

HUPFER

Operating instructions



Tray transport cart

TTW

Read the instructions prior to performing any task!

Manufacturer information

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Table of contents

1	General information	5
1.1	Produktinformationen	5
1.2	Target group	5
1.3	Symbols	6
2	Product description	6
2.1	Function	6
2.2	Overview	7
2.3	Equipment features	10
2.4	Variants	11
2.5	Equipment options	11
2.6	Technical data	12
2.7	Rating plate	12
3	Safety information	13
3.1	Intended use	13
3.2	Improper use	13
3.3	Safety instructions	14
3.3.1	General information	14
3.3.2	Transport	14
3.3.3	Operation and use	15
3.3.4	Cleaning	15
3.3.5	Maintenance	15
3.3.6	Safety devices	16
4	Transport	16
4.1	Delivery	16
4.2	In-house transport	17
4.3	Lifting	17
5	Commissioning	18
6	Operation	19
6.1	Opening and closing doors	19
6.2	Moving the transport cart	20
6.3	Keeping food cold	25
6.4	Loading with trays	27
6.5	Removing trays	28

6.6	Finishing operation	29
6.7	Process chain with N'Ice & Easy cooling	29
7	Care and cleaning	30
7.1	Care instructions	30
7.2	Cleaning intervals	31
7.3	Permissible cleaning types	31
7.4	Permissible cleaning agents	33
7.5	Material compatibility	34
7.6	Manual cleaning	34
7.7	Mechanical cleaning	37
7.8	Disinfecting	39
8	Maintenance and repair	40
8.1	Maintenance intervals	40
8.2	Troubleshooting	41
8.3	Repairs and spare parts	41
8.4	Recommissioning	41
9	Disposal	42

1 General information

1.1 Produktinformationen

Product name	Tray transport cart
Product types	TTW/E, TTW/M, TTW/V

1.2 Target group

These operating instructions are intended for the following groups of people who perform the listed activities with or on the product:

Maintenance engineer

- Maintenance work on mechanical systems or trained activities on the electrical, cooling or heating systems
- Simple repairs
- Appropriately trained employees of the customer or an employee of the manufacturer

Operator

The operator or an authorised person must carry out the work.

- Check the condition of the entire unit
- Determine maintenance requirements

1.3 Symbols

 **DANGER**

“Danger” indicates a hazardous situation that will result directly in death or serious injury.

 **WARNING**

“Warning” indicates a hazardous situation that may result in serious injury.

 **CAUTION**

“Caution” indicates a potentially hazardous situation that may result in minor to moderate injury.

 **NOTICE**

“Notice” indicates a situation that may result in damage to property.

“Notes” give tips on the correct use of the product.



2 Product description

2.1 Function

The tray transport carts are designed for transporting food on trays. Tray transport cart with a cooling system keeps food cold during transport and until regeneration and food serving. In tray transport carts that are compatible with an induction docking station, food can be regenerated when the carts are connected to the station.

2.2 Overview

Overview of TTW/E

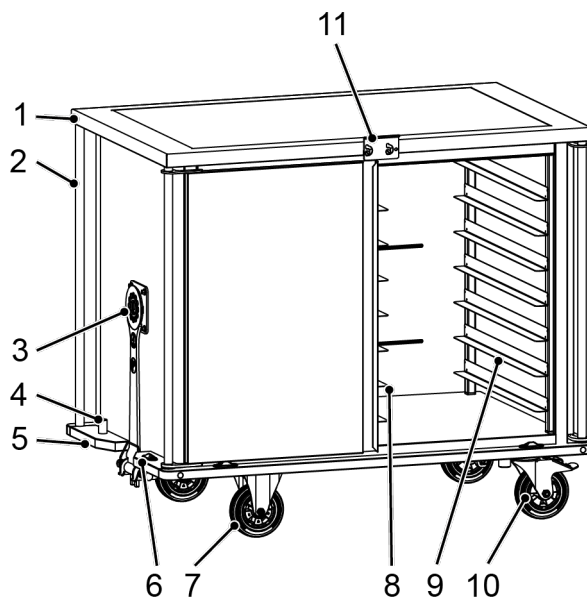


Fig. 1: Overview of TTW/E

- 1 Top
- 2 Push bar
- 3 Friction-damped towing device¹
- 4 Door stop
- 5 Chassis with bumper strip
- 6 Extension for drain plug
- 7 Fixed castor
- 8 Middle panel as support ledge frame
- 9 Runners on the support ledge frame
- 10 Swivel castor
- 11 Transport latch

¹ Optional equipment

Overview of TTW/M

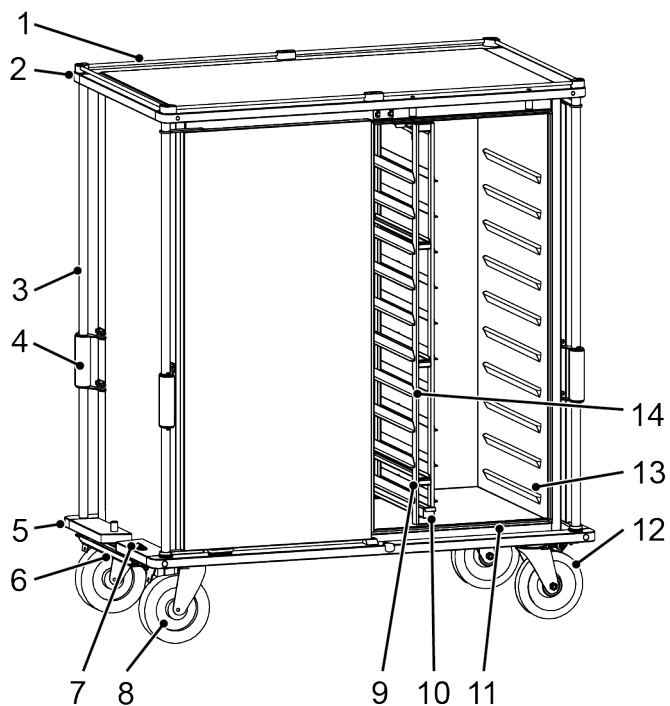


Fig. 2: Overview of TTW/M

- 1 Top gallery¹
- 2 Top with bumper strip¹
- 3 Push bar
- 4 HGV transport securing device¹
- 5 Chassis with bumper strip
- 6 Central direction lock tread¹
- 7 Extension for drain plug
- 8 Swivel castors with direction lock¹
- 9 Insert for eutectic plates¹
- 10 Condensate pan
- 11 Door seal
- 12 Swivel castor with lock¹
- 13 Runner
- 14 Middle panel with L-rail pairs as runners

¹ Optional equipment

Overview of TTW/V

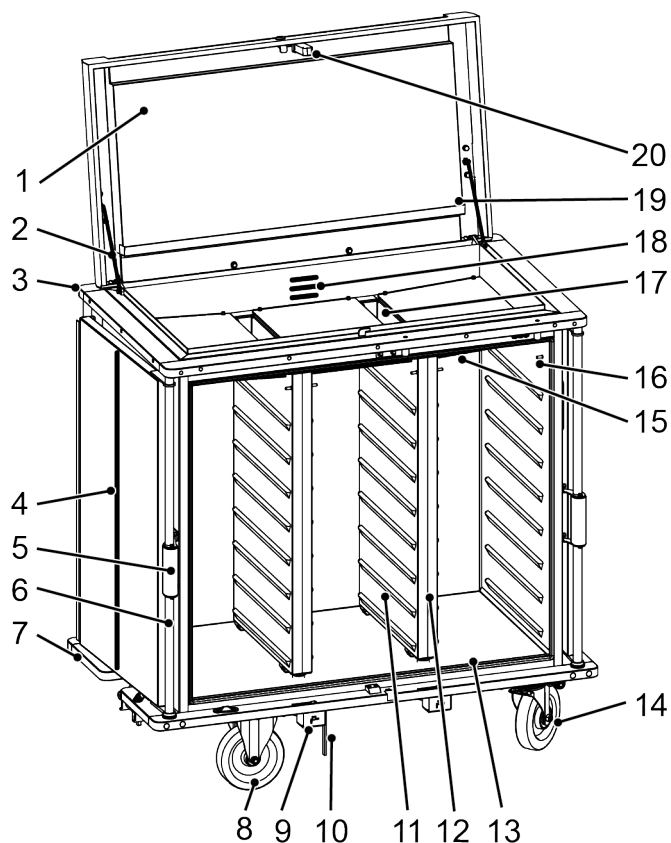


Fig. 3: Overview of TTW/V

- 1 N'Ice & Easy top¹
- 2 Flap support¹
- 3 Top with bumper strip¹
- 4 Door with air guide strip
- 5 HGV transport securing device¹
- 6 Push bar
- 7 Chassis with bumper strip
- 8 Fixed castor
- 9 Drain valve for ice reservoir¹
- 10 Grounding strap¹
- 11 Runner¹
- 12 Middle panel
- 13 Door seal
- 14 Swivel castor
- 15 N'Ice & Easy cooling fins¹
- 16 Shelving bolt for air guide¹
- 17 Sieve insert and ice quantity limiter¹
- 18 Fill level indicator of the N'Ice & Easy cooling
- 19 Collecting duct for condensate¹
- 20 Lock and trap guard¹

¹ Optional equipment

2.3 Equipment features

Housing	Made of stainless steel, fully enclosed. Double-walled transport carts are insulated.
Impact protection	Chassis with continuous polymer bumper strip.
Interior	With compartments for inserting trays. In the TTW/M and TTW/V variants, the base plate with raised edge at the door opening serves as drip protection.
Chassis	The chassis is made of stainless steel and is solid, torsion-resistant and suitable for off-site and HGV transport.
Wheels	The bolted mounting plates make it easy to replace castors. The castor design complies with DIN standard 18867-8.
Swivel castors	With locks, actuated locks prevent the castors from swivelling and turning
Push bars	At every corner, for pulling and pushing the transport cart.
Doors	With seals to protect the interior from dust and dirt. TTW/M and TTW/V: The transport-secure 2-point locking device for the doors can be operated with one hand. TTW/E: An extension piece keeps the doors closed.

2.4 Variants

Model	Tray transport cart/E	Tray transport cart/M	Tray transport cart/V
Construction	Single-walled	Double-walled Modular construction	Double-walled Seamlessly welded interior
Insulation	--	Standard version	Standard version
Cooling			
No cooling	Standard version	Standard version	Standard version
Passive cooling	--	Option	Option
N'Ice&Easy cooling	--	Option	Option
Trays			
Euronorm	Option	Option	Option
Gastronorm	Option	Option	Option
1/2-Euronorm	Option	Option	Option
Veskanorm	Option	--	--
Tray runners			
Lengthwise insertion	Option	Option	Option
Crosswise insertion	Option	Option	Option
Support ledge frame with insert rails	Standard version	--	--
Runners	--	Standard version	Standard version

2.5 Equipment options

Top gallery	On the trolley top, for securing goods to be transported on the top.
Transport latch	For securing the doors during transport.
Paper clamp	For clamping documents and information.
Swivel castors with direction lock	The actuated direction lock fixes the wheels straight ahead.
Central lock tread	For simultaneous foot actuation of the central locking device or direction lock of the swivel castors.
Towing device	Coupling and towing device to connect several transport trolleys for traction operation, available as a standard version or as a friction-damped version.
HGV transport securing device	To fix the transport carts securely on an HGV loading platform.
Tray runners	For the dimensions Euronorm-tray 530 × 370 mm ½ Euronorm tray 325 × 265 mm Gastronorm tray 530 × 325 mm Veskanorm trays, only for TTW/E

Pitch	97 mm
	105 mm
	115 mm
Tray orientation	Crosswise insertion
	Lengthwise insertion
Passive cooling	By means of size GN-1/1 (530 × 325 mm) eutectic plates, frozen eutectic plates are inserted into a push-in rack inside the cart. The eutectic plate holder also serves as a condensate pan. TTW/M and TTW/V only.
N'Ice & Easy cooling	By means of flaked ice. There is a reservoir for flaked ice under the hinged roof. Condensate is drained via a drain valve on the cart floor. TTW/M and TTW/V only.

2.6 Technical data

The technical data varies according to the design of the transport cart and its equipment options. Basic data can be found on the rating plate attached to the product, further product-specific data can be found on the product data sheet.

2.7 Rating plate

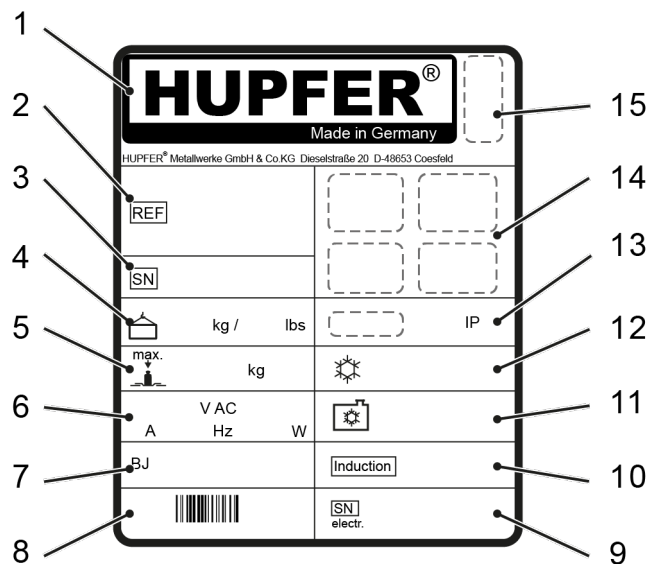


Fig. 4: Rating plate

- | | | | |
|---|-----------------------------------|----|--------------------------|
| 1 | Manufacturer and address | 6 | Electrical connection |
| 2 | Type designation and product code | 7 | Model year |
| 3 | Order number | 8 | Product code as barcode |
| 4 | Total weight | 9 | Electrical serial number |
| 5 | Payload, total | 10 | Induction frequency |

- | | |
|---------------------------|---|
| 11 Refrigerant | 14 Certification mark/CE label if available |
| 12 Refrigeration capacity | 15 Disposal of old appliances |
| 13 Protection code | |

3 Safety information

3.1 Intended use

The tray transport cart is used to transport food on trays. Tray transport carts with passive or N'ice & Easy cooling can cool food during transport.

Items may be transported on transport trolleys with a continuous gallery, provided they are firmly placed in suitable transport containers and secured against falling down by a non-slip underlay. The trolley top may be loaded to a maximum of 20 kg.

Intended use includes following the prescribed procedures, complying with the given specifications, and using the genuine accessories that are provided or additionally available. Any other use is considered inappropriate.

3.2 Improper use

It may not be used for transporting living creatures. Persons must not sit in it or stand on it.

Transport trolleys without a continuous gallery are not intended as a storage surface for objects. Gallery bars are not suitable as handles for pushing or pulling the transport cart.

Transport carts may only be moved when the doors are closed, and they may only be moved using the push handles. Gallery bars are not suitable for pushing or pulling and can be damaged.

The ice reservoir of the N'ice & Easy cooling system may only be filled to the upper level marking. Exceeding the maximum fill level will result in damage. The flaked ice may only be filled loosely. Compressed flaked ice will cause damage.

In the case of improper use, the manufacturer and suppliers assume no liability for resulting damage. Damage caused by improper use shall result in loss of liability and of guarantee claims.

3.3 Safety instructions

3.3.1 General information

The transport cart may only be used in a technically sound condition, while taking risks and safety into consideration, for its intended purpose and in accordance with the operating instructions.

All operating elements and controls must be in a technically sound condition and function reliably.

Before each use, the transport cart must be checked for any visibly apparent damage or defects. If damage occurs, immediately notify those responsible and shut down the transport cart.

Changes or conversions are only permitted after consultation and written consent from the manufacturer.

Transport carts can move off under their own weight and in an uncontrolled manner if the wheels are not locked and the direction lock is engaged.

3.3.2 Transport

If the appliance has to be lifted, only use lifting gear and load-bearing equipment approved for the weight of the device.

Only use transport vehicles that are approved for the weight of the transport vehicle.

The trolley has no attachment points for attaching eyes or similar lifting aids.

Transport trolleys with loosened directional fixation lurch during when moving. On inclined planes, trolleys with a loose directional can move independently and in an uncontrolled manner, e.g. on loading e.g. on loading ramps. Only loosen the directional lock briefly when the trolley is stationary and on horizontal levels, e.g. to to move sideways.

When the trolley is transported, the trolley must be additionally secured. The wheel locks are not sufficient to secure the trolley for transport. They must not be locked during transport on the truck, as the locking mechanism will be damaged by the forces that occur the locking mechanism will be damaged.

3.3.3 Operation and use

Transport trolleys can move off by themselves and in an uncontrolled manner if the wheels are not locked. Secure the stationary transport trolley against rolling away.

Do not park on sloping ground. Only move transport trolleys with the locks released. Moving with the locks engaged will damage the chassis. The locks are not brakes. Only engage the locks when the transport trolley is stationary.

Only release the direction lock briefly when the transport trolley is at a standstill and on level ground, e.g. to move it sideways.

Keep an overview of the route and move the transport trolley with foresight, for example by pulling when necessary. Watch out for children, other persons and obstacles. Do not move the transport trolley over steps. Two people should move the transport trolley on slopes.

Only move loaded transport carts with closed doors to prevent trays or crockery items from falling out.

Never try to catch a transport trolley that is falling over. Transport trolleys are heavy and can cause serious injury. Think carefully before starting to move the transport trolley.

The dead man's brake may only be operated in traction mode. There is a risk of tipping when the dead man's brake is actuated in normal operation.

3.3.4 Cleaning

For transport carts with a N'Ice & Easy top, there is a danger of injury or contusion to arms and hands in the lid area. Avoid reaching into the ice reservoir. Act cautiously when carrying out necessary cleaning work.

When cleaning in the cart washing device, ensure that the interior is completely emptied and that all movable parts (N'Ice & Easy top, cart doors) are adequately secured.

3.3.5 Maintenance

Troubleshooting may only be carried out by maintenance technicians.

Work on electrical equipment may only be carried out by electricians. The work must be carried out in compliance with the rules of electrical engineering.

Work on the refrigeration system may only be carried out by refrigeration specialists. The work must be carried out in compliance with the rules of refrigeration engineering.

3.3.6 Safety devices

Locks on the castors. The locks must be activated when the transport trolley is stationary to prevent the transport cart from rolling away.

Direction lock on the swivel castors. The direction lock must be activated when moving the cart and on sloping ground. Only release the direction lock to move the cart sideways.

4 Transport

WARNING

Risk of crushing

Improper use or incorrect means of transport may cause the transport trolley to tip over, slip or fall. If not adequately secured, there is a danger of serious crushing injury and damage to the transport trolley.

- Secure each transport trolley with appropriate transport securing devices during transport.
- Fix the wheels in the "straight ahead" position.

NOTICE

Damage to the locks

The forces that occur during transport by lorry cause damage to engaged locks.

- Secure the transport cart with a transport securing device.
- Release the locks during transport by lorry.

HGV transport securing device



The equipment option "HGV transport securing device" is available for securing the transport trolley during HGV transport.

4.1 Delivery

Delivery is performed by a transport company, whose specialists are responsible for securing the load during transport. At the place of delivery, the transport cart can then be moved on its own wheels.

4.2 In-house transport




WARNING

Risk of crushing

A tray transport trolley rolling in an uncontrolled way may crush people.

- Never leave the transport cart to roll unattended.
- Only drive uphill or downhill if you can control the transport trolley. If necessary, involve a second person.
- Only park the transport trolley on level surfaces.
- Each time you park the transport trolley, secure it with both locks against rolling away.
- Fix the wheels in the “straight ahead” position.

Only use transport vehicles that are approved for the total weight of the equipment.

- 1.**  Close the doors.
- 2.**  Release the lock.
- 3.**  Fix the wheels in the “straight ahead” position.

4.3 Lifting

The transport cart does not have any attachment points for eyelets or similar lifting aids.

Always transport the transport cart upright if possible. It can be lifted using a lifting platform, for example.

5 Commissioning

WARNING

Risk of crushing

A tray transport trolley rolling in an uncontrolled way may crush people.

- Never leave the transport cart to roll unattended.
- Only drive uphill or downhill if you can control the transport trolley. If necessary, involve a second person.
- Only park the transport trolley on level surfaces.
- Each time you park the transport trolley, secure it with both locks against rolling away.
- Fix the wheels in the “straight ahead” position.

NOTICE

Instructing operating staff

Before commissioning, operating staff must be instructed how to operate the transport cart correctly.



Help protect our environment. Separate the packaging materials and recycle them. Dispose of:

- Packaging and foils in the (yellow) recycling bin.
- Cardboard boxes and paper in the paper recycling bin.

Clean the unit thoroughly before first use (see cleaning instructions).

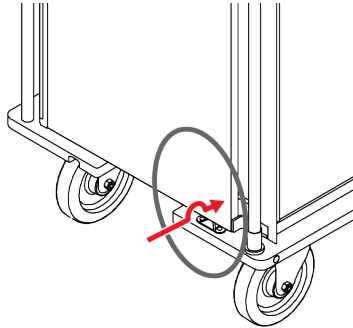
→ Check the functions of the equipment:

- Functionality of all mechanical parts.
- Functionality of the controls.
- Functionality of the lock.
- Functionality of the direction lock.

6 Operation

6.1 Opening and closing doors

Extension for drain plug



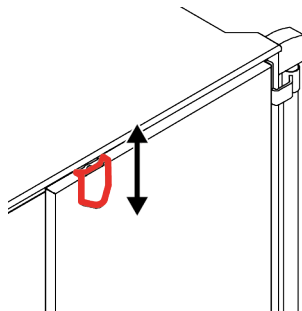
To lock the open doors in place, extensions for drain plugs are attached on the lower bumper strips.

1. → Open the doors.
2. → Flip the doors over until the doors snap into place behind the extensions for drain plugs.

The tray transport cart E variant also has extensions for drain plugs on the bumper strips to lock the closed doors.

1. → Close the doors.
2. → Flip the doors over until the doors snap into place behind the extensions for drain plugs.

2-point locking

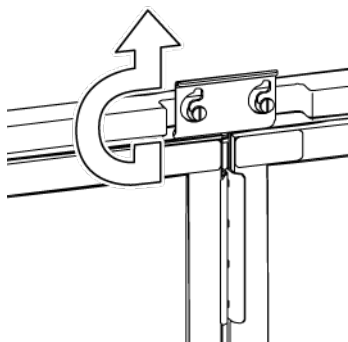


Transport carts have a 2-point locking system to lock the doors securely.

- Raise the lever.
 - ➔ You can open or close the doors.

When you close the doors, the lever must engage securely behind the catch.

Transport latch



The transport latch provides additional protection for the doors to stop them unintentionally springing open, for example during HGV transport.

You can open the transport latch.

- Open the transport latch as shown in the figure.
 - ➔ You can open the doors at the door lock.

You can close the transport latch.

- Close the transport latch by reversing the steps above.
 - ➔ The doors are additionally locked.

6.2 Moving the transport cart

WARNING

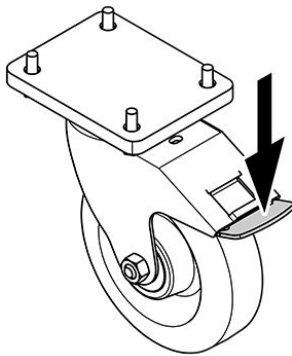
Risk of crushing

A tray transport trolley rolling in an uncontrolled way may crush people.

- Never leave the transport cart to roll unattended.
- Only drive uphill or downhill if you can control the transport trolley. If necessary, involve a second person.
- Only park the transport trolley on level surfaces.
- Each time you park the transport trolley, secure it with both locks against rolling away.
- Fix the wheels in the “straight ahead” position.

Engaging the locks

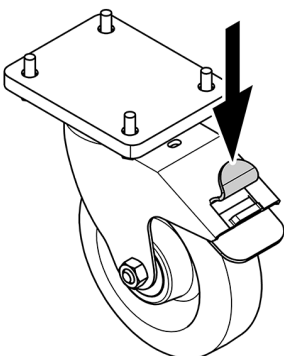
Swivel castors with locks can block the wheel from turning and swiveling. When the locks on both swivel castors are engaged, the transport cart is secured against rolling away.



→ Engage the lock as shown on the left.

- ➔ The wheel cannot turn or swivel.

Releasing the lock



→ Release the lock as shown on the left.

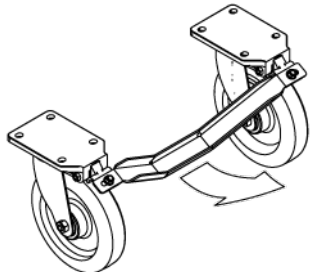
- ➔ The wheel can turn and swivel.

Actuating the central lock tread

Optionally, the transport carts have a central lock tread. With the central lock tread, the locks on both swivel castors are operated simultaneously. The central lock tread for the locks is marked *[Stop.]*

→ Engage the lock as shown on the left.

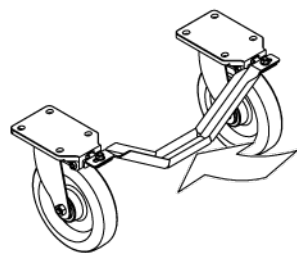
- ➔ The wheel cannot turn or swivel.



Releasing the central lock tread

→ Release the lock as shown on the left.

- ➔ The castors can turn and swivel.



Actuating the direction lock

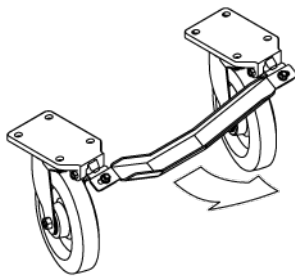
WARNING

Contusion hazard

Transport carts on which the direction lock has been released roll from side to side when in motion. Transport carts on which the direction lock has been released can move off under their own weight and in an uncontrolled manner on inclined surfaces, e.g. loading ramps. The transport cart is heavy, and if it rolls away out of control, there is a risk that people may be injured by being hit or crushed.

- Activate the direction lock for the wheels.
- Only release the direction lock when the transport cart is at a standstill and on level ground.

Optionally, the transport carts have a central lock tread. With the central lock tread, the wheels are fixed straight ahead.



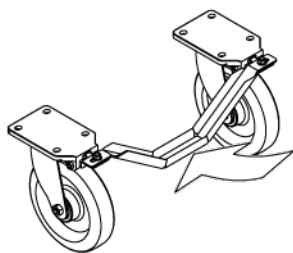
→ Lock the direction of the wheels as shown on the left.

- ➔ When the direction of the wheels is fixed, the cart is more stable when travelling on longer routes.
- ➔ The direction lock snaps in audibly.

Release the direction lock

Only release the direction lock to manoeuvre in confined spaces, e.g. to move the appliance sideways. Afterwards, reactivate the direction lock.

→ Release the direction of the wheels as shown on the left.



- ➔ The wheels can move freely again.

Moving with the push handles

WARNING

Contusion hazard

Transport carts rolling in an uncontrolled way may crush persons.








- Never leave the transport cart to roll unattended.
- Only drive uphill or downhill if you can control the transport cart. If necessary, involve a second person.
- Only park the transport cart on level surfaces.
- Each time you park the transport cart, secure it with both locks against rolling away.
- Fix the wheels in the “straight ahead” position.

NOTICE

Checking the door lock

If they are not properly locked, the doors may accidentally spring open and items may fall out from inside the transport cart.

- Before each trip, check that the doors are correctly locked.

1.  Close the doors.
2.  Release the locks.
3.  Move the transport cart by the push bars
4.  Make sure that the path ahead is clear.
5.  Only move the transport cart over flat, dry and stable surfaces.
6.  Have someone help you if the transport trolley has to be moved on a slope.
7.  Secure the transport cart with the locks when stationary.

Moving with the towing device

CAUTION

Risk of tipping over

Heavily loaded transport carts may lurch and tip over during traction operation.

- Slow down the train of transport carts.



Operating instructions for towing device

There are separate operating instructions for transport carts with towing devices.

- Read the operating instructions for the towing device before use.

Transport carts can be optionally equipped with towing devices for traction operation (classified according to VDI 2406).

Maximum speed	4 km/h
Maximum train length	3 transport carts + towing vehicle
Minimum path width	2.5 m
Towing vehicle	Suitable as per DIN 15172 and VDI 3973
Towing height	As per VDI 2406 <ul style="list-style-type: none"> ■ Towing device parallel to transport surface ■ Vertical deviation max. 10% of the length of the towing device
Requirements for the flooring	<ul style="list-style-type: none"> ■ Level ■ Dry ■ Load-bearing, e.g. concrete or asphalt

Higher speeds and longer train lengths increase the stress and the risk of accidents. The manufacturer excludes warranty coverage and liability for speeds and train lengths if the guaranteed values specified above are exceeded.

→ The train must be pulled slower if any of these conditions changes.

The operator may, under their own responsibility and to the exclusion of the warranty, approve higher speeds and train lengths for their environmental parameters if tests performed in accordance with standards confirm safety. Observe the following standards.

- DIN 15172 “Powered industrial trucks; tractors and other trucks used for hauling trailers; traction force, trailer load”.
- VDI 3973 “Industrial trucks – Tractors with non-braked trailers”

6.3 Keeping food cold

N'Ice & Easy cooling

WARNING

Contamination of the hygienic area

If a transport cart is brought into the hygienic area without preparation, the transport cart endangers the hygienic condition of the area.

- Only bring the transport cart into the hygienic area after the transport cart has been cleaned, the condensate has been drained and the ice reservoir has been filled.

A transport cart with N'Ice & Easy cooling is permanently cooled when in operation, i.e. 24 hours a day. The flaked ice is produced at a temperature of approx. -7°C and filled into the ice reservoir. During the operating cycle, the condensate is drained several times a day via a drain valve in the bottom of the appliance and new flaked ice is filled into the ice reservoir. The number of daily flaked ice refills must be adapted to environmental factors, e.g. high temperatures. Regular refilling of the ice and draining of the condensate results in a permanent temperature of approx. 0°C in the transport cart's ice reservoir.

The ice reservoir has three fill level markings. The upper marking shows the maximum fill level. If the flaked ice is filled higher, the lid can no longer be closed. The ice must not be compressed. The lower two markings indicate the fill level and have no other function.

- Only use flaked ice made from water of drinking water quality.
- Drain the condensate regularly from the ice reservoir.
- Fill the ice reservoir regularly.
- Fill the ice reservoir up to the upper level mark.
- When the ice reservoir has completely defrosted, clean and descale the ice reservoir before putting the transport cart back into operation.

Filling the ice reservoir

CAUTION

Risk of crushing

When closing the N'Ice & Easy top, there is a contusion hazard for arms and hands.

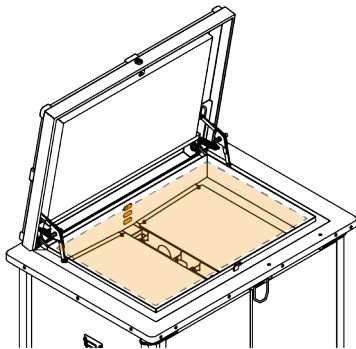
- Do not reach into the ice reservoir when closing it.
- Secure the lid when reaching into the ice reservoir.
- Watch out for bystanders.

! NOTICE

Damage to the middle panel

When the flaked ice is forcefully filled into the ice storage, the ice compacts and exerts great pressure on the middle panel. The middle panel bulges, trays no longer fit in the runners and weld seams may crack.

- Leave the insert in the ice reservoir.
- Spread the flaked ice loosely from the entire surface of the ice reservoir.



1. → Open the N'Ice & Easy top.
2. → Fill the flaked ice no higher than the upper mark.
3. → Distribute the flaked ice evenly in the ice reservoir.
4. → Dry the area around the ice reservoir.
5. → Disinfect the area around the ice reservoir, if necessary and in accordance with your company's hygiene concept.
6. → Close the N'Ice & Easy top.

The interior must pre-cool for approx. 1 hour with the doors closed.

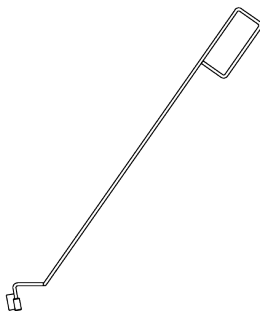
Drain the condensate in the ice reservoir each time the reservoir is filled.

Drain off the condensate



The condensate key can only be removed when the drain valve is correctly closed.

The doors can only be opened and closed when the key is removed.



1. → Open or close the doors completely.
2. → Insert the condensate key.
3. → Open the drain valve.
4. → Drain the condensate completely.
 - ➔ The condensate is completely drained when only drops come out of the drain pipe.
5. → Close the drain valves.
6. → Repeat this step on all drain valves.

Passive cooling

Precooling time

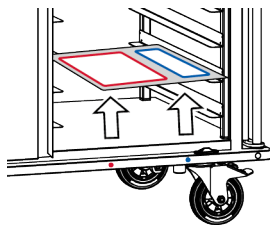


The necessary duration of the precooling depends on several factors (appliance size, ambient temperatures etc.). The values specified for the precooling time are reference values.

1. → Slide the frozen eutectic plates into the holders on the middle panel.
2. → Close the doors.

The interior must pre-cool for approx. 1 hour with the doors closed.

6.4 Loading with trays



Note the tray orientation



If the car is connected to an induction docking station or has N'Ice & Easy cooling, there is a predefined tray orientation.

- Colour markings on the bumper strip indicate where the cold and hot components are to be located.
- Observe the correct tray orientation.

Load from bottom to top



Begin loading the transport cart from the bottom and work up to the top, loading evenly on the left and right.

- You will see free runners and patient cards immediately.
- Lower centre of gravity when partially loaded.
- Cold air sinks and the cooling is more effective.



Completely load the tray level



The tray level of the transport cart must be fully loaded so that the trays can remain in position.

- Make sure that the tray levels are filled with the full number of trays.

1. → Engage the wheel locks.
 - ➔ The transport cart is secured against rolling away.
2. → Check that the tray alignment is correct.
3. → Slide the trays into the guides as far as they will go.
4. → Load the trolley from bottom to top.

5.  Check the position of the crockery, cutlery and covers is correct on each tray.
6.  Close the trolley doors.



6.5 Removing trays

WARNING

Risk of burns

There is a risk of burns from heated food, heating zones, plates and covers.

- Avoid directly touching the food, heating zones and plates.
- Only remove and carry trays by their outer rim.
- Point out the hot components and areas to recipients.

1.  Secure the transport trolley with the locks when stationary.
2.  Open the doors.
 - ➔ You can remove and distribute the trays.

Returning the transport cart

NOTICE

Jammed trays

Stacked trays will jam in the runners.





- Only load the transport cart with one tray per rail pair.





Avoid unnecessary dirt and damage when bringing back the trays and plates.

- Only load the trays with the components supplied.
- Place the crockery in the specified positions.
- Cover the crockery with covers.




After the meal, the trays and dirty crockery can be collected and transported to the rinsing facility in the transport cart.

1.  Open the doors fully.
2.  Load the transport cart with the appropriate number per rail pair.
3.  Transport only the supplied components in the positions provided.
4.  Close the doors.
 - ➔ The transport cart is ready to return to the scullery.

6.6 Finishing operation

1.  Secure the transport trolley with the locks when stationary.
2.  Remove all trays from the interior.
 - ➔ The transport trolley is ready for cleaning.

Passive cooling

1.  Remove the eutectic plates.
2.  Empty the condensate pan.
3.  Clean the transport cart.





N'Ice & Easy cooling

CAUTION

Slip hazard

Drained condensate from the N'Ice & Easy ice reservoir presents a slip hazard.

- Only open the drain valve over a floor drain or a collection container.

1.  Drain the condensate.
2.  Clean the heat sink in the interior with a damp cloth.
3.  Dry the heat sink with a clean cloth.
4.  Clean the transport cart.

6.7 Process chain with N'Ice & Easy cooling

N'Ice & Easy

The process chain for tray transport carts with N'Ice & Easy cooling consists of the following components:

- Preparing the transport cart
- Loading the transport cart in the hygienic area
- Regenerating food

Preparing the transport cart

Prerequisites	Steps	Result
<ul style="list-style-type: none"> ■ All moving parts are removed from the transport cart, e.g. trays, crockery, baskets 	<ul style="list-style-type: none"> ■ Clean the transport cart ■ Drain off condensate ■ Fill up the ice reservoir ■ Clean the N'Ice & Easy lid ■ Disinfect if necessary 	<ul style="list-style-type: none"> ■ The transport cart is in a hygienic condition ■ The condensate has been drained ■ The cooling system is filled

Prerequisites	Steps	Result
Note	Load the transport cart after preparation. The time between preparation and loading should be as short as possible.	

Loading

Prerequisites	Steps	Result
<ul style="list-style-type: none"> ■ The transport cart has been cleaned ■ The condensate has been drained ■ The ice reservoir has been filled up ■ The lid has been cleaned 	<ul style="list-style-type: none"> ■ Load the transport cart ■ Lock the doors 	<ul style="list-style-type: none"> ■ The transport cart is filled with food ■ The doors are locked
Note	The transport cart cools the food during transport, regeneration and removal of the food. If the temperature is high or if the regeneration process takes a long time, drain the condensate several times and refill the cooling system as required.	

Regeneration process (optional) and food serving

Prerequisites	Steps	Result
<ul style="list-style-type: none"> ■ The transport cart is docked, e.g. at an induction docking station ■ The doors are locked 	<ul style="list-style-type: none"> ■ The food has been cooled until the regeneration process ■ Start the regeneration process 	<ul style="list-style-type: none"> ■ The food has been cooled until the regeneration process or removal ■ The food was regenerated at the programmed time
Note	The regenerated food can be removed and served. The transport cart is also used to return the trays and crockery. Prepare the transport cart immediately before loading.	

7 Care and cleaning

7.1 Care instructions

N'Ice & Easy cooling

Salt deposits accumulate around the lid.

—> Clean the lid and the hinges of the N'Ice & Easy cooling regularly.

Condensation can form on the heat sink in the interior.

—> Clean the heat sink daily with a damp cloth. Dry the heat sink afterwards.

Door seals

The door seals become brittle over time, for example due to high temperature fluctuations.

- Treat them at regular intervals with commercially available care products for lip seals.

7.2 Cleaning intervals

Interval	Maintenance work
After each use	Cleaning the transport trolley
As needed and according to the in-house hygiene concept	Cleaning the housing
	Disinfecting the transport trolley
	Cleaning the N'ice & Easy ice reservoir
After every interruption to operation, in the event of contamination and in accordance with the in-house hygiene concept	Disinfecting the N'ice & Easy ice reservoir

7.3 Permissible cleaning types

CAUTION

Spreading water

Wet and dripping transport trolleys distribute water on paths. There is a severe risk of slipping on wet paths.

- Dry the transport trolley after cleaning.
- Remove the water from the interior, e.g. by tilting the transport trolley by 5°.

NOTICE

Deformation at high temperatures

The polymers used deform at high temperatures and longer contact times.

- Restrict the contact time to max. 3 seconds.
- Restrict the temperature to max. 120°C.

NOTICE

Bearing damage

The wheel bearings are greased. Washing out the bearing grease will result in bearing damage.

- Do not direct jets directly at the wheel bearings.

! NOTICE

Damage due to high-pressure cleaning

Seals on the door and housing can become loose due to direct high-pressure jets and damage will result.

- Do not point the spray directly at the seals.
- Keep a distance of at least 30 cm between the nozzle and the transport trolley.
- Use a flat stream nozzle.

Cleaning type	Definition of the cleaning operation	Approval for			
		Tray transport cart/E	Tray transport cart/M	Tray transport cart/V	
Manual cleaning	Drying	Cleaning with dry cleaning agents	✗	✗	✗
	Damp	Cleaning with a damp cloth and degreasing liquid cleaner	✓	✓	✓
	Wet	Cleaning with a wet sponge and degreasing liquid cleaner	✓	✓	✓
Water hose	Pressure ≤ 8 bar	Cleaning with a spray jet and degreasing cleaning agents if required: <ul style="list-style-type: none"> ■ Do not spray into the bearings. 	✓	✓	✓
High-pressure/steam cleaning	High-pressure ≤ 200 bar	Cleaning the surfaces: <ul style="list-style-type: none"> ■ max. 30-90 seconds ■ Do not spray into the bearings ■ Use a flat stream nozzle ■ Keep a distance of at least 30 cm 	✓	✓	✓
	Wet steam ≤ 135°C	Cleaning the surfaces: <ul style="list-style-type: none"> ■ max. 30-90 seconds ■ Short exposure time for individual sections ■ Do not spray into the bearings 	✓	✓	✓
Washing devices	Water temperature ≤ 90°C	Spraying with cleaning and rinsing agent: <ul style="list-style-type: none"> ■ max. 30-90 seconds 	✗	✱	✗

✱ Note the instructions in chapter "Cleaning the machine".

7.4 Permissible cleaning agents

! NOTICE

Incorrect cleaning agents

Incorrect treatment of the installed material surfaces will result in damage and corrosion.

- Only use cleaning agents approved for cleaning.
- Follow the instructions of the cleaning agent manufacturer.






Suitable cleaning agents

The manufacturer cannot assess the suitability of specific detergents or disinfectants.

- Check the notes on the cleaning agents or disinfectants to find out whether they are suitable for the materials of the transport cart.
- If in doubt, ask the manufacturer of the agent if it is suitable for the materials of the transport cart.

Cleaning agent	Approval
Degreasing agent	✓
■ Neutral liquid cleaner	
Salty cleaning agents	✗
■ Table salt	
■ Hydrochloric acid	
Sulphuric cleaning agents	✗
■ Sulphur dioxide	
■ Sulphuric acid	
Chlorinated cleaning agents	✗
■ Chlorine cleaner	
■ Sea water	
■ Bleach	
Ferrous material	✗
■ Water with iron content	
Low-oxygen cleaning agents	✗
■ Low-oxygen water	
■ CO2 atmosphere	
Neutral cleaning agents	✓
■ Neutral cleaning agents pH 7	
■ Slightly acidic cleaning agents pH 6 – 7	
■ Slightly alkaline cleaning agents pH 7 – 8	
Acidic cleaning agents pH 1 – 5	✗
■ Acids	

Cleaning agent	Approval
Alkaline cleaning agents pH 8 – 14	
<ul style="list-style-type: none"> ■ Alkalis 	
Abrasive cleaning agents	
<ul style="list-style-type: none"> ■ Scouring pad ■ Pot scrubber 	
Non-abrasive cleaning agents	
<ul style="list-style-type: none"> ■ Uncoated sponges ■ Soft cloths 	

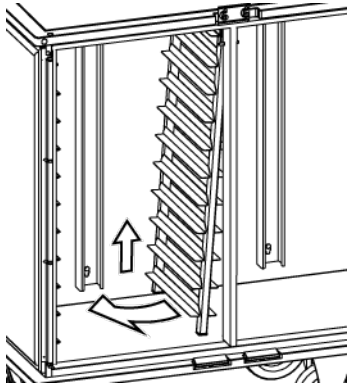
7.5 Material compatibility

When selecting the cleaning agent, make sure it is compatible with the materials used.

Material	Components
Stainless steel	Housing, doors, interior, lid
Anodised aluminium	Heat sink of the N'Ice & Easy cooling
PE 500 (polyethylene)	Bumper strip
PA (polyamide)	Extensions for drain plug
Silicone	Lip seals

7.6 Manual cleaning

1. → Clean the interior of the transport cart after each food transport and according to the operator's instructions.
2. → Clean the outer surfaces of the unit after use or as required.
3. → For wet cleaning, use a soft cloth or an uncoated sponge.
4. → Use degreasing liquid cleaners.
5. → Rinse so that all detergents and disinfectants are completely removed.
6. → Dry the interior and exterior surfaces after cleaning.
7. → Dry the heat sink of the N'Ice & Easy cooler on the inside of the transport cart with a dry cloth.



Removing the middle panel for cleaning

1. ➤ Remove all objects from the interior.
2. ➤ Lift up the middle panel.
3. ➤ Tilt the middle panel about 5° to the side.
4. ➤ Pull the middle panel out downwards.

You can put the middle panel back by reversing the steps described above.

Cleaning the lid

The lid and the hinges of the N'Ice & Easy cooling must be freed at regular intervals from the salt deposits that the flaked ice leaves behind, including in places that are difficult to access.

Observe the instructions of the cleaning agent manufacturer.

1. ➤ Fully open the lid of the ice reservoir.
2. ➤ Clean the lid, the hinges and the area around the ice reservoir.
3. ➤ Rinse the lid, hinges and ice reservoir area thoroughly with uncontaminated water until all traces of cleaning agent have been removed.
4. ➤ Completely dry the areas around the lid, hinges and ice reservoir.
5. ➤ Disinfect the area around the lid if necessary.
 - The ice reservoir has been cleaned.

Descaling the ice reservoir





The ice reservoir of the N'Ice & Easy cooling must be cleaned at regular intervals to remove the lime and salt deposits left behind by the flaked ice. The ice reservoir must be cleaned manually.

Coarse impurities are collected by the removable sieve insert in the middle panel and can be cleaned manually, e.g. foreign objects or food residue.

Optionally, impurities can be inhibited by adding disinfectant additives. Observe the instructions of the detergent and disinfectant manufacturer.

Prerequisites for descaling

- The ice has defrosted.
 - The condensate has been drained.
1. ➤ Fully open the lid of the ice reservoir.
 2. ➤ Close the ice reservoir drain valve.
 3. ➤ Fill the ice reservoir with water and descaling agent.








4.  Allow the descaling agent to take effect.
5.  Drain the descaling agent.
6.  Rinse the reservoir, lid and hinges thoroughly with uncontaminated water until all traces of cleaning agent have been removed.
7.  Completely dry the areas around the lid, hinges and ice reservoir.
 - ➔ The ice reservoir has been descaled.

Cleaning after an interruption to operation

The ice reservoir of the N'Ice & Easy cooling must be cleaned if the following conditions arise.

- The transport cart is taken out of regular operation.
- If it is left standing without refilling with ice for longer periods.
- There are impurities or foreign matter in the ice reservoir.
Coarse impurities are caught by the sieve insert in the middle panel of the transport cart.

Prerequisites for cleaning

- The ice has defrosted.
 - The condensate has been drained.
1.  Fully open the lid of the ice reservoir.
 2.  Close the ice reservoir drain valve.
 3.  Fill the ice reservoir with water and cleaning agent. Disinfectant can also be added to the water.
 4.  Allow the cleaning agent to take effect.
 5.  Drain the water.
 6.  Rinse the reservoir, lid and hinges thoroughly with uncontaminated water until all traces of cleaning agent/disinfectant have been removed.
 7.  Completely dry the areas around the lid, hinges and ice reservoir.
 - ➔ The ice reservoir has been cleaned.
 - ➔ You can refill the ice reservoir with flaked ice.

7.7 Mechanical cleaning

CAUTION

Inadequate cleaning

The hygienic cleaning of the transport trolley is determined by the settings of the washing device. Incorrect settings can lead to inadequate cleaning.

- Check the hygienic condition of the transport cart after cleaning.
- Correct the settings of the washing device if necessary.

NOTICE

Damage caused by washing devices

The operator must ensure that the washing device and the transport trolley are compatible. If transport trolleys are cleaned in incompatible washing devices, there is a risk of damage to the transport trolley as well as the washing device.

- Before machine cleaning, check the compatibility of the transport carts with the washing device.
- Observe the instructions from the washing device manufacturer.
- Adjust the washing device to the dimensions of the transport cart.

NOTICE

Risk of corrosion

If residues of cleaning agents and disinfectants are not completely removed by thorough rinsing, the salts in the residue may cause corrosion to form on the stainless steel surfaces of the transport trolley.

Transport carts of the type TTW/CS are approved for machine cleaning if the washing device meets the requirements stipulated in the "Approved cleaning types" chapter. If the operating conditions of the washing device used deviate from the specifications in the "Approved cleaning types" chapter, the manufacturer's warranty obligation will become void.

Please observe the following when cleaning in washing devices::

- The instructions of the cart washing device manufacturer.
- The "Special care instructions for stainless steel" in the manufacturer's download area.
- The instructions of the cleaning and rinsing agent manufacturer.
- Only wash technically faultless transport carts in washing devices.
- At the latest during the drying phase, the transport trolley must be tilted 5 ° to the door side to ensure that water can drain off optimally. The transport trolley may be tilted to a maximum of 10 °.

The washing performance of the washing device is affected by the duration, temperature as well as mechanical (water pressure) and chemical (cleaning agent and rinsing agent) factors. Optimise these parameters to improve the cleaning result.

Machine-cleaning the TTW/V

Transport carts of the type TTW/V are approved for machine cleaning if the washing device meets the requirements stipulated in the "Approved cleaning types" chapter. If the operating conditions of the washing device used deviate from the specifications in the "Approved cleaning types" chapter, the manufacturer's warranty obligation will become void.

Machine-cleaning the TTW/ M

TTW/M type trolleys can withstand the cart washing device, i.e. they are cleaning system-resistant if the washing device meets the requirements of the chapter "Approved cleaning types". TTW/M type trolleys have joints and gaps in the interior. In addition to machine cleaning, manual operations may be necessary in the washing process to achieve an optimal cleaning and drying result.

Machine-cleaning the TTW/E

TTW/E type trolleys are not intended for cleaning in washing devices. Due to their design, optimum results cannot be guaranteed. TTW/E transport carts are not suitable for cleaning in washing devices.

Notes on cleaning in washing devices

Please observe the following when cleaning in washing devices:

- The instructions of the cart washing device manufacturer.
- The "Special care instructions for stainless steel" in the manufacturer's download area.
- The instructions of the cleaning and rinsing agent manufacturer.
- Only wash technically faultless transport carts in washing devices.
- At the latest during the drying phase, the transport trolley must be tilted 5 ° to the door side to ensure that water can drain off optimally. The transport trolley may be tilted to a maximum of 10 °.

The washing performance of the washing device is affected by the duration, temperature as well as mechanical (water pressure) and chemical (cleaning agent and rinsing agent) factors. Optimise these parameters to improve the cleaning result.






Before washing

! NOTICE






Appliance damage

On washing devices with rotating platforms, the doors can pop out of the lock due to the rotating shafts. The uncontrolled movement can cause damage to the doors and washing device.

- Additionally secure the doors.

1.  Open the doors fully.
 - ➔ The doors snap into place behind the extension for drain plug.
2.  Additionally secure the doors when the trolley is being cleaned in washing devices with rotating platforms.
3.  Empty the transport trolley completely, including the top gallery.
4.  Completely drain the condensate from the N'Ice & Easy cooling system.
5.  Close the lid of the N'Ice & Easy cooling.
 - ➔ The transport trolley is ready for washing.

After washing

1.  The transport trolley must be free of cleaning agents and disinfectants.
2.  Inspect the transport trolley for damage to the housing, trolley doors, castors and locks from the washing process. Only use transport trolleys that are technically faultless.
3.  Allow the trolley to cool and dry with the doors open for 10–15 minutes.
4.  Dry the transport trolley completely. Leaking water creates a slip hazard.
5.  Place the polymer inserts of the N'Ice & Easy cooling in the top position.
 - ➔ The transport trolley is ready for operation.

7.8 Disinfecting

All the surfaces can be disinfected with commercially available surface disinfectants.

NOTICE

Damage to property

High concentrations of disinfectant can cause corrosion damage.

- Follow the instructions of the disinfectant manufacturer.

8 Maintenance and repair

WARNING

Unqualified staff

Danger from incorrect handling of mechanical components.

- Only qualified personnel may carry out maintenance work.

8.1 Maintenance intervals

Depending on the load, the transport trolley should be checked regularly for to ensure it functions properly. The manufacturer recommends the following components are checked and maintained at regular intervals.

Interval	Maintenance work	Personnel
Every six months	Overall unit <ul style="list-style-type: none"> ■ Visual inspection ■ Mechanical damage 	Operator
annually	Central lock treads <ul style="list-style-type: none"> ■ Functionality 	Maintenance engineer
	Castors and locks <ul style="list-style-type: none"> ■ Functionality ■ Mechanical damage 	Maintenance engineer
	Lip seals <ul style="list-style-type: none"> ■ Effectiveness of the door seals 	Maintenance engineer

8.2 Troubleshooting

Troubleshooting

In the event of malfunctions and complaints within the guarantee period, contact our service partners. After the guarantee period has expired, have any necessary repair work carried out by our service partners or electricians.

Fault description	Cause	Remedy
Transport cart veers to the left or right during transport	Wheel bearings damaged	Replace wheels
Running noises made by wheels	Wheel bearings damaged	Replace wheels
Wheel lock has no effect	Lock worn out	Replace lock
Doors do not close correctly	Door seal defective	Replace door seal
	2-point locking tension spring defective	Replace tension spring
N'Ice & Easy cooling: Lid is difficult to open or close	Piston rod dirty	Clean piston rod
N'Ice & Easy cooling lid is not held up	Gas springs defective	Replace the gas springs
N'Ice & Easy cooling: Condensate drains off although the drain valve is closed	Drain valve defective	Replace drain valve
N'Ice & Easy cooling: Condensate does not drain off although the drain valve is open	Drain valve blocked	With the drain valve open, clean with a suitable cleaning aid, e.g. flexible bottle brush or wire

8.3 Repairs and spare parts

Spare parts and accessories are available from our customer service. Replace defective components with genuine spare parts. Only then can safe and reliable operation be guaranteed. When ordering spare parts or requesting customer service, always state the order number and the information on the rating plate. This information helps avoid follow-up queries and speeds up the process.

8.4 Recommissioning

The transport cart may only be used in a technically sound condition, for its intended use, and in accordance with the operating instructions. Check the transport cart for visible damage before each use. In the event of damage, inform the responsible departments immediately. Only operate transport carts in faultless technical order.

- Check the transport cart functions, especially the lock and cooling.
- Clean the transport cart thoroughly before putting it back into operation.

9 Disposal



Help protect our environment. Make sure that the materials are recycled.

- Have the device disassembled and disposed of by recycling companies. All the materials are recyclable.

Personnel:

- Maintenance engineer

Dispose of the product using the following steps.

- Take the components to a designated disposal centre.