



Operation manual

Mobile ramps MALCOSTA





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1. PURPOSE OF EQUIPMENT

Mobile ramps are special, auxiliary equipment that is used together with a forklift or pallet jack for loading and unloading of goods. With the MALCOSTA mobile ramp, a forklift can carry out unloading and loading operations of grouped cargoes inside a truck/wagon, driving directly into it from the ground. It helps the company significantly save its labor resources, increase efficiency, speed up cargos' turnover, demonstrating an overall economic effect.

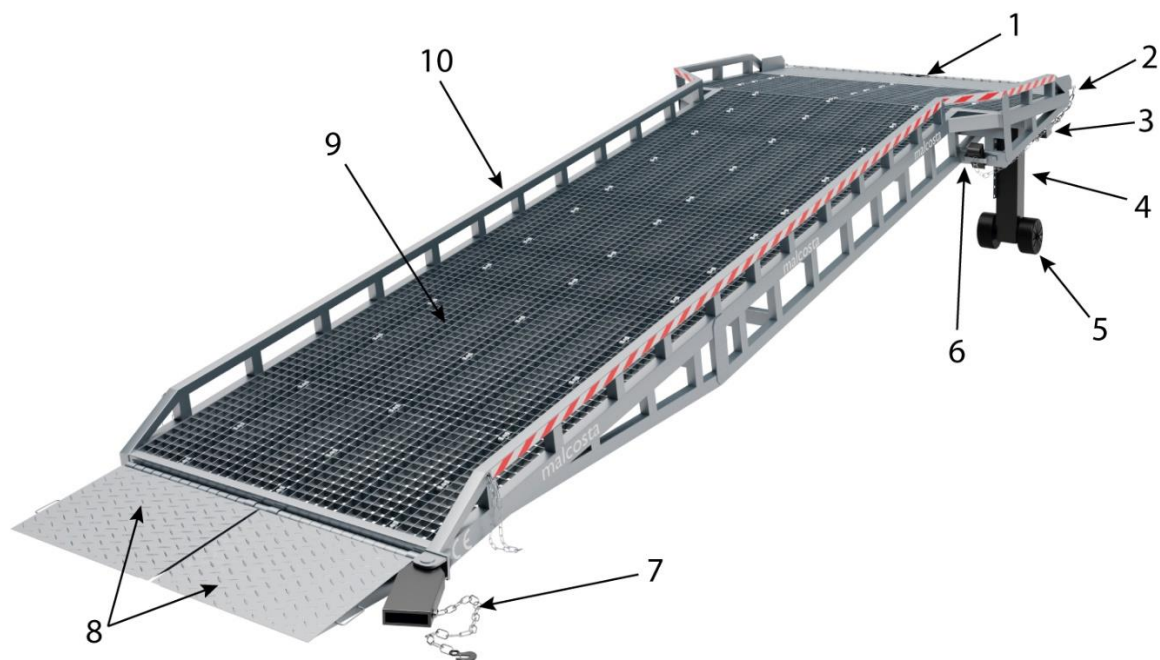
2. SPECIFICATIONS

See product certificate/contract.

3. PACKAGE SUPPLY

1. Mobile ramp.
2. Operation manual.
3. Quality documents.

4. GENERAL IDEA OF THE PRODUCT AND ITS DESIGN



- | | |
|-------------------------------|--------------------------------|
| 1 Strong connecting lip | 6 Anti-roll stop (brake) |
| 2 Chain with hook | 7 Tow pole for moving the ramp |
| 3 Chain fixation device | 8 Folding entry bridges |
| 4 Telescopic legs with handle | 9 Riding surface |
| 5 Wheels | 10 Safety railings |

The loading ramp consists of two load-bearing welded sidewalls, entry bridges, connection lip, riding surface, lifting and wheel groups.

The ramp entrance is made of movable entry bridges, coated with diamond plate reinforced by ribs installed on the back side.

The middle and upper parts of the ramp have decks that provide maximum grip of the forklift wheels on the surface and free drainage of water.

The connection lip is made of thick steel sheet.

In the front part of the construction, there is a mechanical lifting group that provides lifting and lowering of the ramp. The lifting group consists of telescopic legs connected by a connecting shaft. There is a pair of wheels under each of the telescopic legs for moving the ramp.

To move the ramp in its lower part, between the lifting bridges of the entrance or on the side, there is a tow pole for one "fork" forklift.

In the upper horizontal part of the ramp there are chains with carabiners (hooks) for fixation of the ramp with the car body. In the middle of the ramp, on both sides there are wheel chocks for fixing the ramp wheels during loading/unloading.

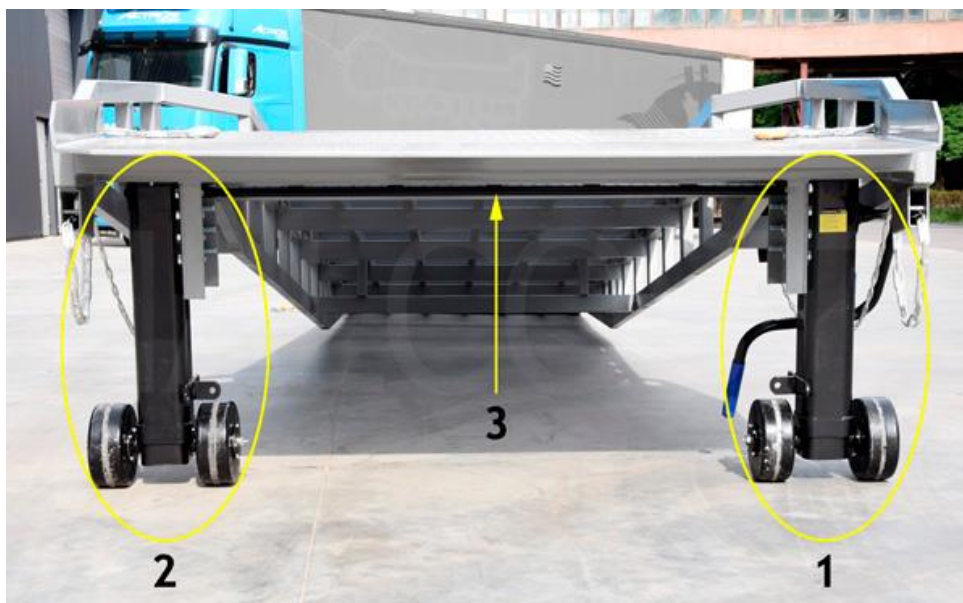
* The manufacturer reserves its right to make changes in the design of the product without prior notice.

5. DESCRIPTION OF THE RAMP LIFTING MECHANISM

Telescopic supporting legs connected by a connecting shaft lift the ramp "body". The speed of lifting or lowering depends on the force applied by the operator when turning the handle on the telescopic leg.

Main components of the lifting group:

- 1) Telescopic leg – left, with handle.
- 2) Telescopic leg – right.
- 3) Connecting shaft.





6. TRANSPORTATION OF THE PRODUCT

Transportation of the packed product can be carried out by road, rail and sea transport in accordance with the rules established for this type of transport.

Loading on transport, unloading, placing and securing on transport should be carried out by methods that ensure the safety of the package.

A can with paint goes with a ramp. It is securely packed and connected to the ramp. If there are any scratches that arise during transportation/unloading of the ramp, it is possible to paint over all defects on the ramp.

See: Instructions for unloading the mobile ramp.

7. STORAGE POLICY

1. The loading ramp can be stored in any position, lowered or raised.
2. To make the use of the ramp long and efficient, we recommend putting the ramp under a shelter to prevent rain and rusting of the ramp.
3. The ramp must not come into contact with aggressive chemical compounds.

8. RAMP USAGE INTENSITY

The product is designed to operate in a mode in which the throughput capacity of one ramp should not exceed 160 tons of cargo transported through it daily. In case of exceeding the limit of intensity of use, the manufacturer declines the responsibility to provide warranty and post-warranty service of the equipment.

9. PRECAUTIONS FOR OPERATING THE RAMP

The mobile ramp can be operated by persons who are familiar with this operation manual, have studied the device and operating procedures, safety measures, maintenance, typical failures and troubleshooting procedures, storage, transportation and operation rules.

Before starting work, it is necessary to inspect the overall condition of the ramp.

The permissible load is the summary of the weights of objects simultaneously on the ramp when it is supported by another vehicle or stationary surface.



**It is forbidden to use the ramp if there are any troubles.
Do not allow the maximum permissible ramp load to be increased.
Do not exceed the maximum forklift speed.
It is forbidden to drive onto the ramp without support on the body/wagon/warehouse.**

1. Never exceed the maximum load (see quality certificate for model).
2. Before starting each operation, make sure that there are no people in the working area.
3. Check the general condition of the ramp.
4. The ramp may only be used on plain surfaces. Do not use the ramp on uneven or unstable surfaces (rock, soil, soft asphalt, etc.)
5. Make sure that the connection lip rests securely on the loading surface to a depth of at least 250 mm.
6. Do not drive up the ramp unless the lip rests on the body/wagon/warehouse by 250 mm.
7. Immediately stop operating the ramp if the lip moves and eliminate the cause of the ramp movement.
8. Make sure that the ramp is connected to the truck with chains and carabiners (hooks).
9. Wheels are only used to move the ramp. It is strictly forbidden to drive onto the ramp resting on



wheels.

10. Do not move the ramp while lowering/lifting.

11. Do not stop or stall suddenly on the ramp.

12. The telescopic supporting legs of the ramp are used only for moving, raising and lowering the ramp.

The use of the ramp standing on the telescopic legs is strictly PROHIBITED.

10. OPERATING RULES

Before you start operating the ramp

1. Visually verify that the ramp is in the correct position for operation.

2. Raise the ramp above the floor level of the vehicle (50 mm higher) by turning the knob on the left telescopic leg CLOCKWISE. After reaching the required height, the ramp will stop at the reached height.

3. Center the car body regards to the ramp, carefully back the car up, making sure that the ramp and the car body are parallel. Make sure that the ramp goes inside the loading surface of the vehicle body to a depth not less than the length of the connection lip minus 50 mm.

4. Install wheel chocks under the ramp wheels (supplied with the ramp) and under the vehicle wheels.

5. Turn the handle on the telescopic leg COUNTERCLOCKWISE until the connection lip is fully rests on the vehicle body. Make sure that the connection lip is lying flat. Keep turning the handle until the wheels are lifted off the ground. Minimum distance from ground level to wheels is 100 mm and more.

6. Secure the ramp chains to the vehicle body with carabiners (hooks).

During loading and unloading, the ramp automatically monitors the level of the vehicle.



It is forbidden to drive the truck onto the ramp, connecting lip of which is not supported by the vehicle body.

The lifting system is only intended for lifting the ramp.

Do not use the ramp to lift the load.

The wheel group is designed only to move the ramp without load.

The direction of travel of the forklift

1. The forklift must move strictly on the reinforced parts of the ramp (tighter arrangement of the lower support beams under the roadway).

2. The forklift must not drive onto the leftmost and rightmost 100 mm of the ramp carriageway.

3. The forklift movement diagram (lanes for the wheels of the forklift indicated by arrows).



During operation:

1. The connecting lip of the ramp remains on the loading surface of the truck (container) at a depth not less than the connection lip length minus 50 mm.
2. The wheels of the ramp are raised to a level of at least 100 mm from the ground.
3. Working with the forklift should be careful. The maximum speed of the forklift should not exceed 4 km/h. Driving faster than 4 km/h on a ramp can cause damage to the roadway, which is not covered under warranty.
4. The passing width of vehicles (outside track) that travel on the ramp must not exceed 90% of the inside width of the ramp (F), and the distance between the guardrail and the wheel of the vehicle must not be less than 5% of the inside width of the ramp (F).

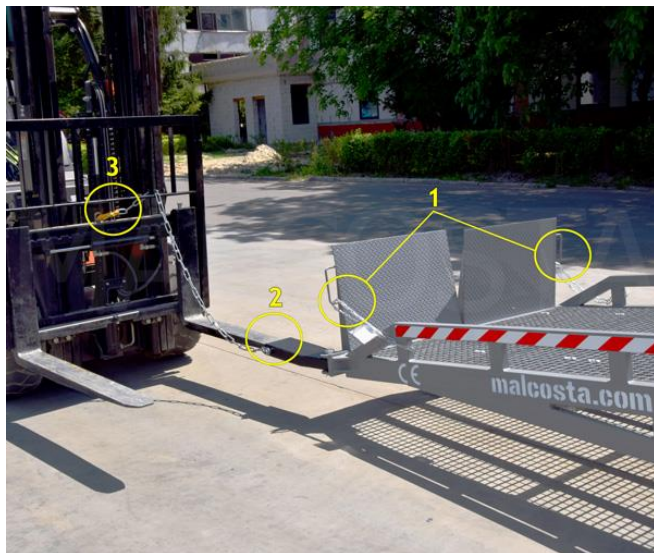
After completing the work:

1. Using the handle, lower the telescopic supporting legs to the ground level and place the chocks under the wheels.
2. Disconnect the chains.
3. Raise the ramp 50 mm above the vehicle body by turning the handle on the telescopic leg CLOCKWISE.
4. Drive the vehicle straight up to the ramp exit from the car body.
5. Remove the wheel chocks under the ramp wheels.

11. PROCEDURE FOR MOVING THE MOBILE RAMP

The mobile ramp is moved with the help of a tow pole and a forklift. For detailed description of mounting the tow pole after unloading, see the «Instructions for unloading the mobile ramp».

Transportation procedure:



1) Raise the folding bridges to the vertical position. Secure the folding bridges using a chain with a carabiner on both sides.

2) Place the forklift fork in the tow pole.

3) Secure the device chain to the forklift carriage, The chain must be secured with tension.



The maximum speed of the ramp is 4 km/h.

12. TECHNICAL SERVICE

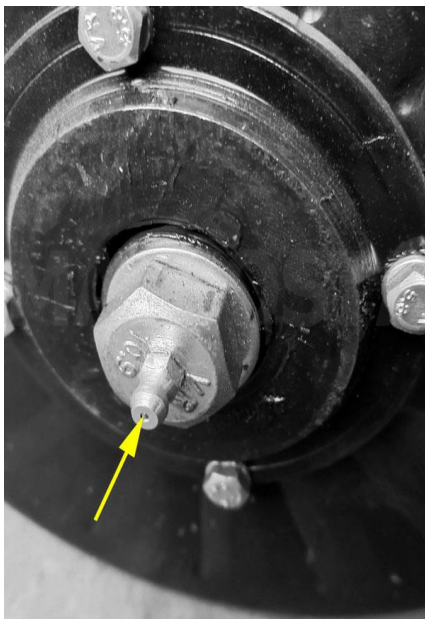
The quality of operation and service life of the product depends on preventive maintenance and the operating conditions of the product. Timely lubrication, painting, replacement of consumables and other maintenance will ensure of many years of trouble-free service.

Lubrication points.

For lubrication, it is recommended to use lithium grease – Lithol-24 or equivalent. It's recommended to lubricate at least once every 6 months.

Place of lubrication

- 1) Wheel bearing axle



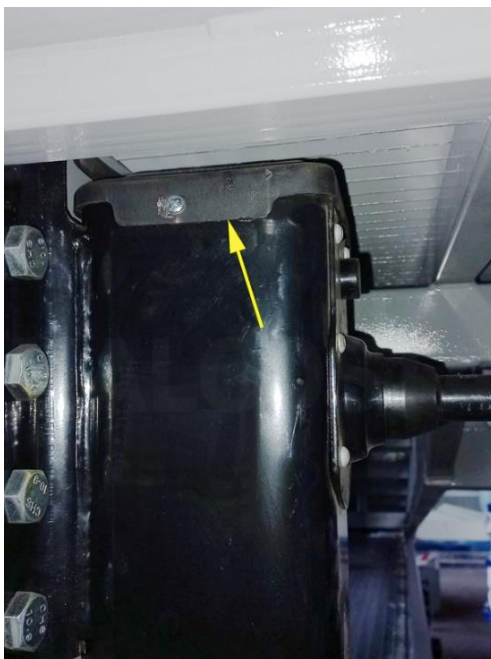
Description of the process

Filling is done with the help of a special grease syringe.

- 1) Fill the syringe with grease.
- 2) Connect the syringe head to the grease nipple on the wheel axle.
- 3) Pump the handle of the grease syringe.

Repeat the operation for each wheel.

- 2) Gear assembly of the supporting leg shaft



For a more convenient lubrication process, it is recommended to unscrew the fixing bolts and remove the front grating on the ramps.

- 1) Unscrew the protective cover on the supporting leg with a screwdriver and remove it.
- 2) Apply grease to the gears.
- 3) Replace and secure the protective cover.

Repeat the operation for the second supporting leg.



3) Screw pair assembly



Filling is done with a special grease syringe.

- 1) Fill the syringe with grease.
- 2) Connect the syringe head to the lower presser oiler on the supporting leg as shown in the photo.
- 3) Pump the handle of the grease syringe.

Repeat the operation for the second supporting leg.

13. MAINTENANCE



Painting for care

1. If the ramp is outdoors (not protected from rain or other precipitation), it should be painted every 6 months, thus extending the life of the equipment.
2. If the ramp is covered with something that prevents contact with atmospheric precipitation, painting is required every year.
3. If rust is evident, clean up the damaged areas and apply paint. Check with your supplier for the type of paint.

Other maintenance

If there is damage to the metal or welds, weld them up with welds.

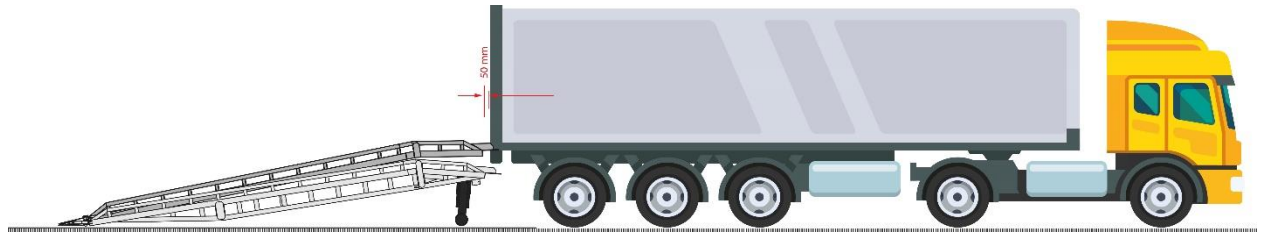
14. TYPICAL FAULTS AND SOLUTIONS

Name of the trouble. External signs and additional signs	Possible reason	Method of elimination
The lifting speed is too slow	The supporting legs mechanism is in the slow ascent position.	Turn the control lever to the left and pull it towards you. The mechanism will switch to high speed. 
The ramp does not rise	When switching speeds, the connecting gear did not move into the working position. The lever is scrolled.	The lever must be set to the gear operating position. To do this, pull the lever towards/away from you. 
Squeaking from the wheels	When moving the ramp, there is a squeak from the wheels.	The wheel axle must be lubricated. See point 12.1
Squeaking when raising/lowering the ramp	When the lever is rotated, there is a squeal from the telescopic supports.	It is necessary to lubricate the shaft gear assembly and screw pair assembly. See points 12.2 - 12.3
Rumble, noise from the ramp	The bolted connection on the grating is loose.	Tighten the bolts on the grating.

APPENDIX 1. WORK SCHEME FOR UNLOADING/LOADING



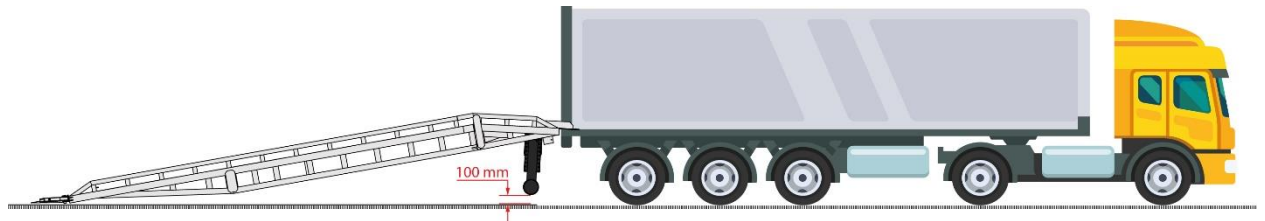
Set the height of the ramp to +50 mm from the bottom of the truck (container)



The distance between the ramp frame and the truck should be max 50 mm



Turn the hydraulic pump valve counterclockwise so that the connecting lip rests on the bottom of the truck or container



Make sure that the connection lip is lying flat. Keep turning the handle until the wheels are lifted off the ground. Minimum distance from ground level to wheels is 100 mm and more



Connect the ramp firmly to the truck with the connecting chains



Please check the following before operating the forklift:
The connecting lip is inside the truck.
The ramp position is secured with a wheel chocks.
The ramp is connected to the truck with connecting chains.

Please, don't doubt to call/email supplier. We are always open to help you:

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