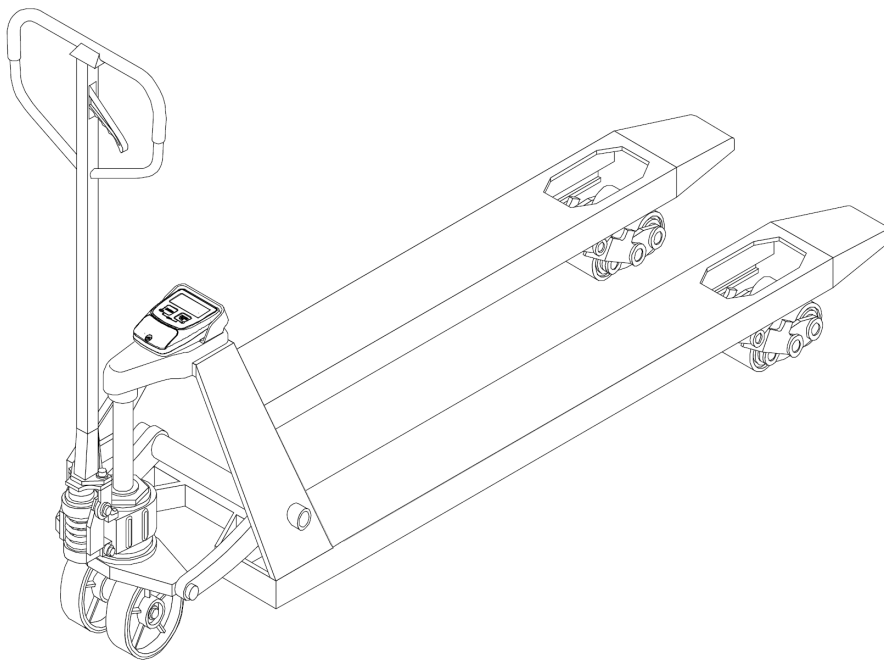


PTM 2.0 Scale

08.20

Operating instructions

en-GB



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A About this manual

These operating instructions describe the correct use of the products listed in the "Scope" chapter – see page 6. All Jungheinrich products are developed and produced according to the current state of the art. However, risks can arise in the case of incorrect use. Please observe the corresponding information and read through the operating instructions carefully. The operating instructions form part of the device and are valid for all specified device versions. The operating instructions describe the safe and correct use of the device in all operating phases.



Any technical questions should be directed to your authorised service partner.

The device described in these operating instructions is an industrial truck that is designed for lifting and transporting loads.

1 Scope and target group

Scope

This document applies to the following device:

- PTM 2.0 Scale

Target groups

For the purposes of these operating instructions the "owner" or "operator" is defined as any natural or legal person who either uses the described device himself or on whose behalf it is used. In special cases (e.g. rental), the owner is considered to be the person who is charged with the specified operational duties in accordance with existing contractual agreements between the owner and operator of the device.

Target group	Tasks
Owner	– Keep these operating instructions accessible at the usage location of the device, including for later reference. – Ensure that the device is used correctly and only by trained and authorised personnel. – Instruct employees to read and observe these operating instructions and other applicable documentation, particularly the safety instructions and warnings – see page 8. – Observe additional device-specific provisions and regulations.
Operator	– Read and observe these operating instructions and other applicable documentation, particularly the safety instructions and warnings see page 8. – Ensure that the device is used correctly and in accordance with the safety regulations.

Tab. 1: Owner and operator duties

2 Information and instructions

General information

- Indicates additional information and explanations.

Structure of warnings

Warnings are used in this document to highlight potential causes of personal injury or material damage.

- Always read and observe these warnings.
- Follow all measures highlighted by the relevant warning.

The following warning levels are used to reflect the severity and probability of the relevant hazard:

DANGER!

Indicates an extremely dangerous situation. Failure to observe this warning can lead to serious, irreversible injuries or death.

WARNING!

Indicates an extremely dangerous situation. Failure to observe this warning can lead to serious, irreversible injuries or death.

CAUTION!

Indicates a dangerous situation. Failure to observe this warning can lead to minor or moderate injuries.

NOTICE

Indicates a risk of material damage. Failure to observe this warning can lead to material damage.

Structure of instructions

Instructions in this document are structured as follows:

Aim of the described activity

Requirements

- Prerequisites for activity

Tools and Material Required

- Tools and materials required for an activity (optional specification)

- Step
- Step
 - Sub-step

Result of action

B Security

The safety chapter provides important information on how to work safely with the described product. Failure to observe the specified measures can result in material damage and injuries, and potentially even death.

- Before commissioning and operating the device: Read the safety chapter thoroughly.
- Use the described device only as specified in this document.

1 Correct Use and Application

The device described in these operating instructions is designed for safe transport of heavy loads and is intended for private and commercial use. Any damage resulting from incorrect operation or improper use shall render all liability and warranty claims null and void.

Correct environmental conditions

The device will be permanently damaged if exposed to extreme environmental conditions.

- Only use the device under the permitted conditions – see page 21.
- Do not use the device in areas or environments with high levels of humidity.
- Do not use the device in areas or environments at risk of explosion or fire.
- Do not use the device in very dusty areas or environments.
- Do not use the device in outdoor areas.
- Do not use the device in corrosive areas or environments.
- Do not use the device in temperatures outside the permissible temperature range – see page 8.

Possible incorrect use

Inappropriate use of the device poses a risk of injury and reduces the service life of the device.

The device is not suitable for the following applications:

- Transporting persons
- Transporting loads on slopes or inclines
- Transporting insufficiently secured loads
- Transporting loads that are too heavy or placed on one side
- Moving the device with electrical or mechanical aids
- Picking up pallets from the side

Attaching accessories to the device

Obtain written authorisation from the manufacturer and the responsible authority before attaching accessories to the device.



The authority's approval does not replace the manufacturer's permission.

Possible incorrect use of the weigher

Using the weigher incorrectly will produce incorrect weighing results.

- Position the device on a solid, level surface.
- Place the load centrally on the pallet.
- Remove any objects blocking the load handler.
- Reduce the inclination of the device to $< 2^\circ$.
- Do not exceed the maximum capacity.
- Raise the load slowly and evenly.

2 Duties of individuals

Duties of the owner

Incorrect preparation of the device can result in serious damage or injuries. The owner must:

- Ensure that the device is used as intended.
- Ensure that the device is in perfect technical condition.
- Ensure that all warnings and information signs are present on the device and in a language that the operator understands.
- Replace any damaged or missing warnings and information signs on the device.
- Ensure compliance with all regulations concerning accident prevention, safety and disposal as well as those regarding operation, maintenance and repairs.
- Provide suitable protective equipment for the operator.
- Make the operating instructions available at the usage location.
- Retain test reports for at least 2 years.

Duties of the operator

Irresponsible operation of the device can result in serious damage or injuries. The operator must:

- Provide evidence of his or her ability to use the device.
- Provide evidence of his or her commissioning by the owner or their legal representative.
- Prevent unauthorised use of the device.
- Wear safety shoes or safety equipment in accordance with statutory and operational regulations when operating the device.
- Assume responsibility for the correct use of the device during operation.
- Independently take the device out of service and inform the relevant supervisor(s) in the case of damage to the device during operation.
- Ensure that the load to be picked up is packaged correctly and does not exceed the permitted weight.

3 Safety information for specific operating phases

3.1 Transport

Transporting the device safely

Incorrectly secured transports can result in material damage and personal injury.

- Remove any load before transporting the device.
- Use lifting gear with sufficient capacity.
- Secure the HGV or trailer against rolling away before loading the device.
- Attach lifting accessories only to the designated attachment points.
- Correctly secure the device to the lashing rings on the HGV or trailer.
- When jacking up, prevent slipping or tipping by means of wedges or wooden blocks.

3.2 Operation

Operating the device safely

Unsafe operation of the device can result in significant material damage and severe personal injury.

- Never transport persons on the load handler.
- Always look in the direction of travel.
- If the load is obscuring your view, travel backwards or instruct an additional person to proceed in front of the device as a lookout.
- Never place feet or other body parts in the vicinity of moving rollers.
- Adapt your travel speed to local conditions.
- In corners, at and in passageways and at blind spots, reduce your speed and be aware of the device dimensions.
- Do not travel on slopes or inclines.
- Maintain a sufficient stopping distance from trucks travelling in front.
- Adapt the stopping distance to the condition of the ground.
- Restrict (sudden) braking to hazardous situations.
- Avoid quick changes in direction.
- Do not overtake at blind spots.
- Do not lean or reach out of the operating area.
- Lower the load as far as possible for transport.
- If the load threatens to become unstable, stop and lower the load.

Requirements for travel paths and work areas

Failure to observe the specific environmental conditions can result in significant material damage and severe personal injury.

- Only travel on level surfaces that are designated as traffic routes.
- Maintain a sufficient safety clearance between the tiller and racks/walls.
- Do not travel on slopes or inclines unless expressly permitted in this document.
- Traffic route conditions have a significant influence on the stopping distance. Adjust the travel behaviour to the prevailing conditions.
- Visibility conditions have a significant influence on the travel path. Ensure that you have clear visibility.
- Keep unauthorised persons out of the work area.
- Always set down and store the load at the designated locations.
- Never deposit the load and device on traffic, escape or rescue routes or in front of passageways, roller shutter gates and doors.
- Before working under a raised load, secure the load handler against lowering using a sufficiently strong chain.

Preventing injuries to third parties

A heightened accident risk exists for unauthorised persons in the hazardous area.

- Instruct unauthorised persons to leave the hazardous area.
- In the case of a potential risk to persons, issue a warning signal in a timely manner.
- If endangered persons fail to leave the hazardous area, stop the device immediately.



The hazardous area is classed as the area in which persons are exposed to a direct risk by the movements of the device or are endangered indirectly, e.g. due to a falling load.

Travelling onto lifts and loading bridges

A heightened risk of material damage and personal injury exists in lifts and on loading bridges.

- Before travelling onto lifts and loading bridges, ensure that they offer sufficient capacity for the individual weight of the device including the load and operator.
- Before travelling onto lifts and loading bridges, ensure that they are suitable and approved for such use by the owner.
- Travel load-first onto lifts and loading bridges and maintain a sufficient distance from the side walls.
- Park the device securely before any persons step into the lift or onto the loading bridge.

Moving loads safely

An inadequately secured load poses a heightened risk of material damage and personal injury.

- Ensure that the load is in correct condition.
- Do not move loads unless they have been safely and securely applied.
- If there is a risk of parts of the load tipping or falling, take suitable safety measures (e.g. load backrest).

Transporting liquids safely

When transporting liquids, the centre of gravity can vary according to the position of the device, which will significantly impact upon overall stability (e.g. in tanks).

- Avoid sudden/jerky braking or acceleration.
- Reduce the speed before and in corners.

3.3 Maintenance

Conducting maintenance work safely

Thorough and expert servicing is one of the most important prerequisites for safe operation of the device. Failure to perform regular maintenance can result in a malfunction of the device and poses a potential hazard to personnel and equipment.

- Perform maintenance and repair work in line with the specified maintenance intervals – see page 10.
- Maintenance and repair work must only be completed by specialist personnel with the requisite training.
- In the case of uncertainty, contact the manufacturer's customer service department.
- Use only original spare parts from the manufacturer.
- When repairing or replacing components, observe the device-specific settings.
- When replacing rollers, ensure that the device remains level (e.g. always replace left and right at the same time).
- Immediately after any maintenance work, complete all steps for returning the device to service – see page 10.
- Do not clean the device with flammable liquids.
- Before working on the hydraulic unit: Fully lower the load handler.
- Before working on the pump: Secure the return spring.

Using batteries safely

Batteries contain chemicals which can escape in the case of incorrect use and consequently cause material damage or personal injury.

- If the device remains unused for an extended period or if the batteries are fully discharged, remove the batteries from the device.
- Always replace all batteries at the same time.
- Ensure correct polarity when inserting the batteries.
- Use only batteries of the same type. Do not mix different types of battery or used batteries with new ones.
- Do not expose batteries to extreme conditions.
 - Do not set them down on heaters or hot surfaces.
 - Do not expose them to direct sunlight.
 - Do not throw them into open fires.
- If battery acid has escaped, avoid contact with the skin, eyes and mucous membranes. In the event of contact with acid, immediately rinse the affected areas with plenty of clear water and contact a doctor immediately.
- Unless otherwise instructed, do not charge batteries or reactivate them by other means.
- Do not short-circuit batteries.
- Do not forcibly open batteries.

4 Conversions and modifications

Modifying the design and function of the device

Any conversions or changes to the design of the device which have not been approved by the manufacture can result in severe personal injury and significant material damage. All warranty and liability claims will be void.

If modifications are to be made, they require written permission from the manufacturer, an authorised representative or a legal successor. This includes, but is not limited to, the following actions:

- Changes affecting the capacity
- Changes affecting the stability
- Changes affecting the control function
- Changes affecting the visibility
- Addition of attachments.

Under no circumstances must the operating speed of the device be changed, not even with the manufacturer's approval.

5 Residual risks

Using consumables

Improper handling of consumables is hazardous to health, life and the environment.

- Use consumables in the correct manner and in accordance with the manufacturer's specifications.
- Work with consumables must only be performed by qualified specialist personnel.

C Structure and function

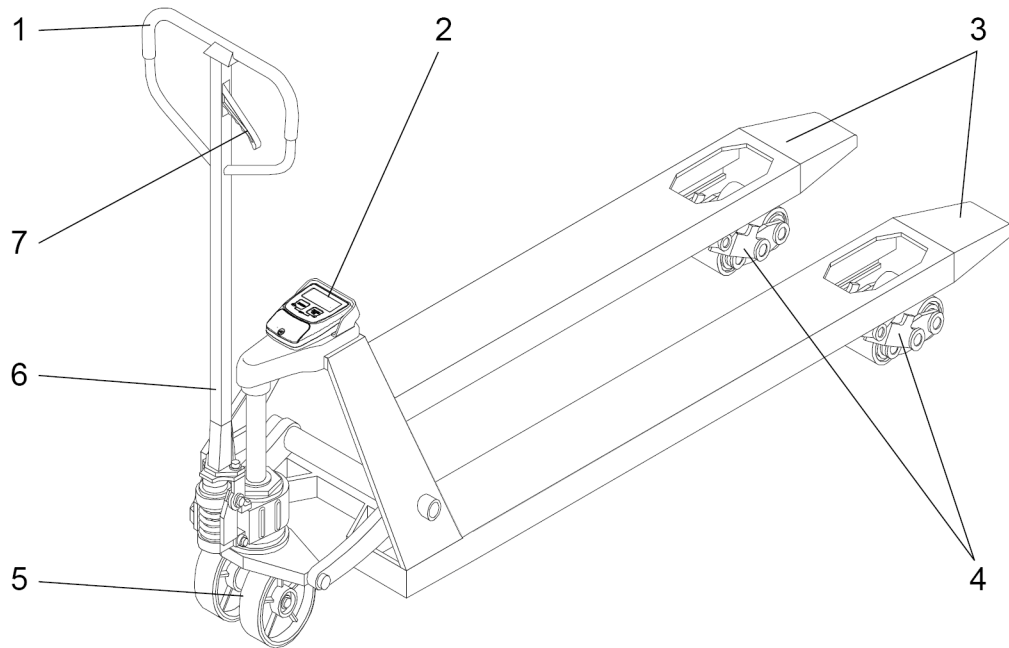


Fig. 1: Assemblies and functional description

Item	Description	Function
1	Handle	Moves the device. Generates hydraulic pressure.
2	Weigher operating and display unit	Weighs the load.
3	Load handler	Carries the load.
4	Load wheels	Move the device forward and back.
5	Steering wheels	Steer the device.
6	Tiller	Controls the device. Generates hydraulic pressure.
7	"Load handler neutral/ lift/lower" handle	Raises/lowers the load handler.

1 Controls

The control lever with the control handle is located on the tiller.

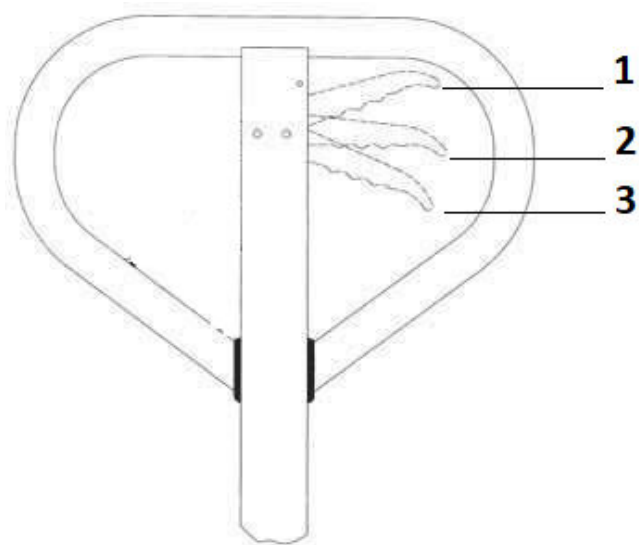


Fig. 2: Control lever

Item	Description	Function
1	Control handle in "lower" position	Lowers the load.
2	Control handle in "neutral" position	Moves the tiller freely.
3	Control handle in "lift" position	Raises the load with the movement of the tiller.

2 Weigher

Weigher operating and display unit

→ Active displays are indicated by black symbols.

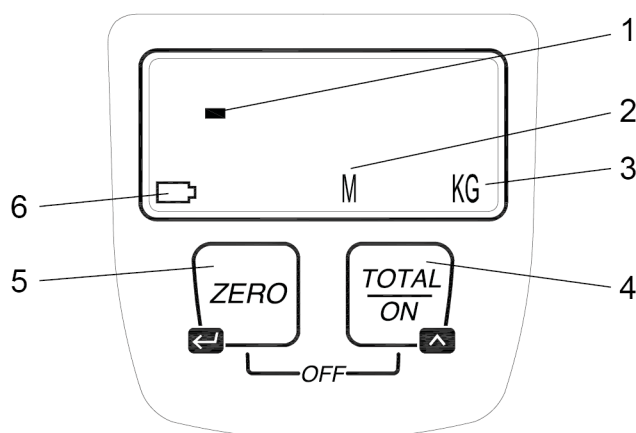


Fig. 3: Weigher operating and display unit

Item	Display/control element	Function
1	Negative sign	Display: load removed after taring of weigher.
2	Result memory	Stores the weight.
3	Kilogrammes	Displays the weight in kilogrammes.
4	"Total/On" button	– Switches the weigher on – see page 28. – Adds the weight to the totals memory – see page 30. – Accesses the intermediate total. – In combination with the "Zero" button: Switches the weigher off – see page 28.
4	"Zero" button	– Tares the weigher – see page 28. – Performs a zero point adjustment – see page 28. – Deletes the memory contents – see page 30. – In combination with "Total/On" button: Switches the weigher off – see page 28.
6	Battery indicator	Display: batteries of the weigher operating and display unit are empty.

If an error occurs, the display shows the corresponding error code. For more information on troubleshooting, see page 33.

Reference height indicator

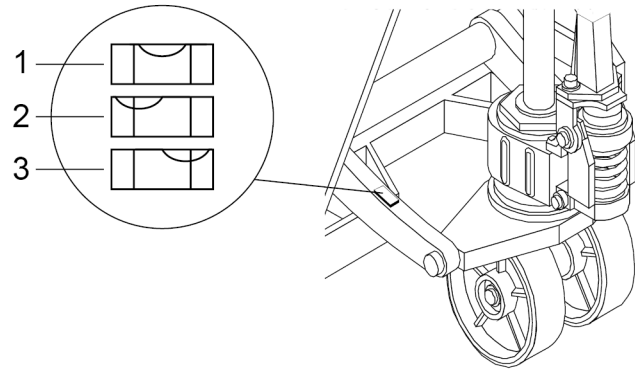


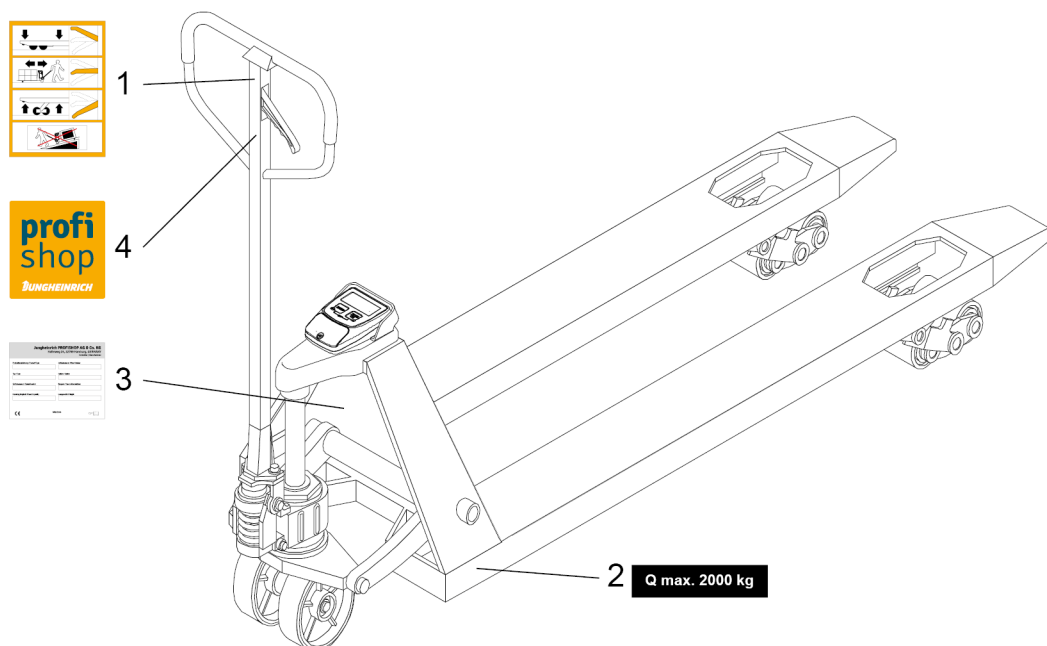
Fig. 4: Reference height indicator of the weigher

Item	Display element	Function
1	Reference height reached.	Weigher weighs the load.
2	Reference height exceeded.	Request to lower the load.
3	Reference height not reached.	Request to raise the load.

3 Marking and labelling

3.1 Warning and information signs

Locations of the warning and information signs



Item	Description
1	Information sign: correct operation
2	Q _{max} XXXX kg
3	Data plate
4	Jungheinrich PROFISHOP

3.2 Data plate

Jungheinrich PROFISHOP AG & Co. KG
Haferweg 24, 22769 Hamburg, GERMANY
Hersteller / Manufacturer

9 Produktbezeichnung / Product Type

8 Typ / Type

7 Seriennummer / Serial Number

6 Nenntragfähigkeit / Rated Capacity

2 Artikelnummer / Item Number

3 Option / Option

4 Baujahr / Year of Manufacture

5 Leergewicht / Weight

CE Made in

Fig. 5: Data plate (schematic)

Item	Information
1	Name and address of manufacturer
2	Article number
3	Option
4	Year of manufacture
5	Net weight
6	Rated capacity
7	Serial number
8	Type
9	Product designation

D Technical Specifications

1 Dimensions

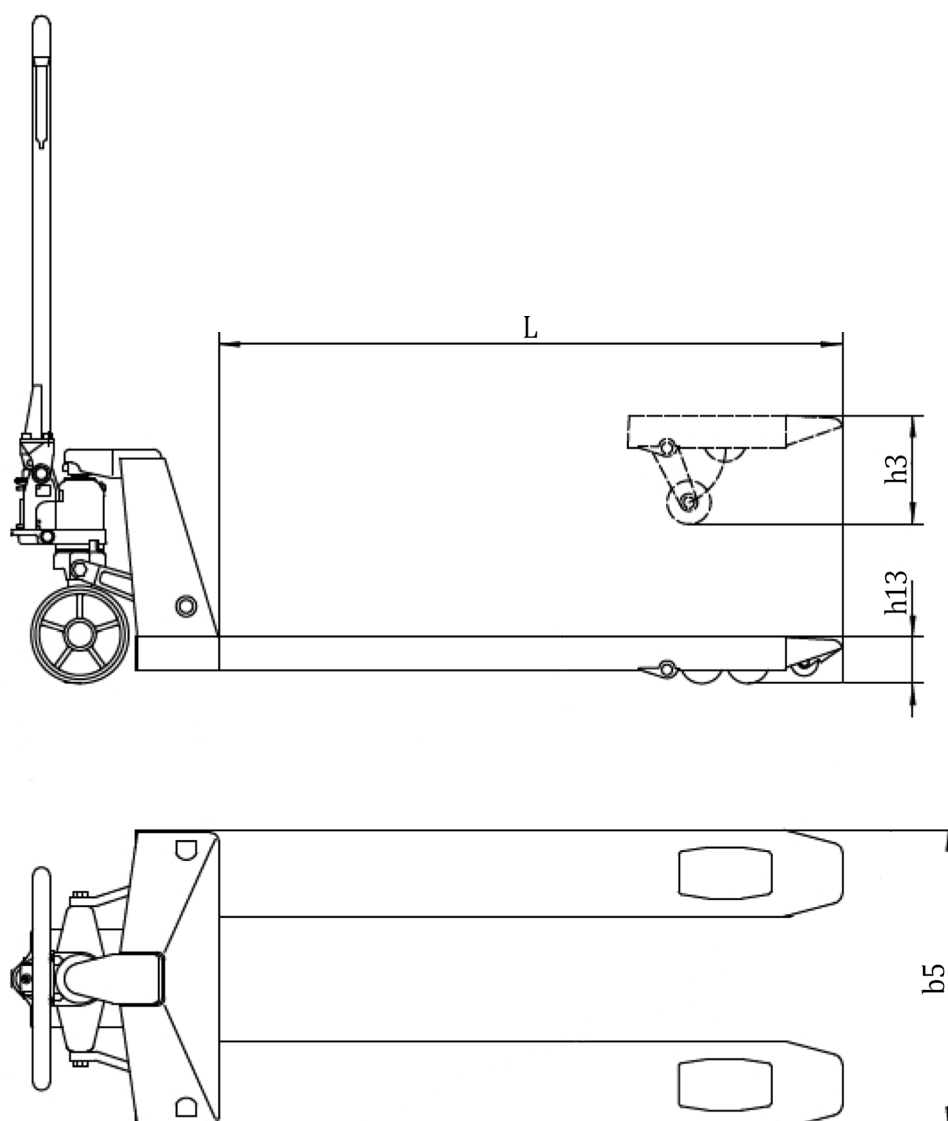


Fig. 6: Device dimensions (schematic)

2 Performance data

Technical data

Description	Item	Value	Unit
Identification			
Manufacturer's type designation	-	PTM 2.0 Scale	-
Capacity	Q	2.0	t
Basic dimensions			
Lift (standard mast)	h3	200	mm
Lowered height	h13	85	mm
Overall width	b5	540	mm
Fork length	L	1150	mm

Correct environmental conditions

Condition	Value
Application area	Indoor application
Permitted ambient temperature	+5°C to +40°C
Minimum illumination	50 Lx

E Commissioning and transport

1 Using the Truck for the First Time

Preparing for commissioning

- Verify that the warning and information signs are present and undamaged. Replace any damaged or missing signs.
- Check all supplied components for transport damage.
- Check the functionality of the actuators, rollers, wheel axles and scissor lift axles.
- Immediately notify the carrier of any transport damage or missing components.

2 Transport

⚠ CAUTION!

Inadequately secured transport!

Risk of material damage and personal injury due to unsecured loads.

- ▶ The device must be sufficiently secured when transported on an HGV or trailer.
- ▶ Use the lashing rings on the HGV or trailer.
- ▶ The device must only be loaded by specially trained personnel while observing the applicable regulations.

⚠ WARNING!

Inadequately secured load!

Risk of material damage and personal injury due to falling loads.

- ▶ Always use cranes and lifting gear with sufficient capacity.
- ▶ Attach lifting gear only to the designated attachment points.
- ▶ Do not stand under suspended loads.
- ▶ Do not stand in the hazardous area when the device is being lifted by crane.

2.1 Attaching the device

Attaching the device

- Remove all loads from the load handler.
- Lower the load handler fully and secure it with lashing straps.
- Attach the lifting gear to the designated attachment points and secure it.

The device is attached and ready for transport.

F Operation

CAUTION!

Collisions with persons in the vicinity!

Risk of personal injury.

- ▶ Before moving the device, raising or lowering the load, instruct persons to leave the hazardous area.
 - ▶ In the case of a potential risk to persons, issue a warning signal in a timely manner.
 - ▶ If endangered persons fail to leave the hazardous area, stop the device immediately.
-

1 Checking the device before daily use

Regular inspection allows faults or malfunctions to be recognised at an early stage and rectified promptly. This increases the service life of the product and helps to ensure safe operation.

Checking the device for damage and defects before start-up at the beginning of a shift

- Remove any loads from the device and move the load handler to its lowest position.
- Visually inspect all assemblies for deformation or cracks.
- Check the lift mechanism for correct function and ease of movement. Look out for any unusual noises and blockages.
- Check the load handler and carriage for wear and damage.
- Check the hydraulic system for leaks.
- Check the rollers for correct function and ease of movement.
- Check the hydraulic oil level and top up if necessary.
- Check the vertical elongation of the lift mechanism.
- Verify that all screws and nuts are securely fastened.
- Verify that all signs and warnings are present and legible.
- Immediately notify the relevant supervisor(s) of any damage or defects on the device or attachments.
- Take any devices with damaged or defective safety-relevant components out of service and repair them before next use.

2 Raising the load

WARNING!

Falls from great heights!

Risk of fractures and head injuries due to falling.

- ▶ Never lift or carry persons with the load handler.

WARNING!

Inadequately secured load!

Risk of material damage and personal injury due to falling loads.

- ▶ Only lift adequately secured loads.
- ▶ Position the load's centre of gravity centrally on the device.
- ▶ If there is a risk of parts of the load tipping or falling, take suitable safety measures (e.g. load backrest).

NOTICE

Exceeding the permitted load capacity!

Risk of damage to the device due to excessive loads.

- ▶ Never exceed the permitted maximum capacity.

Raising the load

Requirements

- The load is correctly palletised and secured against tipping.
- Load handler fully lowered.
- Slowly move the load handler under the load until the load is resting against the fork shank.
- Move the control handle to the "lift" position.
- Move the tiller up and down with a "pumping" action until the load has reached the desired height. Ensure that the load is positioned evenly on the load handler.
- Move the control handle to "neutral" position.

The load has been raised.

3 Moving the load

WARNING!

Unevenly distributed loads!

Risk of personal injury and material damage due to sudden tipping of the load.

- ▶ Ensure that the load is in correct condition.
- ▶ Do not move loads unless they have been safely and securely applied.
- ▶ Take suitable precautions if there is a risk of the load tipping or falling down (e.g. load backrest).

CAUTION!

Unintentional lowering of the load!

Risk of personal injury due to crushing.

- ▶ Before tilting the tiller, ensure that the control handle is not in "lower" position.
- ▶ Do not place any part of your body between the load handler and the ground.

CAUTION!

Unsafe operating condition!

Risk of personal injury and material damage due to faults or unexpected breakdowns.

- ▶ In the case of faults or unexpected breakdowns, cease operation immediately.
- ▶ Switch off the device and secure it against reactivation.
- ▶ Inform the relevant supervisor(s) or the manufacturer's service department.



The tiller is connected to the steering castors and transmits the steering and travel movements performed by the operator.

Moving the load

- Move the control handle to "neutral" position.
- Push or pull the tiller to move the device forward or back.
- Move the tiller to the side to move left or right.

The device moves in the desired direction.

4 Lowering the load

CAUTION!

Lowering heavy loads!

Risk of personal injury due to crushing.

- ▶ Always lower the load slowly and carefully.
- ▶ Do not place any part of your body between the raised load and the ground.
- ▶ Wear safety shoes.

NOTICE

Increased impact load!

Risk of device damage and malfunction due to excessively fast lowering of the load.

- ▶ Always lower the load slowly and carefully.



If the device is to be moved after depositing the load, ensure that there is sufficient room for manoeuvring.

Lowering the load

- Move the control handle to the "lower" position.
- To stop the lowering process: Release the control handle.
- Before continued operation: Move the control handle to "neutral" position.

The load has been lowered.

5 Braking the device

Braking the device slowly

- Move the tiller in the opposite direction to the travel direction until the device comes to a stop.

The device has been stopped.

Braking the device quickly (emergency stop)

- Move the control handle to the "lower" position.
- Lower the load.

The lowered load brakes the device.

6 Parking the device

Parking the device securely

- Position the device on a smooth, level surface.
- Fully lower the load handler.
- If possible, apply the parking brake.
- Fold up the tiller so that it doesn't hinder other operations.

The device is parked securely.

7 Weighing the load

7.1 Preparing the weigher

Switching on the weigher

- Briefly press the "Total/On" button.

The weigher is switched on.

Performing a zero point adjustment

Requirements

- There is no load on the load handler.
- The device is positioned on a solid, level surface.
- The load handler is not blocked by other objects.
- Fully lower the load handler.
- Switch on the weigher.
- Raise the load handler up to reference height (see page 17).
- Press the "Zero" button.

The zero point adjustment has been completed and the load can be weighed.

7.2 Weighing the load

Determining the net weight

Requirements

– Zero point adjustment has been completed.

- Switch on the weigher.
- Tare the weigher.
 - Pick up an empty pallet.
 - Raise the load handler up to reference height.

The weigher shows the current weight of the pallet.

- Press the "Zero" button.

The weigher shows the value "0".

The weigher has been tared.

- Place the load on the pallet or pick up an identical pallet with the load.

The weigher shows the weight of the load – see page 17.



The weight of the pallet is not included in the measurement.

Determining the gross weight

Requirements

– Zero point adjustment has been completed.

- Switch on the weigher.
- Pick up the pallet with the load.

The weigher shows the combined weight of the pallet and the load – see page 17.

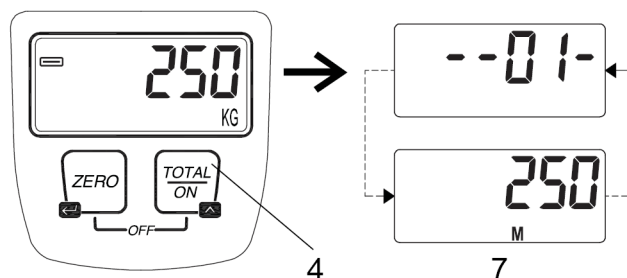
7.3 Totalling and storing weights

Totalling weights

- Determine the net weight of the first load – see page 28.
- Press the "Total/On" button (4).

The weigher display alternates between the current weight of the load and the number of the weighing operation.

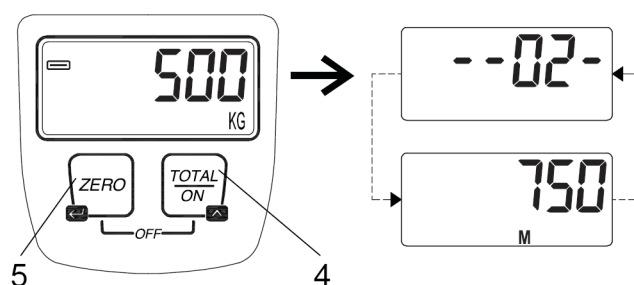
The "result memory" display lights up.



- Place a second load on the pallet.
The weigher shows the current weight of the second load.

- Press the "Total/On" button (4).
The weigher display alternates between the total weight of the load and the number of the weighing operation.

The "result memory" display lights up.



Saving the total weight

Requirements

- The weights of at least 2 loads have been totalled as described.
- Press the "Zero" button for 3 seconds.

The total of all weighed loads is saved.

Deleting the memory contents

Requirements

- Weights are stored in the device memory.
- Briefly press the "Zero" button.

The memory is erased.

Switching off the weigher

- Press the "Zero" and "Total/On" buttons together for at least 2 seconds.

The weigher is switched off.



If no input is made for 2 minutes, the weigher is switched off automatically.

G Maintenance and repair

1 Faults and troubleshooting

- In the case of a device fault, carry out the following troubleshooting measures.
- If you encounter problems when carrying out the measures or if they fail to rectify the problem, contact the manufacturer's customer service department.

CAUTION!

Incorrect maintenance!

Risk of material damage and personal injury due to failure of important components.

- ▶ Use only original spare parts from the manufacturer.
 - ▶ Maintenance and repair work must only be completed by specialist personnel with the requisite training.
 - ▶ When replacing rollers, ensure that the device remains level (e.g. always replace left and right at the same time).
 - ▶ Always observe the device-specific settings when carrying out repairs or replacing components.
-

Fault table

Fault	Possible cause	Fault rectification
Control lever is in "lift" position, load handler not lifting.	Air in the hydraulic system.	Bleed the hydraulic system.
	Hydraulic pump faulty.	Check the hydraulic pump and replace if necessary.
Load handler not lifting even though the hydraulic pump is working correctly.	Load is too heavy (overload valve actuated).	Reduce load.
	Control lever is not set correctly.	Set the control lever or piston rod.
	Lowering valve no longer closes or valve body is leaking due to oil contamination.	Clean the lowering valve or piston rod and replace if necessary.
	Oil level in hydraulic reservoir too low.	Lower the load handler and top up hydraulic oil.
	Viscosity of hydraulic oil is too high.	Use suitable hydraulic oil.
	Lowering valve is not coordinated with control lever.	Adjust the piston rod nut.
Load handler does not reach the top position.	Oil level in hydraulic reservoir too low.	Lower the load handler and top up hydraulic oil.
Raised load is lowered only slowly or not at all.	Ambient temperature too low, hydraulic oil too viscous.	Move to area with higher ambient temperature.
	Hydraulic cylinder is damaged or deformed.	Repair components or have them replaced.
Raised load handler lowers automatically.	Hydraulic unit is leaking.	Check the hydraulic unit and replace if necessary.
	Lowering valve no longer closes or valve body is leaking due to oil contamination.	Adjust, clean or replace the valve.

Errors and warnings on the weigher display

Display	Possible cause	Fault rectification
Weigher operating and display unit unreadable	Operating temperature out of range.	Check the ambient temperature.
	Connector is loose or not connected	Attach the connector correctly.
	Current circuit not closed.	Check the wiring and repair if necessary.
	Battery voltage too low.	Replace batteries.
	Weighing system is overloaded.	Reduce load.
	Signal to AD converter too high.	Have sensor connection checked.
	No signal to AD converter.	Have sensor connection checked.
	Zero point adjustment deleted.	Perform zero point adjustment.
	Zero point adjustment is lower than the previous value and lower than 25 or the value is 0.	Perform zero point adjustment.
	Batteries of the operating and display unit are fully discharged.	Replace batteries.
	Memory is full (maximum display is 99.999 kg).	Clear memory.

2 Maintenance

CAUTION!

Uncontrolled movement of the device!

Risk of personal injury and material damage due to sudden movements of the device.

- ▶ Park the device securely when not in use and before maintenance work.
 - ▶ If possible, switch off the device.
 - ▶ If possible, use the parking brake.
-

CAUTION!

Safety equipment rendered ineffective!

Risk of personal injury and material damage due to ineffective safety equipment.

- ▶ Under no circumstances must safety equipment (e.g. emergency disconnect switch) be rendered ineffective.
 - ▶ Repairs must only be carried out by qualified specialists.
-

2.1 Maintenance intervals

Requirements

- The device is used in single-shift operation.
- The device is used under normal operating conditions – see page 8.
- Maintain the device at the specified intervals.
- If the device is operated in very dusty conditions, subjected to extreme temperature fluctuations or used in multi-shift operation, the intervals must be reduced accordingly.

Maintenance interval	Maintenance
Daily.	Check the device before use – see page 24
After all cleaning and repair work.	– Lubricate the device at the designated points – see page 35. – Check and bleed the hydraulic system and/or top up oil.
After the first 100 operating hours.	– Re-tighten wheel nuts and bolts. – Check the hydraulic system for leaks. – Check that retaining rings, locking and cotter pins are in place.
Monthly.	– Lubricate all bearings and shafts with long-life lubricant. – Remove dirt and foreign bodies.
Every 3 months.	Check the setting of the bleed valve.
Every 4000 operating hours or at least every 6 months.	– Check the hydraulic oil and replace if necessary (more frequently if the oil is very dark, contaminated or flocculating). – Check all parts of the device for wear and replace faulty parts.
Annually or after unusual events.	Have safety checks performed at regular intervals and following any unusual events – see page 37.

2.2 Consumables

Lubricants

Lubricants		Value	Unit
Hydraulic oil	Oil type	ISO VG 32	-
	Viscosity	30	cSt at 40 °C
	Refill quantity	0.4	Litres
Multi-purpose lubricant		MoS2 anti-friction coating	-

3 Repairs

3.1 Replacing the batteries of the weigher operating and display unit

⚠ CAUTION!

Escaping battery acid!

Risk of chemical burns to the skin, eyes and mucous membranes.

- ▶ To prevent battery acid escaping, observe the instructions for safe handling of batteries.
- ▶ If battery acid has escaped, avoid contact with the skin, eyes and mucous membranes.
- ▶ In the case of contact with battery acid, immediately rinse the affected area with plenty of clear water and contact a doctor immediately.

NOTICE

Leaking batteries!

Risk of device damage due to battery acid.

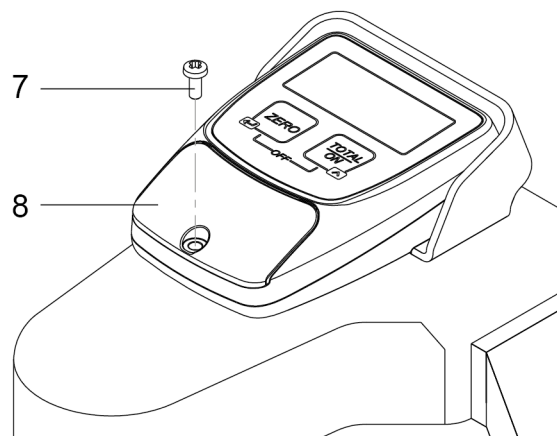
- ▶ Remove dead batteries from the device immediately.
- ▶ If the device is not used for extended periods, remove the batteries from the device.

Replacing batteries

Requirements

- The battery voltage is too low for continued operation.
- The battery display is illuminated.

- Switch off the weigher.
- Undo the screw (7) on the battery compartment and remove the battery cover (8).
- Remove the dead batteries and dispose of them in the correct manner.
- Clean the battery and device contacts.
- Insert new batteries (type LR6/AA, 1.5 V).
- Ensure correct polarity.
- Insert the battery cover (8) and tighten the screw (7).



3.2 Safety tests to be performed at intervals and after unusual events

- Always perform safety checks in accordance with national regulations. These may deviate from the steps listed below.

Requirements

- The inspecting person is qualified to conduct the following check.
 - The inspecting person is independent and unbiased (from an operational and business perspective) and assesses the device purely in terms of its safety.
 - The inspecting person possesses sufficient knowledge and experience to assess the condition of the device and the effectiveness of the safety equipment based on the rules of technology and the principles for testing the described device.
-
- Inspect the technical condition of the device with regard to accident safety.
 - Carefully inspect the device for damage that may be attributable to incorrect use.
 - Produce a written test report and retain it for at least 2 years. Responsibility for the test report rests with the owner.
 - Rectify any identified defects before next using the device.
 - Following a successful inspection, attach an inspection plaque to the device in a visible location.

H Shutdown, storage and disposal

1 Decommissioning

1.1 Shutting down the device

- Thoroughly clean the device.
- Check the hydraulic oil level and top up if necessary.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the device.

1.2 Returning the device to service after shutdown

- Thoroughly clean the device.
- Lubricate the device.
- Check the hydraulic oil for condensation water and replace the oil if necessary.
- Start up the device.
- Perform a complete function check immediately after start-up.

2 Storage

2.1 Storing the device

NOTICE

Incorrect storage!

Risk of material damage.

- ▶ Always store the device in a dry and frost-free environment.
- ▶ Jack up the device so that the rollers can spin freely.

Storing the device

Requirements

- Device is being taken out of service for more than 2 months (e.g. for operational reasons).
- Device has been prepared for shutdown as described – see page 38.
- Store the device securely in a dry and frost-free room.
- Jack up the device so that the rollers can spin freely.
- Protect the device against dust and corrosion, e.g. using a tarpaulin.
- Before storing the device for longer than 6 months, discuss necessary additional measures with the manufacturer's customer service department.

3 Disposal

3.1 Decommissioning the device

- Observe the applicable regulations in the country of use when decommissioning the device.

3.2 Disposing of the device

- Observe the country-specific regulations regarding disposal of the device and consumables.

