so press this button. The button remains locked. Operations are disabled and the instrument status indication led becomes red.

To enable again operations it is necessary to unlock the button:

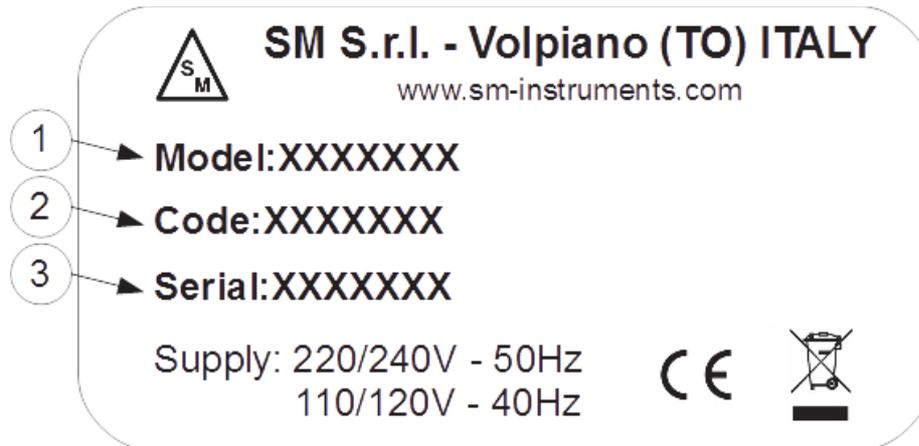
- Turn the button to unlock it. The button rises up, it is now unlocked and the instrument status indication led becomes yellow again.

1.4 Description

1.4.1 PGS200 mark

Model label

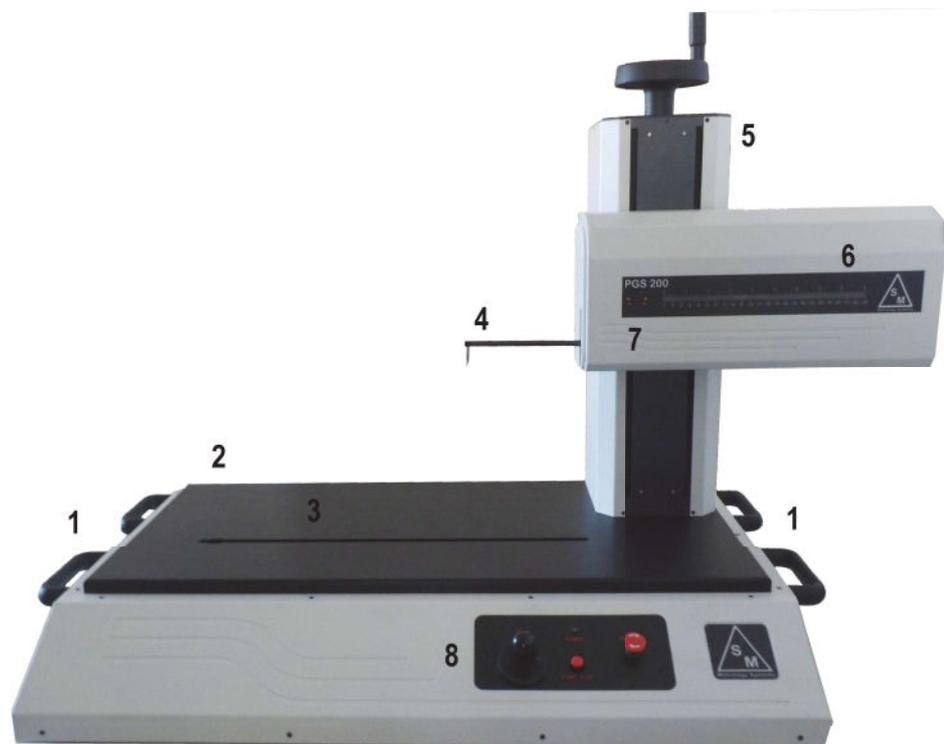
PGS200 mark is printed on the model label. It is located on the rear side of the instrument.



1. Instrument model.
2. Instrument code and mark.
3. Production number and build data..

1.4.2 PGS200 Structure

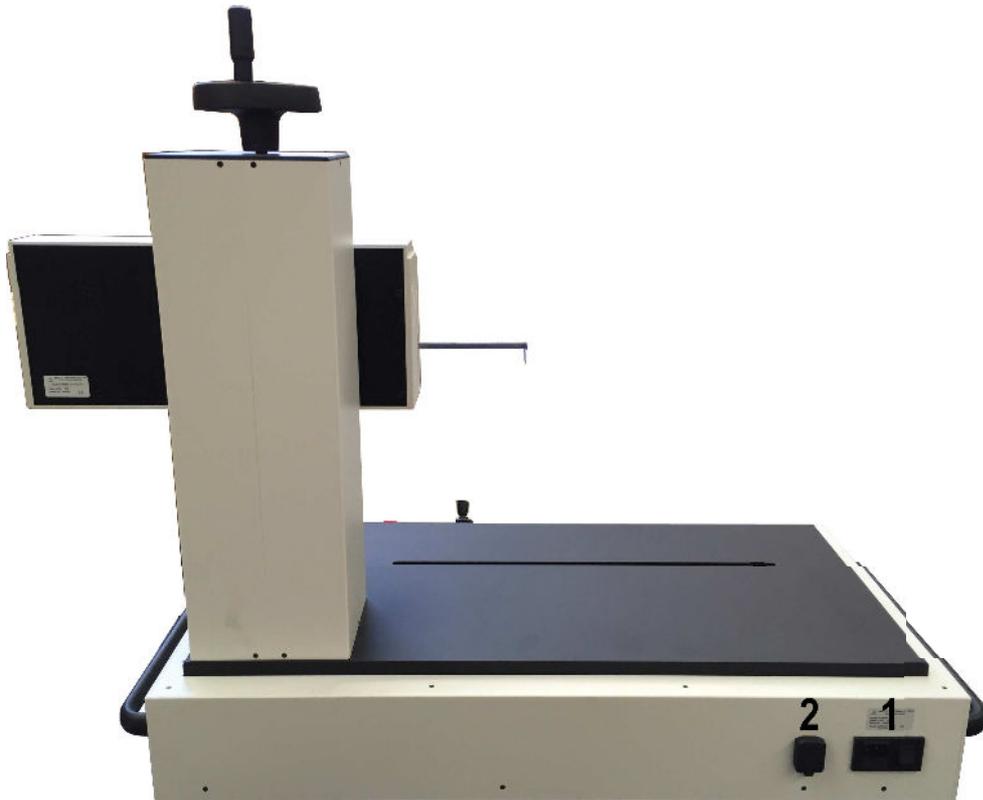
Below is represented a PGS200 in its frontal view.



1. **Handles** for transport and movement.
2. **Basement:** surface on which the piece to be measured is placed.

3. **Reference hollow:** it is used for inserting the optional positioners .
4. **Measuring arm:** it has a vertical measuring range spanning from -25mm to +25mm, the measuring cart has an horizontal excursion of 220mm. The arm tip has a length of 30mm and is interchangeable, it is possible to use various other optional tips to perform measurements on particular pieces.
5. **Positioning column:** has a vertical excursion of 300 mm, the position is set manually through the handle at its top, respectively counterclockwise to lower and clockwise to raise. In the version with motorized column there is no handle and the positioning is made through the console commands.
6. **Measuring cart position indicator:** displays the current position of the measuring cart on a graduated scale with double indication, millimeters and inches.
7. **Movement indicators:** indicates if the measuring cart is moving toward right or toward left.
8. **Command console:** allows to perform measurement and positioning operations.

Below is represented the PGS200 in its rear view.



1. **Power supply connection panel:** to the left there is the power supply socket, to the right there is the power switch.
2. **USB socket:** socket for plugging the PC connection cable.

1.4.3 Components and functions

1.4.3.1 Measuring arm



The measuring arm is composed of a high rigidity carbon pipe holding through an appropriate support the probing tip. In its rear part there is a gooseneck quick graft for the attachment to the traverse unit.

1.4.3.2 Measuring head

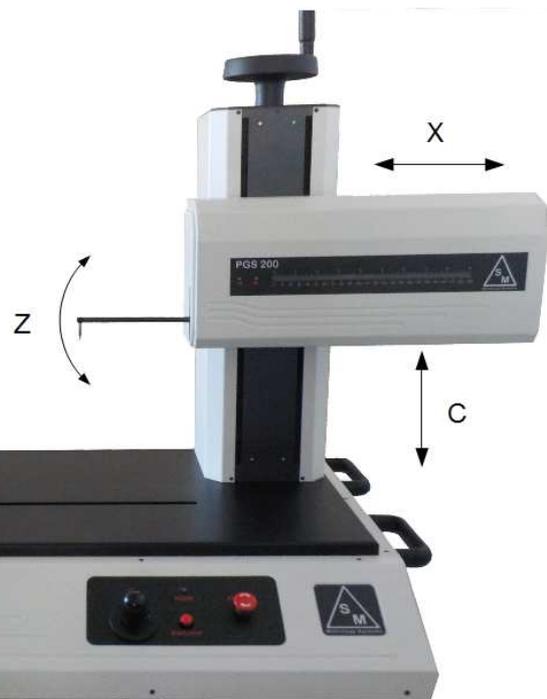


The measuring head or traverse unit allows to move the cart along the measurement X axis and holds the measuring arm giving also the polar movement towards Z direction.

1.4.3.3 Machine axis

With the instrument it is possible to move along three axis: X, Z, C.

In figure are represented all the possible moving directions of the PGS200.

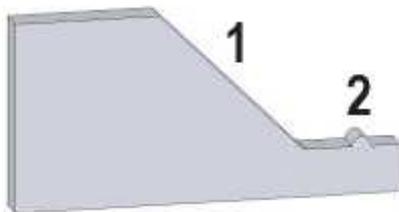


1.4.3.4 Basement



On the measuring basement are placed the pieces to be measured. The basement is made of aluminum. There is a T shape hollow that stretches over the most part of the basement and can be used both for locking pieces that for inserting the optional positioner.

1.4.3.5 Calibration sample



As calibration sample is provided a steel master with two different areas:

1. Measurement arm geometry calibration area.
2. Tip shape compensation area.

Together with the sample is also included the certificate with the real dimensions of the sample.

1.4.4 Command and use

1.4.4.1 Command panel

On the instrument front panel there is a command console that allows to interact with the instrument.



1. **Positioning joystick:** if moved horizontally toward left or right allows to move the cart along measurement X axis; if moved toward down or toward up allows to regulate the arm position along Z axis. Above the joystick there is the red led for arm movement indication. In the motorized column version, column movement is managed through the vertical movement of the joystick while the arm position is managed rotating the knob at the top of the joystick. It is also present the blue led indicating the column movement.
2. **Start/stop measurement button:** starts the measurement or stops it if it has been previously started. Above start/stop measurement button there is the multicolor led used for indicating various different status of the instrument: yellow if it is all properly working, green if the electrical voltage on the 5V is missing, red if the emergency stop button has been pressed.
3. **Emergency button:** if pressed, stops instantly all the movement axis, taking the machine in a safe state. For more safety when pressed it stays automatically locked and it is not possible to perform any kind of measure/positioning, to unlock it and take it again to its resting position you have to rotate it clockwise.

1.4.5 Accessories

The instrument allows to perform very accurate position operations on the piece through the following optional components:

Positioner with 4 movement axis



allows the accurate micrometric positioning along x and y axis, the tilting of the piece of about $\pm 30^\circ$ through appropriate tilting stand and the piece rotation.

Positioner with 3 movement axis



as previous but without tilting.

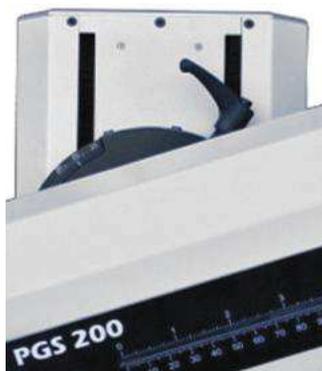
Vice



allows to attach the piece to the positioner.

Head orientator

Allows to tilt the traverse unit head from a minimum of -30° to



a maximum of +30° to easily measure pieces that due to their weight and encumbrance, are difficult to tilt.

1.5 Technical data

1.5.1 PGS200

General data

Series	PGS200	
Dimensions		
Width	[mm]	590
Length	[mm]	1100
Height	[mm]	720
Measurement area		
X	[mm]	220
Z	[mm]	50
Weight		
PGS200	[kg]	60
Piece	[kg]	50

Electrical data

Mains voltage	100,110,115,120,125,230,240V~(10%)
Current type	1/N/PE
Frequency	da 50 a 60Hz (3,5%)
Power consumption	max. 100 VA
Fuse	
at 230 V	0,5 A
at 100 V	1 A

Movement speed

**Slow
movement:
slow function**

from 0 to 10 mm/s

Environmental conditions

For a perfect operation of the measurement instrument it is necessary to satisfy the following conditions.

Environment operating temperature	from 15°C to 30°C
--	-------------------

Relative Humidity	from 30% to 60% (without condensation)
------------------------------	---

Measurement reference temperature	from 19 to 21°C
--	-----------------

Measurement reference temperature

Temperature at which the promised measurement precision is guarantee by respecting the conditions.

It is necessary to satisfy the following conditions:

- The measurement temperature must remain the same for at least 24 hours.
- Temperature variations must not exceed certain values. Limit values: 1 K/day and 0,5 K/hour.

1.6 Putting into service

1.6.1 Put into service preparation

The first put into service can be performed by an SOMECO support service technician. It is also necessary to get acquainted with the put into service preparation as well as learning and following the related safety rules.

1.6.1.1 Connecting the power supply

To connect the PGS200 to power supply, it is necessary that the power supply is located nearby the installation place. All the related operations must be performed before the installation of the PGS200.

After that insert the power supply plug in the appropriate socket on the back:



1.6.1.2 Connecting the usb socket

Verify that the instrument is positioned at a distance from the PC so that the cable can comfortably reach both parts without being tight.

Lift the protection cover (highlighted in figure) of the socket on the back part of the instrument near the power supply panel by pulling the lower tab and

then connect the type B usb data connector appropriate socket:



to the



Finally connect the other A type connector available usb sockets of the pc.



to one of the

1.6.2 Turning on the PGS200

1.6.2.1 Safety measurements and advices

Visual inspection

Before turning on the PGS200 it is necessary perform a visual inspection. The PGS200 can be used only if it is in perfect conditions.

- Make sure that the PGS200 is in perfect conditions.

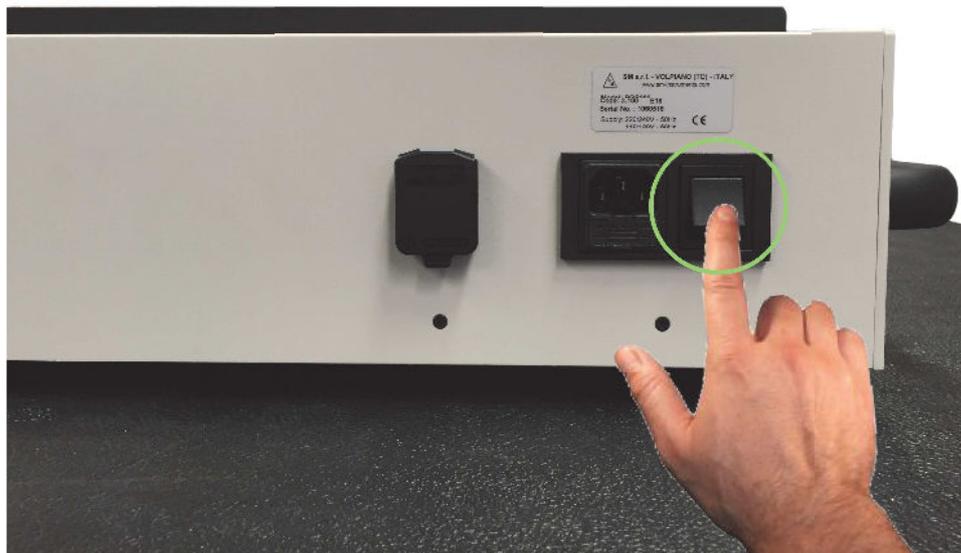
1.6.2.2 Turning on sequence

The turning on of the components must happen in the following order:

1. Turn on the main switch.
2. Turn on the pc and run the measurement software.

Turning on the main switch

The main switch is located on the back side of the instrument.



Turning on the pc

- Turn on the pc and the others peripherals, ie the printer.
- Run the measurement software.

1.6.3 Attaching the measurement rod

Equipped with the instrument are provided a calibration sample and the measurement arm that holds interchangeable tips:



First of all move the measuring cart in all external position by acting on the positioning control joystick located inside the command console on the front panel of the instrument:



The measuring cart must go in this position:



Unscrew the covering knob of the measuring cart attaching plugs:



Now take the measuring arm and attach it to the cart matching the attaching plugs on the cart with the holes on the measuring arm stand:



Finally lock the measuring arm to the cart by screwing the knob on the measuring arm stand:



1.6.4 Placing the piece

1.6.4.1 Safety instructions

Disabling actuations

When some works are performed on the basement, we enter the dangerous area of the PGS200. While actuations are turned on, involuntary movements can cause injuries.





ATTENTION

Risk of injuries due to involuntary movements inside the danger area.

Crushing and cutting of body parts. Danger for eyes due to the probe.

➤ Excluding possible injuries due to involuntary machine movements

- Move the column in a safe direction.
- Move the traverse unit so the rod is all inside the cart.
- Disable actuations.

Cleaning of the basement and piece

On the basement must not be present any lubricant veil. Pieces could slide from the basement, causing danger for people and PGS200.



ATTENTION

Risk of injuries due to falling of a piece for lubricant veil on basement.

Crushing and cutting of body parts.

➤ Before placing a piece on the basement you must make sure that there aren't lubricant on the basement nor on the piece.

- Before placing the piece on the basement clean both the piece and the basement.
- Remove all the fat and oily substances from basement and piece.

Lock the piece on the basement

Pieces must be always locked to avoid moving, hitting or falling from basement. If they are not correctly locked they could cause danger for people, PGS200 and the pieces themselves.

**ATTENTION**

Risk of injuries for the falling of a piece due to the piece not correctly locked.

Crushing and cutting of body parts.

- Lock firmly the piece on the basement before measuring it.

1.6.4.2 Prevention measures

To avoid damages to the PGS200 and its basement it is necessary to follow some safety rules:

1. Control the allowed weight of the piece. See technical data.
2. Place with care the piece on the basement.
3. Lift and move heavy pieces only with lifting devices:
 - Approach slowly the PGS200 to avoid damaging it.
 - Don't bump the piece or the lifting device against PGS200. faint bumps are enough to compromise a good functioning of the PGS200.
 - Lower the pieces over 15kg on the basement at a maximum speed of 2mm/s. If the piece is placed abruptly the PGS200 basement could be damaged.
4. Place the piece vertically on the basement.
5. Don't move the piece on the basement.
Moving the piece can cause scratching on it, so the measurements could become less accurate.

1.6.4.3 Procedures

Place the piece on the basement

It is possible to place the pieces on the basement both manually and through a lifting device.

Heavy pieces could cause strong bumps, if leaned too quickly on the basement.

1. Lower heavy pieces at maximum speed of 2 mm/s.
2. Place the piece on elastic supports.
3. Replace elastic supports with hard standings.

As hard standings it is possible to use metallic blocks that can be locked through locking elements.

Do not exceed measurement volume

Piece and locking device should be located inside measurement volume.

Positioning the piece

It is appropriate to position the piece so that it is possible to perform all the necessary measurements without modifying its original position.

Locking the piece

Pieces must be always firmly locked, ...

- So that they don't involuntary flip.
- So that they aren't moved or turned upside-down by a probing or by a collision.

Lock firmly all pieces.

1.6.4.3.1 Positioning and locking the piece with optional components

In this chapter will be analyzed in detail the procedures for inserting and locking these components as well as the positioning and locking of the piece through the use of these components.

1.6.4.3.1.1 Placing the piece

As you can see highlighted in figure the reference hollow has an insertion buttonhole:



The insertion of the positioner is made from the top down by matching the pin on the low part of the positioner with the hollow buttonhole, until the lower plane of the positioner is completely leaned on the basement, as in figure:



After this the positioner can freely scroll through the hollow:



To lock the positioner act on the little lever located on the left side of the inferior plane.



The micrometric regulation along X axis is made by acting on the appropriate knob on the right side of the positioner:



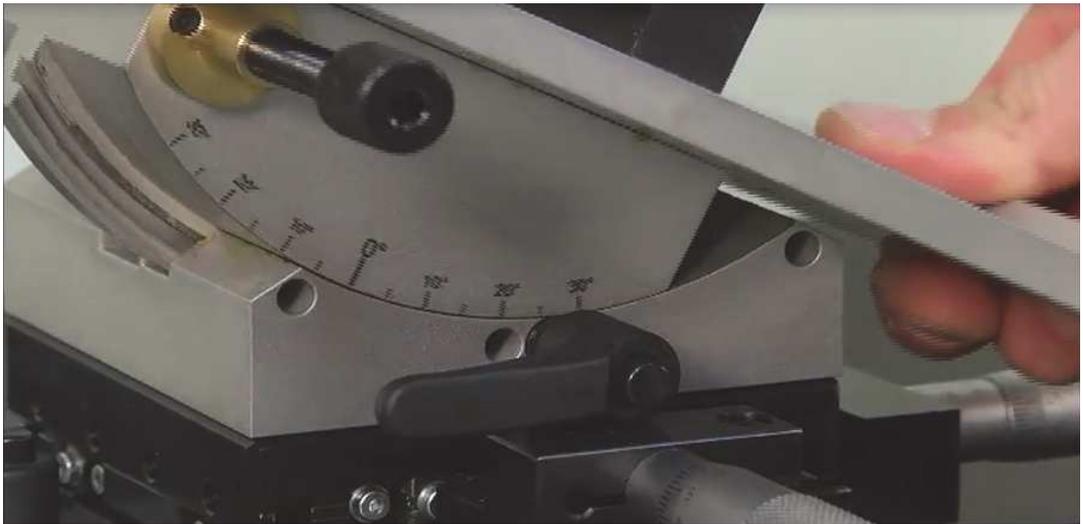
The micrometric regulation along Y axis is made by acting on the appropriate knob on the front side of the positioner:



To unlock the positioner tilting stand you have to act on the little lever located right above the Y axis position regulation knob:



Tilting is performed by grabbing one edge of the upper plane as in figure and pushing gently downward or upward accompanying the rotating movement of the tilting stand.



When the desired position has been reached lock again the stand by moving the little lever in lock position.

To regulate the rotation of the upper plane you have to act on the knob located right under the latter, as in figure:



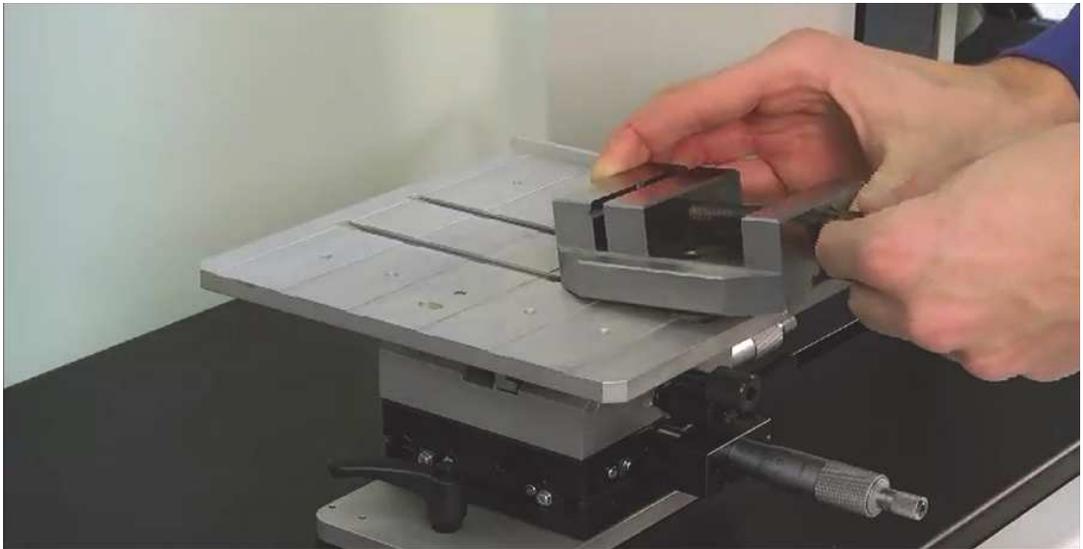
1.6.4.3.1.2 Locking the piece

The locking of the piece to the positioner is made through the use of threaded locking elements. They are inserted inside threaded holes on the upper stand plane and screwed.

The positioner on its upper plane also has two reference hollows with the insertion buttonholes highlighted in figure:



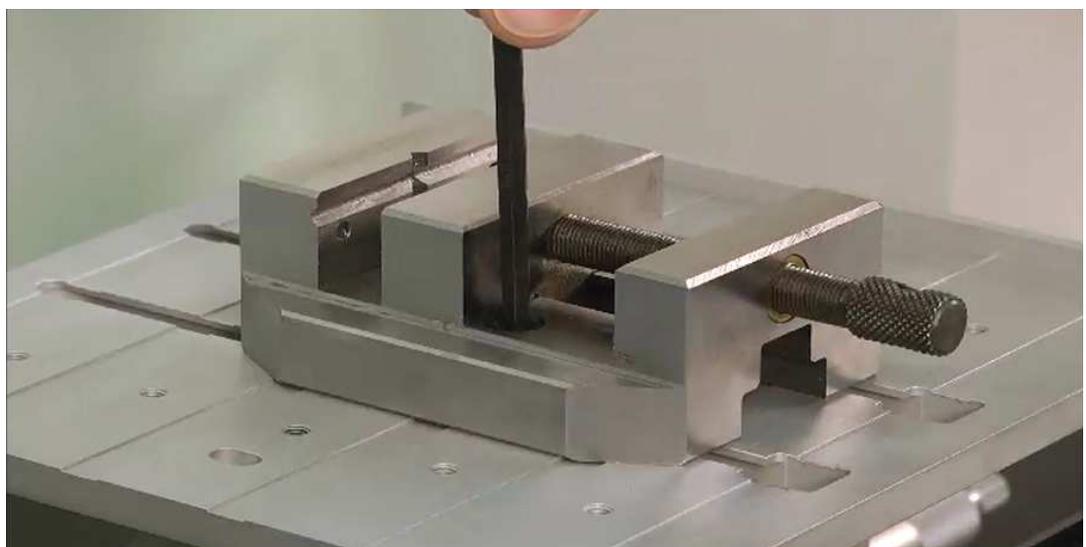
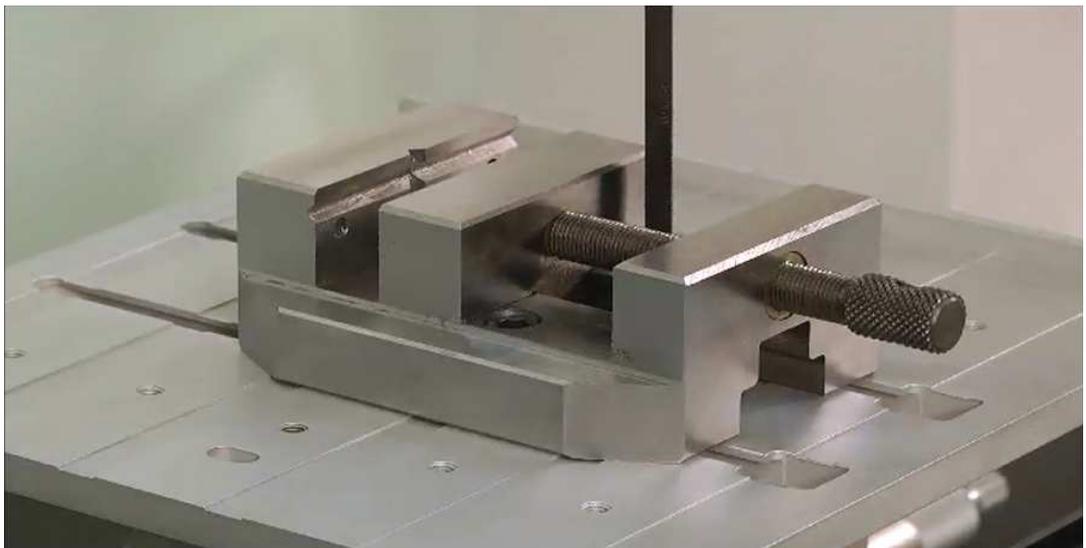
Similarly to what seen for the positioner, the vice must be inserted from the top down by matching the two interlocking pins with the buttonholes on the upper plane of the positioner:



Done this the vice can freely scroll inside the reference hollows:



Now to lock the vice screw the two locking nuts, as in figure:



Lean gently the piece to be locked and regulate the width of the two leaning elements of the vice through the appropriate knob until the piece is firmly locked.

1.7 Installation and transport

1.7.1 Installation

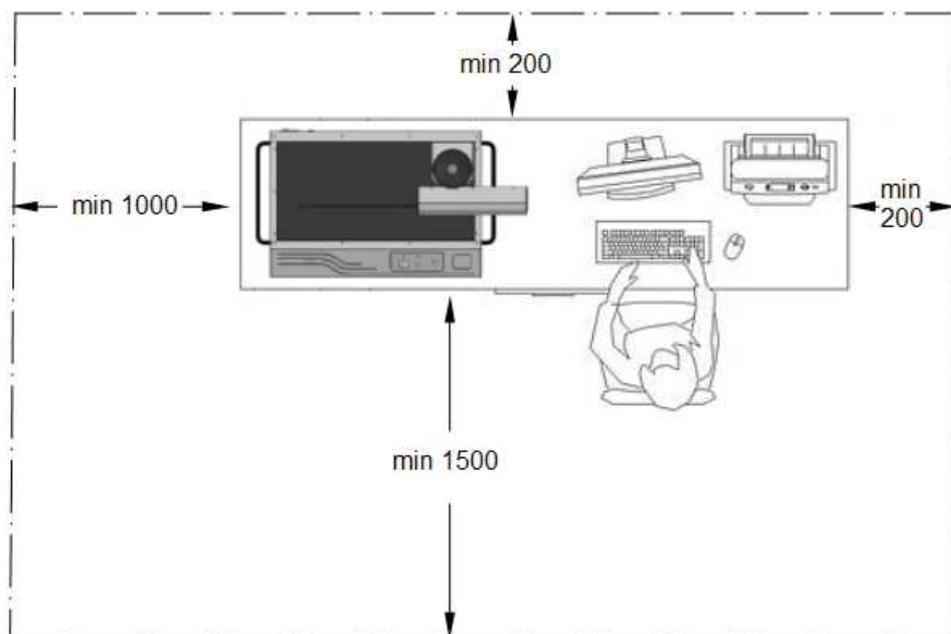
1.7.1.1 Installation Requirements

When a location for the installation of the machine is chosen make sure that the following conditions are already respected or however that there is the possibility to implement them in that location.

1.7.1.1.1 Required space

PGS200 encumbrances are specified in **Technical Data** paragraph.

It is necessary that the PGS200 be easily accessible from all sides. The installation near the pathways must be avoided. Select a location so that the distance between the machine position and the wall or other machines be as explained in figure:

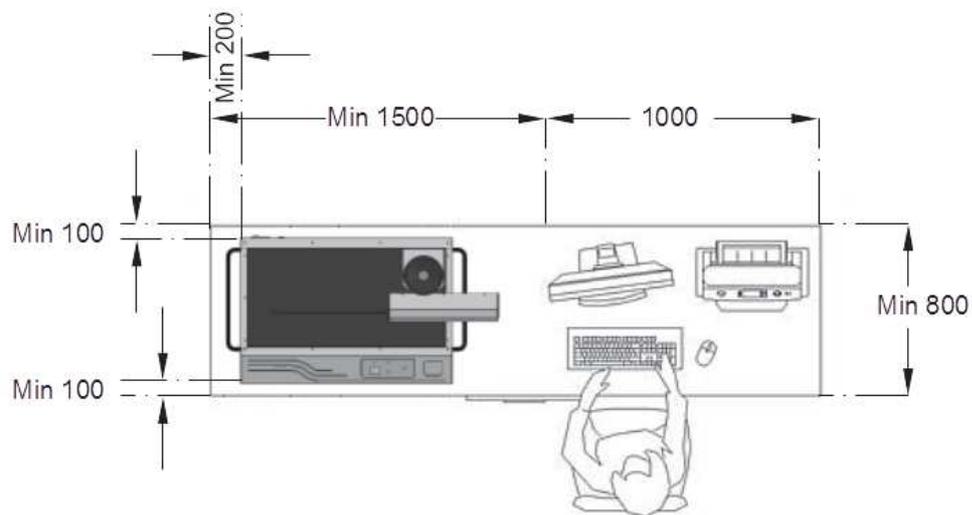


1.7.1.1.2 Installation surface

The PGS200 requires an installation surface (table or workbench) able to withstand a load of at least 400kg.

The table must have a dimension of at least 2500 mm in length and 800 mm in width to allow the proper positioning of the machine, the pc and related peripherals, so that the interaction with the workstation elements be as much as possible easier and ergonomic .

In figure we can see an ideal workstation scheme:



1.7.1.1.3 Pathways

Verify the carrying capacity of the floor along the pathway leading to the installation site. Access ways and pathways must be at least 10 cm wider and 10 cm taller than the instrument general encumbrance.

Dimensions and weight of the machine are specified in the **Technical data** paragraph.

1.7.1.1.4 Environmental conditions

The PGS200 is a technically sophisticated product. A high precision level in the measurements can be achieved and maintained only if the conditions indicated in the **Technical data** paragraph are respected.

1.7.1.2 General protection measures

The PGS200 must be protected against dust and foreign particles (ie. sand, metallic shavings, oil, refrigerants, lubricants and soot). Accumulation of materials such as sand and shavings could bring to an increase of the maintenance and cleaning costs.

1.7.2 Transport

1.7.2.1 Safety measures and advices

To avoid damages to the PGS200 or people during the transport it is necessary to take some safety measures:

- All the pathways must be left clear to guarantee an highly safe transport and positioning phase.
- In case of transport with forklift truck verify that the forklift truck be fully functional and that a regular maintenance on it has been performed.

1.7.2.2 Transport with vehicles

To transport the instrument to the installation site use a forklift truck with enough carrying capacity and sufficient length forks.

The instrument must be sling through the use of appropriate cables or belts, using side transport handles as anchoring and lifting points.

1.7.2.3 Hand carriage

Dimensions and weight of the instrument allow the hand carriage. Transport must be performed by four operators, two for each side of the instrument, using the appropriate lifting handles.

1.8 Putting out of service and disposal

1.8.1 Put out of service

If you want to put out of service the PGS200 for a long time, you have to unplug the instrument from the power supply. It is also advisable to store the PGS200 dust-free.

1. Unplug the power supply.
2. Store the PGS200 dust-free.

ADVICE

It is advisable to cover the PGS200 ie with a tarp.

1.8.2 Disposal

1.8.2.1 Packaging

The disposal of packaging shall be exempt to the regulations of the Country in which the PGS200 is installed.

1.8.2.2 PGS200

Why dispose under regulations?

The proper disposal of the product contributes in protecting health and environment.

Resale

If you want to resell the PGS200 or its peripherals, you have to inform the buyer about the duty to dispose of the products as required by law.

Mark for electronic components

Some components of the PGS200 have the underlying symbol. This symbol indicates that the piece contains electronic components that must not be disposed in domestic waste.



Inside UE-27 countries, components marked with this symbol must be properly disposed according to the 2002/96/CE (WEEE) directive or from the national law. This symbol is valid only for European Union.

Informations on WEEE and RoHS

All the SM S.r.l. products including the commercial goods by itself distributed belong to the WEEE directive appendix category 9.

As far as technically possible, the new products are manufactured in conformity to the RoHS directive.

Regulations

PGS200 and its peripherals can be returned to SM for disposal. The PGS200 removing is under the contract general conditions.

For customers inside European Union:

- For the disposal of electronic and electric equipment, contact your reseller or supplier.

Outside European Union:

- Regarding the disposal of electrical and electronic equipment, follow the respective law dispositions and regulations applicable in your country.

1.9 Maintenance and care

1.9.1 Maintenance

Purpose of maintenance activities

Maintenance activities are needed:

- for safety during measurements
- to avoid inactivity periods
- when measuring at maximum speed

To constantly satisfy this requisites, the PGS200 must be subjected to a regular maintenance.

Advice

Maintenance activities must be done exclusively by qualified personnel. Qualified personnel must have received an appropriate training on the PGS200 so that they can perform all the necessary maintenance activities.

Maintenance contract

It is advisable to draw up a maintenance contract for a safe functioning. To facilitating the maintenance, SOMECO company offers maintenance contracts (sav@someco.fr)

Regarding maintenance activities is distinguished between general maintenance and revision.

General maintenance

- Performing preventive maintenance activities on all components according to the activities program.
- Verification of accuracy, settings and calibration.
- Replacement of eventual parts subjected to wear.

Revision

- Performing preventive maintenance activities on certain components according to the activities program.
- Verification and correction of geometry and calibration.
- Replacement of eventual parts subjected to wear.

Maintenance Intervals

Intervals between two maintenances depends on the use frequency. Generally a maintenance should be performed after a maximum of 2000 working hours.

Advice for maintenance intervals:

Use frequency	Annual maintenance activities quantity
1 shift	1 general maintenance
2 shift	1 general maintenance + 1 revision
3 shift	2 general maintenances

Activities being part of maintenance

Maintenance activities concern the control of the following sectors:

Sector	Examples
Safety devices	Actuation control; anti-collision protection
Measurement system	Working, precision
Command unit	Command elements, command panel
Actuation unit	Engine and transmission unit
Sensors	Probing system

1.9.2 Care

1.9.2.1 Important informations

Why perform care activities?

the PGS200 is sturdy and practical, but it requires maintenance. The sensible measurement system of the PGS200 requires a certain amount of cleaning. Dust particles on the probe tip could cause inaccuracy during measurements. Furthermore the basement requires daily attentions.

Regular cleaning and control are part of care provisions of some components.

1.9.2.2 Prevention activities



Dirt components due to compressed air.

The functioning of some sensible components could be compromised by dust particles.

- Never use compressed air for cleaning the PGS200

ADVICE

The cleaner must be able to dissolve fats and must not be corrosive.

ADVICE

Preventive care means that also the pieces to be measured must be clean. Pieces must not have working residuals (es. metallic shavings, oil) nor dust.

Clean the pieces before position them on the measurement basement.



Components malfunctioning due to exposition to magnetic fields.

The functioning of some sensible components could be compromised if the instrument is exposed to magnetic fields.

- Don't keep or use the PGS200 near magnetic fields.



Components malfunctioning due to exposition to water or liquids.

The functioning of some sensible components could be compromised if the instrument is exposed to water or liquids.

- Keep the PGS200 in dry environment.
- In case of exposition, switch off the PGS200, dry the wet parts and bring the instrument to the assistance.

1.9.2.3 Overview

Below are listed the components that require care. Data related to the frequency assume that the installation site satisfies the necessary requirements.

Care activities

Object	Frequency	Care type
Basement	Each week or more frequently	cleaner
Measurement tips	At least once a week	According to the dirt: <ul style="list-style-type: none"> ▪ Cleaner ▪ Special solvents ; ie KOH for the removal of aluminum deposits
Calibration sample	Each week	<ul style="list-style-type: none"> ▪ Storage: vaseline oil

		<ul style="list-style-type: none"> ▪ Washing: neutral detergent
Coverings	Each month	Normal not abrasive detergent

1.9.2.4 Care activities

Basement

The piece supporting surface or the positioner locking device must be cleaned. A particle under the supporting surface could cause inaccuracy during measurement. Furthermore the piece and basement surfaces can be damaged.

Measurement tips

The probing elements can be dirt, ie dust particles. Furthermore it is possible that the material of the probed piece is being deposited on the probing tip, especially during measurement.

ADVICE

Probes must be handled with care. It is possible that with the application of strength the probing tip could be deformed or broken.

ADVICE

Keep probes in a safe place, better if in the original packaging, when they are not used.

- Clean the probing tips with a lint-free cloth.
- Use if necessary a neutral detergent.
It must not be absolutely detergent residuals on the tips.

If some piece material has been deposited on the probing tip, it is possible to remove it with special solvents.

Calibration sample

To perform the calibration without errors the calibration sample must be kept clean and untouched.

- Clean the calibration sample with a lint-free cloth.
- Use if necessary a detergent.

It must not be absolutely detergent residuals on the calibration sample

The probing elements could be dirt, ie dust particles. Furthermore it is possible that some material of the probed piece is deposited on the probing tip, especially during a measurement.

Coverings

It is possible to clean the coverings with a wet cloth.

ADVICE

Don't remove coverings.

1.9.3 Monitoring measures

1.9.3.1 Check the probing system

For an accurate maintenance of the PGS200 it is necessary to perform also a check on the used components.

To perform an error-free measurement on the piece, you have to regularly check the probing system.

1. Verify the probes at regular intervals.
2. Clean the probing tips in case particles or fat layer has formed on them.
3. Replace the probe if damaged.