



Read this instruction manual before using the electric stair climbing trolley



Electric stair climbing trolley

DOMINO

Use and maintenance manual

ZONZINI S.r.l.

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(ORIGINAL INSTRUCTIONS)



Read this manual before use

You must read this instruction manual before using the stair climbing trolley. The efficiency and safety of the ZONZINI stair climbing trolley can be guaranteed only when all the instructions in this manual are observed.

We guarantee that the ZONZINI stair climbing trolley complies with the technical specifications and instructions in the Manual on its date of issue shown on this page; future changes, even significant ones, may be made to the ZONZINI trolley without the Manual being updated. Refer to ZONZINI S.r.l. for information on any changes made.



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PREFACE

1.1 General Information

This manual forms an integral and essential part of the ZONZINI stair climbing trolley and must be delivered to the user.

The users must read and understand the instructions below before commissioning the product.

The manufacturer cannot be held liable for physical injury and/or damage to objects or to the stair climbing trolley when it is used without following the instructions.

The Manufacturer reserves the right to make changes to the **ZONZINI** stair climbing trolley in keeping with technical developments, without notice and without automatically updating this manual.

1.1.1 Looking after the manual

The User Manual forms an integral part of the stair climbing trolley; it must, therefore, be kept in perfect condition and in a safe place at all times. This manual must always be available for consultation.


1.1.2 Manufacturer and Assistance Service


If you have any difficulties or queries, please contact our Assistance Service which has a team of qualified and specialised personnel, specific equipment and original spare parts at its disposal.

ZONZINI S.r.l.

Via Don Luigi Sturzo, 8 – 37052 Casaleone (VR)

 +39 0442 330421

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 info@zonzini.it

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1.2 Graphic representation of the safety warnings

The following graphic symbols are used to identify the safety messages in this manual. These serve the purpose of drawing the attention of the reader / user to ensure **correct** and **safe** use of the stair climbing trolley.



CAUTION

Indicates how to avoid damaging the ZONZINI stair climbing trolley and/or the occurrence of dangerous situations.



RESIDUAL RISKS

Indicates the danger of any residual risks with which the user must be familiar in order to avoid accidents or damage to the materials.

2 SAFETY WARNINGS

2.1 Main safety standards



ATTENTION!

USING THE ZONZINI STAIR CLIMBING TROLLEY

Each user must first read the instruction manual, and the chapter on safety in particular.



ATTENTION!

RISKS ASSOCIATED WITH USE OF THE ZONZINI STAIR CLIMBING TROLLEY

- Although the ZONZINI stair climbing trolley is fitted with safety devices, it is important to observe all the accident prevention rules in this manual in order to ensure safe use of the product.
- Always pay full attention when operating the stair climbing trolley and NEVER underestimate the residual risks associated with it.

You must observe the instructions in this manual and all other general precautions when operating a motor-powered device, even if you are already familiar with the use of electric trolleys. In particular:

- Familiarise yourself with all the aspects of the stair climbing trolley.
- Read the manual with care to familiarise yourself with operation, the safety devices and all the precautions required to ensure correct use.
- Keep the stair climbing trolley in good condition.

2.2 Responsibilities

The Manufacturer cannot be held in any way liable if the user fails to observe the operating instructions and safety rules in this manual. If the ZONZINI stair climbing trolley is serviced not in compliance with the instructions provided, using non-original spare parts, or in a manner that can compromise the condition or original features of the product, the Manufacturer cannot be held responsible for the safety of people and the defective operation of the stair climbing trolley.

**ATTENTION!****NOISE LEVELS AND DEFECTIVE OPERATION**

Stop the stair climbing trolley immediately if it makes any unusual noises or appears to be defective.

Perform a functional test as instructed in this manual and contact the Assistance Service if necessary.

You are advised to contact the Assistance Service directly if you require any information that is not provided in or that cannot be inferred from this manual.

2.3 Warnings for users

1. Do not load people or animals on the stair climbing trolley.
2. Do not load objects on the trolley that exceed the maximum permitted weight.
3. Do not operate the stair climbing trolley under the influence of alcohol or narcotics.
4. Do not use portable communication devices, like CBs or mobile phones, when steering, because both hands must be kept on the control handle.
5. Do not attempt to ascend stairs with the load facing the stairs.
6. Do not circulate on open roads where there is vehicular traffic.
7. Preferably do not use when it is raining.
8. Do not use the stair climbing trolley when the battery is not sufficiently charged to power the trolley all the way.
9. Do not attempt to ascend the stairs without having first strapped the load to the trolley.
10. Do not ascend the stairs with the wheels used for flat surfaces assembled on the trolley.
11. When using the crawler track trolley, the operator must always remain in the control position, i.e. in front of the control handle.
12. Do not stop suddenly, make sharp turns or travel in a zig-zag formation.
13. Do not over-exert the stair climbing trolley.
14. Never drive the stair climbing trolley with parts of it disassembled.
15. Replace any worn and/or damaged parts and check that the protective devices and controls work correctly before use.
16. It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.

2.4 Obligations for operators



ATTENTION!

USE OF THE TROLLEY

The trolley must only be used by one operator at a time. The operator must be qualified and trained in its use and have the physical ability to control the trolley easily when it is fully laden. The trolley **MUST NOT** be operated by children or people who are not physically able to do so.

2.4.1 Personal protective equipment

The operators who use and service the crawler track trolley must always use personal protective equipment like:

- scratch and cut-resistant gloves;
- safety footwear with steel toes and anti-slip soles;
- securely fastened overalls or work clothes with close-fitting sleeves. Refer to the pictograms below.



The personal protective equipment allows operators to work safely and to greatly minimise the residual risks that could not be eliminated during the design and construction of the machine.

The anti-crush gloves, safety footwear, coveralls and work clothing:

- must comply with the safety standards;
- must be of the right size to ensure that they cannot get in the way or get caught in the mechanisms;
- must be correctly worn and fastened to prevent them from slipping;
- must be replaced with new ones when worn or torn.

Maintenance warnings

1. All maintenance must be carried out with the battery disconnected from the trolley.
2. Operators must use the necessary safety equipment when performing maintenance.
3. The tools used for maintenance must be suitable and of good quality.
4. Do not use fuel or flammable solvents as detergents. Use only non-flammable and non-toxic solvents.
5. Limit the use of compressed air as much as possible (2 bar max) and wear goggles with side protections to protect your eyes.
6. Never use naked flames as a source of light when performing checks or maintenance.
7. After performing any maintenance or checks, make sure that there are no tools or foreign bodies between the moving parts of the stair climbing trolley.
8. Do not attempt to open or tamper with the battery package of the crawler track trolley. If the battery package needs to be replaced, contact the ZONZINI S.r.l. assistance service.



ORIGINAL SPARE PARTS

Use only original ZONZINI spare parts.

The Manufacturer cannot be held responsible for any damage or decline in efficiency due to the use of non-original accessories and parts.

2.5 Other provisions

Always check that the protective devices are fitted and in good condition and that the safety devices work properly before using the trolley.

Do not use the stair climbing trolley if you notice any defects!



GUARDS

It is strictly prohibited, therefore, to modify or remove the guards, controls, labels and data plates.

3 DESCRIPTION OF THE STAIR CLIMBING TROLLEY

3.1 Identification plates

Check that the identification plate on the stair climbing trolley is perfectly legible. If it is not, request a new plate from ZONZINI S.r.l. and put this in the place of the old one.

3.1.1 CE marking

The CE plate on the ZONZINI stair climbing trolley bears the following data:

- CE marking;
- Corporate name and address of the manufacturer;
- Model;
- Serial number;
- Year of manufacture;
- Maximum load-bearing capacity (kg).

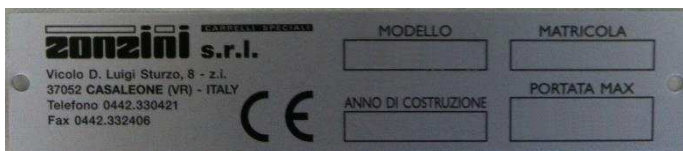


Figure 1 - Machine identification plate

3.2 Declaration of conformity

In addition to the identification plate, the ZONZINI stair climbing trolley comes with a Declaration of Conformity.

ZONZINI S.r.l.

DICHIARAZIONE DI CONFORMITA' UE UE DECLARATION OF CONFORMITY

Nome del fabbricante: Zonzini S.r.l.

Manufacturer name: Zonzini S.r.l.

Indirizzo: Via don Luigi Sturzo, 8, 37052 Casaleone - Verona (VR) - Italia

Address: Via don Luigi Sturzo, 8, 37052 Casaleone - Verona (VR) - Italy

Nome della persona autorizzata alla compilazione e archiviazione del fascicolo tecnico:

Name of the person authorized to compile the technical file:

dichiara che l'oggetto della dichiarazione è il prodotto: Saliscala

declare that the object of the declaration is the product: Stair-climber

Modello: DOMINO AUTOMATIC

Model:

è conforme ai requisiti essenziali della Direttiva Comunitaria Macchine 2006/42/CE, Compatibilità Elettromagnetica 2014/30/UE e sui rifiuti di apparecchiature elettriche ed elettroniche 2012/19/UE applicabili al prodotto. Inoltre, l'oggetto della dichiarazione di cui sopra, è conforme alle pertinenti normative di armonizzazione dell'Unione:

conforms to essential requirement according to Directive Machinery 2006/42/EC, Electromagnetic Compatibility 2014/30/EU, Waste electrical and electronic equipment Directive 2012/19/EU applicable to this product. In addition, the object of the declaration described above, is in conformity with the relevant Union harmonization legislation:

EN ISO 12100:2010, EN 60204-1:2006 + A1:2009 + AC:2010

EN 61000-6-2:2005 + AC:2005, EN 61000-6-3:2007 + A1:2011 + AC:2012, EN ISO 3691-5:2015

La presente dichiarazione di conformità è rilasciata sotto responsabilità esclusiva del fabbricante.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Informazioni supplementari:

Additional information:

Identificazione e firma della persona autorizzata alla redazione della dichiarazione:

Identity and signature of the person empowered to draw up the declaration:

Luogo e data

Place and date information

Firma e timbro

Signature and stamp

Figure 2: FAC-SIMILE Declaration of EU Conformity.



3.3 Technical data sheet

Manufacturer	ZONZINI S.r.l.
Type	Stair climbing trolley
Model	DOMINO
Overall length (mm)	950
Length of the load surface (mm)	633
Overall width (mm)	536
Width of the load surface (mm)	500
Length of the crawler track support (mm)	770
Maximum overall height (mm)	1142
Maximum height of the handle above the ground (mm)	1590
Minimum height of the handle above the ground (mm)	1070
Maximum height of the back support of the load surface (mm)	1384
Minimum height of the back support of the load surface (mm)	867
Height of the load surface above the ground (mm)	132
Maximum negotiable height of the first step (mm)	225
Weight without battery (kg)	79
Weight of lead/gel battery (kg)	17
Load-bearing capacity (kg)**	160 / 300 / 400
Dimensions of the wheels	200 / 50
Battery life (minutes)	40
Battery charging time (h)	5/6
Battery voltage / power (V / Ah)	24 _{DC} / 20
Battery charger voltage / output current (V / A)	24 _{DC} / 4
Input voltage / frequency (V / Hz)	110/240 - 50/60
Equivalent continuous A-weighted sound pressure level at operator station (dB(A))	73
Hand-arm vibration level (m/s)	< 2.5

1 The noise level was calculated in compliance with EN ISO 11201:2010 (technical design procedure) When Normal distribution applies, the expanded uncertainty is estimated at $U(L_p) = 3 \text{ dB(A)}$ with a coverage factor of $k = 2$, corresponding to a confidence interval of 95%.

** Refer to the data on the identification plate of your trolley.

The device is able to work properly at altitudes till 1000 meters above sea level.

The device is able to withstand the effects of transport and storage temperature, ranging in the range of -25 degrees Celsius and 55 degrees Celsius and, for short periods of no more than 24 hours, up to 70 degrees Celsius.

3.4 General description

The ZONZINI stair climbing trolley is a transport device designed and constructed to facilitate the transport of heavy and bulky objects up and down all types of stairs, exploiting the properties of the crawler tracks.

It must be used only in areas where there is no vehicular traffic: it is not intended for use on public roads because it does not fit the description of a "vehicle" provided in Article 46 of the Highway Code.

The transport device is formed of the following main parts:

- Supporting frame of the trolley, on which the crawler tracks and electric traction motors are installed;
- Tilting load surface with piston powered by the battery of the machine;
- The control handle, which can be height-adjusted or removed for transporting the trolley with ease;
- The control console of the trolley, at the top of the control handle;
- The removable battery package;
- The battery charger;
- Wheels for moving the trolley on a level surface, with or without a load.

The crawler tracks on the trolley are designed to allow the trolley to move in all directions and on most types of stairs.

The trolley must move up the stairs in reverse, i.e. with the control handle facing the first step of the staircase to be ascended, in order to make the most of the specific rear angle of the crawler tracks designed to simplify the transport of loads up stairs. During ascent, the load surface of the trolley can be tilted to keep the load perpendicular with the ground - essential for certain categories of products or electrical appliances that should not be tilted at an excessive angle during transport.

If there is a fault with the trolley, or the batteries run down, the two wheels can be fitted to move the trolley manually and with ease on flat surfaces.

3.4.1 View of the assembled stair climbing

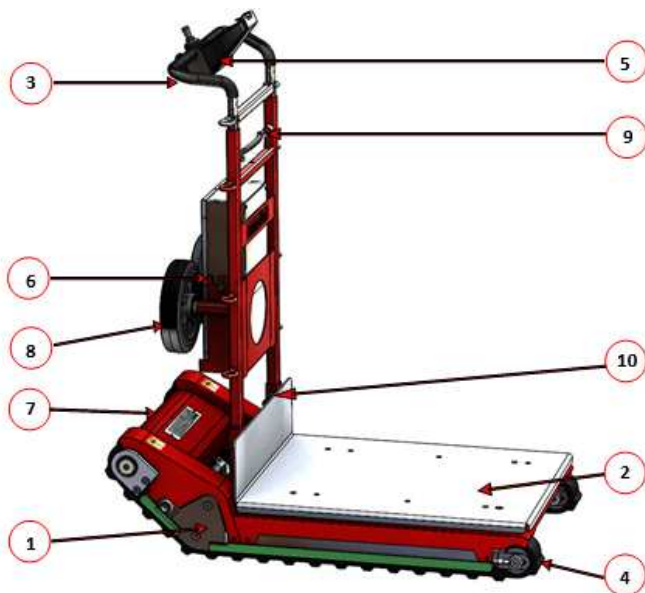


Figure 3 - Main components of the DOMINO stair climbing trolley.

Ref.	Description	Ref.	Description
1	Main frame	6	Battery package
2	Tilting load surface	7	Motor guard
3	Control handle	8	Wheels for moving the trolley manually on flat surfaces
4	Crawler tracks	9	Locking pins for adjusting the height of the control handle
5	Control console and joystick	10	Pins for securing the control handle and battery package



INCORRECT AND UNINTENDED USE

The stair climbing trolley was designed and produced for a specific purpose. Any other use and failure to observe the technical parameters set by the Manufacturer (ZONZINI) can put the user at risk.

3.5 Description of the controls

The control console for starting and controlling the stair climbing trolley has: a screen that displays battery charge status and trolley operating status; the start button; the proportional joystick for moving the trolley in all directions; a button for switching between travel mode and load surface tilting mode; and a button for the audible warning device. The control console is fitted at the top of the control handle, allowing you to control the trolley while always keeping one hand on the control handle.

The control console is connected to the electrical circuit of the trolley by means of a cable and a connector.

The control system is comprised of a joystick for steering and controlling travel of the trolley in both directions.

The trolley travels in the same direction in which the joystick is moved, i.e. moving the joystick forward moves the trolley forward, and vice-versa.

The trolley also moves as fast as the joystick is moved in the desired direction, up to the maximum permitted speed of the stair climbing trolley.

To slow down and stop the trolley, you simply need to release the joystick and it automatically moves back to its central position, stopping the trolley. Pressing the work mode button (ref. 12 in Figure 4) switches between travel mode and load surface tilting mode.

To tilt the load surface, simply move the joystick forward and backward. Moving the joystick to the left or right while tilting the load surface automatically switches to travel mode.

3.5.1 View of the control console



Figure 4 - Control console of the DOMINO stair climbing trolley.

11 - Display: Battery indicator and programming indicator.
12 - M button enables manual function for modifying payload inclination. Use the joystick to modify.
13 – Joystick. It enables rubber tracks function and payload inclination.
14 – ON/OFF button.
15 – Acoustic beep.
16 – Both white arrows have no function. For programming use only. End user disabled.
17 – Automatic mode ON/OFF. Please see page 57 for more details.
18 – Both blue arrows have no function. For programming use only. End user disabled.

3.5.2 Use of the controls

The control console is for operating the stair climbing trolley.

It regulates the amount of power channelled from the battery to the electric motors for moving the trolley.

The electronic control console allows you to turn the trolley on and off and to move it; to monitor battery charge status; and to control the functions of the electronic control system and the condition of the electrical system.

The control console is comprised of an integrated electronic controller.

All the electronic parts for operating the trolley are housed in a single module.

Joystick _ the joystick is for controlling the direction and speed of the stair climbing trolley.

Moving the joystick out of its central, neutral position also moves the trolley.

The speed of the trolley increases the further the joystick is moved out of its neutral position (proportional control).

Releasing the joystick to let it return to its neutral position stops the trolley.

The trolley moves in the same direction in which the joystick is moved.

For example:

joystick forward	→ movement forward
joystick backward	→ movement backward
joystick forward to the right	→ movement forward to the right
joystick backward to the left	→ movement backward to the left
joystick to the left	→ rotation to the left
joystick to the right	→ rotation to the right



USE OF THE JOYSTICK

Remember to adjust the maximum permitted speed according to steering capacity, the type of stairs concerned, and the load on the trolley.

If the trolley moves in an unexpected manner, release the joystick immediately to stop the trolley almost instantly. If the joystick is damaged and the trolley does not stop, immediately press the Off button.

On/Off button _ the on/off button, with the green symbol, allows you to turn the stair climbing trolley on and off.



Figure 5 - On/Off button

Display _ The control console of the trolley has a screen that displays key information on use of the stair climbing trolley. In particular, it displays the battery charge status and when the battery needs to be charged up, and the trolley work mode (travel/tilting of the load surface).



In this mode, the screen indicates the battery charge status.

In this mode, the screen indicates that the load surface can be tilted.

Figure 6 - Screen on the control console of the DOMINO trolley.

N.B. The battery is fully charged when the black lines reach the very top of the battery icon on the screen of the control panel.

Work mode button _ This button is for switching the work mode of the stair climbing trolley. The trolley enters travel mode when turned on. If you press the button, a chair symbol appears on the screen of the control console indicating that you have switched to load surface tilting mode. Moving the joystick to the left or right in load surface tilting mode automatically switches the trolley back to travel mode.

Audible warning device button _ the audible warning device is triggered for as long as you hold down the red button.



Figure 7 - Work mode button.



Figure 8 - Audible warning device button.

Power supply and battery charging connector _ the connector for supplying power to the electric motors of the stair climbing trolley is the same for connecting the battery package to the battery charger provided with the trolley. To charge the battery of the trolley, simply disconnect the battery package from the connector of the trolley; connect the battery package to the connector of the battery charger; and plug the battery charger into a 230V_{AC} power socket.



Figure 9 - Connector for supplying power to the motors and charging the battery

Battery charger _ two different types of battery charger can be provided with the stair climbing trolley: one for charging lead gel batteries (red connector), and one for charging lithium batteries (grey connector).

Below are the status modes of the battery charger.

LEAD GEL BATTERY CHARGER

Steady red light Battery empty

Steady yellow light Battery charging

Steady green light Battery fully charged

Blinking red or yellow light - Charging fault

**ATTENTION!****CHARGING THE BATTERIES**

- Use only the battery chargers provided with the trolley to charge the batteries.
- Disconnect the battery charger as soon as the batteries are fully charged or, at any rate, no more than two hours afterwards.

**LEAD GEL BATTERY CHARGER**

3.6 Safety equipment

3.6.1 Guards and protective devices

The stair climbing trolley has been designed to minimise the risk of crushing between the moving parts of the trolley.

All the potentially hazardous parts of the trolley, like the electric motors, crawler tracks, pulleys, etc. are fitted with fixed guards and devices to guarantee that limbs cannot get crushed between these moving parts.



Figure 11 - Guards and protective devices of the DOMINO stairclimbing trolley.

3.6.2 Warning pictograms

The following warning and caution pictograms are on the stair climbing trolley.

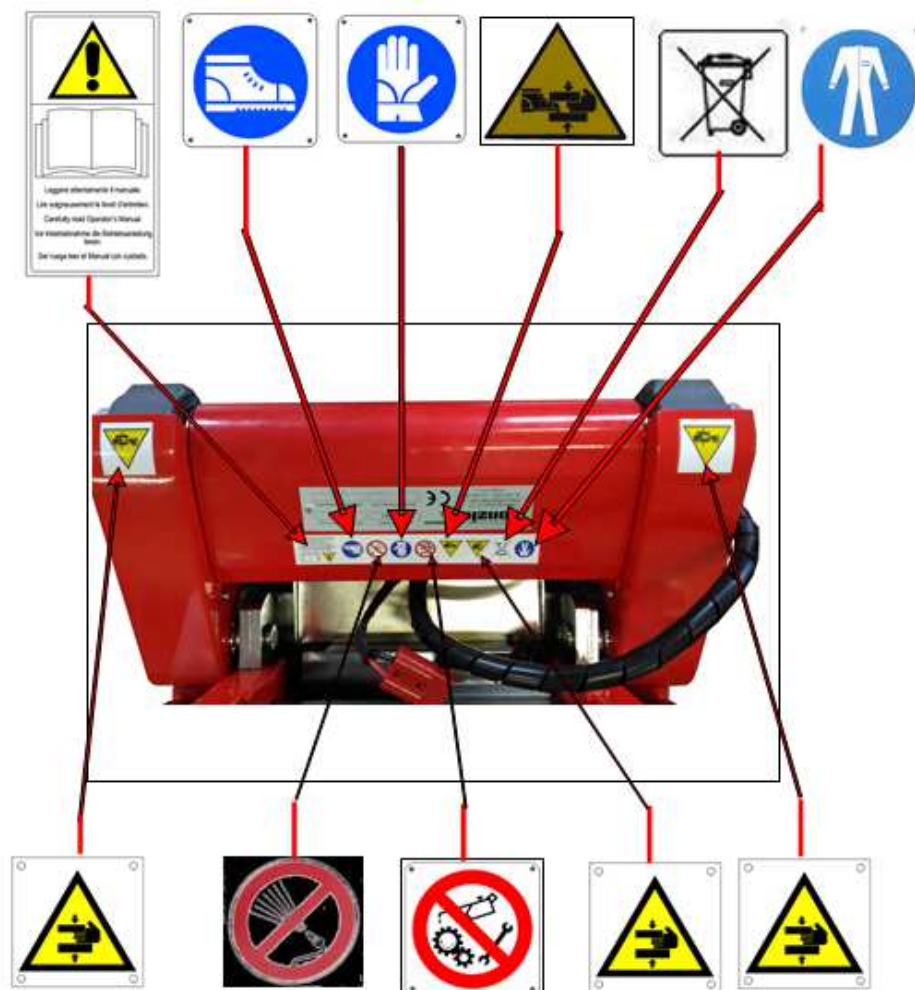


Figure 12 - Pictograms on the DOMINO stair climbing trolley

 <p>IL PACCO BATTERIE IMPORTANTE</p>	 <p>BATTERY PACKAGE IMPORTANT</p>
<p>1) Ricaricare il pacco batterie dopo ogni utilizzo. 2) NON attendere che il pacco batterie si scarichi completamente prima di ricaricarlo.</p>	<p>1) Charge the battery package after every use. 2) DO NOT wait that the battery is totally flat before charging it.</p>
 <p>CAJA DE BATERIAS IMPORTANTE</p>	 <p>BATTERIEBOX ACHTUNG</p>
<p>1) Recargar la caja de baterías después de cada utilización. 2) NO esperar que la caja de baterías se descargue por completo antes de recargarla.</p>	<p>1) Laden Sie die Batterie nach jederBenutzung auf. 2) Warten Sie NICHT darauf, dass die Batterie ganz leer ist, bevor sie wieder aufladen.</p>



Figure 13 - Pictograms on the DOMINO stair climbing trolley

3.6.3 LEAD GEL battery compartment

The LEAD GEL battery is fitted in a metal compartment sealed with rivets that can be removed only by destroying them.

The battery compartment is tamper-proof and prevents projection towards the operator of fragments of the battery in the event that it overheats and explodes.



Figure 14 - Lead gel battery package of the DOMINO stair climbing

3.6.4 Audible warning device

The stair climbing trolley has an audible warning device which the operator can use to warn people of the presence of the trolley.

4 INTENDED CONDITIONS OF USE AND ENVIRONMENT

4.1.1 Intended use

The ZONZINI stair climbing trolley was designed and constructed to facilitate the transport of heavy and bulky objects up and down all types of stairs, exploiting the properties of the crawler tracks.

It must be used only in areas where there is no vehicular traffic: it is not intended for use on public roads because it does not fit the description of a "vehicle" provided in Article 46 of the Highway Code.

Any changes made to the structure could compromise the use, safety and stability of the ZONZINI stair climbing trolley and cause accidents.

All uses other than the intended one are not permitted and the Manufacturer cannot be held in any way responsible for damage caused as a result.

4.1.2 Environment

The ZONZINI stair climbing trolley can also be used outdoors when there are no adverse weather conditions (rain, hail, snow, strong winds, etc.):

- Maximum permitted temperature: +40 °C
- Minimum permitted temperature: -10 °C
- Maximum permitted humidity: 90%

The stair climbing trolley can be used in complete safety on a variety of surfaces thanks to the traction of the rubber crawler tracks. In particular, the trolley can be used to easily transport loads on flat surfaces at an angle.

Be careful on rough or uneven ground, on cobbles, etc. which can damage the base of the trolley or the mechanical parts like the actuator of the tilting surface or the crawler tracks.

Another thing to avoid when using the trolley is crossing waterways or pools of water which could damage the electrical parts of the stair climbing trolley.

The place of use must also be well lit, by the sun or with artificial lighting, to guarantee complete visibility of the path ahead and of the controls of the ZONZINI stair climbing trolley.

It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.



ATTENTION!

ENVIRONMENTS TO BE AVOIDED

The ZONZINI stair climbing trolley must not be used:

- in areas where there is a risk of fire or explosion;
- in environments where there is a corrosive and/or chemically active atmosphere;
- in poorly lit environments;
- on surfaces at a gradient of more than 10°;
- on unpaved, uneven ground, or soft, irregular surfaces like grass and clay.

4.1.3 Improper uses and counterindications.

The actions described below, which obviously cannot include all possible instances of "improper use" of the stair climbing trolley, are **strictly prohibited**.



ATTENTION!

PROHIBITED ACTIONS

- The warranty is terminated if any of the prohibited actions are performed.
- The Manufacturer cannot assume any responsibility for damage and physical injury attributable to prohibited actions.



DANGER!

IT IS STRICTLY PROHIBITED

- To put the stair climbing trolley to any uses other than the one intended, i.e. the transport of loads on flat surfaces and stairs. To put the stair climbing trolley to heavier than intended uses.
- To exceed the maximum weight-bearing capacity of the stair climbing trolley indicated on the identification plate.
- To use the trolley in areas where there is a risk of explosion.
- To use the trolley in poor weather conditions (heavy rain, hail, snow, strong winds, etc.).
- To load people or animals on the stair climbing trolley.
- To attempt to load objects that are very bulky, fragile, not in safety containers, stacked or loose or arranged in a manner that could put the operator at risk.

**IT IS STRICTLY PROHIBITED**

- To operate the stair climbing trolley under the influence of alcohol or narcotics.
- To use portable communication devices like CBs or mobile phones when moving the stair climbing trolley.
- To use the stair climbing trolley on roads where there is vehicular traffic.
- To use the stair climbing trolley on surfaces or stairs that are icy, wet, slimy or slippery.
- To reverse without checking for obstacles.
- To use the stair climbing trolley on surfaces or stairs that cannot ensure safety due to their weight-bearing capacity or dimensions, or due to the size and weight of the load.
N.B. Refer to an expert technician to assess the possibility of using the stair climbing trolley on any such surfaces or stairs.
- To stop suddenly, make sharp turns or travel in a zig-zag formation.
- To let go of the control handle of the stair climbing trolley on stairs.
- To steer the stair climbing trolley with its parts disassembled.
- To charge the battery in an area that is too hot or poorly ventilated.
- To cover the battery or trolley while the battery is charging.
- To smoke or use naked flames near the charging area.
- To perform any maintenance with the battery still connected.
- To use non-original spare parts.
- To insert limbs or fingers between the moving parts of the stair climbing trolley.
- To transport loads not properly strapped down on the trolley.
- It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.
- **DO NOT ABANDON** the machine loaded or unloaded on stairs.
- The use of the device in the ATEX environment is prohibited.

5 LIFTING AND TRANSPORT

5.1 Lifting

The ZONZINI stair climbing trolley weighs about 79 kg without the battery package.



CRUSHING AND IMPACT

Lift the stair climbing trolley with care to avoid physical injury and damage.

The Manufacturer cannot be held liable for damage attributable to lifting and/or transport of the ZONZINI stair climbing trolley after delivery.

5.2 Handling the unladen trolley

The stair climbing trolley has two solid wheels which can be fitted on the trolley at will to facilitate transport on flat surfaces and to avoid running down the battery.

Fit the wheels on the stair climbing trolley as follows:

1. Remove the wheels one at a time from the control handle of the stair climbing trolley, pressing the button at the centre of the wheel and pulling it outwards (as shown in the picture below).



Figure 15 - Removing the wheels.

2. Fit the wheels in the holes at the sides of the trolley, making sure they fit all the way in (as shown in the pictures below).
3. To remove the wheels from the stair climbing trolley, press the central button and slide off the wheel, and then insert it on the relative support on the control handle.



Figure 16 - Inserting the wheels on the DOMINO stair climbing trolley.



Figure 17 - Wheels correctly fitted on the DOMINO stair climbing trolley.



ATTENTION!

WHEELS

- Do not attempt to ascend stairs with the wheels fitted on the trolley because they are not designed for this purpose.
- Do not attempt to ascend stairs without removing the wheels on the trolley otherwise the load could topple over.

5.3 Transport

The stair climbing trolley must be secured to ensure its safety when transported in a van. It should be secured with straps or cords that are in good condition.

The fastening devices must be fitted making sure not to damage the frame and other parts of the stair climbing trolley.

There are two knobs on the stair climbing trolley for releasing and removing the control handle, in order to greatly reduce the size of the trolley for transport.

To remove the control handle, simply pull the knobs outwards and turn them 90 degrees in an anticlockwise direction.

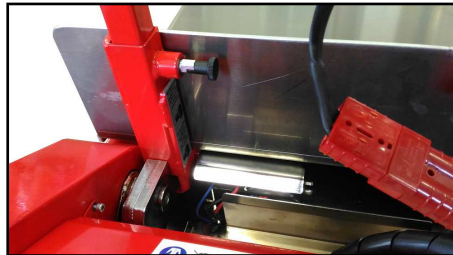


Figure 18 - DOMINO stair climbing trolley in transport configuration / Pins for locking the control handle.

6 COMMISSIONING

6.1 Charging the batteries

Before using the stair climbing trolley for the first time, you need to fully charge the battery using the battery charger provided.

The stair climbing trolley takes 24V batteries.

The average battery life of the trolley is about 40 minutes of continuous operation. The average charging time is about 5 to 6 hours; it is advisable, therefore, to leave the batteries to charge overnight.

The batteries should be charged in a well ventilated indoor area, with the battery charger plugged into a compatible power socket. To charge the batteries, you need to:

- Disconnect the battery package from the connector on the stair climbing trolley;
 Connect the battery package to the connector of the battery charger provided with the stair climbing trolley;
- Plug the battery charger into a compatible power socket (230 V_{AC}/50 Hz), checking also that the electrical system to which the battery charger is connected complies with the safety standards in force and is equipped with an equipotential ground system.

A light on the battery charger indicates when the batteries are charged.



PRECAUTIONS TO BE TAKEN DURING CHARGING

- **Always connect the battery package to the battery charger before plugging it into the power socket.**
- **After charging, always unplug the battery charger before disconnecting the battery package.**
- **Always fully charge the batteries.**
Always use the original power supply unit.
- **Always charge the batteries in a ventilated area.**
- **Never charge the batteries in an overly hot area.**
Do not place flammable liquids near the batteries while they are charging.
Do not cover the batteries in any way during charging.
- **If the batteries release an unpleasant smell, unplug the charger from the socket immediately and ventilate the room. Do not touch the batteries.**

6.2 Preliminary functional checks

Before each use, the operator must check that the stair climbing trolley is safe and should, therefore, perform the following inspections before using the stair climbing trolley.

6.2.1 Control devices

Check the condition and charge status of the battery to make sure that it is sufficiently charged for the work at hand.

N.B. using the trolley in very cold conditions can cause the batteries to run down quickly.

6.2.2 Crawler tracks

Check the wear of the crawler tracks: there must not be any cuts, cracks, foreign bodies, missing teeth or other signs of damage to the crawler tracks.

6.2.3 Braking system

Test the brakes while moving the trolley at slow speed in an area free of obstacles. The trolley should stop almost instantly when the joystick is released. Similarly, the stair climbing trolley should also remain still when turned off and when the joystick is in its central position.



ATTENTION!

UNSUCCESSFUL TEST

- **DO NOT USE THE STAIR CLIMBING TROLLEY if any defects are found during the preliminary tests and even if only one of the tests is unsuccessful.**
- **Take all appropriate measures to repair the trolley and contact the Assistance Service if necessary.**

6.2.4 Straps to harness the load

Check carefully if the straps are in perfect conditions before starting the transport; in particular there must not be cuts or even other little damages .

7 USE OF THE STAIR CLIMBING TROLLEY

7.1 Adjusting the height of the control handle

The control handle of the stair climbing trolley can be adjusted according to the height of the operator.

To change the height of the control handle, simply act on the appropriate release pins of the control handle and adjust the height as desired.

Fig. 1 : indicates indicates the pins



Fig 2: Pin DOES NOT LOCK extension



Fig. 3: Pin LOCKS extension



Fig. 4: Pin DOES NOT LOCK extension



HEIGHT OF THE CONTROL HANDLE

If the pins are not inserted correctly, extension is NOT locked, therefore there is a risk of the sudden and dangerous detachment of the control handle with the consequent loss of control of the entire device. Do not lift the control handle beyond the length of the Joystick cable, because doing so could pull out or damage the connecting cable of the control panel, making the trolley unusable.



LOCKING PINS

Before using the trolley in any way, check that the locking pins of the control handle are correctly inserted in the relative holes and that the control handle is securely locked.

7.2 Placing the load on the trolley and harnessing



ATTENTION!

POSITIONING THE LOAD

- In order to correctly position large-sized loads on the trolley, it is advisable to use a fork-lift truck to place the load on wooden spacers about 130 mm high, for facilitating insertion of the stair climbing trolley under the load.

Instructions on how to place the load on the stair climbing trolley:

- 1 Press the button shown in the photograph to turn on the stair climbing trolley.



Figure 20 - Turning on the DOMINO stair climbing trolley

- 2 Push the joystick "FORWARD" to move the crawler tracks and position the trolley under the load.

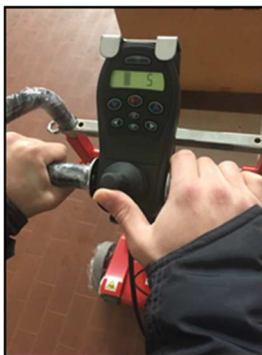


Figure 21 - Moving the trolley forward.


ATTENTION!
CENTRE OF GRAVITY OF THE LOAD

- Always refer to the drawings below when positioning the load on the trolley, in order to prevent the load from falling off the trolley.

Place the centre of gravity of the load as close as possible to the control handle of the stair climbing trolley.

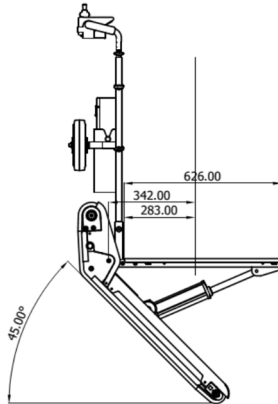
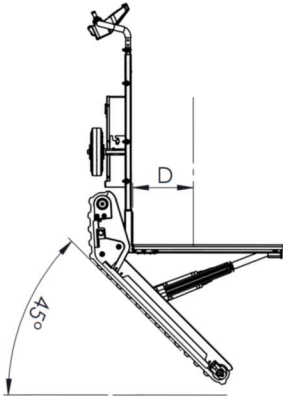


Figure 22 Load centre of gravity – stability limit.

Below is a table that represents the maximum allowable distance for positioning the centre of gravity according to the load beyond which loading is not permitted.



LOAD	D
400 kg	250 mm
380 kg	268 mm
350 kg	296 mm → ATTENTION: stability limit exceeded.

D is the limit distance where it is possible to place the centre of gravity compared to the control handle. The table defines the limit parameters which must be observed by considering ideal loads with even mass distribution.

Figure 22 BIS Load centre of gravity – positioning limit.



Figure 23 - Positioning the trolley under the load.

3 Harness the load on the trolley using the straps provided. Attach the snap-hooks of the straps on the control handle of the trolley as indicated below.

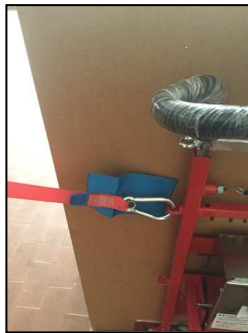
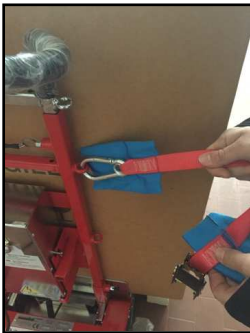


Figure 24 - Harnessing the load on the DOMINO stair climbing trolley.



FALLING OF THE LOAD

IT IS STRICTLY PROHIBITED to carry a load on the stair climbing trolley without having first secured it with the straps provided with the trolley, otherwise the load could fall off and cause accidents.

- 4 Press button "M" to DISABLE the crawler track (travel) and ENABLE movement of the load surface.

After pressing button "M", pull the joystick towards yourself to tilt the load slightly above the wooden spacers as shown below.



Figure 25 - Lifting the load off the wooden supports.

- 5 The load has now been placed correctly on the trolley and is ready to be moved on the two wheels like any other two-wheeled trolley.

Figure 26 - Transporting the load on the wheels.

7.3 Wheeled base

The ZONZINI stair climbing trolley can be combined with a wheeled base for transporting loads on flat surfaces without the need to use the battery.



ATTENTION!

USE WITH THE WHEELED BASE

- When the trolley is in this configuration, avoid holes and uneven and particularly bumpy surfaces that could be difficult to negotiate and /or cause the operator to lose his or her balance.
- Get on the wheeled base with the trolley, exclusively from the side of the wheeled base with the fixed wheels measuring 200 mm in diameter.

Position the stair climbing trolley on the wheeled base as follows:

- 1 Remove the two rubber wheels on the trolley by pressing their central pin. Insert the wheels in the relative holes, pushing in the central pin.
- 2 Press the trolley's "ON" button.
- 3 Pull the joystick backward (toward yourself) to move the crawler track backward and onto the wheeled base.

Refer to the sequence below.

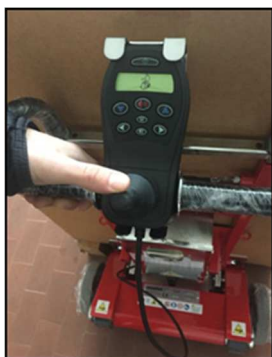


Figure 27 - Lifting the DOMINO stair climbing trolley onto the wheeled base.

- 4 Continue moving the trolley until it is fully on the wheeled base, as shown in the picture below.



Figure 28 - DOMINO stair climbing trolley on the wheeled base.



FALLING OF THE LOAD

When the DOMINO stair climbing trolley is on the wheeled base for transport on flat surfaces, turn off the trolley to prevent any unwanted movements caused by involuntary contact with the trolley joystick.

5 In order to move the trolley off the wheeled base, you need to press the ON button and then push the joystick forward as shown in the picture below.



Figure 29 - Moving the trolley forward and off the wheeled base.

7.4 How to ascend the stairs (up)

Instructions on how to ascend a flight of stairs:

1. Position the trolley near the stair ramp and remove the rubber wheels, by pushing in their central pin, and place them on their support.
2. Move the trolley towards the stair ramp by pulling the joystick backward (towards yourself) and the tracks will mount the first step as shown in the picture below.

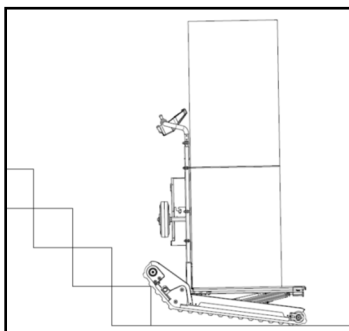


Figure 30 - Moving the DOMINO stair climbing trolley towards the flight of stairs



ATTENTION!

APPROACHING THE FLIGHT OF STAIRS

- Continue ascent until the load is vertical and then stop the trolley in order not to destabilise the trolley during ascent.
 - The operator must ALWAYS remain in the trolley steering position, i.e. in front of the control handle.
 - The trolley must ALWAYS be moved towards the flight of stairs from behind, as shown in Figure 30.
 - The trolley must be handled by a single operator and there must not, therefore, be other people in the vicinity of the trolley while it is being moved.
 - It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.
3. press button "M" to DISABLE the crawler track (travel) and ENABLE tilting of the load surface.
Next, pull the joystick backward (towards yourself) to tilt the load surface and adjust its tilting angle.

Refer to the sequence of pictures on the next page.

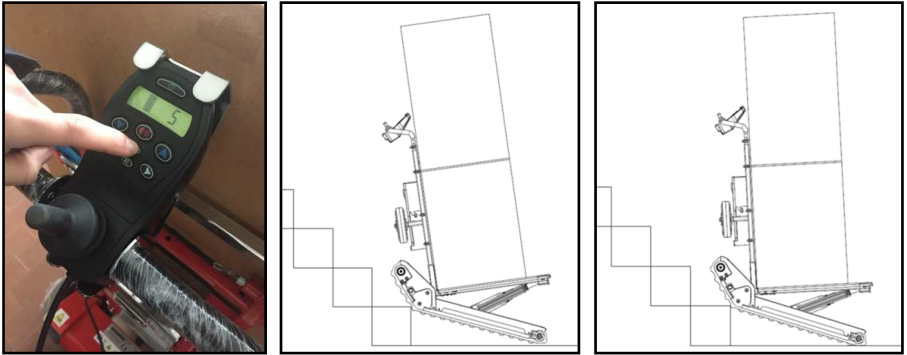


Figure 31 Adjustment of the load surface before ascending

4. After adjusting the tilting angle of the load, press button "M" to DISABLE tilting of the load surface and ENABLE the crawler tracks (travel).
5. Pull the joystick backward (towards yourself) to move the crawler tracks upward; if the load is perfectly balanced with the actuator open, continue ascent, otherwise adjust tilting of the load surface as indicated in step 3.
6. Continue pulling the joystick backward to bring the trolley onto the landing by about 15 cm. Stop the trolley and keep it balanced **without resting the curved section of the crawler track on the landing (see the picture below).**
- 7.

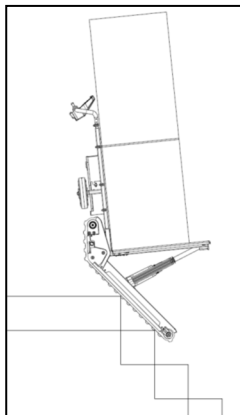


Figure 32 Approaching the landing.

7. Press button "M" to DISABLE the crawler tracks (travel) and ENABLE tilting of the load surface. Lower the load surface while **keeping the trolley balanced**.

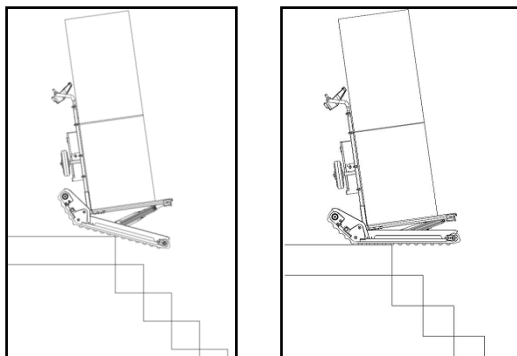


Figure 33 - Sequence of lowering the load surface onto the landing.

8. Continue closing the actuator and rest the curved section of the crawler tracks on the landing. Always keep the load at an angle to yourself and stop the trolley once the base of the crawler tracks is resting on the landing and the load is balanced and safe (see Figure 33).
9. Press button "M" to DISABLE tilting of the load and ENABLE the crawler tracks (travel).
10. Pull the joystick backward (towards yourself).
11. Bring the crawler tracks fully onto the landing.

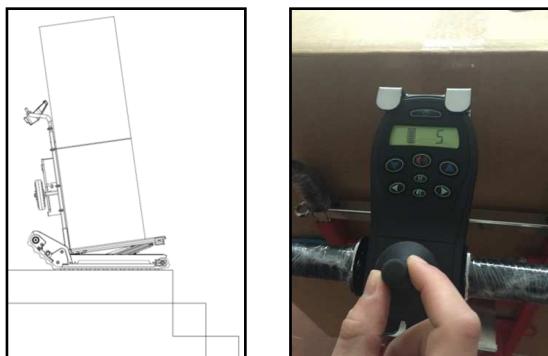


Figure 34 - The DOMINO stair climbing trolley in its final position on the landing.



ATTENTION!

STABILITY OF THE TROLLEY

- Always keep a firm hold of the control handle when moving the load surface, to ensure that the trolley remains stable.

7.5 How to descend the stairs (down)

Instructions on how to descend a flight of stairs:

- 1 Move the trolley towards the end of the landing, as shown in the picture below.
- 2 The crawler tracks must not protrude out over the edge of the landing. Press "M" to DISABLE the crawler tracks (travel) and ENABLE tilting of the load surface. Tilt the load surface just enough to keep the load balanced towards yourself.

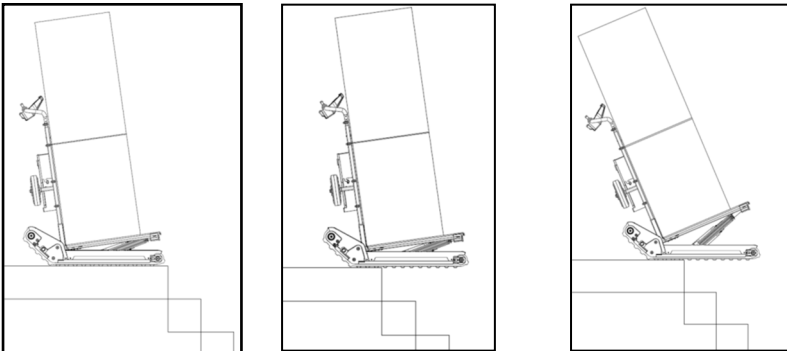


Figure 35 - Approaching the stairs for descent.

- 3 Press button "M" to DISABLE the load surface and ENABLE the crawler tracks (travel).
- 4 Push the joystick forward to **slowly** move the crawler tracks out from the landing, while **keeping the load balanced**. Stop when the heel of the crawler track is still about 15-20 cm away from the edge of the landing.

See Figure 35 refs. A and B.

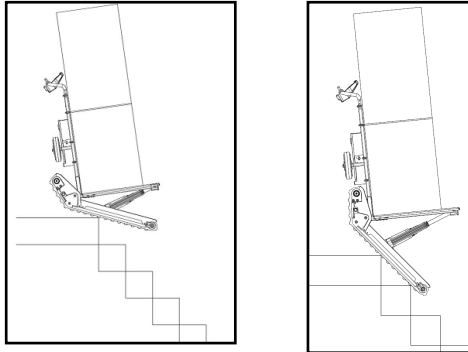


Figure 36 - Moving the DOMINO trolley down the stairs.

5 Press button "M" to DISABLE the crawler tracks (travel) and ENABLE tilting of the load surface. Lift the load surface **while keeping the load balanced**, see figure 38.



WARNING

- The crawler track must **NOT** be rested on the landing (as shown in Figure 38) during step 5!
- It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.

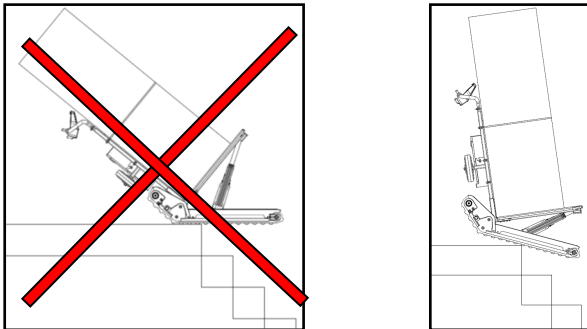


Figure 37 - Incorrect descent of the stairs / Correct descent of the stairs.

6 Tilt the load surface in order to fully rest the crawler track on the step below. Continue tilting the load surface until the crawler track rests fully on the step below (see figure 36, correct descent).

7 The crawler track should rest on the step below in a safe and perfectly balanced position.

N.B. To ensure this "safe position", you need to use the actuator to move the load into a vertical position where it can remain perfectly stable. Press button "M" to DISABLE tilting of the load surface and ENABLE the crawler tracks (travel). Push the joystick forward to start descent, making sure that the load remains in its safe position.

Instructions on how to continue descent of the stairs:

- 8 Approach the end of the flight of stairs.
- 9 Press button "M" to DISABLE the crawler tracks (travel) and ENABLE tilting of the load surface.
- 10 Push the joystick forward to start lowering the load surface of the trolley and move the load into a vertical position.
- 11 Press button "M" to DISABLE tilting of the load surface and ENABLE the crawler tracks and continue descent.
- 12 Continue descent and adjust the angle of the load by lowering the load surface. The load should remain vertical. Press button "M", as instructed above, to enable control of the crawler tracks or of the actuator.
- 13 The stair climbing trolley is now off the stairs and back on a flat level.
- 14 Move the joystick to the left or right to activate the double motor of the trolley and turn the crawler tracks.

Refer to the pictures below.

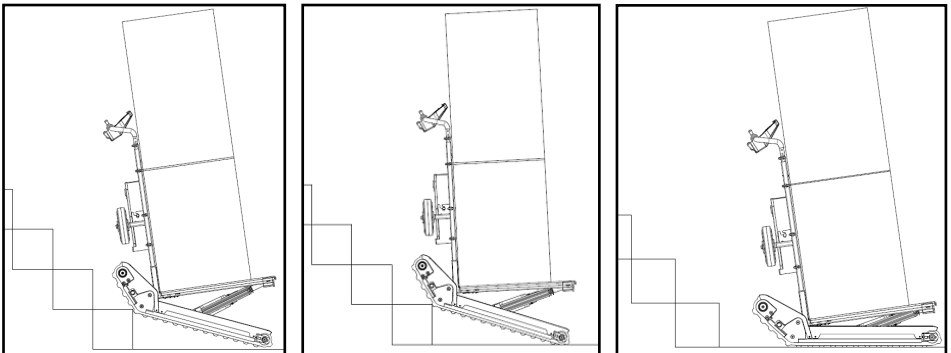


Figure 38 - Completing descent of the stairs.

7.6 External electromagnetic interference

The stair climbing trolley can be susceptible to electromagnetic interference, i.e. the electromagnetic waves emitted by sources like radio stations, television stations, home radio-transmitters and the antennas of mobile phones.

Interference (generated by sources of radio waves) can cause the trolley to move by itself or to move in unwanted directions and, in worst case scenarios, can permanently damage the control system of the trolley.

The ZONZINI stair climbing trolley can withstand electromagnetic interference of up to a certain intensity known as the level of immunity. The level of immunity of the ZONZINI stair climbing trolley ensures sufficient protection against common sources of electromagnetic interference.

Observe the rules below to help minimise the risk of electromagnetic interference:

- Locate any nearby sources like radio and television antennas and mobile phone repeaters, and avoid getting too close to them.
- If the trolley moves unexpectedly, turn it off as soon as it is in a safe position.
- Do not add electrical accessories or modify the stair climbing trolley without ZONZINI's authorisation. Any such changes can make the trolley more susceptible to electromagnetic interference.
- Contact the assistance service to report any unexpected movement of the stair climbing trolley, however infrequent.

ELECTROMAGNETIC INTERFERENCE



ATTENTION!

If the stair climbing trolley does not respond to the controls or does not move as expected, stop the stair climbing trolley and contact the ZONZINI Assistance Service to resolve the problem.

8 MAINTENANCE

8.1 General



RISK OF ACCIDENTS

Always take the necessary safety measures during maintenance. Refer to the instructions on page 9.

All maintenance must be performed with the stair climbing trolley turned off, the battery disconnected and the trolley on a flat, stable surface.

Maintenance must be carried out as instructed and in a careful and professional manner, in order to maintain the full efficiency and durability of your ZONZINI stair climbing trolley.

Always check that all the controls work perfectly after performing any routine maintenance.



UNSUCCESSFUL TEST

- **DO NOT USE THE STAIR CLIMBING TROLLEY** if even only one of the tests is unsuccessful.
- **Immediately implement all the measures to perform repairs, and contact the ZONZINI Assistance Service** if necessary.

This manual does not cover disassembly and supplementary maintenance because this must only ever be done by ZONZINI Assistance Service personnel. The Assistance Service is happy to provide any information and to help care for and maintain the perfect efficiency of your stair climbing trolley.

The warranty will be terminated if any non-original parts are assembled or the trolley is modified without the prior authorisation of ZONZINI S.r.l.!

8.2 *Daily maintenance and checks*

8.2.1 **Checking the plates and pictograms**

Check that the CE plate and warning labels are all on the stair climbing trolley and are legible.

8.2.2 **Checking the crawler tracks**

Check the condition of the crawler tracks, guides and pulley. The crawler tracks should not feature any cuts, cracks or missing parts, etc. Also make sure that the crawler tracks are correctly tightened. Contact the ZONZINI Assistance Service if the crawler tracks need to be replaced.

8.2.3 **Checking operation and travel**

The stair climbing trolley should always move in the same direction as the joystick. If the stair climbing trolley moves in an irregular manner, you must stop the trolley immediately and contact the ZONZINI Assistance Service to have it checked as soon as possible.

8.3 *Weekly maintenance and checks*

8.3.1 **Washing and cleaning**

The ZONZINI stair climbing trolley should be cleaned not only for reasons of decorum but also to immediately identify any defects.

Certain precautions should be taken while cleaning to avoid damaging or reducing the efficiency of the various components, and of the electrical ones in particular.

It is strictly prohibited to aim jets of pressurised water at the electrical parts, motors and battery, which should preferably be cleaned with compressed air. Before starting the stair climbing trolley, use compressed air at low pressure to dry it completely, and check that the electrical components are not damp.

8.3.2 Checking the frame and bolts

The supporting frame of the ZONZINI stair climbing trolley and the welds must not have any visible defects like: cracks, deformities, cuts, corrosion, etc. Check that all the bolts on the ZONZINI stair climbing trolley are securely fastened.

8.4 Monthly maintenance and checks

8.4.1 Checking the electrical circuits and components

Check that the wires are in good condition and are securely fastened. The sheathing must be perfectly intact and all the connections must be secure and not bear signs of corrosion.

8.5 Checks performed by the manufacturer

After every 12 months of use, the trolley must be given a thorough inspection by Zonzini S.r.l. who will assess the general condition of the trolley and check the components prone to wear, replacing them if necessary.

When the trolley is put to heavy use or is used in harsh conditions, like:

- Very dusty environments;
- Constant exposure to the elements (rain, baking sun, etc.);
- Coastal or saline environments;
- Frequent handling of very heavy loads;

the trolley should be given a periodic inspection by Zonzini S.r.l. after every 12 months of use.



Periodic inspections

The Manufacturer cannot be held responsible for damage to the components of the trolley if it has not been periodically inspected.

9 TECHNICAL ASSISTANCE AND SPARE PARTS

Please make sure you have this information on hand when requesting technical assistance or ordering spare parts:

- type of stair climbing trolley;
- serial number;
- year of manufacture;
- quantity required.



ORIGINAL SPARE PARTS

The Manufacturer cannot be held responsible for any damage attributable to the use of non-original spare parts.

10 STORAGE IN THE WAREHOUSE

Instructions on preparing the ZONZINI stair climbing trolley for a long period of storage:

- Put the trolley in a dry and well ventilated area.
- Give the stair climbing trolley a general clean before storing it.
- Periodically charge the battery.
- Put an impermeable cover on the trolley to protect its structure against dust, dirt and humidity.

11 DISPOSAL OF COMPONENTS AND MATERIALS



DISPOSAL OF MATERIALS

Dispose of the packaging, waste and dust, replaced parts and eventually the entire ZONZINI stair climbing trolley at the end of its useful life in an environmentally friendly manner, without contaminating the land, water or air, and observing the applicable domestic and local regulations in force.

Instructions on the recycling of waste:

- Materials made of iron, aluminium and copper: take to an authorised recycling centre.
- Plastics, fibreglass, seals, tyres: take to a waste disposal site or a recycling centre.
- The battery of the trolley must be taken to COBAT or a local battery recycling centre.

Sort the materials according to type, hiring companies specialised in disposal in accordance with the law.





12 WARRANTY

Check the trolley upon receipt for any signs of damage sustained during transport.

Any damage must be reported to Zonzini S.r.l. in writing within 8 days of receipt of the trolley.

The warranty is valid for 12 months from the date of purchase, and covers the battery package for a period of 6 months.

Under the terms of the warranty, only parts found to be defective after inspection by Zonzini S.r.l. will be replaced or repaired free of charge, shipping costs not included.

The purchaser covers the cost of replacing worn parts, excise duty and VAT. The purchaser is not offered compensation for direct or indirect damage or for termination of the contract, or for a reduced sales price or for payments put on hold, which can result in immediate forfeiture of the warranty.

Replacement or repair of the parts under the terms of the warranty does not extend the period of validity.

Returns without the manufacturer's written authorisation are not

accepted. The warranty is forfeited if:

- The purchaser falls behind in payments;
- The instructions in this use and maintenance manual are not followed;
- Changes are made without the prior authorisation of Zonzini S.r.l.;
- Repairs are carried out by unauthorised personnel;
- The trolley is put to uses other than the intended one;
- Original parts are replaced with ones of another manufacturer.

The warranty does not cover any of the pneumatic components.

Disputes will be settled at the court of Verona.

13 Domino Automatic

If you have chosen the “Automatic” version of the Domino trolley, the automatic loading platform tilting function is included. IMPORTANT: the “Automatic” version allows you to go back to the “manual” version at any time by pressing the special key. Chapter 13 is a supplement to the use and maintenance manual. That described and specified in the use and maintenance manual mentioned above, also applies to the Domino Automatic model.

13.1 Description of the controls – Domino Automatic

The console for controlling the activation and operation of the stair climbing trolley is equipped with a display for indicating the battery charge and trolley operating status, a start button, a proportional joystick for moving the trolley in all directions of travel, button “M” for switching from the loading platform travel mode to the manual tilting mode, the button for activating the automatic loading platform tilting mode (depending on the trolley version), the automatic mode LED (depending on the trolley version) and the audible warning device button.

The control console is fitted at the top of the control handle, allowing you to control the trolley while always keeping one hand on the control handle.

The control console is connected to the electrical circuit of the trolley by means of cables and connectors.

The control system is comprised of a joystick for steering and controlling travel of the trolley in both directions.

The trolley travels in the same direction in which the joystick is moved, i.e. moving the joystick forward moves the trolley forward, and vice-versa.

The trolley also moves as fast as the joystick is moved in the desired direction, up to the maximum permitted speed of the stair climbing trolley.

To slow down and stop the trolley, you simply need to release the joystick and it automatically moves back to its central position, stopping the trolley.

To activate the “Automatic” mode press the key on the control console as in figure 39.

After pressing the key, the trolley will tilt the loading platform automatically while keeping the load with an inclination in favour of the operator. The trolley software is pre-set with the automatic tilt degree.



Figure 39: “Automatic” mode activation key

To disable the automatic loading platform mode simply press the activation button again (figure 39) or switch the trolley off (figure 39 ref no. 14).

Press key “M” on the control console (figure 39 ref no. 12) to manually modify the inclination that is pre-set in the automatic version. This may be necessary to ensure greater stability of the stair climber with particular loading conditions and inclination of the stairs to be climbed. After modifying the inclination using button “M” with the trolley in automatic mode, Domino will store the new inclination as reference for the next flights of stairs in place of that set by default. If the stair climber is switched off and on again, the automatic inclination of the trolley will be that set previously by default.

It is possible to switch from the manual mode at any time by switching off the automatic version (figure 39).

For the operation of the manual version please refer to page 15 and the following pages of the use and maintenance manual.

13.2 View of the control console – Domino Automatic

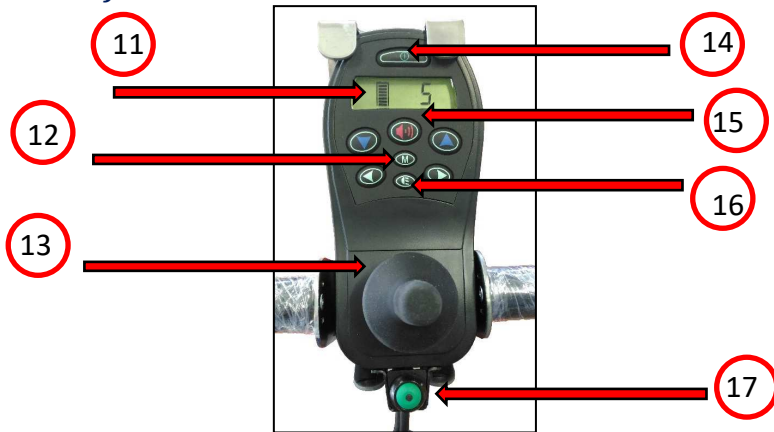


Figure 40: Control console of the DOMINO AUTOMATIC stair climbing trolley

Ref.	Description	Ref.	Description
11	Trolley status and battery charge status display	15	Audible warning device button
12	Operating mode button “M”	16	Automatic mode button
13	Control joystick	17	Automatic mode indication LED
14	On/Off button		

13.3 Use of the controls

The control console is for operating the stair climbing trolley.

It regulates the amount of power channelled from the battery to the electric motors for moving the trolley.

The electronic control console allows you to turn the trolley on and off and to move it, to monitor battery charge status, to control the functions of the electronic control system and the conditions of the electrical system.

The control console is comprised of an integrated electronic controller.

Joystick _ the joystick is for controlling the direction and speed of the stair climbing trolley.

Moving the joystick out of its central, neutral position also moves the trolley.

The speed of the trolley increases the further the joystick is moved out of its neutral position (proportional control).

Releasing the joystick to let it return to its neutral position stops the trolley.

The trolley moves in the same direction in which the joystick is moved.

The acceleration of the trolley has been modulated progressively.

For example:

joystick forwards	➔	movement forwards
joystick backwards	➔	movement backwards
joystick forwards to the right	➔	movement forwards to the left
joystick backwards to the left	➔	movement backwards to the right
joystick to the left	➔	rotation to the right
joystick to the right	➔	rotation to the left



USE OF THE JOYSTICK

Remember to adjust the maximum permitted speed according to steering capacity, the type of stairs concerned and the load on the trolley.

If the trolley moves in an unexpected manner, release the joystick immediately to stop the trolley almost instantly.

If the joystick is damaged and the trolley does not stop, press the Off button immediately.

On/Off button _ the on/off button, with the green symbol, allows you to turn the stair climbing trolley on and off.



Display _ The control console of the trolley has a screen that displays key information relating to the use of the stair climbing trolley. In particular, it displays the battery charge status, when the battery needs to be charged and the trolley operating mode (loading platform travel/tilting).




In this mode, the screen indicates the battery charge status.

N.B. The trolley battery is fully charged when the black lines reach the very top of the battery icon on the control panel display

In this mode, the display indicates that the loading platform can be tilted **manually**.



By pressing the automatic

adjustment key,  the symbol that appears to the left of the display means that the **automatic** loading platform

tilt function is active; the LED is now active and flashes.

The triangle symbol that appears to the right of the display means that the trolley is adjusting the loading platform automatically.



When the trolley is in the “Automatic” version, by pressing button “M” you can manually modify the automatic inclination of the loading platform; the display will show a chair symbol and the active automatic function symbol.

When the adjustment is complete, press key “M” again to go back to the automatic mode (the automatic function symbol stays on).



When the triangle symbol disappears from the display it means that the automatic loading platform function is active **and that the automatic tilt adjustment is complete.** The LED is active and steady-on



Figure 41: Display fitted on the control console of the DOMINO AUTOMATIC trolley.

Manual operating mode selection button “M” _ Button “M” is used to change the operating mode of the stair climbing trolley. The trolley goes into travel on tracks mode when it is turned on. When you press the button, a chair symbol appears on the display of the control console indicating that you have switched to the **manual** load platform tilting mode.

Moving the joystick to the left or right in manual loading platform tilting mode makes the trolley automatically go back to travel on tracks mode and the chair symbol disappears from the display.

In this condition the loading platform can be opened or closed until it is fully open/closed.



Figure 42: Manual operating mode button.

Audible warning device button The audible warning device is triggered for as long as you hold down the red button.



Automatic mode button Press the automatic mode button (figure no. 44) to make the trolley open/close the loading platform automatically.

Before pressing any keys on the Joystick, make sure that the load has been fastened to the loading platform properly with the straps provided.

The trolley goes into travel on tracks mode when it is turned on. When you press the automatic mode button, the display will show the active automatic mode symbol and the LED will switch on (figure 43); in this condition the automatic loading platform adjustment mode is active, while maintaining the travel on tracks mode active at the same time.



Figure 43: automatic mode LED



Figure 44: Automatic mode button

If the loading platform is completely closed, the platform adjustment process will start automatically, opening it as set by default; during the adjustment stage the LED flashes quickly and the warning symbol appears on the display at the same time.

When the automatic loading platform adjustment is complete, the LED is steady-on and the warning symbol disappears.

To increase the comfort of those handling loads of extremely variable size while climbing the stairs, the equilibrium position of the loading platform can be changed **manually**:

- Make sure that the LED is steady-on and that the automatic operation symbol is switched on
- Press key “M”
- Move the Joystick lever and release it in the new desired equilibrium position. The loading platform may perform small adjustments even after releasing the Joystick lever
- Press key “M” to go back to track management (while maintaining the automatic loading platform mode active)

The opening set will be the new equilibrium position that will always search for the loading platform during automatic trolley operation.

To disable the automatic mode simply press the same key used to activate the automatic mode (see figure).



The automatic mode LED can feature 4 operating statuses

- 1- Off: the automatic loading platform mode is switched off. The LED is switched off even when the trolley is switched off
- 2- Steady-on: the trolley is in automatic mode and the loading platform is in its equilibrium position
- 3- On with fast flashing: trolley in automatic mode and is adjusting, the loading platform is moving
- 4- On with slow flashing: operating problems. Please contact our Technical Department.
- 5- Five slow flashes and then the light turns off: the trolley loading conditions have been exceeded. Exit the automatic mode by pressing the automatic mode button, wait for at least 5 seconds and then press the automatic mode button again. If the trolley does not start working properly please contact our Technical Department. Avoid this condition as it means that the loading limits have been exceeded.



13.4 USING THE STAIR CLIMBING TROLLEY – Automatic version

13.4.1 *Adjusting the height of the control handle*

The control handle of the stair climbing trolley can be adjusted according to the height of the operator.

To adjust the height of the control handle, simply pull the release cord and adjust the height as required. Then release the cord and move the control handle to ensure that it locks in place automatically.



In order to ensure correct operation, it is crucial that the control handle is adjusted according to the height of the operator responsible for steering the stair climbing trolley.

Do not lift the control handle any higher than the topmost locking holes because doing so

could pull out or damage the connecting cable of the control panel, making the trolley unusable.

Before using the trolley in any way, check that the locking pins of the control handle are correctly inserted in the relative holes and that the control handle is securely in place.

13.4.2 Placing the load on the trolley and harnessing

To place heavy and large loads properly on the trolley proceed as follows:

1. Use a forklift truck and place the load on 130 mm wooden shims, in order to create enough space and facilitate the insertion of the stair climbing trolley underneath the load.



Wooden shims, approximately 130 mm H

2. Press the button shown in the photograph below to turn on the stair climbing trolley.



3. Push the joystick "FORWARD" to move the crawler tracks and position the trolley under the load.

ATTENTION: the joystick is sensitive to movement. When the joystick is moved "FORWARD" so that the tracks are inserted under the load, it is crucial to travel in a straight line and not move the joystick in other positions that may make the tracks go against the wooden shims, causing instability of the load placed on the shims.

Always refer to the drawing below when positioning the load on the trolley, otherwise the stability of the trolley may be compromised.

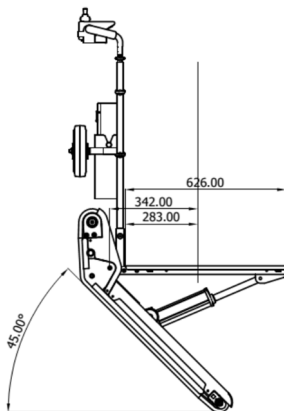
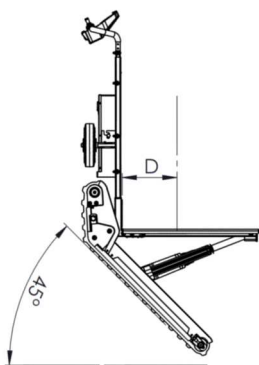


Figure 45: Load centre of gravity - stability limit.

ATTENTION: Place the centre of gravity of the load as close as possible to the control handle of the stair climbing trolley. Below is a table that represents the maximum allowable distance for positioning the centre of gravity according to the load beyond which loading is not permitted.



Load	D
400 kg	250 mm
380 kg	268 mm
350 kg	296 mm → exceeds the stability limit

D is the limit distance where it is possible to place the centre of gravity compared to the control handle. The table defines the limit parameters which must be observed by considering ideal loads with even mass distribution.

4. Fasten the load adequately to the trolley, using the special straps supplied. The straps provided consist of two parts: a strap equipped with a black tensioning ratchet and a longer strap (without ratchet). To fasten the load please follow the instructions as shown in the sequence below:

1 Take the strap with the black ratchet and insert the snap-hook into the eyebolts.



2 Take the longer strap (the one without the ratchet) and insert the snap-hook in the opposite eyebolt. Once inserted, wrap the strap around the load until it meets with the strap with the black ratchet.



3 Insert the end of the strap into the tensioning ratchet.



4 Tighten the strap using the ratchet.



5 To open the strap, press the lever on the tensioning ratchet.



IT IS STRICTLY PROHIBITED to carry a load on the stair climbing trolley without having first secured it with the straps provided with the trolley, otherwise the load could fall off and cause accidents.

5. Press button "M" (figure 46) to **DISABLE** the crawler track (travel) and **ENABLE MANUAL movement** of the loading platform. After pressing button "M", pull the joystick knob towards you to lift the loading platform (figure 47), until the load is raised slightly above the wooden shims as shown in the sequence below (figure 48).



Figure 46: Key "M"



Figure 47: joystick knob towards the operator



Figure 48: load lifted

6. The load has now been placed correctly on the trolley base and is ready to be moved on the two wheels like any other two-wheeled trolley; or on the tracks.

13.4.3 How to climb the stairs (ascent) using the automatic loading platform adjustment

Make sure that the stair climbing trolley is in the “Automatic” version and that it therefore features the functions described below:

- 1- Position the trolley near the flight of stairs, remove the rubber wheels by pushing in their central pin, and place them in their housing
- 2- Press the button for the activation of the automatic mode, if the loading platform is fully closed the load will be tilted at an angle set by default. During the adjustment the LED flashes quickly and the warning symbol will be displayed. Climbing will be possible after a few seconds, when the trolley has reached the equilibrium position.



Figure 49: automatic mode activation key.

The automatic tilt set by default can be adjusted manually by pressing key “M” and by lifting or lowering the Joystick knob. Pressing key “M” again makes the trolley store the new inclination and goes back to travel on tracks mode with the automatic mode active.

The LED must be steady-on when the trolley has completed the automatic load adjustment; and the console display must show the active automatic mode symbol. For further details please refer to paragraph 13.2

- 3- Approach the flight of stairs using the tracks so that they cling to the first step of the stairs, as shown in the figure.



- 4- As you gradually climb the stairs you will notice that the trolley tilts the load **automatically** while maintaining a pre-set inclination in favour of the operator. It is important not to accelerate with the joystick beyond the load inclination speed permitted by the actuator and to stop occasionally from time to time to allow the drive to reach the equilibrium position set by default.

Even when the trolley tilts the load in automatic mode, it is always up to the operator to verify the correct position of the load before starting the climb and possibly correct the inclination manually, pressing button "M" so that it is optimal in every condition. Domino automatic will store the new position for the next flights of stairs, while by turning the trolley off and on again the position will be that set by default.

Pay maximum attention during the climbing stage.

- 5- On the last step of the flight of stairs, before entering the landing, the operator must stop in the load equilibrium position and tilt the trolley slightly towards himself. This way, the actuator starts closing. When the trolley is in automatic mode, the actuator closes automatically as soon as the operator tilts the trolley slightly towards himself.



Figure 50: equilibrium position reached



ATTENTION!

VERY IMPORTANT: the operator must stop in the exact load equilibrium position (see example in figure 51).

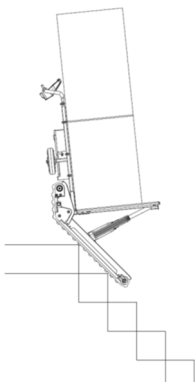
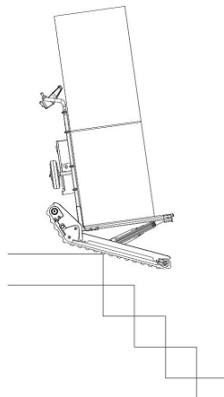
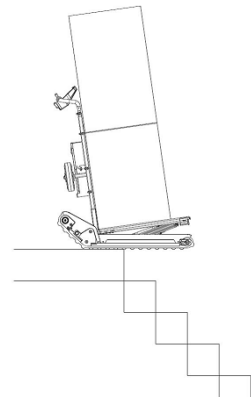



Figure 51 Example of trolley
balanced on the steps



Example of trolley resting
on the last step of the flight of stairs



Example of trolley resting
on the landing

	ATTENTION	FALLING OF THE LOAD
<ul style="list-style-type: none">• Maintain always firmly the handle during the whole phase, as also the operator's strength is required to hold the balance point of the machine.		

- 6- When the rear part of the tracks is resting on the landing and while the actuator is completing the closure, move the load with the joystick to a more secure position on the landing.

ATTENTION: Pay particular attention to the equilibrium position of the load during this stage to prevent the load from being supported by the operator and to make sure that the automatic closing mode can be activated and completed properly.

- 7- Bring the crawler tracks fully onto the landing.



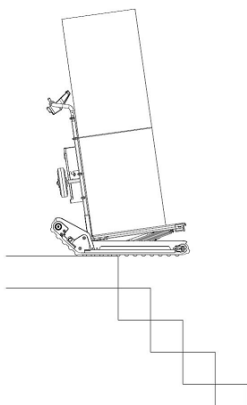
FALLING OF THE LOAD

It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing

13.4.4 How to go down the stairs (descent) using the automatic loading platform adjustment

Make sure that the stair climbing trolley is in the “Automatic” version and that it therefore features the functions described below:

1. Without leaving the landing with the tracks, make sure that you are in automatic mode (the LED is on), otherwise press the button to activate the automatic mode; if the loading platform is completely closed the load will be tilted at an angle set by default. During the adjustment the LED flashes quickly and the warning symbol will be displayed. Descent will be possible after a few seconds, when the trolley has reached the equilibrium position.



- 2- Slowly start leaving the landing with the tracks pushing the knob of the joystick forwards, keeping the load balanced and stop in the equilibrium position.
- 3- While keeping the trolley balanced, tilt the frame slightly forwards (downwards) so that the actuator can open automatically.



VERY IMPORTANT: the operator must stop in the correct position and must not unbalance

the load too far forward.

It is strictly prohibited to pass / stand under and near the load. For greater safety, isolate and mark off the operating area to prevent bystanders from passing.

- 4- Wait for the actuator to open completely and for the tracks to rest on the steps below (the LED is steady and the loading platform is stationary).



Throughout this stage keep the trolley slightly tilted towards the stairs so that the actuator can open. When the trolley is in automatic mode, the actuator opens automatically.

Do not unbalance the load too far forwards, but always maintain the equilibrium position.

If you feel insecure at this stage, we recommend you to turn off the automatic mode by pressing the special button (see figure 52) and proceed with the standard descent mode, i.e. manual mode by pressing key "M".



Figure 52: automatic mode button

The secure position means that the load must remain in a vertical position by itself without unbalancing

- 5- You can proceed with the descent stage by pushing the joystick knob forward, only when the tracks are fully resting on the steps. During the descent the trolley may adjust the inclination of the loading platform automatically. During this stage the motors reduce the speed automatically.

Please pay attention at this stage, the regulated motor speed is specifically designed in order to climb the stairs without decelerating, but since the load conditions are unpredictable, **pay maximum attention**. By pressing key "M" and raising or lowering the joystick knob you can adjust the inclination set by default differently.

When the automatic load inclination has been adjusted, the LED will be steady-on and the console display will show the active automatic mode symbol (figure 53)



Figure 53: control console display with active automatic mode symbol

- 6- Go down the stairs slowly. When you reach the bottom of the steps and the front of the tracks touches the floor below, wait for the loading platform to close automatically to the pre-set position. Continue the descent stopping from time to time in order for the drive to close compatibly with its movement speed.
- 7- To turn off the automatic mode, simply press the automatic mode activation button.



- 8- To close the loading platform completely, unloading the goods from the trolley, turn off the automatic mode, then press button "M" and use the joystick to bring the loading platform to the "0" position, i.e. parallel to the ground.

13.5 Mistakes to be avoided



ATTENTION!

Pay maximum attention during all transport stages and especially to the mistakes that must be avoided.

13.5.1 MISTAKE: To start climbing the stairs without tilting the load

MANUAL MODE: the load must always be tilted by opening the actuator when you start climbing the stairs. For further details, please refer to chapter 7.4 of the use and maintenance manual.

IMPORTANT: the load must always be in a safe condition.



Figure 54: Mistake to be avoided: to start climbing the stairs without tilting the load

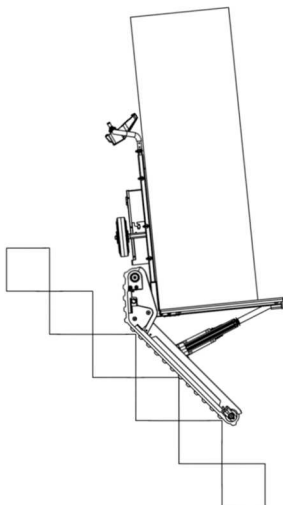


Figure 55: example of safe position on the flight of stairs

AUTOMATIC MODE:

This mistake is not possible in the automatic mode, since the loading platform is tilted automatically, regardless of the slope of the staircase.

It is important not to accelerate with the joystick beyond the load inclination speed permitted by the actuator and to stop occasionally from time to time to allow the drive to reach the equilibrium position set by default.

Even when the trolley tilts the load in automatic mode, it is always up to the operator to verify the correct position of the load before starting the climb and possibly correct the inclination manually, pressing button "M" so that it is optimal in every condition. Domino automatic will store the new position for the next flights of stairs, while by turning the trolley off and on again the position will be that set by default.

13.5.2 MISTAKE ON THE LAST STEP (GOING UP): Not stopping in the load equilibrium position

MANUAL MODE: When you reach the last step of the flight of stairs, always stop in the load equilibrium position and close the tracks **by pressing key “M”**. Wait for the tracks to close, keeping the load balanced.

AUTOMATIC MODE:

In Automatic mode, stop in the load equilibrium position and wait for the trolley to **close automatically**. Wait for the tracks to close, keeping the load balanced.



Figure 56: Mistake to be avoided: not stopping in the load equilibrium position



Figure 57: example of equilibrium position on the last step of the flight of stairs

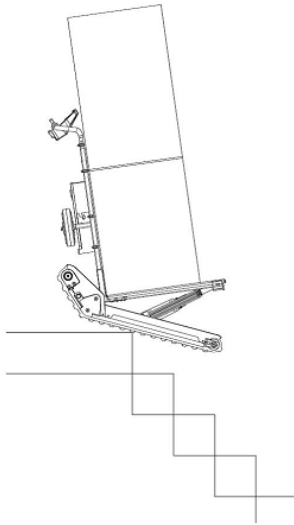


Figure 58: example of equilibrium position on the last step of the flight of stairs

13.5.3 MISTAKE ON THE FIRST STEP (GOING DOWN): *Not stopping in the load equilibrium position*

MANUAL MODE: When you start going down, stop on the first step of the flight of stairs, always in the load equilibrium position and open the tracks **by pressing key "M"**. Wait for the tracks to open, keeping the load balanced. You can start the descent only when the tracks are completely open and resting on the steps below.

AUTOMATIC MODE: In Automatic mode, stop in the load equilibrium position and wait for the tracks to open automatically.



Figure 59: example of equilibrium position on the last step of the flight of stairs

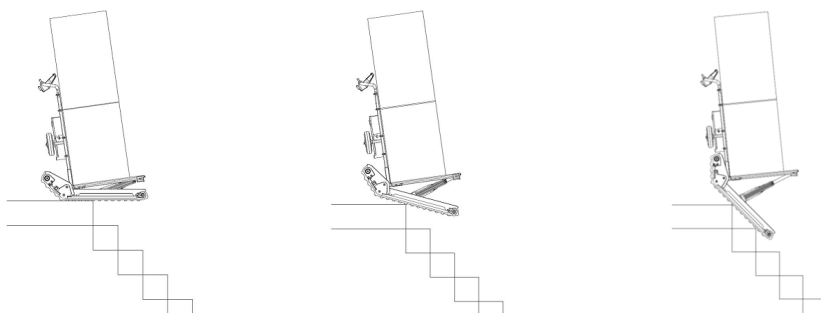


Figure 60:

Example of trolley resting
on the landing

Example of trolley balanced
on the first step (to start the descent)

Example of trolley resting
on the steps, ready to go down.

13.5.4 MISTAKE WHILE TRAVELLING ALONG THE STAIRCASE: Tracks not in contact with the staircase.

AUTOMATIC MODE:



ATTENTION!

It is crucial for the tracks to always rest firmly on the steps below and therefore be in contact with the staircase. It is strictly forbidden to try and pull the load towards you because when the automatic mode is engaged, this involves **AUTOMATIC CLOSURE** of the actuator and thus load instability.



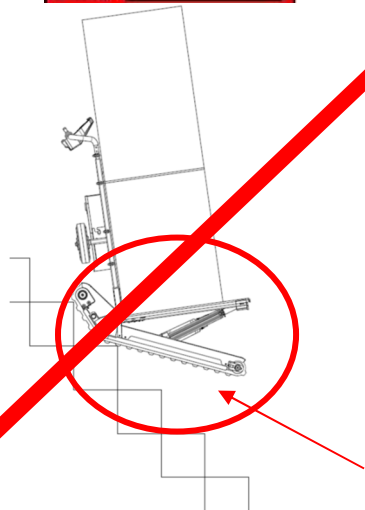
DANGER!



Figure 61: Mistake to be avoided:
tracks not in contact with the staircase.



DANGER!



Tracks not in contact
with the staircase

13.5.5 MISTAKE: Going down the flight of stairs without closing the load inclination

MANUAL MODE:

It is incorrect to go down the flight of stairs without closing the load inclination (see figure 62)

When you go down the flight of stairs and reach the last step, close the inclination of the loading platform. For the procedure, please refer to chapter 7.5 of the use and maintenance manual.



Figure 62: Mistake to be avoided: going down the flight of stairs without closing the load inclination.

AUTOMATIC MODE: This mistake is not possible in Automatic mode because the trolley closes the load automatically.

14 Suggestions for use on landings

If there is enough room, it is always preferable to turn the Domino trolley in several manoeuvres, moving and turning at each step as in fig. 63.

It is recommended not to perform sharp turns with the tracks, to the right or to the left, but instead alternating the rotation of the track with the forward or backward movement.

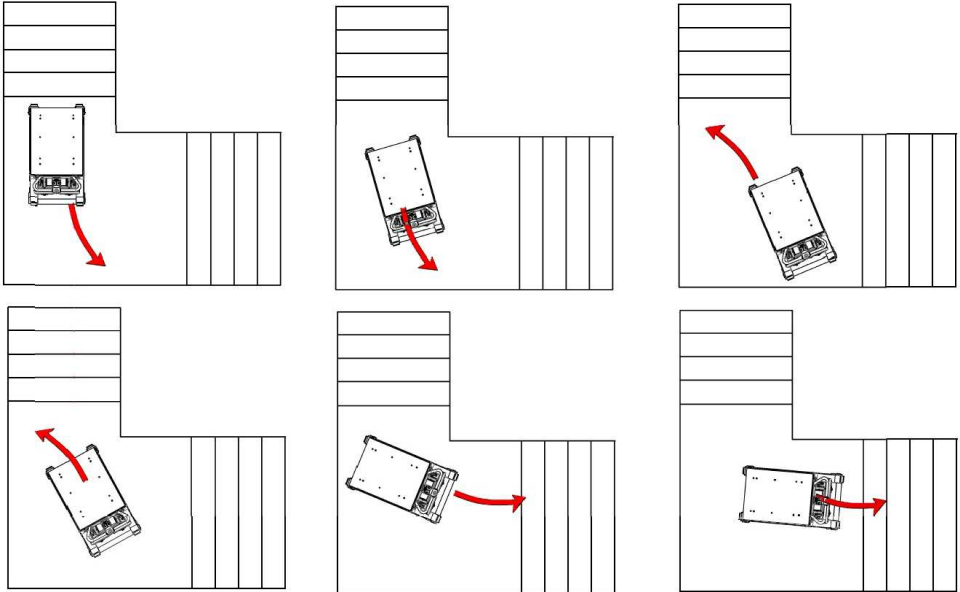


Figure 63 CORRECT PROCEDURE if there is enough room

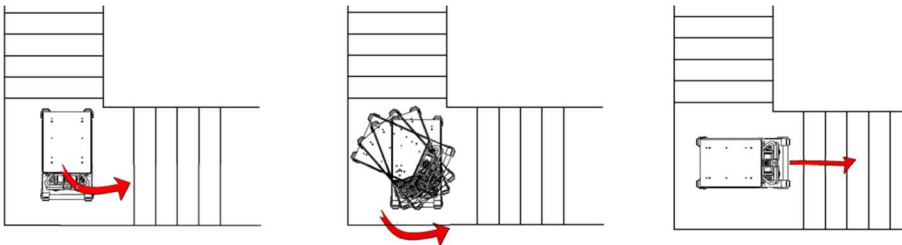


Figure 64 Rotation on itself: sequence to be used only in the case of limited space conditions (e.g.: small landings)

Therefore, if possible, it is always advisable to use the sequence shown in fig.63; this



will greatly decrease the friction between the track and the floor, increasing the life and performance of the tracks.

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