DINI ARGEO

Scales - Weighing systems

INSTRUCTION MANUAL

DUAL TRACK VEHICLE WEIGH BRIDGE SERIES “DTW”

Installation and operational instructions

DTW_14.01_EN

INDEX

1. GENERAL INFORMATION

1.1 INTRODUCTION

Dear Customer,

We thank you for having purchased a product of Dini Argeo. We kindly request you to read this instruction manual very carefully before starting to use the system purchased.

1.1.1 Machine description and details of the manufacturer

The "DTW" systems are innovative dual track weigh bridges featuring very compact dimensions in terms of height and weight, thanks to which they can be transported and installed quite easily and quickly.
Designed and manufactured exploiting top quality materials, the "DTW" weigh bridges represent an efficient solution for saving time, money and work space.
They are designed to weigh vehicles of any kind and can be adapted to all types of applications. The "DTW" weigh bridges are ideal weighing systems that can be used in modern industries, farms, work yards, landfills, ports etc. and wherever logistic stations need changing.
In relation to the types of vehicles to be weighed and on the planned use, you can choose the model of weigh bridge based on the various capacities and dimensions available; in tons, we have: 15t, 30t, 60t, 80t.
This manual takes the various types into consideration.

DETAILS OF THE MANUFACTURER:
DINI ARGEO srl – via della Fisica , 20 - 41042 Spezzano di Fiorano (MO) - Italy
Tel. 0536-843418 Fax 0536-843521 E-mail info@diniargeo.com web www.diniargeo.com

1.1.2 Foreword

The purpose of this manual is to provide the user with all the instructions and fundamental criteria for installing, using and servicing the system purchased correctly.
Therefore:

- This manual provides all the operational instructions of the system and information on how to use it correctly and safely.
- This manual provides useful information on the correct operation and maintenance of the system to which it refers; you must consequently read and pay utmost attention to all the sections that illustrate the simplest and safest way to work.
- The operational safety of the system is entrusted personally to the operator, who should be perfectly familiar with it.
- The equipment shall be installed exclusively by specialised personnel who shall have read and understood this manual in full.
- Make sure this manual is always at hand where the system is used.
- This manual or any part of it cannot be reproduced in any way without written authorisation from the manufacturer.

NB: The person responsible for the system shall make sure all the safety standards in force in the country of use are applied, shall guarantee that the equipment is used as intended by the manufacturer and shall avoid any dangerous situations for the user and anybody else at the workplace. Attempts of the user or unauthorised personnel to tamper with or modify the system, as well as the improper use or use different to that intended in this manual, relieve the manufacturer from all forms of responsibility with regard to personal injuries or material damages.

1.1.3 Symbols

Here are the symbols used in the manual to draw the operators' attention to the various levels of danger. The levels of danger are split-up into four classes of importance:

DANGER !!

Concept or procedure which, if it is not carried out accurately, could cause death or serious personal injuries in the case of accidents.

WARNING !!

Concept or procedure which, if it is not carried out accurately, could cause slight personal injuries or damages to the instrument in the case of accidents.

CAUTION !!

Concept or procedure which, if it is not carried out accurately, could cause damages to the instrument or materials next to it in the case of accidents.

WARNING: Important information or procedure that advises the operator on the best way to use the system and on all the related working methods.

1.1.4 General provisions

The warnings indicated in this manual aim at drawing THE OPERATOR'S ATTENTION to information or procedures that advise how to the use the equipment in the best way to:

- Work in safety.
- Extend its life and efficiency.
- To avoid damages.
- To optimise work, bearing in mind metric and safety standards in force in the country of use;

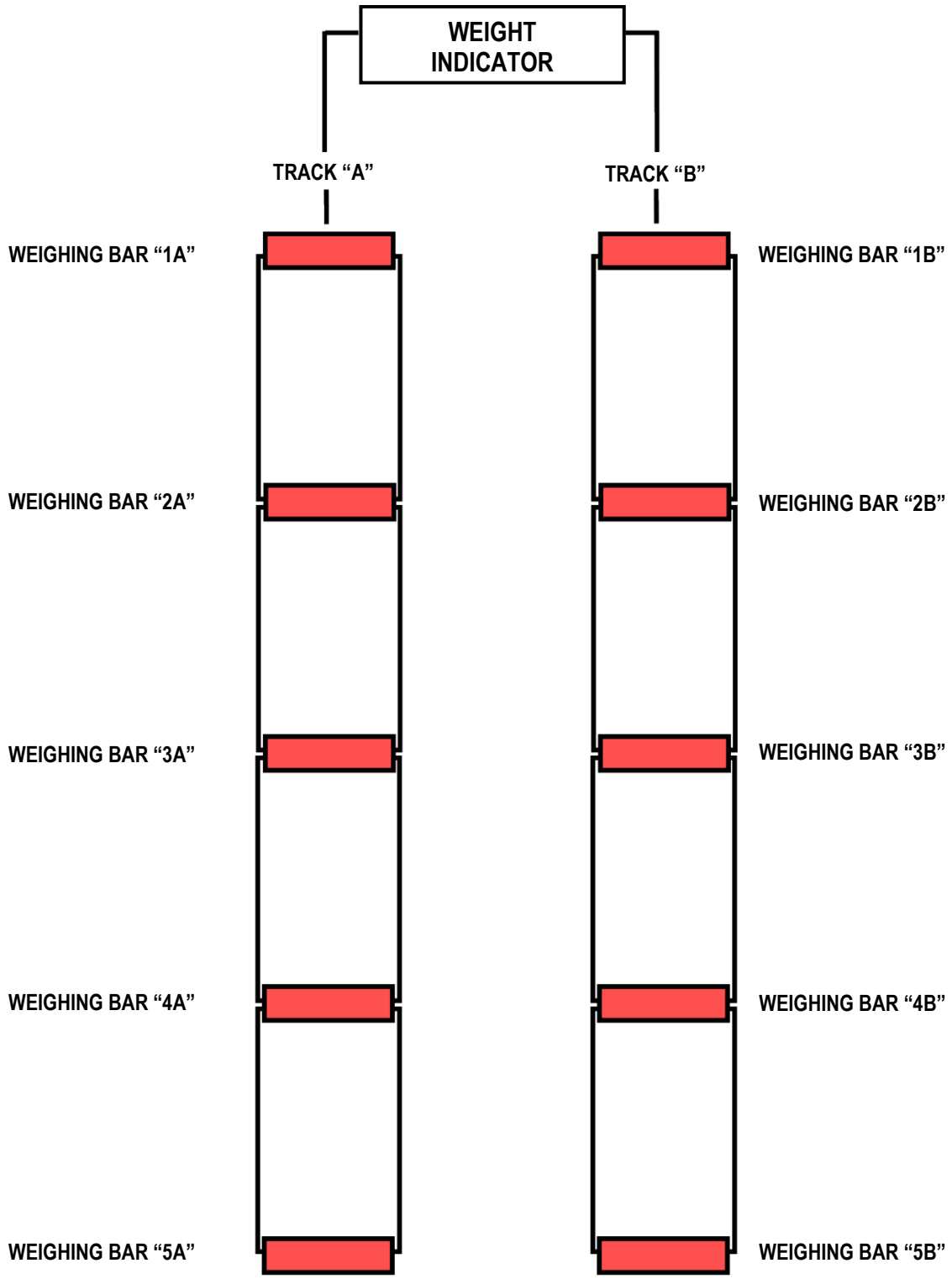
The "DTW" weigh bridge shall be used exclusively as a weighing instrument. Therefore, any improper use or use different to that intended in this manual, relieve the manufacturer from all forms of responsibility with regard to direct or indirect injuries to persons or damages to property.

For further information on warnings and prohibitions to work in safety, please read section "3. GENERAL SAFETY INSTRUCTIONS".

1.2 MARKING OF THE “DTW” WEIGH BRIDGE

1.2.1 Technical and metrological marking of the “weighing bars”

In relation to the admitted use, the “DTW” weigh bridge has specific labels arranged on all the weighing bars that provide technical and metrologic information of the weighing system. Taking a weigh bridge series DTW1860 as a reference system, where there are 8 weighing modules (bridges) and 10 weighing bars, each weighing bar will be marked as follows:



LABEL OF WEIGHING BAR "1A"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B1A
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B1A
Connected to Instrument
Mod. XXXXXX SN. XXXXXXXX B1 | 03-012

LABEL OF WEIGHING BAR "1B"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B1B
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B1B
Connected to instrument
Mod. XXXXXX SN. XXXXXXXX B1 | 03-012

WEIGHING BAR LABEL "2A"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B2A
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B2A
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "2B"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B2B
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B2B
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "3A"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B3A
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B3A
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "3B"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B3B
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B3B
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "4A"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B4A
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B4A
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "4B"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B4B
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B4B
Connected to
Load receiver sn. XXXXXXXX B1

WEIGHING BAR LABEL "5A"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B5A
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B5A
Connected to
Load receiver sn. XXXXXXXX B1

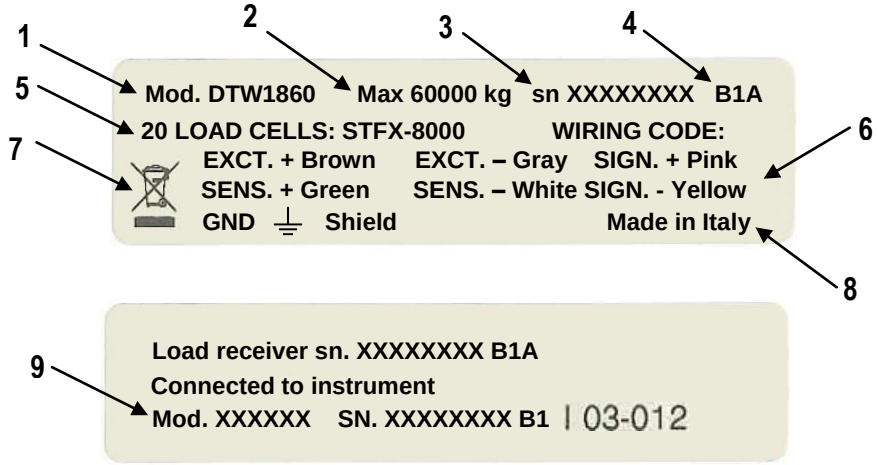
WEIGHING BAR LABEL "5B"

Mod. DTW1860 Max 60000 kg sn XXXXXXXX B5B
20 LOAD CELLS: STFX-8000 WIRING CODE:
EXCT. + Brown EXCT. – Gray SIGN. + Pink
SENS. + Green SENS. – White SIGN. - Yellow
GND ⏚ Shield Made in Italy

Load receiver sn. XXXXXXXX B5B
Connected to
Load receiver sn. XXXXXXXX B1

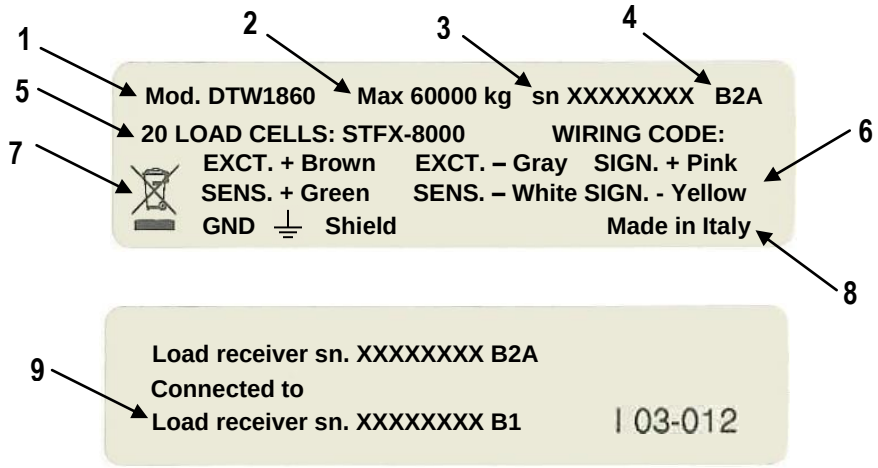
To better explain the labels just illustrated, here's the meaning of each piece of information written.

Labels on the first weighing bar of the track:



1. Model of the weigh bridge.
2. Maximum capacity or full scale of the system.
3. Serial number of the weighing bar.
4. Identification of the weighing bar (number of the bar and track on which it is installed).
5. Number of cells in the system, identified per model and maximum capacity (each).
6. Colours of the cell cables and relevant signal.
7. Symbol of the dustbin: it means that when the product reaches the end of its useful lifetime, it must be handed over to authorized differentiated waste collection tips.
8. Country in which the system is manufactured.
9. Model and serial number of the weight indicator to which the weighing bar is connected.

Labels on the weighing bars of the track:



1. Model of the weigh bridge.
2. Maximum capacity or full scale of the system.
3. Serial Number of the weighing bar.
4. Identification of the weighing bar (number of the bar and track on which it is installed).
5. Number of cells in the system, identified per model and maximum capacity (each).
6. Colours of the cell cables and relevant signal.
7. Symbol of the dustbin: it means that when the product reaches the end of its useful lifetime, it must be handed over to authorized differentiated waste collection tips.
8. Country in which the system is manufactured.
9. Serial Number of the load receiver to which the weighing bar is connected.

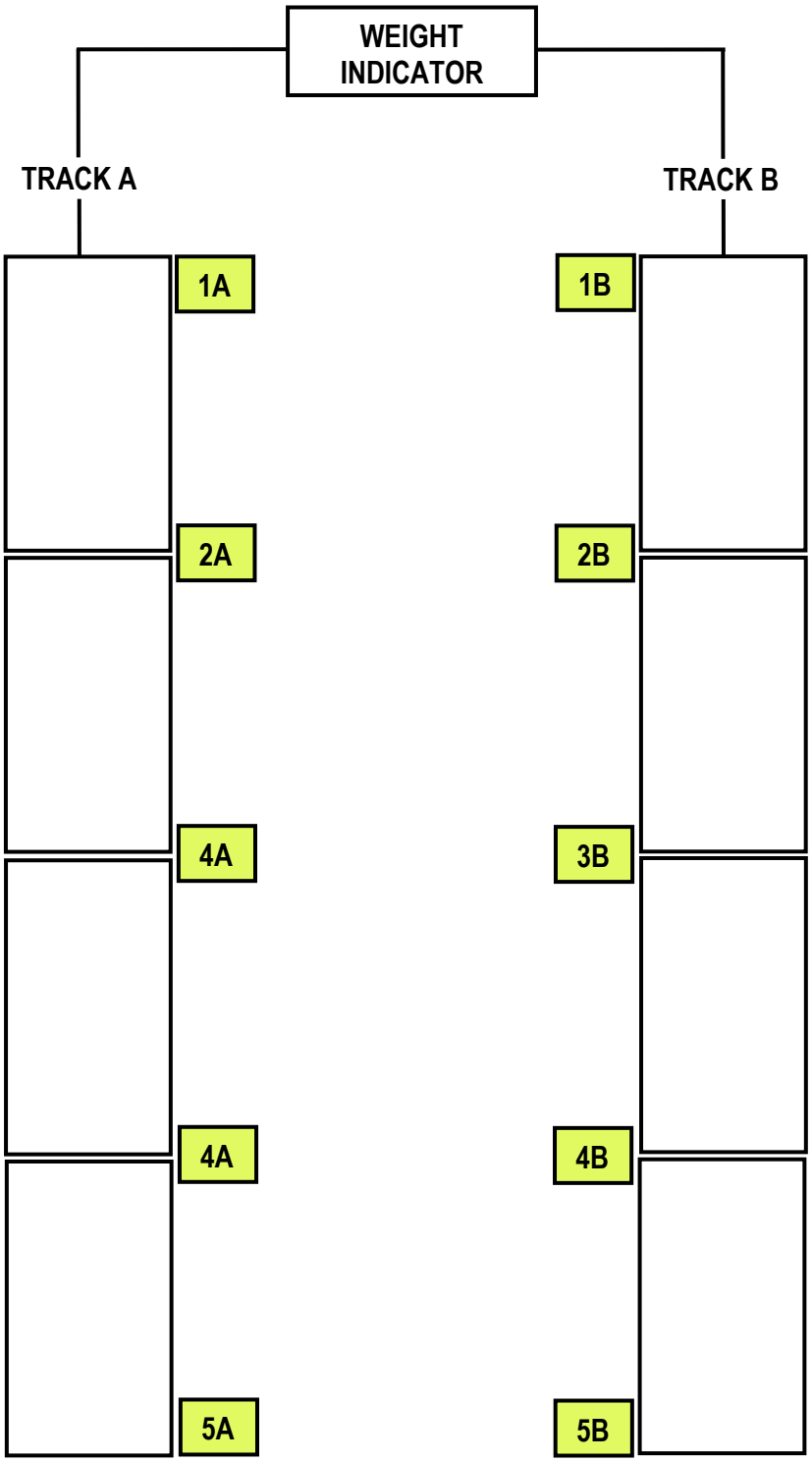
If the DTW weigh bridge is type-approved and therefore suitable to be used for commercial transactions, the system will have the following marking seal:

CAUTION!!

The details or seal and legal stamps on the components of the system must not be modified or removed for any reason whatsoever. If these details are tampered with or removed, the system's warranty is annulled and the manufacturer is relieved from all feasible direct or indirect personal injuries or material damages that may occur. THE PLATES ARE ADHESIVE AND ARE DESTROYED WHEN THEY ARE DETACHED.

1.2.2 Position marking

As well as the technical and metrologic marking, the system also has other labels on its main components. Dedicated labels are fitted on each weighing bar to identify their position within the system.
Again, taking the DTW1860 weigh bridge as a reference system, where there are 8 weighing modules (bridges) and 10 weighing bars, the marking will be as follows:

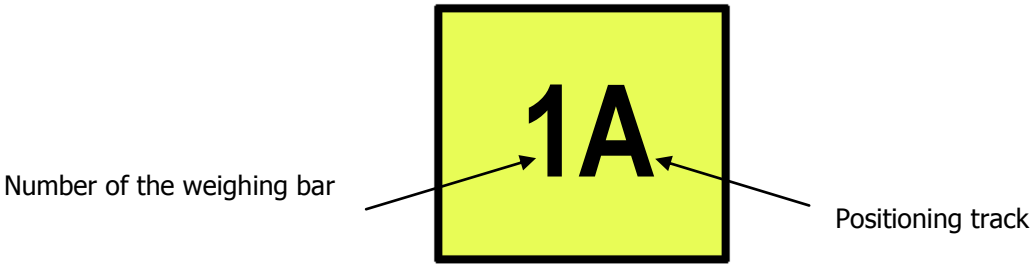


As you can see from the previous illustration, each weighing bar has relevant labels of its position within the system. The bars and platforms should be placed with the labels to the inside.These labels are designed to make it simple and straightforward to install the system. To better understand the meaning of these labels, here are some more details

POSITIONING LABEL ON THE WEIGHING BARS

The following label bears:

- The number **"1"**, which is the number of the weighing bar.
- The letter **"A"**, which is the track in which the weighing bar is to be positioned.



2. “DTW” WEIGH BRIDGE: DESCRIPTION AND INTENDED USE

The modular weigh bridges of the “DTW” series are metal platforms made using top quality materials that guarantee an ideal solution for weighing road vehicles.

Low (merely 20 cm) and light, the weigh bridge can be installed:

- Flush with the road surface.
- On the road surface (elevated).
- On metal framework (elevated).
- Embedded in pre-existent foundations.

Made up of pairs of modules sized to take any load based on the parameters laid down in Directive 96/53/EEC (maximum load on single axle for vehicles driving in Europe), the “DTW” weigh bridges are made to ensure excellent performance in any environmental condition and are protected against STATIC overloads of over 200% the platform’s nominal capacity.

The measuring element consists of a reading system with oscillating weighing bars (patent pending) with integrated vehicle braking/acceleration compensation limit switch, thanks to which precise results are obtained during the weighing phase.

Each weighing bar consists of 2 load cells made of stainless steel pursuant to standard IP68 compliant with OIML R60 and equipped with non-slip rubber support plates that can be installed even without fixing them to the floor with bolts.

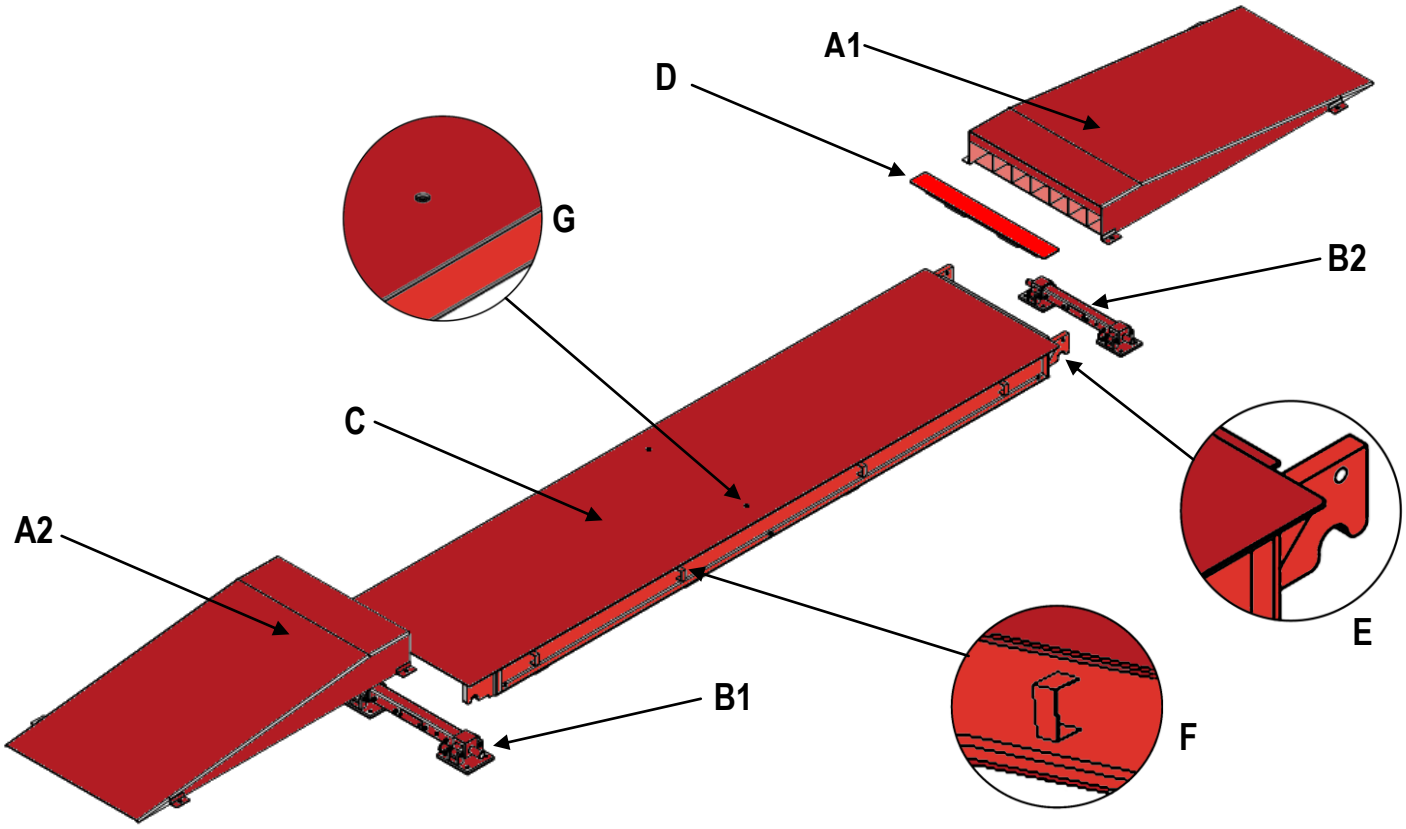
Finally, the “DTW” weigh bridges can be connected to a weight indicator of the Dini Argeo range in both the “single scale” and “multirange” version.

Dini Argeo, thanks to the wide range of weight indicators that can be connected, even battery-operated ones which enable you to use the weigh bridge without the electrical power supply, is able to offer valid solutions for all types of applications.

2.1 TECHNICAL SPECIFICATIONS OF THE WEIGHING SYSTEM

2.1.1 Main parts

To make this manual easily comprehensible, below is an illustration and list of the main parts of the “DTW” weigh bridge.



Referring to the drawing above, you will notice the following:

- **A1,A2:** metal ramps to drive the vehicle up and down the bridge (optional).
- **B1, B2:** weighing bars.
- **C:** weighing module (bridge platform).
- **D:** inspection cover of the support plates of the weighing module.
- **E:** support plate of the weighing module.
- **F:** side hook for lifting/handling the weighing module.
- **G:** threaded hole for lifting/handling the weighing module using “eyebolts”.

NOTE: to clarify the illustration, the main parts of just one single track of the DTW bridge are indicated.

Seeing as the “DTW” weigh bridge is a type-approved system, any spare parts needed are not supplied directly to the end users. Parts of the system can only be replaced if necessary by a specialist of the manufacturer whilst servicing the system.

2.1.2 Technical specifications of the system parts

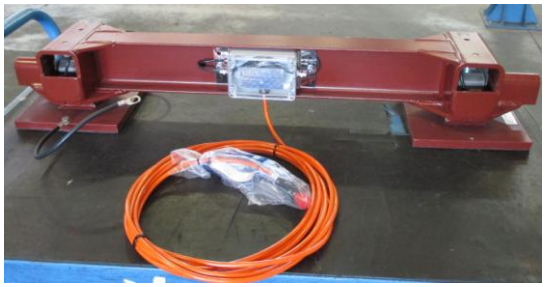
LOAD CELLS

MAIN SPECIFICATIONS:

- Model: STFX.
- Material: STAINLESS STEEL 17-4 PH.
- Protection rating IP68.
- Max.tolerated power supply voltage: 10Vdc.
- Nominal output: 2 or 3 mV/V +/- 0,25% (based on the model).
- Precision and repeatability compliant with recommendations of OIML R60.
- Precision: 0,03% of full scale (F.S.).
- High precision and repeatability.
- Maximum number of divisions of load cell: nLC = 4000.
- Sensitivity: 2mV/V +/-0,1%.
- Input resistance 1000 +/- 10 Ohm.(*)
- Output resistance 1000 +/- 10 Ohm.(*)
- Creep at nominal load after 240 minutes < 0,03% full scale.
- Thermal compensation -10°C / +40°C.

*350, 700 or 1000 Ohm based on models

WEIGHING BARS



MAIN SPECIFICATIONS:

- Model: OSCILLATING (PATENT PENDING).
- Material: PAINTED STEEL.
- Protection rating IP68.
- Integrated vehicle braking/acceleration compensation limit switches.
- Non-slip rubber support plates.
- Thermal compensation -10°C / +40°C.

PLATFORM (BRIDGE)

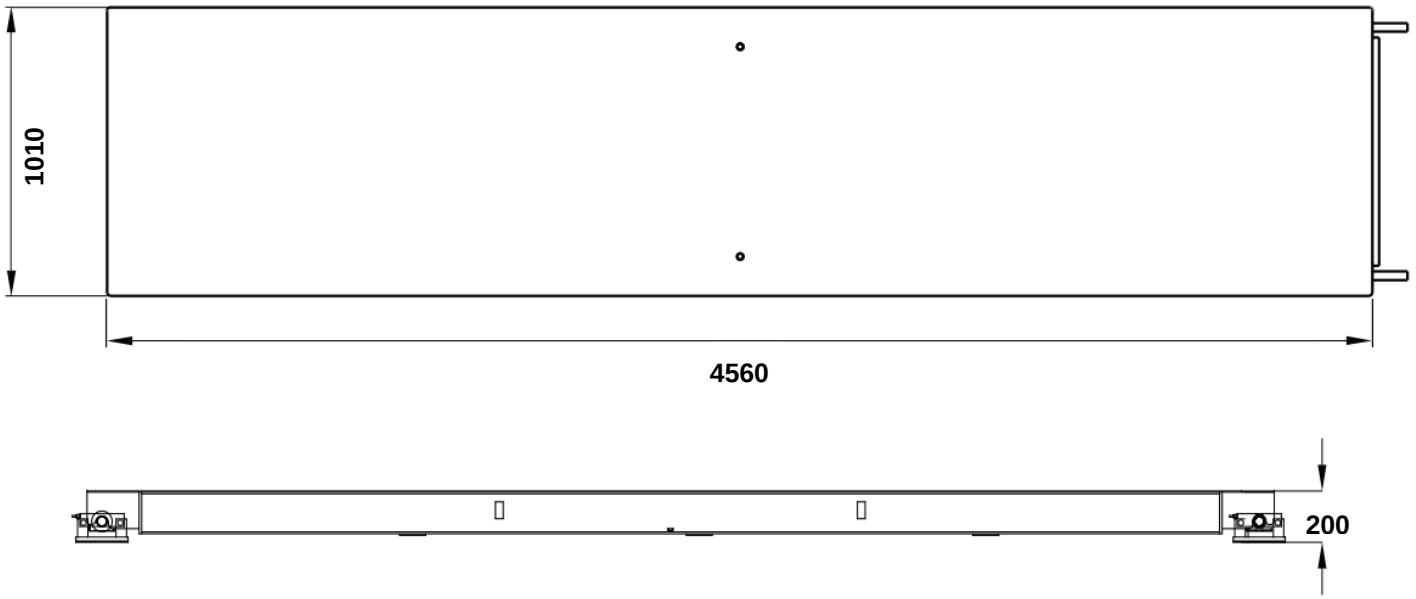
MAIN SPECIFICATIONS:

- Model: OSCILLATING (PATENT PENDING).
- Material: PAINTED STEEL.
- Load surface in very thick lobed sheet metal.
- Sanding and painting process with two-component epoxy primer, highly resistant to corrosion.
- Protection against STATIC overloads of over 200% the nominal load-bearing capacity of the platform.

2.1.3 Overall dimensions

As mentioned earlier, one of the main features of the “DTW” weigh bridge is that it is remarkably compact. Here are some more details on the dimensions of the parts making up the system.

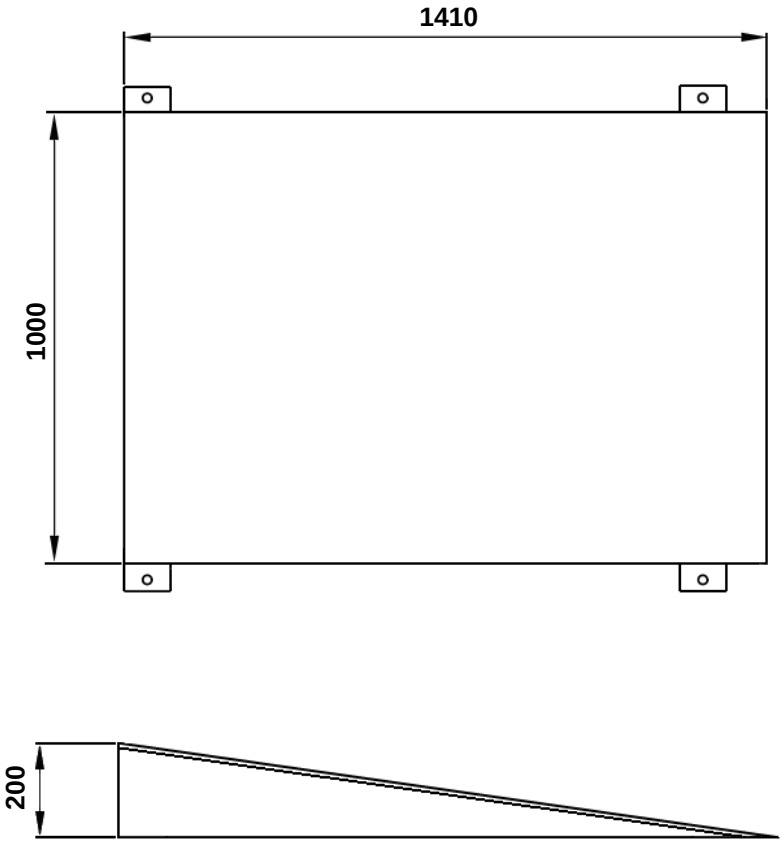
DIMENSIONS OF THE SINGLE WEIGHING MODULE (BRIDGE)



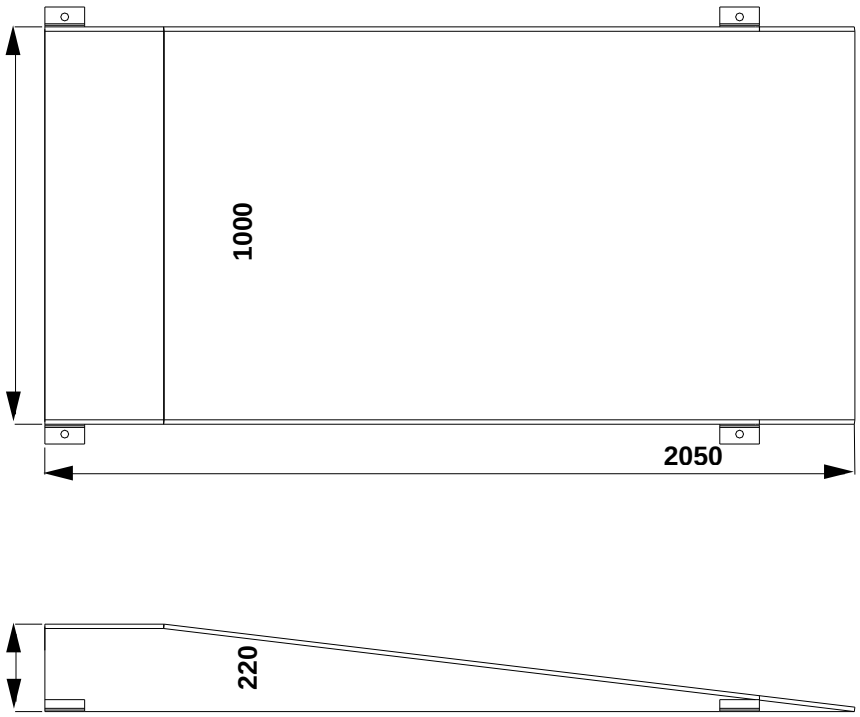
RAMP DIMENSIONS (OPTIONAL ACCESSORY)

Ramps available:

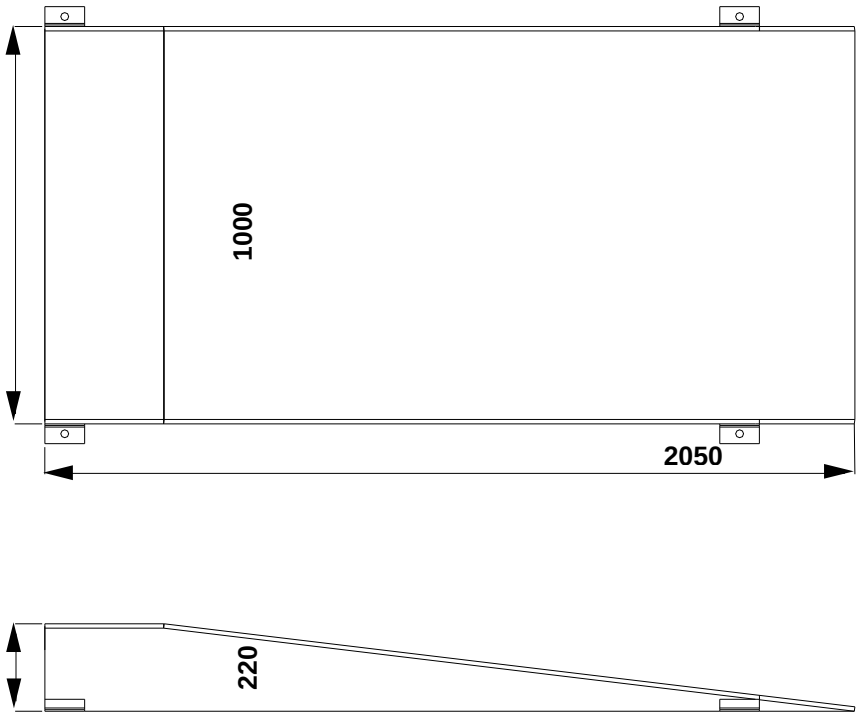
IC190: Kit of 4 painted steel ramps, with maximum load-bearing capacity of 30 t per pair, to be used directly on the road surface in mobile applications (for DTW with maximum load-bearing capacity of 30 t). Ramp dimensions: 1.40 x 1 x 0.20 m.



IC190R Kit of 4 reinforced painted steel ramps, with maximum load-bearing capacity of 80t per pair, to be used directly on the road surface in mobile or fixed applications (for DTW with maximum load-bearing capacity of 80t). Ramp dimensions: 2.05x1x0.22 m. Complete with elevated plates for platform.



DTWRC: 4 mobile ramps made up of 4 reinforced frames made of painted steel filled with concrete. Maximum load-bearing capacity 80t per pair Ramp dimensions: 2,05 x 1 x 0,22 m. Complete with elevated plates for platform.



NOTE: All the dimensions are expressed in mm.

2.1.4 Versions of “DTW” weigh bridges

The “DTW” weigh bridge consists of a series of module pairs (bridges) of the same size; however the total length of the system will depend on the total number of modules making it up.
For further information on the versions, dimensions, composition and load-bearing capacities available of the “DTW” weigh bridge, consult the table that follows.

TABLE OF “DTW” WEIGH BRIDGE VERSIONS

WEIGH BRIDGE VERSION	DIMENSIONS (lxdxh) m	TOTAL CONTENT	CAPACITY (kg)
DTW515	4,50 x 1,00 x 0.20	2 modules – 4 weighing bars	15000
DTW530	4,50 x 1,00 x 0.20	2 modules – 4 weighing bars	30000
DTW930	9,00 x 1,00 x 0.20	4 modules – 6 weighing bars	30000
DTW960	9,00 x 1,00 x 0.20	4 modules – 6 weighing bars	60000
DTW1430	13,50 x 1,00 x 0.20	6 modules – 8 weighing bars	30000
DTW1460	13,50 x 1,00 x 0.20	6 modules – 8 weighing bars	60000
DTW1860	18,00 x 1,00 x 0.20	8 modules – 10 weighing bars	60000
DTW1880	18,00 x 1,00 x 0.20	8 modules – 10 weighing bars	80000
DTW2280	22,50 x 1,00 x 0.20	10 moduli – 12 barre pesatrici	80000

NOTE: The dimensional data in the table refer to a single track of modules (bridges) making up the weigh bridge.

3. GENERAL SAFETY INSTRUCTIONS

Before you commission the weigh bridge and whenever you use it, you must make sure all the instructions of the manufacturer written in this manual are observed. It is also very important to bear in mind and observe legal standards currently in force in the country in which the system is used, concerning safety and accident prevention and “metrology”.

3.1 GENERAL WARNINGS

- Strictly observe all the provisions concerning the installation, use and workplace of the system.
- Do not load vehicles or other loads on the platform that exceed the nominal load-bearing capacity of the weigh bridge.
- Do not allow unauthorised personnel to work on the “DTW” weigh bridge or on any device connected to it.

The “DTW” weigh bridge must be used exclusively as a weighing instrument. Consequently any improper use or use different to that stated in this manual, relieves the manufacturer from all forms of liability with regard to personal injuries or material damages.

3.1.1 Organisational measures of the customer

To install and use the system in the best way possible, the customer must observe the following indications and provisions:

- The “DTW” weigh bridge is to be considered as a weighing device to all intents and purposes and as such must be used exclusively as a weighing instrument.
- Observe the safety measures established by the manufacturer of the weighing system and the legal standards in force in the country in which the system is used.
- Have the system installed, commissioned, serviced and repaired exclusively by specialists, who must have read and understood this manual in advance (see section “10. MAINTENANCE AND REPAIRS”).
- Only allow expert and trained personnel to use the system, who we believe should have experience and detailed knowledge on how to use modular weigh bridges.
- It is strictly FORBIDDEN for unauthorised personnel to access the operational zone.
- This manual must always be at hand where the system is used.
- In the case of anomalies on components or accessories of the system, use just original spare parts.
- All connections of the system must be completed pursuant to applicable standards in the installation zone and workplace.
- Install the safety warning signs and protection systems requested by current legal standards concerning safety at the workplace.
- If any anomalies are noticed whilst using the “DTW” weight bridge, stop working IMMEDIATELY and do not use the instrument until it has been specifically inspected and tested by specialised and authorised personnel or by personnel of the service department of Dini Argeo.

Incorrect use, even if reasonably foreseeable, by untrained personnel involves an unacceptable residual risk.

3.1.2 Indications and prohibitions concerning the "DTW" weigh bridge"

To install and use the system perfectly, the customer's personnel MUST observe the following indications and provisions:

- The "DTW" weigh bridge" must be used exclusively for the designed purposes.
- It is strictly FORBIDDEN to exceed the nominal load-bearing capacity of the system.
- Make sure the system is perfectly level and that all its parts are installed correctly.
- All the weighing phases must be carried out positioning the load properly on the weigh bridge.
- Avoid accelerating or braking the vehicle abruptly on the platform while driving up and down it and when positioning it.
- Loads without wheels (loose material, containers etc.,) must be weighed making sure not to knock the platform and not to drop the weights off the platform.
- Do not weld, drill or modify the structure in any part without consulting the vendor. Feasible damages or tampering annul the warranty conditions.
- Periodically check the integrity of all parts of the system (see chapter "10 MAINTENANCE AND REPAIRS").
- Do not install the platform near electrically conductive cables (high and/or medium voltage); this could cause disturbance in the weight display. You are recommended to prepare a protected line just for the platform's cables.
- Do not stand on, squash or expose to heat, any of the shielded connection cables of the system.

WARNING!!

To safeguard personnel and the driver of the vehicle when positioning and/or moving the vehicle transversally on the weighing system, in the elevated versions, the weigh bridge must be equipped with side protection devices (walkways, guard-rails, New Jersey guards etc..).
Any protective devices used (not supplied) must be secured to building work so as not to interfere with the structure of the weighing system.

3.1.3 Instructions and prohibitions to be observed to ensure safe working conditions

To guarantee optimum conditions of safety for the user of the "DTW" weigh bridge" and any other personnel working near it, the following instructions must be observed:

- It is strictly FORBIDDEN for unauthorised personnel to access the work zone.
- Do NOT exceed the nominal load-bearing capacity of the system.
- Do NOT use the weigh bridge to weigh radioactive or loose material.
- Do NOT vary or modify the system in any way.
- Do NOT use solvents or industrial chemical products to clean the system.
- Do not subject the weighing bars and all the components of the system to other strain, beyond compression force.
- Make sure no weighing bar is partially or totally raised during the weighing phase.
- Do not let material or corrosive liquids drop on the weighing unit.
- When weighing loads without wheels, it is FORBIDDEN to tow or drag them onto the platform.
- Do not remove the system's earthing connections for any reason whatsoever.
- Maintenance, repairs and cleaning jobs shall be done with the machine stopped at a standstill and disconnected from the power supply sources (electric mains, battery), exclusively by specialised personnel (see section "10 MAINTENANCE AND REPAIRS").
- Have jobs such as installation, commissioning, maintenance and repairs carried out exclusively by specialised personnel who must have read and fully understood this manual (see section "10 MAINTENANCE AND REPAIRS").
- If you should encounter any anomalies whilst using the "DTW" weigh bridge", stop working IMMEDIATELY and do not use the instrument until it has been inspected and tested specifically by specialised and authorised personnel or by personnel of the service department of Dini Argeo.

3.1.4 Conditions of the workplace

To guarantee perfect working conditions of the “DTW” weigh bridge” at the workplace, observe the following instructions:

- Find the best possible workplace to install the platform and make sure there is enough room to ensure safe and easy weighing operations.
- The installation workplace of the system must bear in mind the spaces needed to position the weighing modules.
- The installation workplace of the system must enable protection of the connection cable between the modules and the indicator, via metal raceways built into the floor.
- The installation workplace of the system must enable protection of the system itself via the fulfilment of connections lines dedicated to earthing the weigh bridge.
- Do NOT install the system in workplaces subject to the risk of explosion (unless this is specifically foreseen).
- Do NOT install the system near strong magnetic and electrical fields.
- Do NOT use the system beyond the temperature range of -10 °C at +40 °C.
- Protect the “DTW” weigh bridge” from damp air, vapours, liquids or dust.
- If the workplace is damp or wet, install in such a way to avoid build-up or stagnation of water and/or debris under the structure.

Furthermore, the choice of the most suitable place of installation and use of the “DTW” weigh bridge” shall bear in mind the following conditions:

- Flat and levelled support surface.
- Hardness of the floor of at least 100kg/cm^2.
- No dust or aggressive vapours.
- Moderate temperature and humidity (do not expose to sources of heat).

3.1.5 Glossary of instructions and provisions

Following the instructions and indications mentioned previously, DINI ARGEO srl is relieved from all forms of liability if the system is used improperly/incorrectly, such as the following cases, for example:

- Improper use of the system or if it is used by untrained or unauthorized personnel.
- Failed use in compliance with specific standards.
- Incorrect installation.
- Defects in the power supply.
- Serious lack of maintenance.
- Unauthorised modifications or other work.
- Use of non-original spare parts or parts that are not specific for the model involved.
- Total or partial failed observance of the instructions given in this manual.
- Exceptional events.

4. OPERATOR MANUAL

4.1 OPERATOR

4.1.1 Professional characteristics

Personnel in charge of using the “DTW” weigh bridge” and the accessories added to it must:

- Be physically and psychologically fit to use it.
- Be expert, or have sufficient knowledge on using modular weigh bridges and be trained on the correct use of weighing systems.
- Be familiar with the applicable health and safety standards at the workplace.
- Be able to assess the state of safety of the modular weigh bridges and the workplace.
- Understand the safety signs concerning the weigh bridges, as well as the warnings written in this manual and the messages of the instrument in the operational phases, even if not familiar with the language of the country in which it is used.
- Be able to communicate with others at the workplace.
- Be able to create and manage a safe and organised workplace, to guarantee the optimum use of the “DTW” weigh bridge” and safeguard any person near the system.

4.1.2 Position

The operator who uses the “DTW” weigh bridge is responsible for any accidents that may occur within the working radius of the system. The operator must therefore work in a position that does not represent a danger for himself/herself, for others and for any transport equipment at the workplace.

To facilitate these conditions, the operator must, in particular:

- Stand in a position suitable to supervise the workplace and other operators.
- Always be able to see the vehicle/load and any assistants clearly.

5 DESCRIPTION OF THE MACHINE AND OF THE CONTROLS

To be able to acquire information on how to use the system and on all the controls available on the weight indicator installed with the “DTW” weigh bridge”, please consult the relevant instructions manual.

6 CONSIGNMENT OF THE “DTW” WEIGH BRIDGE

6.1 PACKING, TRANSPORT, HANDLING AND STORAGE

6.1.1 Packing

The weighing modules (bridges) making up the “DTW” weigh bridge are placed on dedicated wooden pallets to fulfil the system’s packing. The other components of the “DTW” weigh bridge are arranged again on wooden pallets, and positioned appropriately on top of the system’s modules.
To better illustrate the type of packing used to transport the “DTW” weigh bridge”, we are providing a picture below of a system ready for consignment:

The following material is placed inside the packing of the weighing modules (bridges) of the “DTW” weigh bridge:

- Weighing bars with cables for connection of the weighing modules, 4 copper wires for each header weighing bars and 4 copper braids for each middle bar.
- Loading and unloading ramps (accessories, to be requested when placing orders).
- Protection traps of the support plates of the weighing modules of the first track (already installed).
- DINI ARGEO weight indicator (if requested as accessory when placing orders).
- Instruction manual (on CD or paper).
- Calibration certificate.
- In-house test certificate of the manufacturer (which will be used as a reference for periodic inspections/tests).
- EC declaration of conformity.

Before you commission the system, make sure the packing contains all the parts listed on the parts list/delivery documents and that the material has not been damaged during transport.

6.1.2 Transport

Thanks to its special features, the “DTW” weigh bridge is particularly easy to transport and handle. The considerably light weight of the modules making up the weigh bridge offers real savings in time and money because you do not need special equipment to transport the whole system.
Considering that the weight of each single module is about 650 kg, the modules can be easily loaded and unloaded on/from the means of transport using a normal forklift truck.

During transport of the “DTW” weigh bridge”, no parts of the system must be compressed from the top or sides by other loads. You must consequently not load material that is heavier than the platforms on top of the same so as not to overload the system.

CAUTION!!

They system must be transported and stored away with care, avoiding accidental impact and overloads.

6.1.3 Handling

Even if it is quite easy to handle the “DTW” weigh bridges” in view of the light weight of the modules, you must still be particularly careful whilst manoeuvring it, to avoid knocking it or dropping it, which could injure personnel and/or damage parts of the system.
The handling phases, such as loading, unloading and installation of the modules, can be carried out using suitable equipment, such as:

- Forklift truck.
- Crane.

All the manoeuvring methods of the DTW weigh bridge are ensured in greater safety thanks to the use of suitable lifting equipment.

6.1.3.1 Handling with a forklift truck

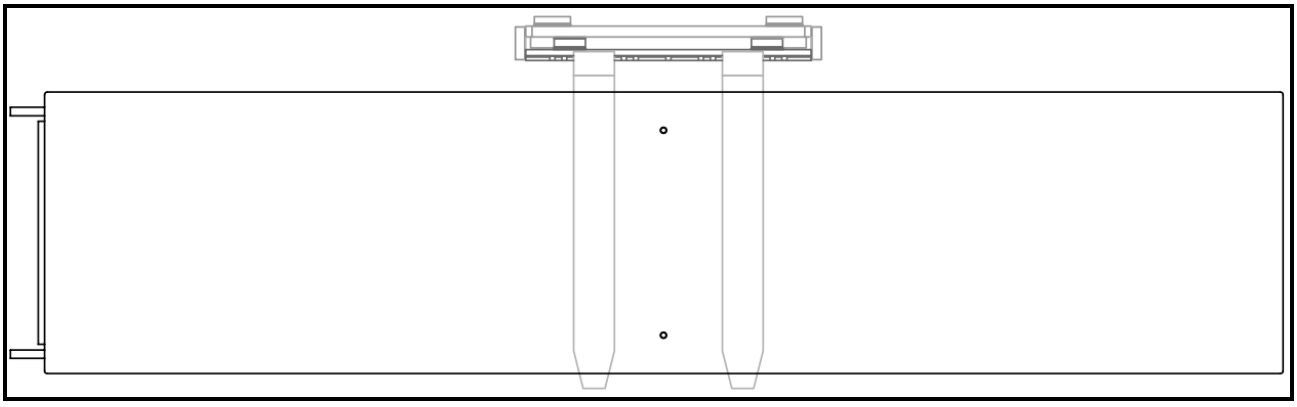
The use of a forklift truck to handle the “DTW” modules is a valid solution for commissioning the system, since it is simple and quick to install. It is used above all to install the modules on the elevated version of the weigh bridge.
Even so, the system must still be handled and manoeuvred with great care and caution.
To do this within the possible safety limits, you should observe the following instructions:

- Have the system manoeuvred exclusively by specialised personnel who have plenty of experience and are perfectly familiar with lifting equipment (forklift truck).
- Do not manoeuvre abruptly or with jerky and sudden movements, which could cause impact to parts of the system, or even cause them to fall.
- Drive at slow speed so the parts of the system are not knocked and do not fall.
- It is strictly forbidden to allow unauthorised personnel in the operational area.

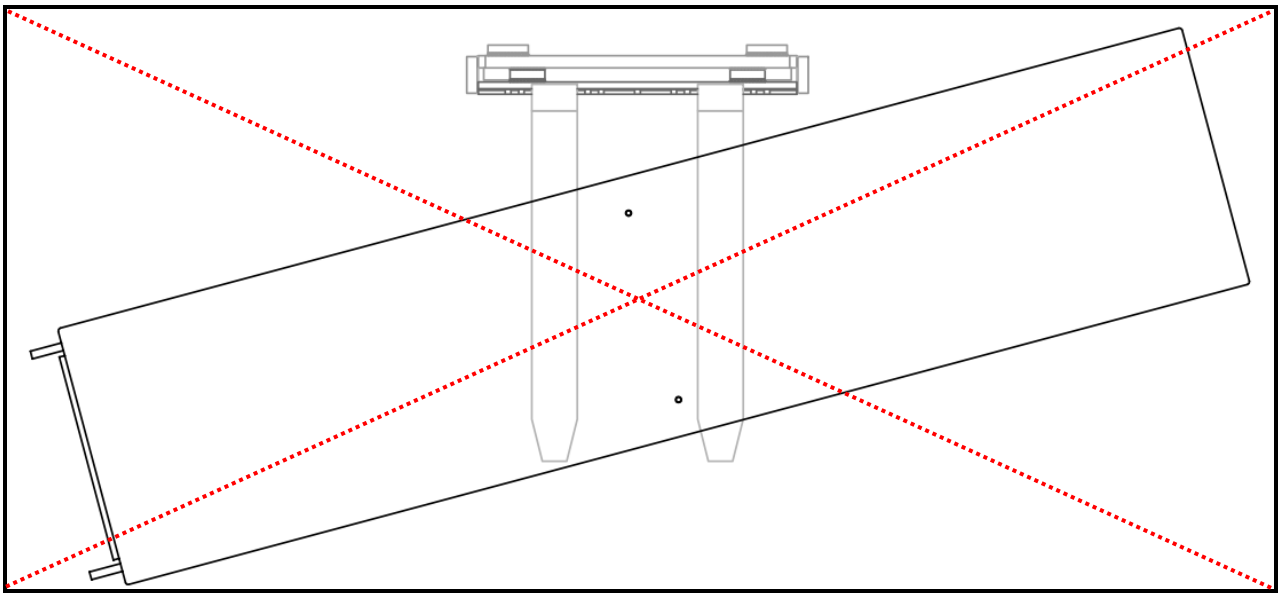
Dini Argeo is not liable for damages caused following procedures or situations that fail to comply with the provisions listed previously.

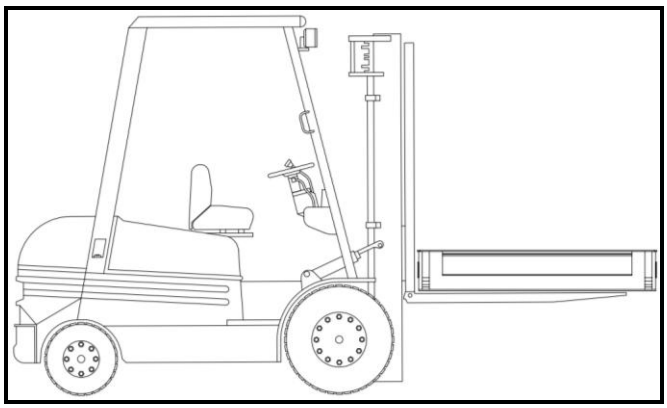
To better explain how to handle and manoeuvre the system using a forklift truck, we are providing some illustrations on how to arrange the components correctly whilst manoeuvring them.

CORRECT position of the module (bridge) on the forklift truck during handling procedures.

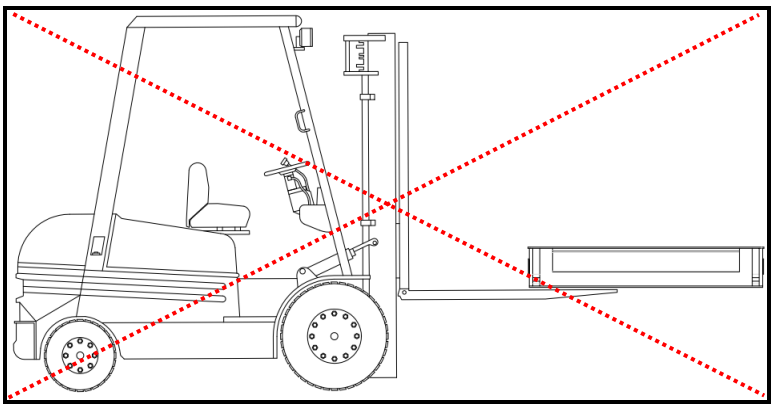


INCORRECT position of the module (bridge) on the forklift truck during handling procedures.





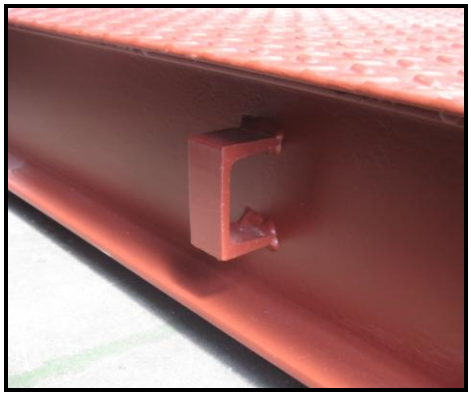
CORRECT position of the module (bridge) on the forklift truck during handling procedures.



INCORRECT position of the module (bridge) on the forklift truck during handling procedures.

6.1.3.2 Handling with a crane

As well as being able to handle the DTW modules using a forklift truck, they are also pre-arranged to be handled using a crane, gantry crane or similar lifting equipment. This type of procedure can be handily carried out thanks to the “side hooks” and/or “threaded holes” created to insert eyebolts.



Each module is pre-arranged with both lifting items, so that they offer various lifting solutions based on how the weigh bridge is to be installed.

7 EARTHING THE SYSTEM

To ground the system, the following material is provided:

- 4 copper wires, linked to the header weighing bars and 4 for each intermediate bar
- 1 ground wire (25 mm^2)length 650 mm for each weighing bridge;
- Bolts thread M8 and screws for fixing the weighing bars to the bridges.

GROUNDING OF EACH BAR

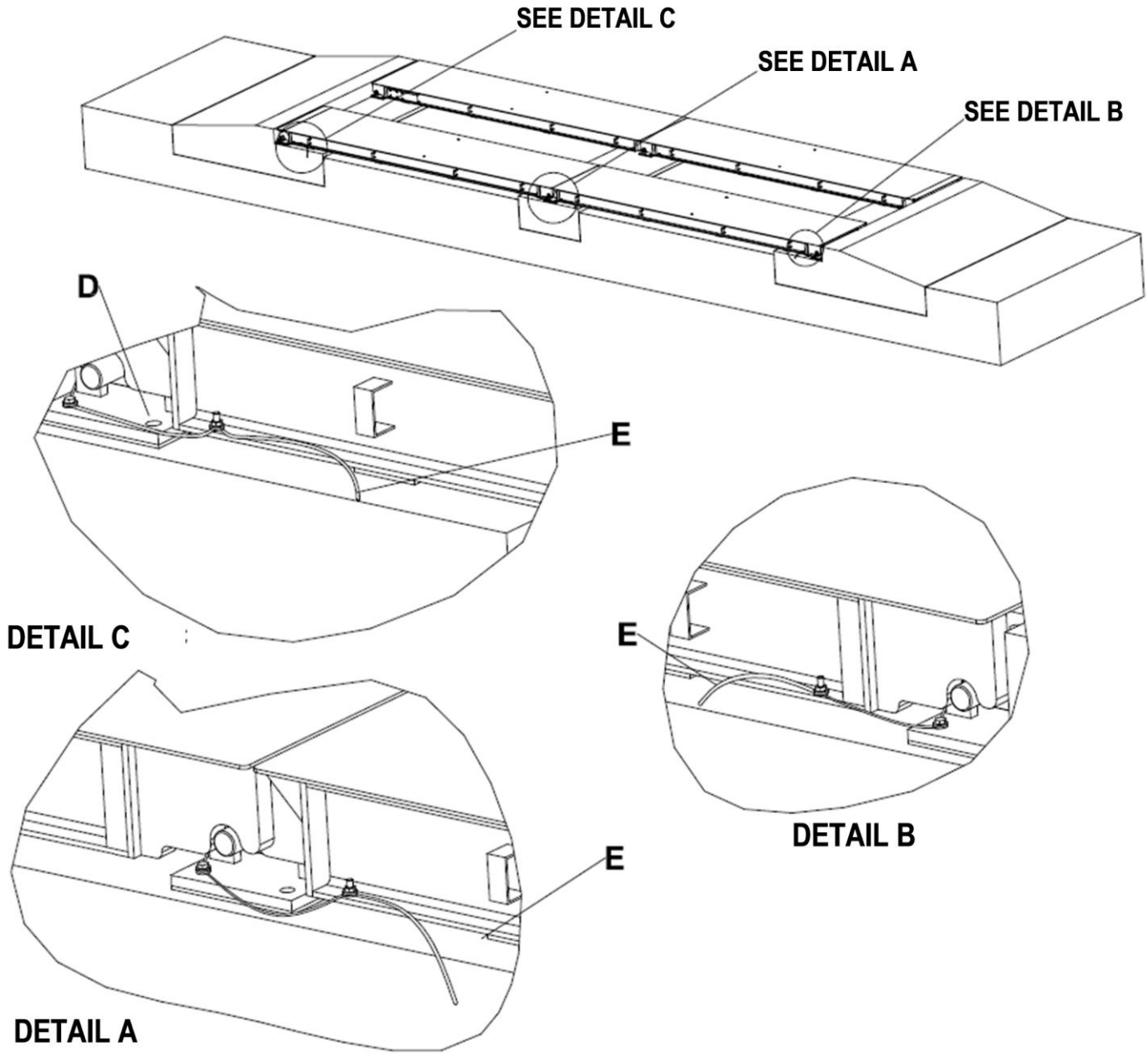
For a correct earthing system, connect the copper wires, already attached on the bars to the weighing bridges placed over them (See images below):

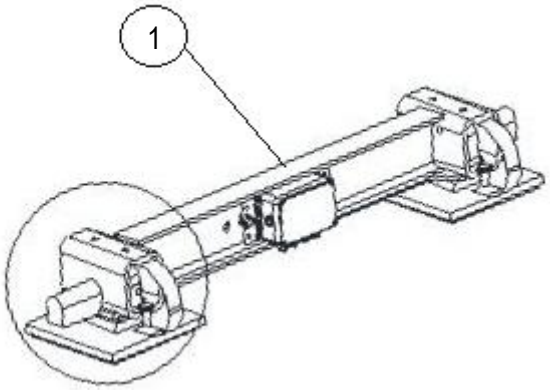
MOBILE PLATFORM ON THE FLOOR

After conecting the bars and the bridges through the wires present, the whole weighing system must be ground using the ground wires of 25 mm^2 supplied on each bridge. Connect them to a point of common ground and brought to the wells land, if presents, or to your ground system.
Evaluate whether to create a point of ground for the indicator, to be connected to the point of common ground of the platform.

FIXED PLATFORM ABOVEGROUND AND UNDERGROUND

After having properly connected the copper wires presents between the bars and bridges, must be ground all the weighing bars (with ground wires on each bridge), through wells and canalizations in the floor placed subtrack of the weighing system (See paragraph PERMANENT INSTALLATION OUT OF THE GROUND for drawings).
Connect all the wells with copper wire having section at least 50 mm2, and through canalizations bring all the cables from the foundations to sinks dedicated exclusively to the weighing system,





A, B, C, D - enlarged detail
D - connect all the bridges to the earthing network
E - earthing network

1 – Weighing bar

8 INSTALLATION ON THE FLOOR

NOTE: Both weighing modules must be connected to a dedicated weight indicator, via the cables leading out from both, following the instructions of the indicator.
The customer is responsible for preparing and calibrating the instrument. For detailed information, please refer to the technical manual of the instrument.

If the platform is supplied together with the instrument, the latter does not need to be calibrated.

8.1 INSTALLATION AND CONNECTION

NOTE: On the website ***www.diniargeo.com*** you will find further technical drawings (constantly updated) with instructions on how to assemble the whole weighing system correctly.

NOTE: Each weighing bar is marked with a reference code for its connection to the other bars and to the indicator (i.e. B1A, refers to weighing bar number 1, the one nearest the indicator, and that belongs to track A)

Proceed as follows to position the platforms:

a) To start with, position the weighing bar of track A, furthest away from the indicator, checking the code on the bar (i.e.: B3A) so that the cell cables face the inside of the loading surface; all the other bars will be positioned in the same way with the exception of the last two, those connected to the indicator, which must be positioned facing the opposite direction.
b) Arrange the weighing bar with the code previous to that just positioned (i.e. in a system of 3 weighing bars per track, after you have positioned bar B3A you will position bar B2A).
c) Position the loading surface on the bars making sure it sits correctly on them and being careful not to damage the connection cable while manoeuvring.
d) Connect the shielded cable of the bar positioned first (B3A) to that positioned second (B2A), making sure to secure the connection connector with some cable ties raised off the floor (for example, secure it to the outer lifting rings of the bridges).
e) Repeat points b), c) and d) until you have completely connected all the bars and installed all the loading surfaces of both tracks.
f) Position the loading/unloading ramps on the ends of the tracks, making sure they are flush with the platform and remembering to secure them to the floor with the dedicated securing holes.
g) Connect the two shielded cables to the indicator.

All the support plates of the weighing bars MUST REST UNIFORMLY. Carefully make sure all the supports offer the same resistance on the ground and that no loading surface, loaded in the corner, is unstable (if a corner does not touch, the loading surface will oscillated).

The first and the last weighing bar must be positioned with the cable outlet facing the bridge.

9 CALIBRATION

a) If the DTW system is supplied with the instrument, there is no need to calibrate it (skip points b), c), d) and e), otherwise follow the specific instructions of the indicator to commission and start-up the weighing device and also the following points b), c), d) and e)).

b) The instrument is to be calibrated approximately 15 minutes after it has been switched on.

c) Calibrate the electronic instrument following the instructions given in its technical manual.

d) Make sure the difference in the weights detected using a sample load (or a vehicle) on each bar does not exceed + / - 2 divisions, otherwise contact the VENDOR.

e) Check the Zero and Full scale values using a reference weight or a vehicle of known weight.

10 MAINTENANCE AND REPAIRS

All routine maintenance, inspections and lubrication in general are to be carried out with the machine stopped and disconnected from the power supplies (electricity and other) and exclusively by specialized personnel.
All maintenance and repair jobs are to be carried out exclusively by specialised personnel. It is obligatory to disconnect the power supply on the electronic terminal before starting any work on the platform.
Do not weld any part of the platform.

WARNING!!

By “specialized personnel” we mean personnel who through proven training and professional experience are explicitly authorized by the “person in charge of the system’s safety” to install, use and service the instrument.

TO ENSURE LASTING OPTIMUM PERFORMANCE

- Keep the platform clean. If dirt and dust should build up on it, clean using a damp rag or rag and normal cleaning products (**do not use SOLVENTS and ACIDS**).

- Avoid impact against the platform as this could cause serious damages.

11 FAULTS AND OVERLOADS

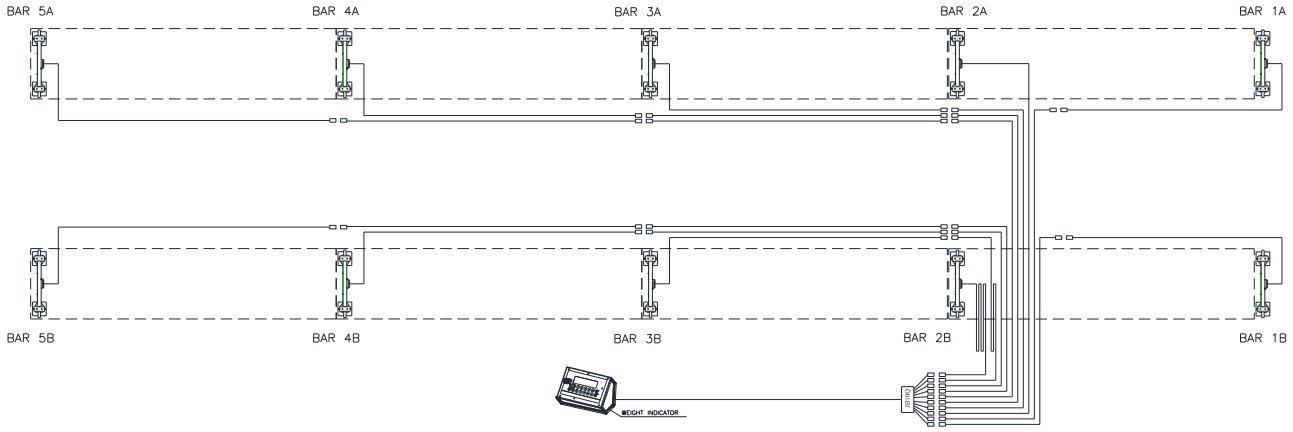
If you believe that the platform is faulty or damaged, disconnect it permanently, especially in the following cases:
a) If the platform shows signs of damage.
b) If the platform stops working.
c) If the platform has been overloaded beyond tolerable limits.

12 TRANSPORTING THE PLATFORM

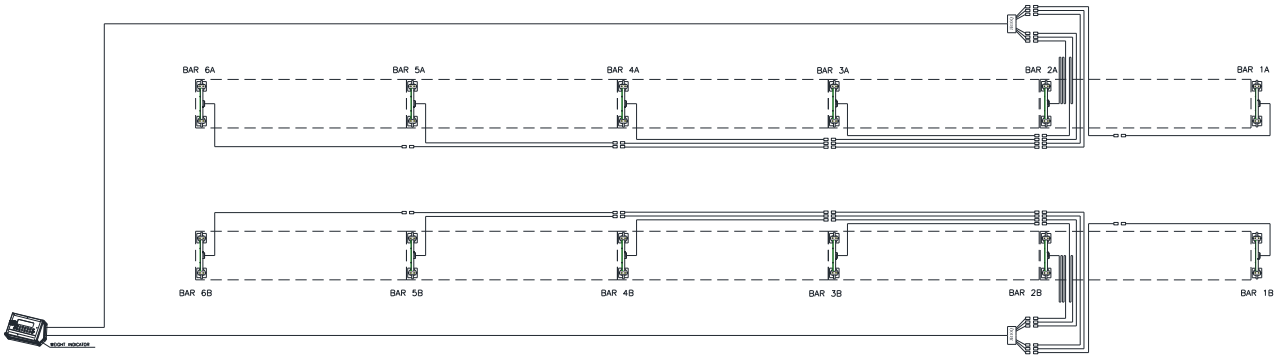
Proceed as follows to pack the platform:
a) Switch the instrument off.
b) Disconnect the instrument form the platform.
c) Raise all the loading surfaces, in the reverse way to installation.
d) Disconnect and remove all the weighing bars, packing them suitably and being particularly careful to protect the connection cables.

13 INSTALLATION

13.1 INSTALLATION ON THE FLOOR

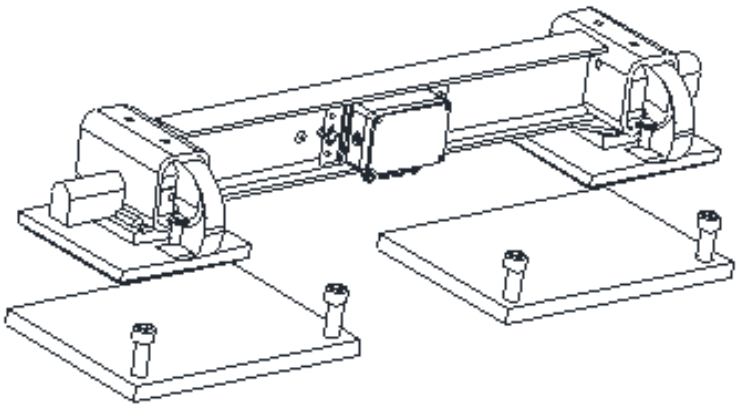


It's necessary to connect the weighing bars cables to the junction box, using 8m specific extensions:
The 2A and 2B bars do not need extensions, instead the 1A, 1B, 3A and 3B bars each require an extension, the 4A and 4B bars require two extensions and so on.



In the case of 22 meters platforms with12 weighing bars it's necessary use 2 junction boxes, connected in parallel into the indicator.

In case of use of reinforced ramps (220mm) is necessary to use galvanized plates supplied with the ramps. Below you can find a drawing of installation. After the installation of the plates is necessary to screw it to the ground. After that is possible to palce the DTW weighing bar above the plates.



13.2 PERMANENT INSTALLATION OUT OF THE GROUND

If you want information and drawings for permanent installation out of the ground, please send an e-mail to to info@diniargeo.com or visit our website www.diniargeo.com

DECLARATION OF CONFORMITY

This device complies with the essential standards and other pertinent standards of applicable European regulations. The Declaration of Conformity is available on the Website www.diniargeo.com.

WARRANTY

The warranty is valid for TWO YEARS from date of consignment of the instrument and covers free of charge labour and spare parts for INSTRUMENTS RETURNED AT THE CUSTOMER'S CHARGE to the VENDOR'S PREMISES and for faults that are NOT attributable to the customer (for example, improper use) and that have NOT been caused during transport.

If, for any reason, the repair work is requested (or necessary) at the actual workplace, the customer will be charged for the transfer expenses of the technician: travelling time and expenses and possibly board and lodging.

If the instrument is consigned by courier, the transport expenses (there and back) will be charged to the customer.

The WARRANTY IS ANNULLED if the faults are due to unauthorised personnel using the weigh bridge or due to connection to equipment installed by others or due to the incorrect connection to the power supply mains.

Indemnity is EXCLUDED with regard to direct or indirect damages caused by the customer following failed or partial operation of the instruments or systems sold, even during the warranty period.

STAMP OF THE AUTHORISED SERVICE CENTRE