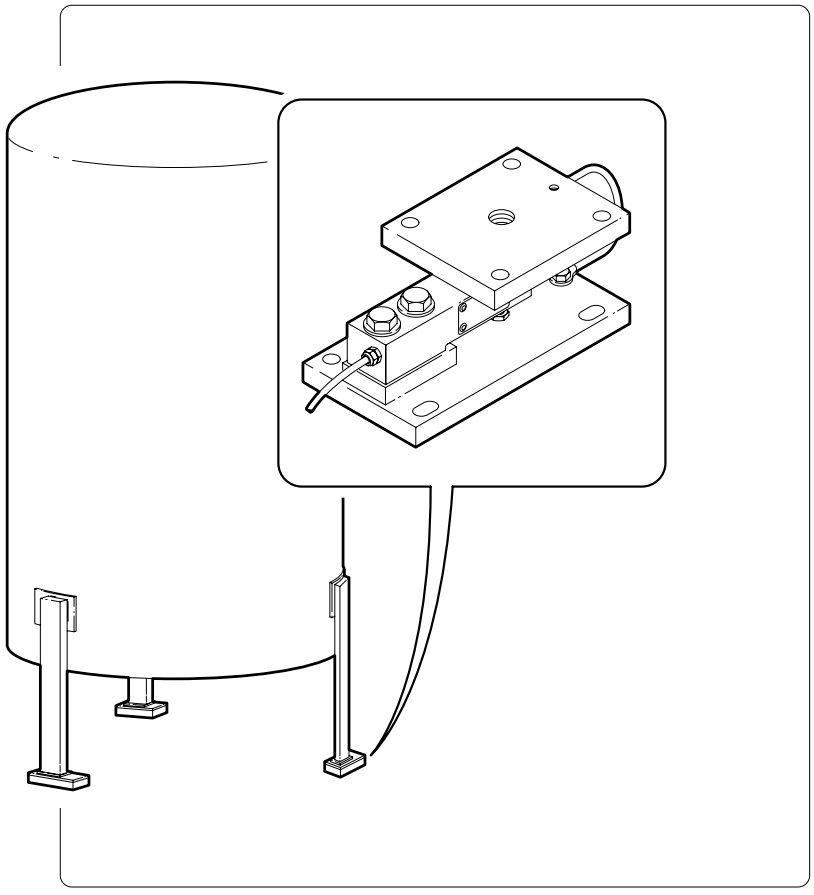
SOCIETA' COOPERATIVA
BILANCIAI

GPA weighing systems

TYPE-APPROVAL

CE



Use, maintenance and installation handbook

Code **81320031** Edition 15/**07**/**2004**

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Chapt. **page**

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Introduction

This handbook is aimed at informing the operator - through explanation texts and pictures - about the provisions and the essential criteria for installation, correct and safe use of cell weighing systems and careful maintenance.

The operator is completely responsible for the operating safety of the system; therefore he must know in detail how to use it properly.

The user has to make sure that the installation complies with the regulations in force on the matter.

The equipment must be installed only by skilled personnel who has previously read and understood this handbook.

Always keep it at hand!!!!

Always observe the instructions!!!!

The weighing systems
mod. GPA comply
with the directive
90/384 EEC

Important!!

"Skilled personnel" is the personnel who, because of his professional knowledge and experience, has been expressly authorized by the "person responsible for the system safety" for the installation, use and maintenance of the instrument.

Important!!

For no reason the user must tamper with the system.

For any failure turn to the nearest service center.

Any disassembling or modification trial by the user or non-authorized personnel shall invalidate the warranty and the manufacturer shall not be responsible for any damage to persons or things.

The information and the pictures on the following pages are updated at the edition date.

Coop Bilanciai works for the continuous optimization of its products with possible modifications to some parts of the system.

All technical data contained in this handbook are exclusive property of the company SOC. COOP BILANCIAI and must be considered as confidential.

Therefore no - even partial - reproducing and publishing of this handbook is allowed without written authorization by the manufacturer.

Moreover, this handbook shall not be used for purposes other than those connected with the installation, use and maintenance of the cell weighing systems.

Definitions

The symbols used in the handbook for making the user aware of the different danger levels in the “Use and Maintenance” operations of the instrument are given here below.


DANGER!!


Information or procedure that, if not properly executed, causes death or serious personal injuries.


ATTENTION!!


Information or procedure that, if not properly executed, may cause death or serious personal injuries.


CAUTION!!


Information or procedure that, if not properly executed, might cause slight personal injuries or damage to the instrument.


WARNING


Information or procedure that gives the operator advice on the best utilization of the system so that it can last longer, avoid damage or programming losses, optimize the work according to the metric standards.


NOTE

Important information or procedure.

1 Safety rules

1.1 Warning and danger plates

CAUTION!!

Observe the max. capacity limits indicated on the plate.

1.2 General safety rules

Do not allow non-authorized personnel to intervene on the instrument.

Do not lay loads exceeding the max. capacity on the weighing system.

Do not allow corrosive substances to fall on the instrument.

1.3 Rules for the maintenance personnel

Each maintenance and repair intervention must be executed by skilled personnel only. Before intervening on the weighing systems it is compulsory to cut the supply voltage off the electronic terminal.

Do not make any welding nearby the weighing systems.

1.4 Premises with explosion danger

If the system has to operate in premises with explosion risk this must be expressly specified when ordering.

The standard system is not arranged for operating in premises with potentially explosive atmosphere.

ATTENTION!!

Do not use the system in premises with explosion danger.

If the use conditions are different from the expected ones (temperature, humidity, etc.) contact the closest sales or service branch.

2 Identification data

2.1 Description of the weighing systems mod. GPA

The weighing systems mod. “GPA” are designed for an easy installation and use.

They are complete with mechanical accessories for balancing any settling and/or thermal expansion and except special cases (see par. 2.4.1), they do not need any tie-rod or other movement limiting systems.

Each module is equipped with a compression load cell (GPA-C), flexure load cell (GPA-NF) and shear load cell (GPA-T and GPA-NT) with protection degree IP 67.

They can be supplied in the version with electrolytic or anti-corrosive galvanization and installed in systems in groups of three, four or more supporting points.

It is possible to connect to these weighing systems any electronic terminal for the weight display of the range produced by Coop Bilanciai.

The weighing units configured in this way are CE type-examined in compliance with the directive 90/384 EEC.

2.2 Main parts

For an easier understanding of this handbook the main components of the weighing systems are listed here below.

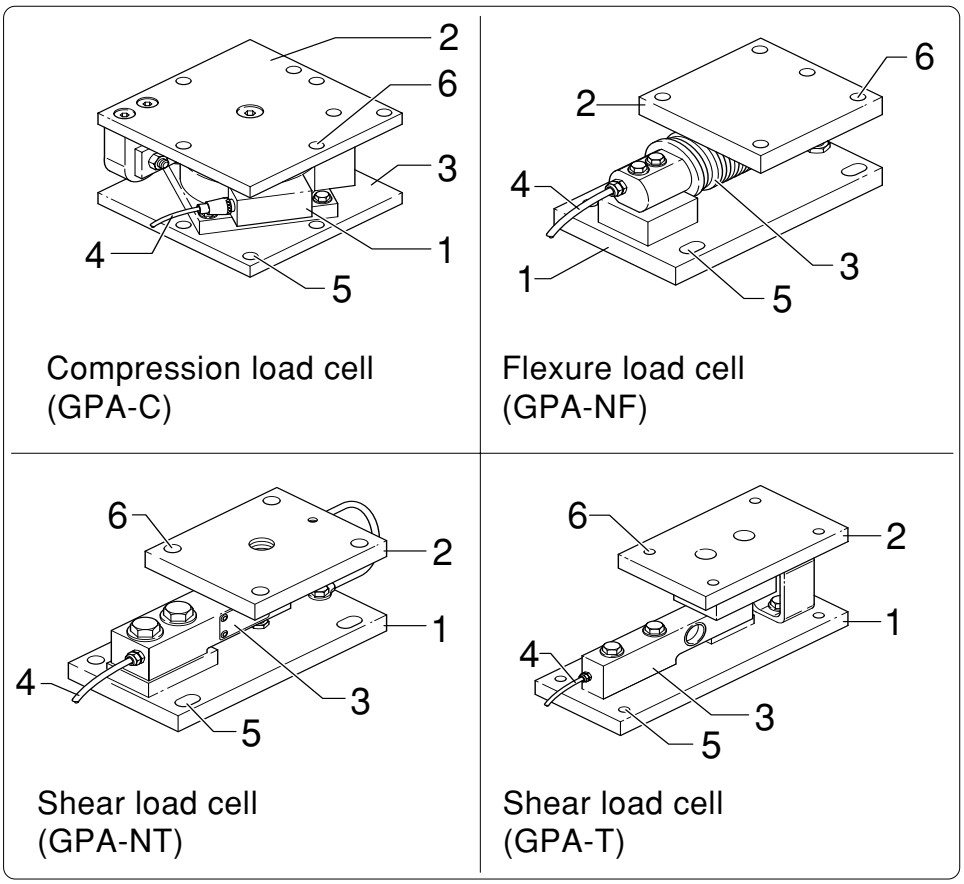


fig. 2.2.1 - Main parts of the weighing systems

1 - Lower plate
2 - Upper plate
3 - Load cell
4 - Connection cable to the connector block
5 - Fastening system (fig. 2.3.1)
6 - Fastening system (fig. 2.3.2)

2.3 Fastening types

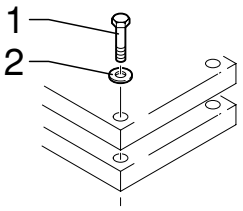
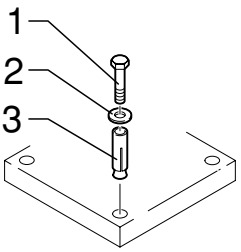
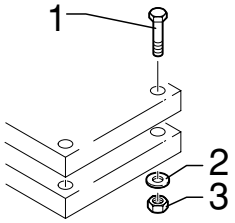
Plate with threaded holes	Ground fastening	Plate with through hole
		
1 - Hexagonal head screw 2 - Washer	1- Hexagonal head screw 2- Washer 3- Dowel	1- Hexagonal head screw 2- Washer 3- Nut

fig. 2.3.1 - Lower plate fastening

NOTE

Prefer the solution of the plate with threaded holes.

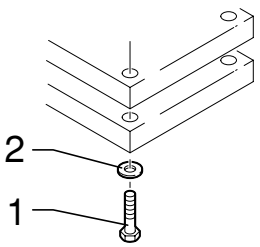
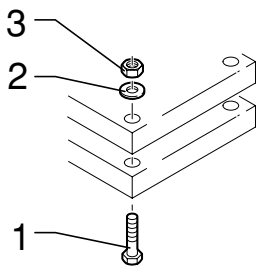
Plate with threaded holes	Plate with through hole
	
1- Hexagonal head screw 2- Washer	1- Hexagonal head screw 2- Washer 3- Nut

fig. 2.3.2 - Upper plate fastening

2.4 Application types

The autonomous weighing systems are generally applied to tanks or hoppers, caring to choose the most suitable weighing unit for the application type, as indicated in figure 2.4.1.

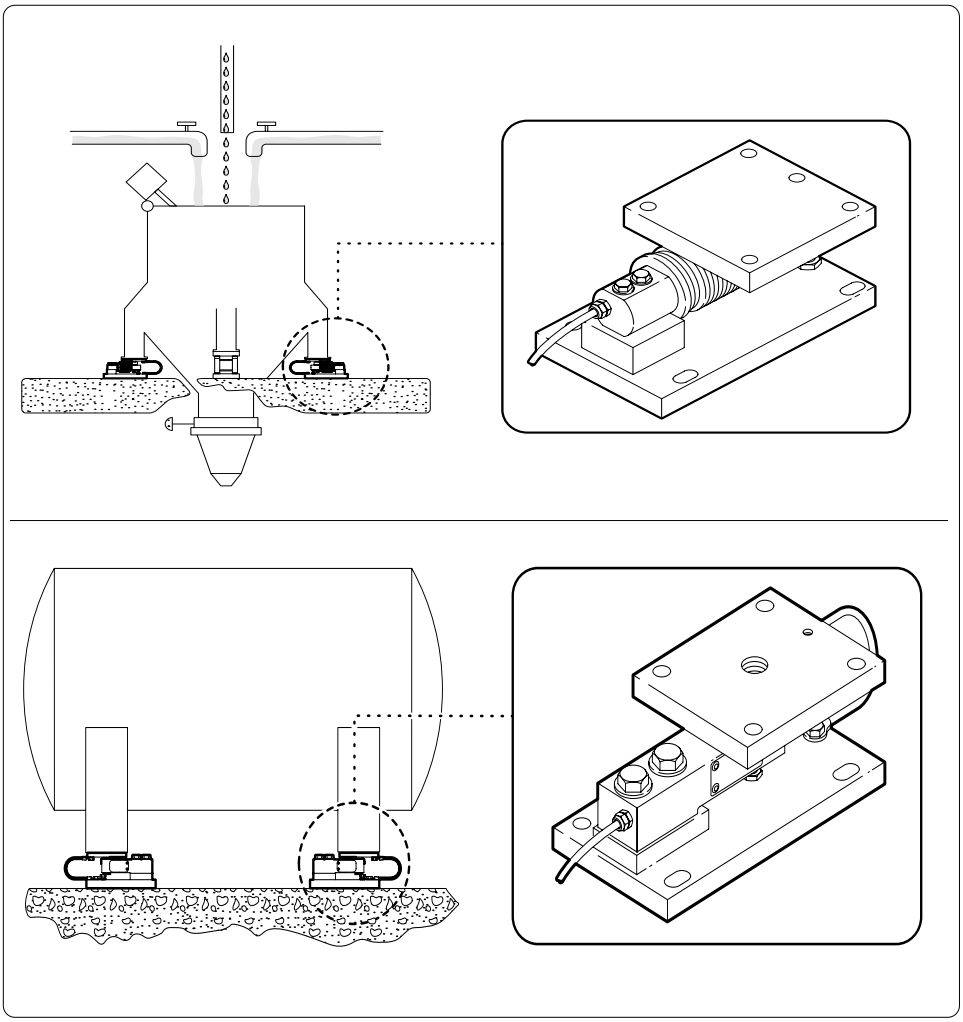


fig. 2.4.1 - Example of application type

2.4.1 Tie-rods

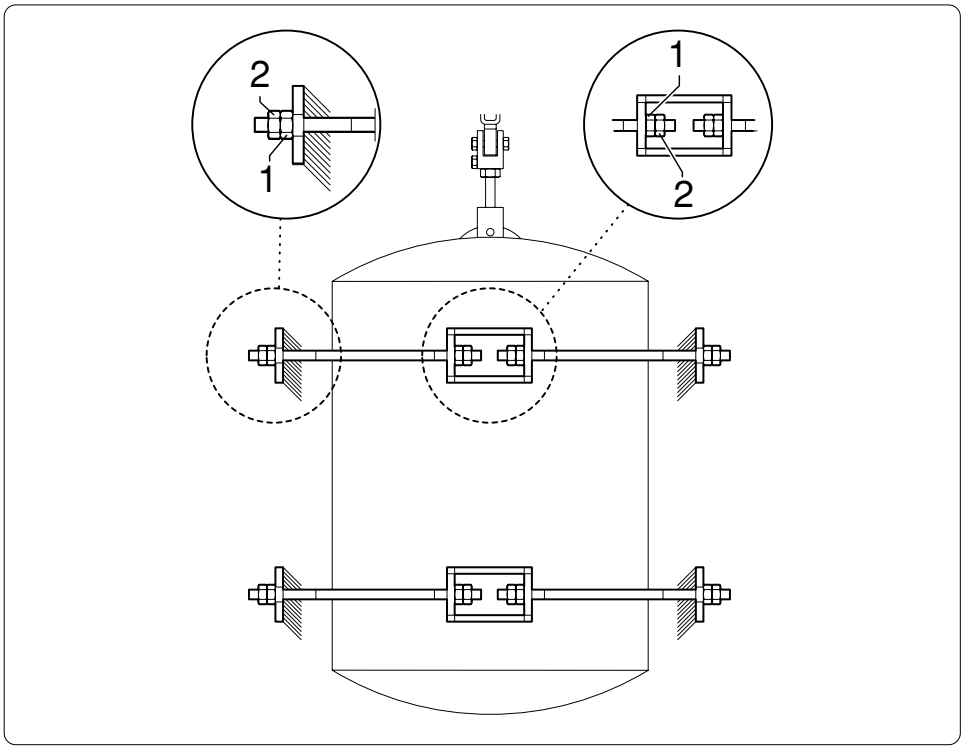


fig. 2.4.2 - Example of tie-rod installation

DANGER!!

Improve the system stability and accuracy by limiting the tank vibration or swinging.

Ensure the stability of tall and narrow tanks, or having heavy equipment installed eccentrically.

Ensure the tank stability as for wind, earthquake effects or vehicle traffic risks.

For a correct fastening fully seat the first nut “1” and lock it by the locknut “2”.

ATTENTION!!

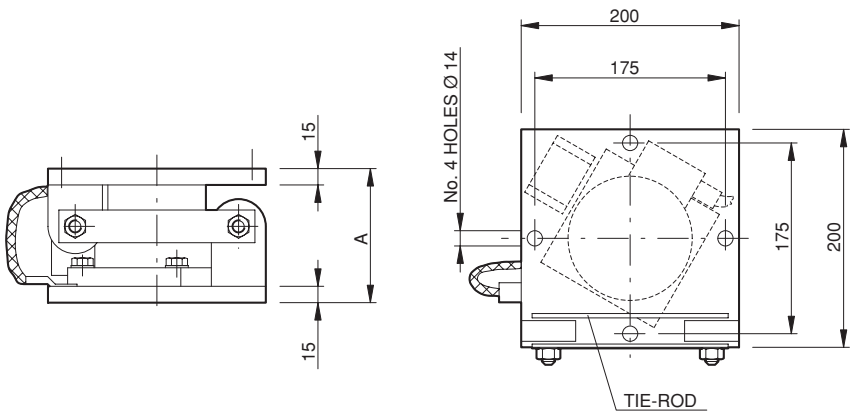
The highest efficiency is achieved by connecting the tie-rods next to or above the center of gravity of the full tank.
The tie-rods must be as long as suitable for the expected practical application, and this is particularly effective in reducing the vertical forces.
The need for arranging the tie-rods horizontally must be pointed out.
This is why one of the connection points should be vertically adjustable.

Coop Bilanciai does not undertake any responsibility for failing to install the safety systems.

3 Technical data

3.1 Weighing systems mod. GPA-C

The weighing systems mod. GPA-C are equipped with compression load cells with accuracy class up to 2000 intervals OIML, complete with connection box, and are calibrated with sample weights in our works.
They are protected from oxidizing through a galvanic treatment.



Lower plate: no. 4 holes Ø 14 - Drilling c/c distance as the upper plate

fig. 3.1.1 - GPA-C

Model	Unit rated capacity (kg)	Height (mm) A	Unit weight (kg)
GPA-C 5000	5000	123	16.9
GPA-C 10000	10000	123	16.9
GPA-C 20000	20000	133	20.9
GPA-C 50000	50000	141	28.9

The weighing systems mod. GPA-C are equipped with swinging limiter (fig. 3.1.2) and safety pin (fig. 3.1.3).

Swinging limiter

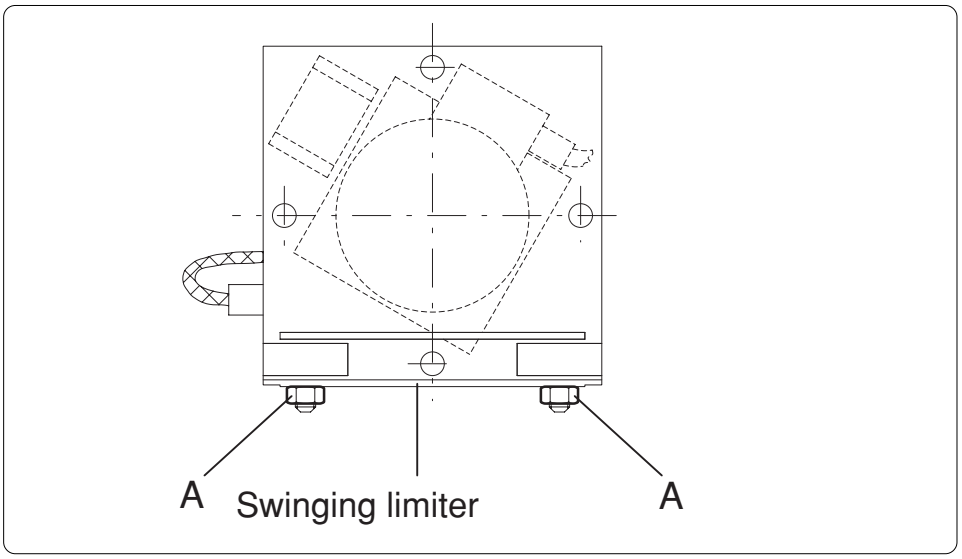


fig. 3.1.2 - GPA-C swinging limiters

The two locknuts “A” must be tightened.
The limiter is not installed in all the single units composing weighing systems made up of 4 or more GPA-C units.

Safety stop

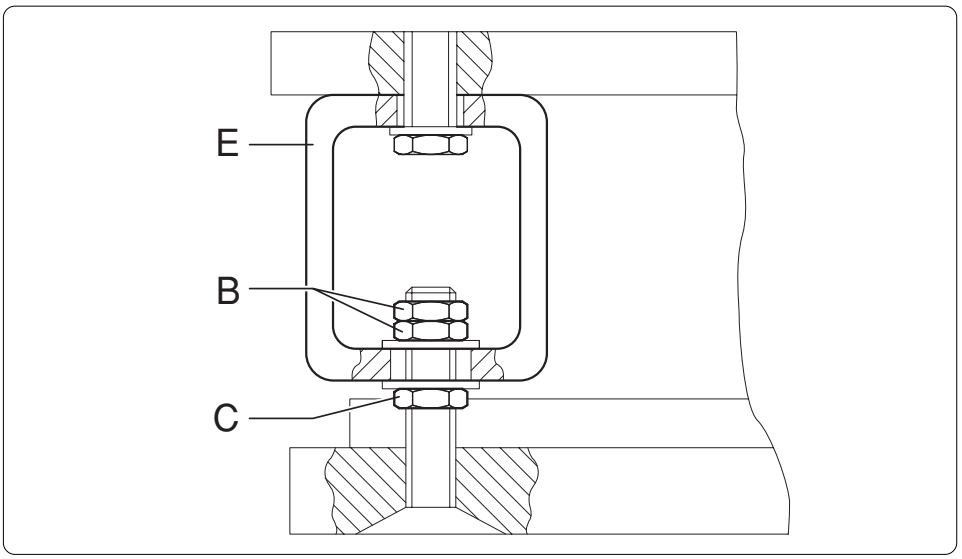


fig. 3.1.3 - GPA-C safety stop

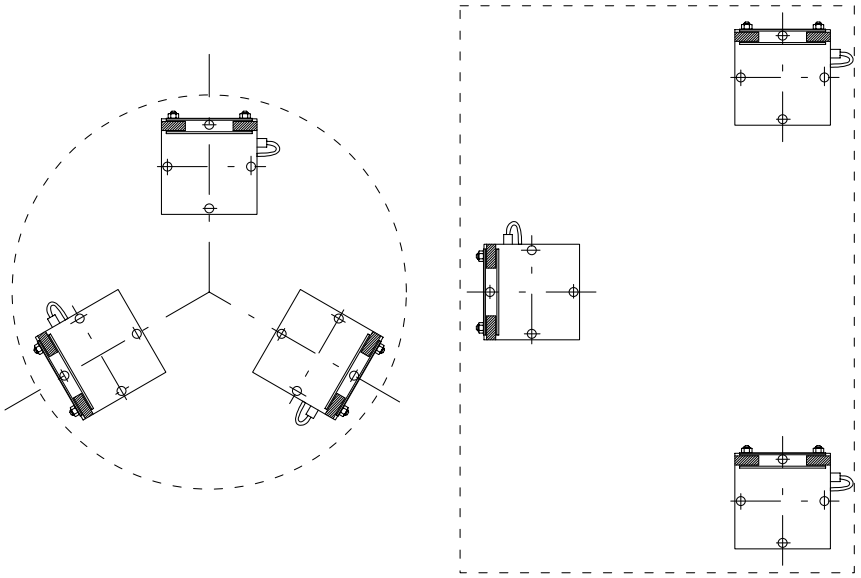
During the installation, after having replaced the dummy cell with the GPA-C unit and after having fastened the latter, it is necessary:

- to loosen the 2 upper nuts “B” and lock them at a distance of about 2 mm from the washer below;
- to loosen the nut “C” by about 3 mm;
- to check if the screw “D” touches the part “E”.

Position the GPA-C units following the enclosed installation scheme.

Installation scheme

System with three supporting points



System with four supporting points

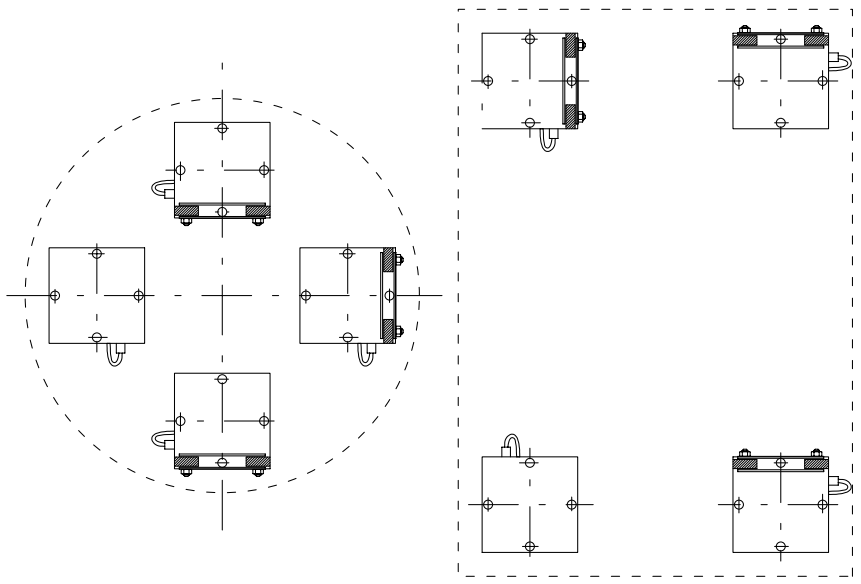
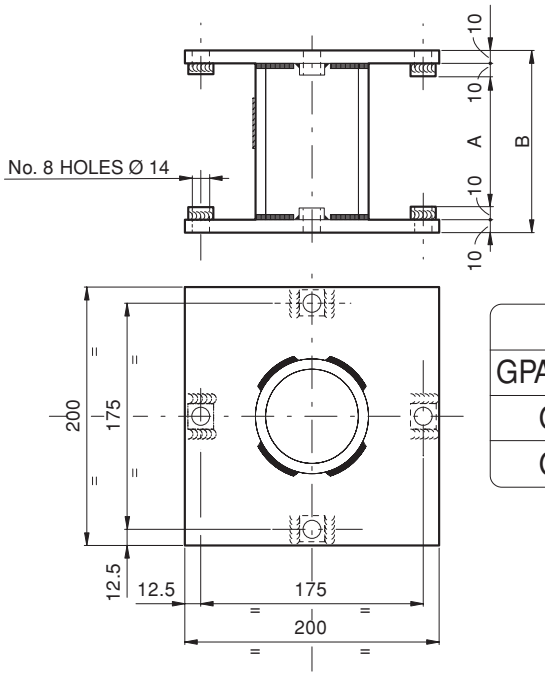


fig. 3.1.4 - Installation example for the GPA-C cells

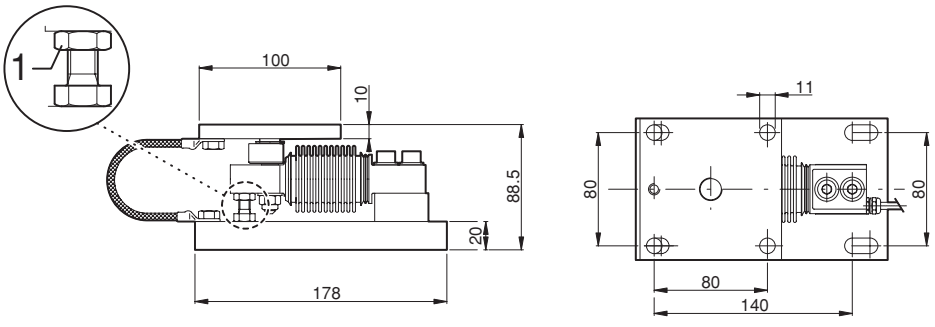


Model	A	B
GPA-C 5000 / 10000	83	123
GPA-C 20000	93	133
GPA-C 50000	101	141

fig. 3.1.5 - Dummy cells

3.2 Weighing systems mod. GPA-NF

The weighing systems mod. GPA-NF are equipped with flexure load cells with welded bellows with accuracy class up to 4000 intervals OIML, complete with connection box, and are calibrated with sample weights in our works.
They are supplied in the anti-corrosive version and are equipped with a suitable stop to protect the cell from possible overloads. This stop "1" must be adjusted to leave a clearance of 3/10 of mm when each single corner is loaded with a weight equal to the max. capacity of the load cell.
While servicing, check if these stops are free of possible material residues.



Lower plate: no. 4 slots Ø 11 - Drilling c/c distance 140x80 mm

fig. 3.2.1 - GPA-NF

Model	Unit rated capacity (kg)	Unit weight (kg)
GPA-NF 50	50	4.15
GPA-NF 100	100	4.15
GPA-NF 200	200	4.15

Installation scheme

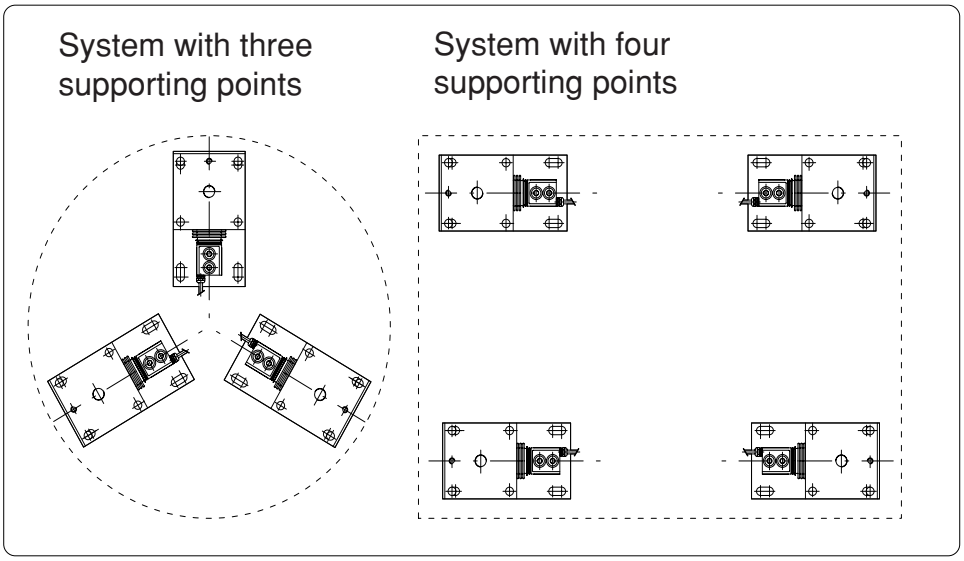


fig. 3.2.2 - Installation example for the GPA-NF cells

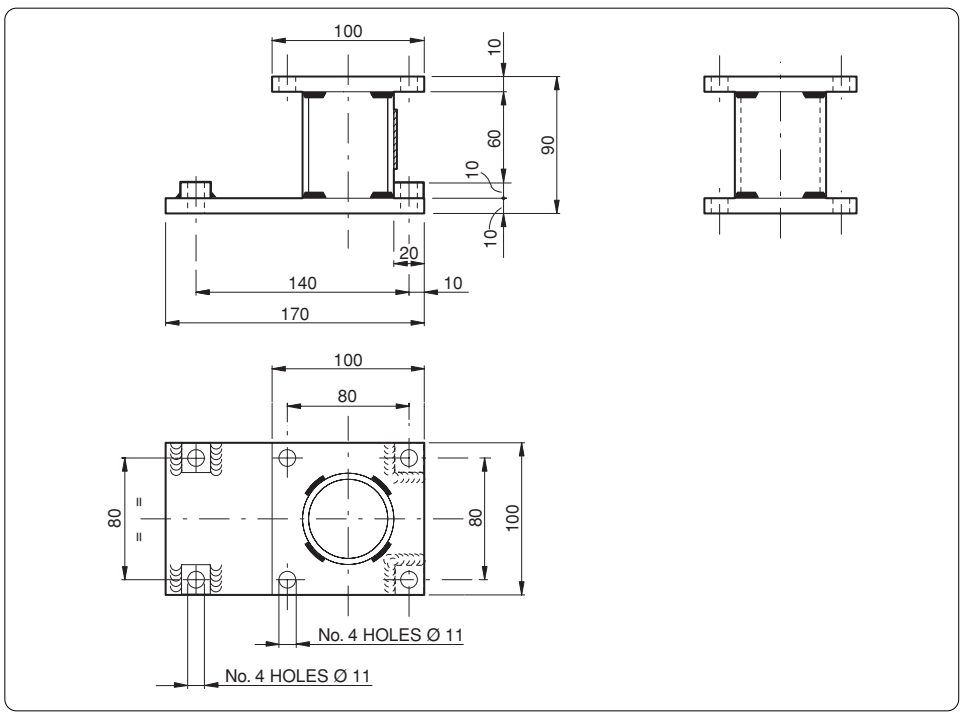


fig. 3.2.3 - Dummy cells

3.3 Weighing systems mod. GPA-NT

The weighing systems mod. GPA-NT are equipped with shear load cells in stainless steel with accuracy class up to 4000 intervals OIML, complete with connection box, and are calibrated with sample weights in our works.
They are supplied in the anti-corrosive version and are equipped with a suitable stop to protect the cell from possible overloads. This stop "1" must be adjusted to leave a clearance of 3/10 of mm when each single corner is loaded with a weight equal to the max. capacity of the load cell.
While servicing, check if these stops are free of possible material residues.

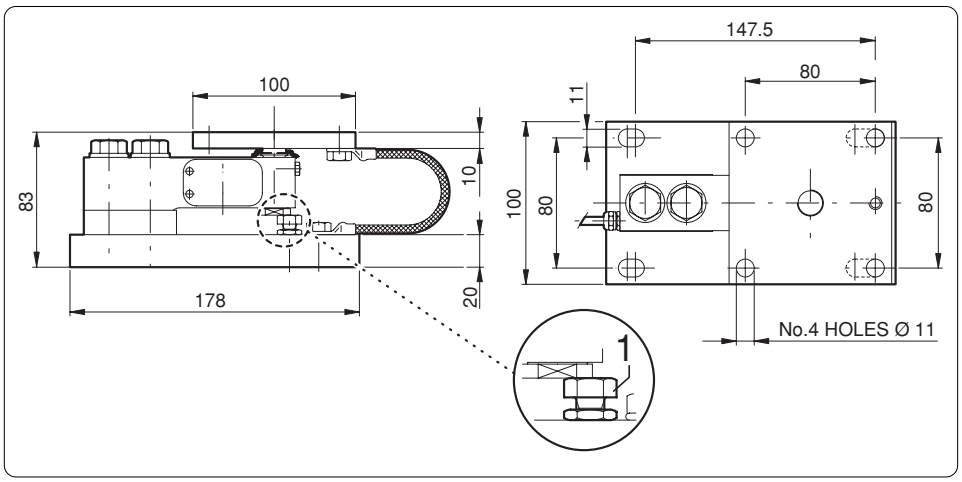


fig. 3.3.1 - GPA-NT

Model	Unit rated capacity (kg)	Unit weight (kg)
GPA-NT 500	500	5.2
GPA-NT 1000	1000	5.2
GPA-NT 2000	2000	5.2

Installation scheme

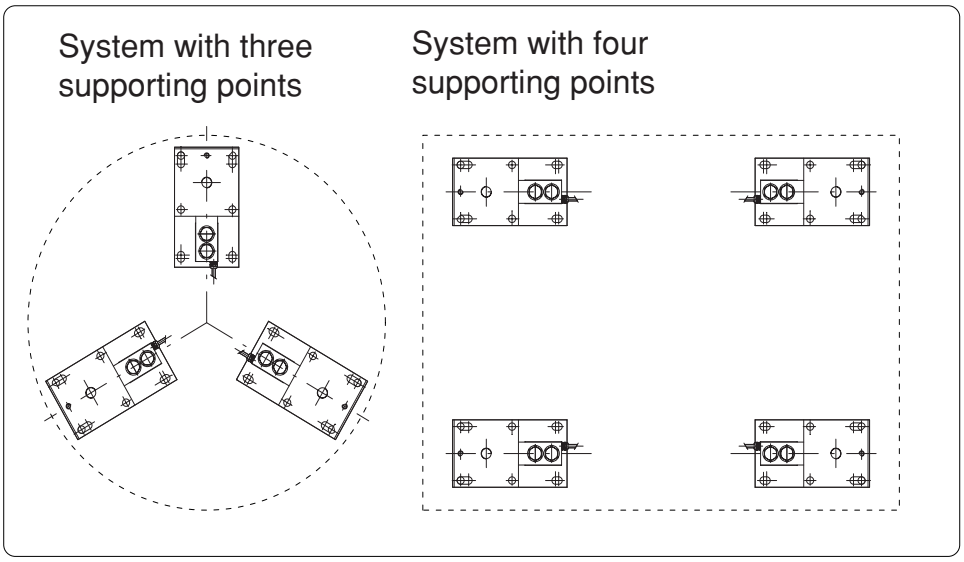


fig. 3.3.2 - Installation example for the GPA-NT cells

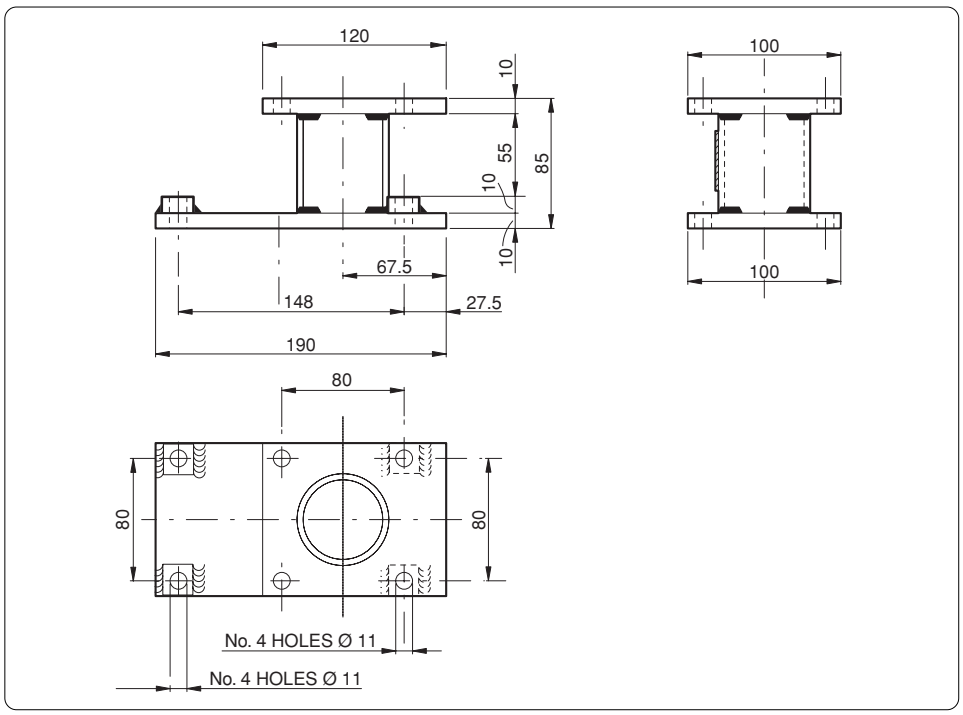
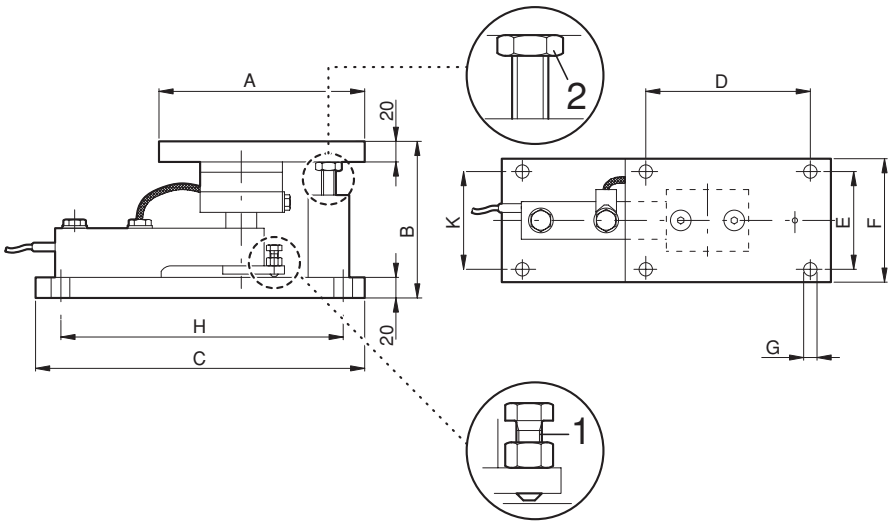


fig. 3.3.3 - Dummy cells

3.4 Weighing systems mod. GPA-T

The weighing systems mod. GPA-T are equipped with shear load cells in stainless steel with accuracy class up to 4000 intervals OIML, complete with connection box, and are calibrated with sample weights in our works.

They are supplied also with anti-oxidizing protection through galvanic treatment and are equipped with a suitable stop to protect the cell from possible overloads.
This stop “1” must be adjusted to leave a clearance of 3/10 of mm when each single corner is loaded with a weight equal to the max. capacity of the load cell.
While servicing, check if these stops are free of possible material residues.
They are further equipped with swinging limiter “2” for the transport.
After the installation, loosen the nut “A”, lower the limiter so that it does not create friction but starts operating in case of transverse stresses.
Tighten again the nut “A”.
While servicing, check if this limiter is free of possible material residues.



Lower plate: No. 4 holes Ø G - Drilling c/c distance HxK mm

fig. 3.4.1 - GPA-T

Model	GPA-T 3000	GPA-T 5000
Unit rated capacity (kg)	3000	5000
Dimensions (mm)		
A	200	220
B	152	187
C	320	360
D	160	180
E	95	130
F	120	160
G	11	13
H	280	320
K	95	130
L	112	147
Unit weight (kg)	14.6	24.2

Installation scheme

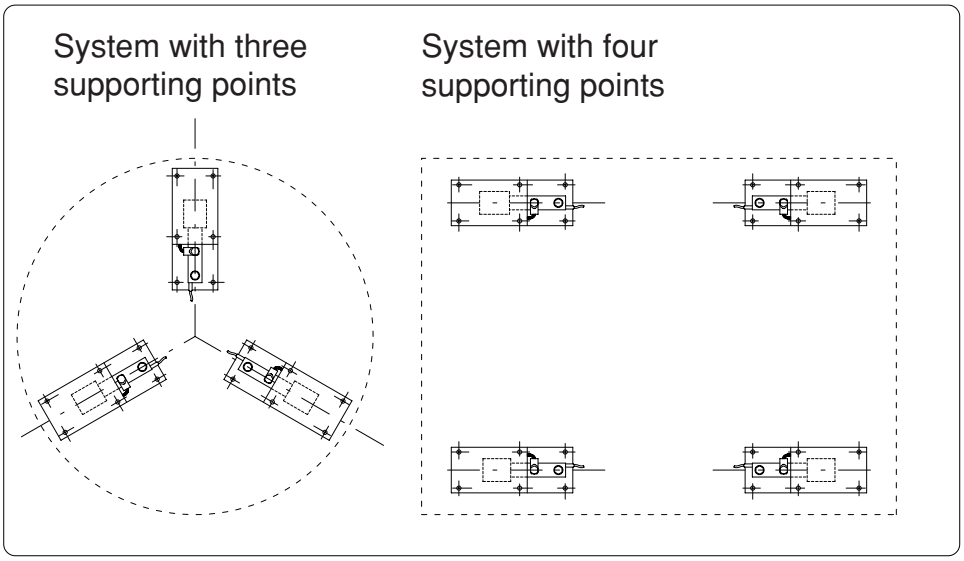


fig. 3.4.2 - Installation example for the GPA-T cells

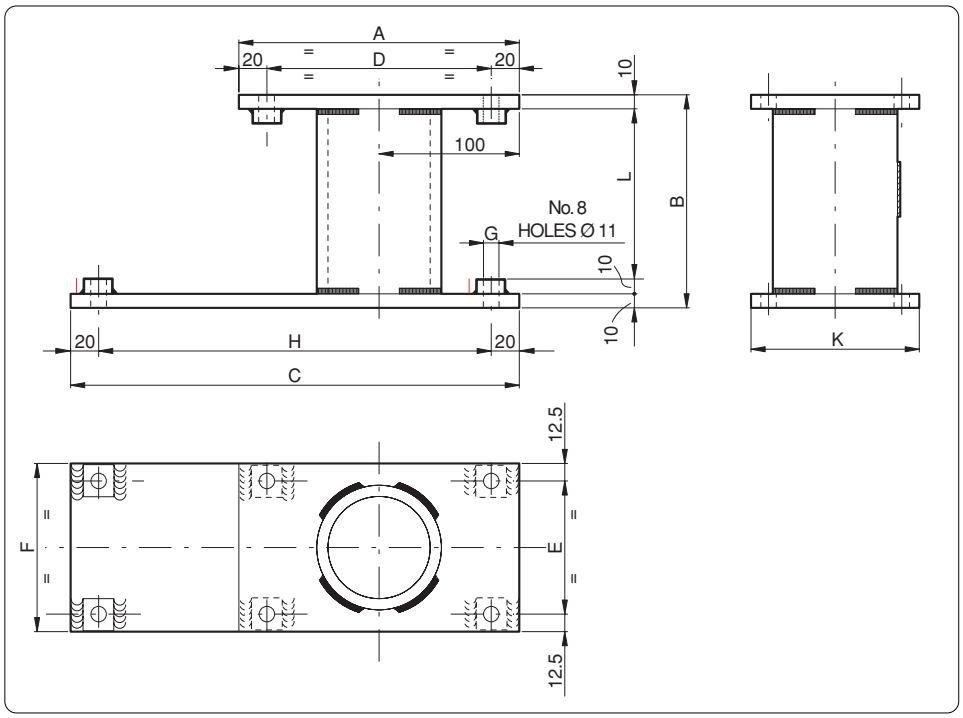


fig. 3.4.3 - Dummy cells

For the dimensions, refer to the table on page 21.

4 Testing, delivery and installation

4.1 Testing

All the instruments produced by Coop Bilanciai are carefully checked and tested to guarantee a properly working and reliable product in all its parts.

4.2 Delivery

CAUTION!!

Carefully observe the instructions on the package.

The transport and storage shall be made with great care; further avoid impacts and accidental overloads.

All the material delivered by Coop Bilanciai has been carefully checked before the shipment. Depending on the dimensions, the instrument can be fit inside a cardboard package or fixed on a wooden pallet.

When you receive the equipment, check if there is any damage occurred during the transport.

The package components such as cardboard, nylon and wood shall be disposed of in compliance with the regulations on the city solid wastes.

4.3 Storage conditions

When storing the weighing systems, check if they have been damaged during the transport and position them in a sheltered placed not accessible to non-authorized people.

If packed, avoid overlapping packages or other material heavier than the weighing system capacity.

Further comply with the storage conditions expected for the matched electronic terminal.

4.4 Handling

CAUTION!!

The weighing systems must be handled with extreme care, particularly if they have no package.

With cranes, use hooks, chains or ropes with suitable capacity and conditions for this purpose.

Coop Bilanciai is not responsible for any damage due to an improper handling.

4.5 Installation

WARNING

Make sure the supporting system for the weighing system is flat, sturdy and able to support the expected loads.

All supporting points must be stiff in the same way, to prevent tilting the tank when the load is applied.

Locate it in a place easy to reach for the transport means, and prevent nearby tanks from hindering the weighing operations.

Prevent ladders, pipes and retaining rods from deviating the weight, that must rest on the weighing system.

If pipes or lines are to be connected with the tank, use the min. acceptable diameter for the application, using the horizontal pipe section for the connection and, if possible, a flexible joint.

If possible, position the weighing system in a sheltered place, protected from winds and air currents.

Avoid any impact, overload or movement caused by vibration or swinging; make sure possible connected lines or tie-rods do not transmit such vibrations.

4.6 Assembly

For the assembly schemes and adjustment of the safety stops refer to the chapter “Technical data” of the specific unit.

For a correct assembly use the dummy cells (see table of the single units).

Check if the supporting parts are installed levelled and flat.

Otherwise, shim and level.

Further arrange the structure for a possible fastening of the weighing systems to the upper plates (possibly through counter-plates).

In case of type-approved system, arrange the structure to ensure the possibility of loading the sample weights necessary for the “first check on the spot”, operation allowed to authorized Bilanciai staff only.

Position the weighing system caring to protect the cell cables from noise sources; arrange raceways considering that the cables must not be routed together with the electric power cables, to prevent any malfunctioning.

Connect the cell cables according to the scheme (fig. 4.6.1) applied on the junction box; in case of type-approved and/or pre-tested system, absolutely follow the numbers indicated on the cell and on the clamp.

Position the terminal at a distance not farther than the instrument connection cable allows.

Otherwise ask the manufacturer to install a new cable.

The cable for the connection with the terminal is complete with connector; if it is not supplied, refer to the electronic terminal handbook.

It is absolutely forbidden to cut or extend the cables.

If several weighing systems are supplied, avoid mixing the components of the different weighing systems (cells, terminal, connector block).

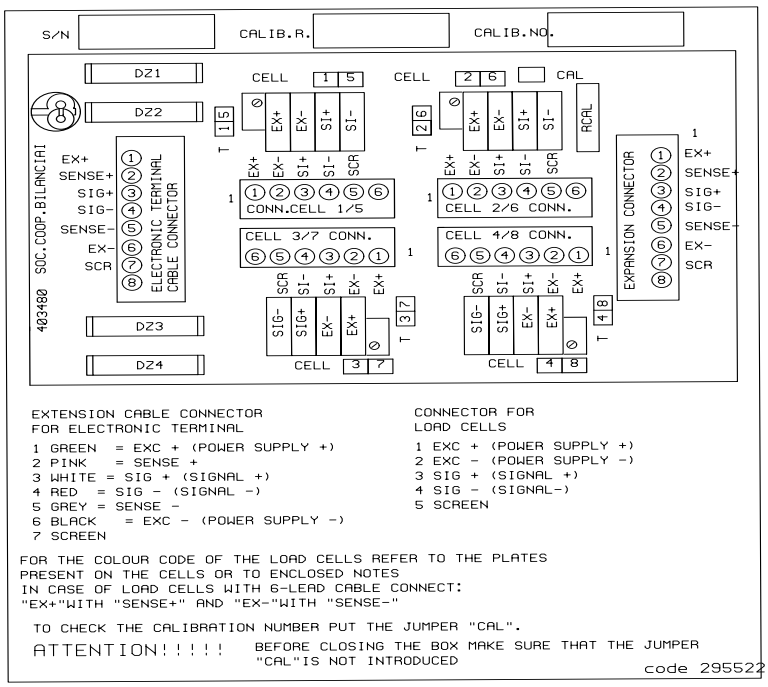


fig. 4.6.1 - Cell connection scheme

4.7 Grounding

Connect the ground braid supplied with each single unit (see chapt. 3).
Connect at least one of the units to the grounding system of the customer and/or to the electronic terminal by a ground cable, and one of the units to the junction boxes (these cables are excluded from our supplies).

5 Controls

All the controls are gathered on the electronic terminal supplied with the instrument.

Thus, refer to the relevant “Use and maintenance” handbook.

6 Maintenance

6.1 Introduction

DANGER!!

Any cleaning, as well as any maintenance intervention, must be executed with the terminal disconnected from the power supply line.

To guarantee constant and proper operation of the weighing systems and to avoid the warranty loss, too, any part replacement must be performed exclusively with original spare parts. Any maintenance intervention must be executed only by technicians who have been expressly authorized by Coop Bilanciai.

WARNING

The data on the plate, the closing and certifying seals must no way be modified or removed.

If they are impaired or removed, the warranty is immediately invalidated and the manufacturer is no longer responsible for any material and economic damage.

6.2 Checks performed in Coop Bilanciai works

The weighing system you purchased has been carefully tested and checked in our works in order to be properly set in every part in accordance with the metric regulations.

6.3 Periodical checks

Make regular checks on the basis of the indicated terms.

Before every working shift

- Check the weighing system outer integrity.

At the end of the working shift

- Clean the weighing systems removing possible deposited residual substances.

Periodically

- Check the integrity of the units and of the connection box.
- Check the integrity of the connection cables between the connection box and the electronic terminal.

7 Glossary

7.1 Glossary of the technical terms not commonly used

CONNECTOR	Plug or socket for the connection of the terminal with the outer devices.
INTERVAL	Min. considerable weight variation.
FULL SCALE	It is the max. weighing capacity of the instrument, without necessarily corresponding with the max. structural capacity of the weighing platform.
IP- -	Protection degree for the casings and housings containing electric or electronic components. It indicates the protection of the electronic cases against the penetration of solid foreign matters (the first digit) and against the penetration of liquids (the second digit).
OPERATOR	Operator for the system use, i.e. the person that must have read this handbook and have a thorough knowledge of the operating controls.

OPTION	Everything not included in the standard outfit.
SERIAL NUMBER	Serial number.
INSTRUMENT	Complete measuring chain (weighing units + electronic terminal).

SOCIETÀ COOPERATIVA
BILANCIAI

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