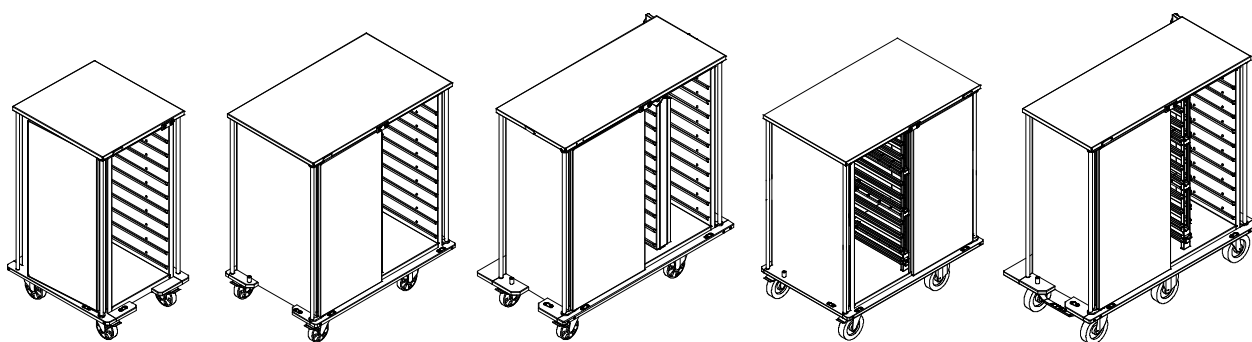


Operating Instructions



Tray transport trolley
TTW/M

1 Introduction

1.1 Appliance Information

Appliance designation

Tray transport trolley

Appliance type/ -s

TTW/M

Manufacturer

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Read these operating instructions thoroughly and attentively to ensure safe operation and avoid any damages!

Ensure that sources of danger and possible faulty operations have been pointed out to the operating staff.

Subject to modifications

The products covered by these operating instructions have been developed taking into consideration the requirements of the market and the latest technology. HUPFER® reserves the right to modify the products and appertaining technical documentation in so far as the modifications are in the name of technological progress. The data and weights as well as the description of performance and functions assured in the order confirmation as binding are always decisive.

Manual edition

4330080_A0

1.2 Table of Contents

1	Introduction	2
1.1	Appliance Information	2
1.2	Table of Contents	3
1.3	List of Abbreviations	5
1.4	Definitions of Terms	6
1.5	Orientation Guide	7
1.6	Notes on Use of Manual	8
1.6.1	Notes on the manual structure	8
1.6.2	Notes and their illustrations used in the chapters	8
2	Safety Instructions	9
2.1	Introduction	9
2.2	Warning Symbols Used	9
2.3	Safety Instructions for Appliance Safety	9
2.4	Safety Instructions for Transport	10
2.5	Safety Instructions for Cleaning and Care	10
2.6	Safety Instructions for Troubleshooting	10
3	Description and Technical Data	11
3.1	Performance Description	11
3.2	Intended Use	11
3.3	Improper Use	11
3.4	Appliance Description	12
3.4.1	View of the appliance TTW	12
3.4.2	View of the appliance TTW	12
3.4.3	Standard equipment	13
3.4.4	Equipment and optional accessories	13
3.5	Technical Data	14
3.6	Rating Plate	18
4	Transport, Putting into Operation and Decommissioning	19
4.1	Transport	19
4.2	Setting up and putting into operation	19
4.3	Storage and Recycling	19
5	Operation	21
5.1	Operation	21
5.2	Measures at the End of Operation	21
6	Fault Detection and Troubleshooting	22
6.1	Notes on Troubleshooting	22
6.2	Fault and Action Table	22
7	Cleaning and Care	23
7.1	Security Measures	23
7.2	Hygiene Measures	23

7.3	Cleaning and Care	23
7.3.1	Cleaning and care measures	23
7.4	Special Care Instructions	24
8	Spare Parts and Accessories	25
8.1	Spare Parts and Accessories List	25

1.3 List of Abbreviations

Abbreviation	Definition																																				
BGR	Rule of the Professional Association																																				
BGV	Regulation of the Professional Association																																				
DIN	Deutsches Institut für Normung German Institute for Standardisation, technical regulations and technical specifications																																				
EC	European Community European Union																																				
EN	European Standard Harmonised standard for the EU market																																				
E/V	Spare and wearing part																																				
IP	<p>International Protection. The abbreviation IP and a further two-digit index specify the protection class of a housing.</p> <p>The first digit: Protection against ingress of solid foreign objects The second digit: Protection against ingress of water</p> <table border="1"> <tbody> <tr> <td>0</td> <td>No protection against contact, no protection against ingress of solid foreign objects</td> <td>0</td> <td>No protection against ingress of water</td> </tr> <tr> <td>1</td> <td>Protection against contact with any large surface of the body such as the hand, protection against ingress of foreign objects $\varnothing > 2.0''$ (50 mm)</td> <td>1</td> <td>Protection against vertically falling water drops</td> </tr> <tr> <td>2</td> <td>Protection against contact with the fingers, protection against ingress of foreign objects $\varnothing > 0.47''$ (12 mm)</td> <td>2</td> <td>Protection against dripping water (at any angle up to 15° from the vertical)</td> </tr> <tr> <td>3</td> <td>Protection against contact with tools, thick wires or similar objects of $\varnothing > 0.1''$ (2.5 mm) protection against foreign objects $\varnothing > 0.1''$ (2.5 mm)</td> <td>3</td> <td>Protection against water drips at any angle up to 60° from the vertical</td> </tr> <tr> <td>4</td> <td>Protection against contact with tools, thick wires or similar objects of $\varnothing > 0.04''$ (1 mm) protection against foreign objects $\varnothing > 0.04''$ (1 mm)</td> <td>4</td> <td>Protection against water splashing from any direction</td> </tr> <tr> <td>5</td> <td>Protection against contact, protection against dust deposits inside</td> <td>5</td> <td>Protection against water jets (projected by a nozzle) at any angle</td> </tr> <tr> <td>6</td> <td>Complete protection against contact, protection against ingress of dust</td> <td>6</td> <td>Protection against rough sea or strong water jets (flood protection)</td> </tr> <tr> <td></td> <td></td> <td>7</td> <td>Protection against ingress of water during temporary immersion</td> </tr> <tr> <td></td> <td></td> <td>8</td> <td>Protection against pressurised water during continuous immersion</td> </tr> </tbody> </table>	0	No protection against contact, no protection against ingress of solid foreign objects	0	No protection against ingress of water	1	Protection against contact with any large surface of the body such as the hand, protection against ingress of foreign objects $\varnothing > 2.0''$ (50 mm)	1	Protection against vertically falling water drops	2	Protection against contact with the fingers, protection against ingress of foreign objects $\varnothing > 0.47''$ (12 mm)	2	Protection against dripping water (at any angle up to 15° from the vertical)	3	Protection against contact with tools, thick wires or similar objects of $\varnothing > 0.1''$ (2.5 mm) protection against foreign objects $\varnothing > 0.1''$ (2.5 mm)	3	Protection against water drips at any angle up to 60° from the vertical	4	Protection against contact with tools, thick wires or similar objects of $\varnothing > 0.04''$ (1 mm) protection against foreign objects $\varnothing > 0.04''$ (1 mm)	4	Protection against water splashing from any direction	5	Protection against contact, protection against dust deposits inside	5	Protection against water jets (projected by a nozzle) at any angle	6	Complete protection against contact, protection against ingress of dust	6	Protection against rough sea or strong water jets (flood protection)			7	Protection against ingress of water during temporary immersion			8	Protection against pressurised water during continuous immersion
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LED	Light Emitting Diode Light diode																																				
RCD	Residual current device (RCD) In the EU the English RCD (Residual Current Device) term is customary in standardisation matters.																																				

1.4 Definitions of Terms

Term	Definition
Authorised specialist	An authorised specialist is a specialist that has been trained by the manufacturer, an authorised service dealer or a company assigned by the manufacturer.
Cook&Chill-Kitchens	"Cook and Chill": Kitchens where warm food after being cooked is chilled as quickly as possible.
Cook&Serve-Kitchens	"Cook and Serve": Kitchens where warm food is served immediately after being cooked or kept warm until it is consumed.
EM field	Electrical, magnetic or electromagnetic field that is defined by its field intensity and phase formation.
EN tray	A European standard tray is a tray with a standard size. EN 1/1 corresponds to 20.87×14.57" (530×370 mm), EN 1/2 corresponds to 11.22×10.43 " (285×265 mm).
Specialist	A specialist is a person who can evaluate work assigned and can individually recognise any possible dangers due to the professional training, specialist knowledge and experience as well as knowledge of the respective guidelines.
Gastronorm	Gastronorm is a measurement system applied worldwide, for instance, in food processing plants or large-scale kitchens. The use of standardised sizes makes possible to exchange food pans. The basic size of the gastronorm (GN) 1/1 is 12.79×20.87" (325×530 mm). Items are available in different depths.
Control	Compare with certain conditions and/or characteristics such as damages, leaks, filling levels, heat.
Machine safety	The term of machine safety means all the measures used to avert injury to persons. The basis for this are national as well as EC-wide valid directives and laws for protecting users of technical devices and systems.
Passive layer	A non-metallic protective layer on a metallic material that prevents or slows down material corrosion.
Check	Compare with certain values such as weight, torque, content, temperature.
Qualified person, qualified staff	Qualified personnel are persons who due to their professional training, experience and instruction as well as their knowledge of the respective standards, guidelines, accident prevention regulations and operating conditions have been authorised by a person responsible for system safety to carry out required activities and can recognise and prevent any possible danger (definition of specialists according to IEC 364).
Schuko®	The abbreviation of the German term "Protective contact" that indicates a system of domestic plugs and sockets equipped with protective earthed contacts used in most of Europe.
Instructed persons	An instructed person is a person who has been instructed on the possible risks resulting from improper behaviour when carrying out the assigned task as well as on the necessary protective equipment and protective measures and trained for this task if necessary.

1.5 Orientation Guide

The front

"The front" means the side where the doors are arranged and at which the staff loads the appliance.

The rear

The side named "the rear" means the opposite side of the front side (the front). The rating plate is arranged on this side.

The right

The side named "the right" means the side at the right hand side of the front side (the front).

The left

The side named "the left" means the side at the left hand side of the front side (the front).




1.6 Notes on Use of Manual

1.6.1 Notes on the manual structure

This manual is structured in functional and task orientated chapters.

1.6.2 Notes and their illustrations used in the chapters

The warnings and notes are separated from the other text and particularly marked by corresponding icons. The icon cannot, however, replace the text of the safety instructions. Therefore, always read thoroughly the full text of the safety instructions. The warnings and notes are separated in these operating instructions as follows and categorised by the following danger levels by means of various symbols.

DANGER	Brief description of danger
	<p>There is an imminent danger to life and limb of the user and / or third parties when the instructions are not followed precisely or the circumstances described are not taken into account.</p> <p>The type of danger is indicated by a symbol and explained in the accompanying text in more detail. In this example the general sign of danger is used.</p>
WARNING	Brief description of danger
	<p>There is an indirect danger to life and limb of the user and / or third parties when the instructions are not followed precisely or the circumstances described are not taken into account.</p> <p>The type of danger is indicated by a symbol and explained in the accompanying text in more detail. In this example the general sign of danger is used.</p>
ATTENTION	Brief description of danger
	<p>There is a potential risk of injury or damage to property when the instructions are not followed precisely or the circumstances described are not taken into account.</p> <p>The type of danger is indicated by a general sign and explained in the accompanying text in more detail. In this example the general sign of danger is used.</p>
NOTE	Brief description of additional information
	<p>Attention is pointed to special conditions or additional important information on the respective subject.</p>
INFO	Short title
	<p>Contains additional information on work assisting features or recommendations on the respective subject.</p>

2 Safety Instructions

2.1 Introduction

The chapter on safety instructions describes the risks associated with the appliance in terms of product liability (according to the EU Directive).

The safety instructions should warn of hazards and help to avoid damages to persons, the environment and property. Please make sure that you have read and understood all the safety instructions given in this chapter.

You must comply with the respectively valid national and international Safety at Work Regulations. The manager is responsible for the valid regulations he/she has to provide. He/she must acquaint himself/herself and the operator with the new regulations.

In addition to these operating instructions, comply with the rules on health and safety at work issued by the Main Association of the industrial Professional Associations, especially with those that concern the handling of hot items and risks involved (BGR 110 "Protection of health and safety at work in restaurants" and BGR 111 "Protection of health and safety at work in large-scale kitchens").

2.2 Warning Symbols Used

Symbols are used in these operating instructions to point out the dangers that can occur while operating or cleaning the appliance. In both cases, the symbol provides information on the type and circumstances of danger.

The following symbols can be used:



General hazardous area

2.3 Safety Instructions for Appliance Safety

Safe operation of the appliance depends on appropriate and thorough use. Negligent handling of the appliance can lead to danger to life and limb of the user and / or third parties as well as hazards to the appliance itself and the other operator's property.

The following points are to be observed to ensure the appliance safety:

- The appliance may only be operated as intended, when it is in perfect condition with regards to technical standards, with awareness of safety and hazards and in accordance with the operating instructions.
- All the operating and actuating elements must be in a perfect and functionally reliable condition with regards to technical standards.
- The appliance must be checked for external visible damages and defects whenever it is put into operation. In case of damages, inform immediately the competent bodies and switch off the Tray transport trolley.
- Modifications or retrofits of the equipment are only permitted in consultation with the manufacturer and on receipt of his written agreement.
- The tray transport trolleys can start moving on their own and randomly if the casters are not locked with the total brakes.
- Release the total brakes before moving it. Moving the appliance with the total brakes locked can damage the chassis!
- Do not move the appliance over inclined surfaces or stairs. When approaching walls and moving round obstacles always pay attention to persons or obstacles in the way.
- During train operation it is not allowed to move the tray transport trolley faster than a walking pace. It is difficult to brake and steer heavily laden appliances.

- When moving the tray transport trolley make sure that the appliance will not tip over due to outside influences or inattention. If, nevertheless, it tips over never try to catch the Tray transport trolley.
- Secure the Tray transport trolley against rolling away by applying the total brakes before putting it into operation.

2.4 Safety Instructions for Transport

The following points are to be observed when transporting the Tray transport trolley:

- When loading, use only hoists and load lifting devices approved for the weight of the appliance to be lifted.
- Use transport vehicles that are approved for the weight of the Tray transport trolley.
- In no case put a defective appliance into operation and inform the supplier immediately.

2.5 Safety Instructions for Cleaning and Care

The following points shall be observed when carrying out any cleaning and maintenance operations:

- Observe the valid hygiene regulations and guidelines.
- For reasons of hygiene the cleaning instructions shall be strictly observed.
- Tray transport trolleys are not suitable for washing devices.

2.6 Safety Instructions for Troubleshooting

The following points shall be observed when carrying out any trouble shooting operations:

- The local applicable Accident Prevention Regulations must be observed.
- Observe the valid product safety regulations when handling oils, greases and other chemical substances.
- Carry out all the checks and inspections of the appliance on a regular basis. Remedy deficiencies, such as loose screw connections.
- Only authorised specialists may perform all repair work.
- Defective components should only be replaced with original parts.

3 Description and Technical Data

3.1 Performance Description

Tray transport trolleys are intended for transportation and distributions of meals in the field of the food service industry, large-scale kitchens and catering establishments. They hold up prepared meals on GN or EN trays.

Additionally, tray transport trolleys with passive cooling have a special middle wall which enables receiving cold storage plates. The usage of cold storage plates allows to keep meals cool for up to four hours.

3.2 Intended Use

The tray transport trolley is intended for receiving GN and EN trays. It serves for hygienic and economic transportation of prepared trays with warm or cold meals.

Transport of living beings, heavy and sharp-edged items, loose crockery items beyond the tray or stacks of crockery items is not permitted.

Tray transport trolleys that are coupled to induction docking stations may be loaded only with crockery and trays which are suitable for induction heating and released by **HUPFER®**.

Tray transport trolleys with a peripheral gallery may transport objects that have a firm base and are placed over the non-slip pad to protect against falling down (such as crockery, cutlery and napkins in suitable transport containers or on trays). The roof of the trolley may be loaded with up to 55 lbs (25 kg)

The intended use means the predetermined procedures, compliance with the indicated specifications and use of the delivered or additionally available original accessories.

Any other use of the appliance is considered as unintended use.

3.3 Improper Use

Tray transport trolleys without a peripheral gallery are not intended to be used as a storing surface for items.

In no case may people sit down or stand on or in to the appliance.

Tray transport trolleys that are coupled to induction docking stations may not be loaded with metal crockery, metal cutlery or meals covered with metal foil.

Tray transport trolleys may not be cleaned in the washing device.

Tray transport trolleys may be moved only with closed doors and only with the push bars. Gallery bars are not suitable and can be damaged.

The manufacturer and suppliers are not liable for any consequential damages resulting from an unintended use. No liability is assumed and no warranty claims can be submitted for damages caused by improper use.

3.4 Appliance Description

3.4.1 View of the appliance TTW

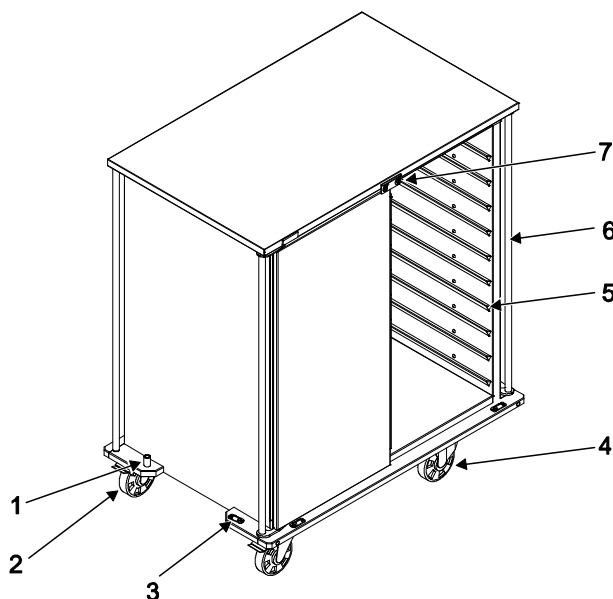


Figure 1 View of the appliance TTW/M

- | | | | |
|---|--------------------------------|---|-------------------------|
| 1 | Door retainer | 5 | Tray beads |
| 2 | Swivel caster with total brake | 6 | Push bar |
| 3 | Extension for drain plug | 7 | Transport safety device |
| 4 | Fixed caster | | |

3.4.2 View of the appliance TTW

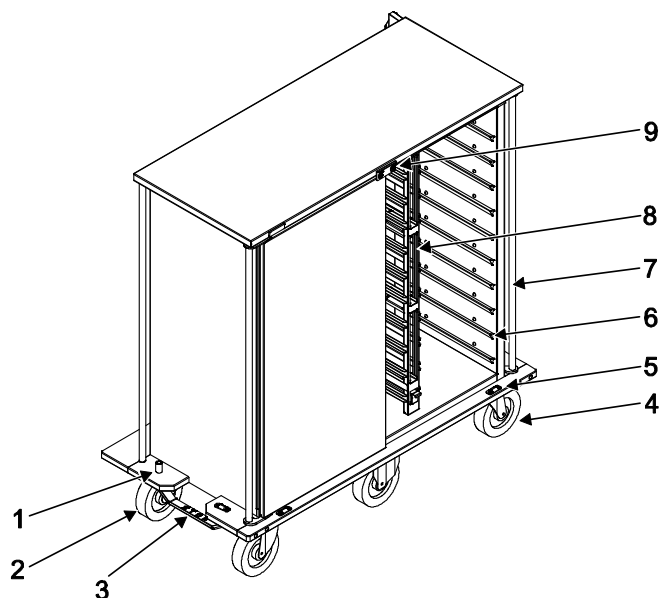


Figure 2 View of the appliance TTW/M with passive cooling

- | | | | |
|---|---|---|--|
| 1 | Door retainer | 6 | Tray beads |
| 2 | Fixed caster | 7 | Push bar |
| 3 | Casters that are movable in only one direction (optional) | 8 | Middle-wall for receiving cooling plates |
| 4 | Fixed caster | 9 | Transport safety device |
| 5 | Extension for drain plug | | |

3.4.3 Standard equipment

The tray transport trolley is completely made of stainless steel and double-walled. The modular design allows easy replacement of damaged parts (e.g. side walls, middle wall, doors, push bars, bumpers and roof of the trolley).

The side walls are equipped with seamlessly deep-drawn beads at a distance of 4.13" (105 mm) (optionally also 3.74 or 4.13" (95 mm or 105 mm)).

The side walls of the tray transport trolleys can be equipped with an embossed tilt protection when they are not used together with inductive docking stations.

Big radiuses, smooth surfaces and the seamless fabrication of the side and middle walls enable an easy cleaning of the interior. The middle walls can be removed for a thorough cleaning of the appliance.

You can swing the folding doors to an angle of 270° and lock them. The transport safety device safely locks the doors during transportation.

Due to the vertical push bars in the corners of the trolley it is possible to fully load the appliance and easily manoeuvre the device when the doors are closed or opened.

The corrosion-resistant swivel casters with total brakes and fixed casters made of galvanised and chrome-plated housings ensure an optimal movement and manoeuvrability of the tray transport trolley.

The lower peripheral frame made of shock-resistant plastic offers an optimal bumper and on the right and left sides it is disconnected in the mid for the optional installation of the coupling and drawbar.

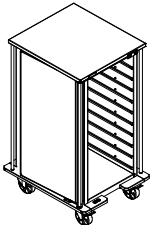
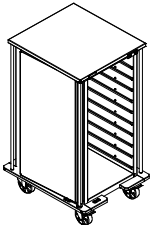
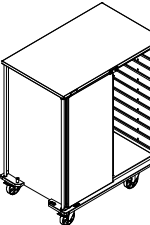
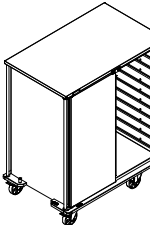
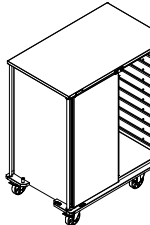
3.4.4 Equipment and optional accessories

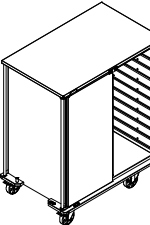
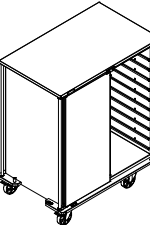
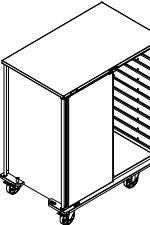
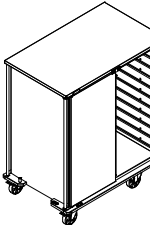
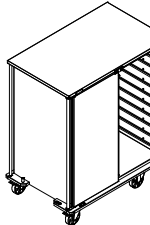
You can install and fit the tray transport trolleys with optional accessories in various ways.

- **Gallery:**
The gallery and a non-slip pad allow to use the roof of the trolley as an additional and secure storage surface. The roof of the trolley may be loaded with up to 55 lbs (25 kg).
- **Central total brake:**
The optional central total brake provides a firm hold during standby mode. One single foot control locks both swivel casters of the tray transport trolley.
- **Casters that are movable in only one direction:**
Due to the equipment of the casters, the swivel casters can be fixed so that they are movable in only one direction. This significantly facilitates the directional stability, e.g., during train operation.
- **Casters made of stainless steel:**
Stainless steel housing, plastic wheel, plate attachment
- **Coupling and drawbar:**
For the connection of several Tray transport trolleys for train operation. The simple version is also available in combination with casters that are movable in only one direction. The second option with friction damping enables the directional stability during train operation even in tight bends.
- **Shelf for beverage containers with lengthwise or crosswise insertion**
- **Stacking basket, stainless steel, plastic-coated, lengthwise insertion**
- **Card holder for inserting into the gallery**
- **Cold storage plates for appliances with passive cooling**
- **Connection components for induction docking stations**
(No embossed tilt protection is allowed when tray transport trolleys are to be used with inductive docking stations.)
- **Trays:**
Tray transport trolleys are intended for the use of EN trays and GN trays. Suitable systems are; e.g. **HUPFER®** SDS trays.
- **Induction crockery**
Generally, all standard induction crockery can be used in combination with tray transport trolleys and induction docking stations. Since the manufacturers sometimes use different coatings, the power consumption is always dependent from the used crockery when the device setting is identical. When it deviates from the standard then a fine tuning between the device and the crockery is always necessary. This fine tuning must be done by the manufacturer or the service technicians authorized by the manufacturer.
On request, recommendations for induction crockery are made available. Isolating covers for the

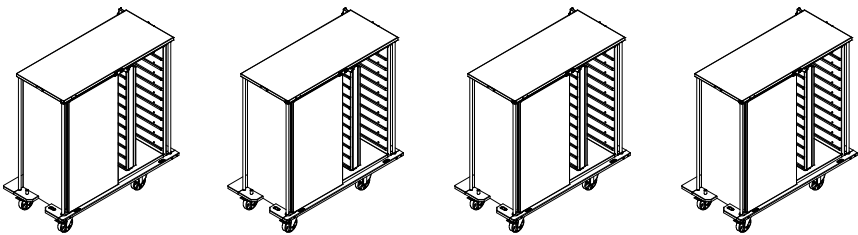
main course dishes (deep plate \varnothing 9.45 to 10.24" (240 to 260 mm) and stew bowls \varnothing 6.69 to 7.48" (170 to 190 mm)) are also available as a special accessory.

3.5 Technical Data

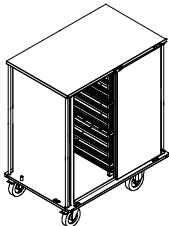
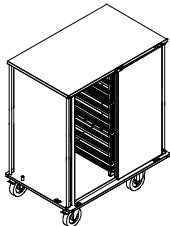
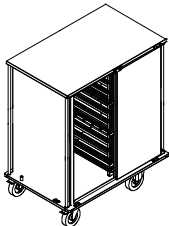
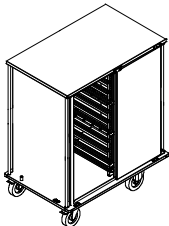
	Dim.	TTW / M 1/16 B-EN-115	TTW / M 1/20 B-EN-115	TTW / M 2/32 B-EN-115	TTW / M 2/40 B-EN-115	TTW / M 2/16 L-EN-115
						
Width	in (mm)	30.51 (775)	30.51 (775)	53.90 (1369)	53.90 (1369)	41.30 (1049)
Depth	in (mm)	30.48 (952)	30.48 (952)	35.12 (892)	35.12 (892)	27.20 (691)
Height	in (mm)	52.40 (1331)	61.46 (1561)	52.40 (1331)	61.50 (1562)	52.44 (1332)
Own weight	lbs (kg)	194 (88)	220.5 (100)	317.5 (144)	357 (162)	256 (116)
Payload	lbs (kg)	198 (90)	220.5 (100)	353 (160)	441 (200)	198 (90)
Capacity		1 x 2 x 8	1 x 2 x 10	2 x 2 x 8	2 x 2 x 10	2 x 8
Way of insertion		Crosswise insertion	Crosswise insertion	Crosswise insertion	Crosswise insertion	Lengthwise insertion
Tray size	in (mm)	20.87 x 14.57 " (530 x 370 mm)	20.87 x 14.57 " (530 x 370 mm)	20.87 x 14.57 " (530 x 370 mm)	20.87 x 14.57 " (530 x 370 mm)	20.87 x 14.57 " (530 x 370 mm)
Cupboard compartments	Number	1	1	2	2	2
Folding doors	Number	1	1	2	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

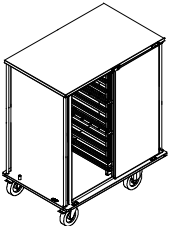
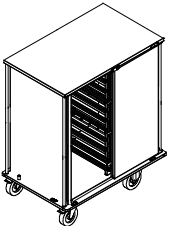
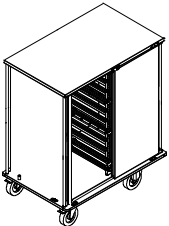
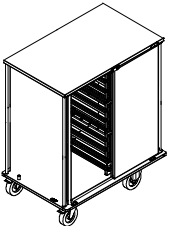
	Dim.	TTW / M 2/16 L-GN-115	TTW / M 2/20 L-EN-115	TTW / M 2/20 L-GN-115	TTW / M 2/24 L-EN-115	TTW / M 2/24 L-GN-115
						
Width	in (mm)	41.30 (1049)	41.30 (1049)	41.30 (1049)	41.30 (1049)	41.30 (1049)
Depth	in (mm)	27.20 (691)	27.20 (691)	27.20 (691)	27.20 (691)	27.20 (691)
Height	in (mm)	52.44 (1332)	61.50 (1562)	61.50 (1562)	70.56 (1792)	70.56 (1792)

	Dim.	TTW / M 2/16 L-GN-115	TTW / M 2/20 L-EN-115	TTW / M 2/20 L-GN-115	TTW / M 2/24 L-EN-115	TTW / M 2/24 L-GN-115
Own weight	lbs (kg)	255.7 (116)	269 (122)	269 (122)	291 (132)	291 (132)
Payload	lbs (kg)	198 (90)	220.5 (100)	220.5 (100)	264.5 (120)	264.5 (120)
Capacity		2 x 8	2 x 10	2 x 10	2 x 12	2 x 12
Way of insertion		Lengthwise insertion	Lengthwise insertion	Lengthwise insertion	Lengthwise insertion	Lengthwise insertion
Tray size	in (mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)
Cupboard compartments	Number	2	2	2	2	2
Folding doors	Number	2	2	2	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

	Dim.	TTW / M 3/24 L-EN-115	TTW / M 3/24 L-GN-115	TTW / M 3/30 L-EN-115	TTW / M 3/30 L-GN-115
					
Width	in (mm)	61.54 (1563)	61.54 (1563)	61.54 (1563)	61.54 (1563)
Depth	in (mm)	31.54 (801)	31.54 (801)	31.54 (801)	31.54 (801)
Height	in (mm)	52.52 (1334)	52.52 (1334)	61.57 (1564)	61.57 (1564)
Own weight	lbs (kg)	368 (167)	368 (167)	379 (172)	379 (172)
Payload	lbs (kg)	264.5 (120)	264.5 (120)	330.7 (150)	330.7 (150)
Capacity		3 x 8	3 x 8	3 x 10	3 x 10
Way of insertion		Lengthwise insertion	Lengthwise insertion	Lengthwise insertion	Lengthwise insertion
Tray size	in (mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)
Cupboard compartments	Number	3	3	3	3
Folding doors	Number	2	2	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

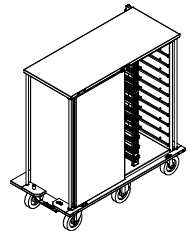
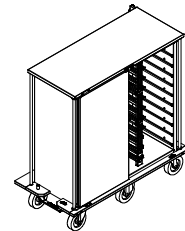
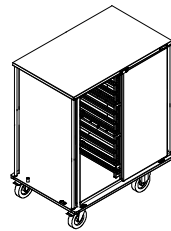
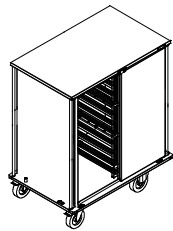
Tray transport trolley with passive cooling

	Dim.	TTW / M 2/16 L-EN-115 PK	TTW / M 2/16 L-GN-115 PK	TTW / M 2/20 L-EN-115 PK	TTW / M 2/20 L-GN-115 PK
					
Width	in (mm)	41.30 (1049)	41.30 (1049)	41.30 (1049)	41.30 (1049)
Depth	in (mm)	27.20 (691)	27.20 (691)	27.20 (691)	27.20 (691)
Height	in (mm)	52.44 (1332)	52.44 (1332)	61.50 (1562)	61.50 (1562)
Own weight	lbs (kg)	269 (122)	255.7 (116)	269 (122)	269 (122)
Payload	lbs (kg)	198 (90)	198 (90)	220.5 (100)	220.5 (100)
Capacity		2 x 8	2 x 8	2 x 10	2 x 10
Way of insertion		Lengthwise insertion	Lengthwise insertion	Lengthwise insertion	Lengthwise insertion
Tray size	in (mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 14.57 (530 x 370 mm)
Cold storage plates	Number	3	3	3	3
Cupboard compartments	Number	3	3	3	3
Folding doors	Number	2	2	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

	Dim.	TTW / M 2/24 L-EN-115 PK	TTW / M 2/24 L-GN-115 PK	TTW/M 2/32 B-EN-115 PK	TTW/M 2/40 B-EN-115 PK
					
Width	in (mm)	41.30 (1049)	41.30 (1049)	53.90 (1369)	53.90 (1369)
Depth	in (mm)	27.20 (691)	27.20 (691)	35.12 (892)	35.12 (892)
Height	in (mm)	70.55 (1792)	70.55 (1792)	52.40 (1331)	61.50 (1562)
Own weight	lbs (kg)	291 (132)	291 (132)	317.5 (144)	317.5 (144)

	Dim.	TTW / M 2/24 L-EN-115 PK	TTW / M 2/24 L-GN-115 PK	TTW/M 2/32 B-EN-115 PK	TTW/M 2/40 B-EN-115 PK
Payload	lbs (kg)	264.5 (120)	264.5 (120)	352.7 (160)	441 (200)
Capacity		2 x 12	2 x 12	2 x 16	2 x 2 x 10
Way of insertion		Lengthwise insertion	Lengthwise insertion	Crosswise insertion	Crosswise insertion
Tray size	in (mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 14.57 (530 x 370 mm)
Cold storage plates	Number	3	3	3	3
Cupboard compartments	Number	2	2	2	2
Folding doors	Number	2	2	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

	Dim.	TTW / M 3/24 L-EN-115 PK	TTW / M 3/24 L-GN-115 PK	TTW / M 3/30 L-EN-115 PK	TTW / M 3/30 L-GN-115 PK
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Width	in (mm)	61.54 (1563)	61.54 (1563)	61.54 (1563)	61.54 (1563)
Depth	in (mm)	31.54 (801)	31.54 (801)	31.54 (801)	31.54 (801)
Height	in (mm)	52.52 (1334)	52.52 (1334)	61.57 (1564)	61.57 (1564)
Own weight	lbs (kg)	368.2 (167)	368.2 (167)	379.2 (172)	379.2 (172)
Payload	lbs (kg)	264.5 (120)	264.5 (120)	330.7 (150)	330.7 (150)
Capacity		3 x 8	3 x 8	3 x 10	3 x 10
Way of insertion		Lengthwise insertion	Lengthwise insertion	Lengthwise insertion	Lengthwise insertion
Tray size	in (mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)	20.87 x 14.57 (530 x 370 mm)	20.87 x 12.80 (530 x 325 mm)
Cold storage plates		6	6	6	6
Cupboard compartments	Number	3	3	3	3
Folding doors	Number	1	1	2	2
max. speed in train operation	m/h (km/h)	2.49 (4)	2.49 (4)	2.49 (4)	2.49 (4)

3.6 Rating Plate

The rating plate is arranged on the back of the tray transport trolley on the right above the bumper.

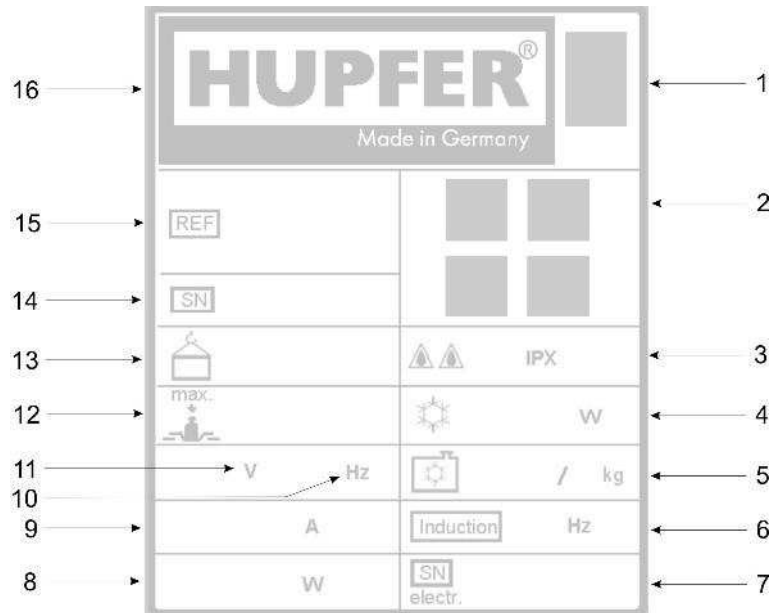


Figure 3 Rating plate

1	Disposal of old appliances	9	Nominal current
2	Test mark	10	Frequency
3	Protection class	11	Nominal voltage
4	Chilling capacity	12	Payload
5	Coolant	13	Own weight
6	Induction frequency	14	Serial number/Order number
7	Current serial number	15	Item and brief description
8	Electric power	16	Manufacturer

4 Transport, Putting into Operation and Decommissioning

4.1 Transport

ATTENTION

Appliance damages caused by improper transport



In the case of off-site transport in a vehicle such as a lorry, the appliances should be secured properly. If the appliances are not secured properly, there is a risk of damage to property and persons caused by squashing.

During transport, secure all the individually standing appliances using corresponding transport securing devices.

When loading, use only hoists and load lifting devices approved for the weight of the tray transport trolley. Only the transport vehicles may be used that are approved for the weight of the appliance.

The tray transport trolley is usually delivered as an assembled unit, i.e. it is completely assembled.

According to the valid purchase contract, the scope of delivery is specified in the shipping documents attached to the delivery item.

4.2 Setting up and putting into operation

The installation and operation of the Tray transport trolley can be done only by the manufacturer or the authorised personnel.

The Tray transport trolley should be thoroughly cleaned with a soft cloth before putting it into operation for the first time. Before the appliance is put into operation it must be clean and dry.

The function of the operating elements must be checked before putting it into operation:

INFO

Disposal of packing material

The packing consists of recyclable materials and can be disposed of appropriately. Thereby, the different materials are to be separated and disposed in an environmentally compatible manner. In any case, the local bodies responsible for disposal are to be involved for this purpose.

4.3 Storage and Recycling

Temporary storage must take place in a dry and frost-free environment. The Tray transport trolley must be kept covered with a suitable covering material to be protected against dust ingress.

The appliance kept in the storage location must be checked for damages and corrosion every 6 months.

NOTE

Condensed water formation

Ensure that there is sufficient ventilation and no large temperature fluctuations in the storage location to avoid condensed water formation.

NOTE

Temporary storage

Tray transport trolleys that are not operated for a longer period of time should be temporarily stored with opened doors in order to prevent odours in the interior.

Before the appliance is taken back into operation it must be clean and dry.

If the Tray transport trolley is required to be recycled, all the operating and auxiliary materials must be disposed in an environmentally compatible manner. The recyclable materials must be properly separated and disposed in an environmentally compatible manner according to the local Waste Disposal Regulations. In any case, the local bodies responsible for disposal are to be involved for this purpose. Separate the reus-

able materials of the appliance (casters and plastic parts) before disposing or send the appliance to a recycling centre.

We offer our customers to dispose their waste appliances. Please contact us or one of our distribution partners.

Packaging and packing material can be sent to the recycling centre by indicating the waste disposal contract number. If you do not have the valid waste disposal contract number, you can ask for it at [HUPFER®](#) - Service.

5 Operation

ATTENTION

Appliance damages



The Tray transport trolley may only be operated when it is in perfect condition with regards to technical standards. The appliance must be checked for external visible damages and defects before each operation.

In case of damages, inform immediately the competent bodies and do not put the Tray transport trolley into operation.

5.1 Operation

ATTENTION

Appliance damages



Heavily loaded Tray transport trolleys can roll and tip over during the train operation. Do not exceed the maximum traction speed of 2.49 m/h (4 km/h). The maximum speed applies for flat and dry concrete and a path width of 98.44" (2.5 m).

You can tighten up to three Tray transport trolleys in a row. Reduce the traction speed according to a change of a parameter.

NOTE

Inductive operation

Only appropriate induction crockery released by HUPFER with portioned meals on the intended markings of the trays may be used when the tray transport trolley is used together with the inductive docking station.

During the operation there should be no GN containers, cutlery or any other metal objects in the Tray transport trolleys.

Loading

- Lock the Tray transport trolley with the total lock brakes to prevent from rolling back.
- Insert trays in the sideways guides.
- Close the doors and lock it with the transport safety device.
- Release the total brakes.
- Carefully push or pull the Tray transport trolley to the destination place.

Unloading

- Release the total brake and roll the Tray transport trolley to the destination.
- At the destination, lock the casters with total brakes.
- Unlock the doors.
- Remove trays.

5.2 Measures at the End of Operation

To switch off the Tray transport trolley, proceed as follows:

- Push or pull carefully the Tray transport trolley (if necessary) to the destination place.
- Lock the casters with total brakes.

6 Fault Detection and Troubleshooting

6.1 Notes on Troubleshooting

Please contact our service partners in case of malfunctions and complaints within the warranty period. Even after the warranty period is expired you can have necessary repair work done by our service partners and certified electricians.

Service work should only be carried out by authorised specialist staff.

Defective components should only be replaced with **HUPFER®** original parts or identical spare parts. The modular design simplifies the replacement of individual components.

In the event of after-sales service and when ordering spare parts specify always the data and corresponding part number given in the rating plate.

Regular inspection and maintenance of the appliance prevent disruptions to operation and ensure safety.

6.2 Fault and Action Table

Fault	Possible cause	Action
The tray transport trolley pulls to the right or to the left when transporting	Damaged caster bearings	Replace defective casters
Total brakes do not have any locking action	Locking brakes are worn	Either renew the locking brakes or replace the defective casters
Running noise of casters	Defective caster bearings	Replace the casters
	Sticky surface of the casters	Clean with water

7 Cleaning and Care

7.1 Security Measures

ATTENTION

Appliance damages due to washing device



Tray transport trolleys are not suitable for washing devices.

Devices that are not suitable for washing devices can be damaged in the washing device when cleaned.

7.2 Hygiene Measures

The correct behaviour of the operating staff is decisive for optimal hygiene.

All persons must be informed about the locally valid hygiene regulations, observe them and comply with them.

Stick a waterproof plaster to cover wounds on the hands and arms.

Never sneeze or cough on clean crockery or meals.

7.3 Cleaning and Care

If the Tray transport trolley is handled with care, cleaned and maintained on a regular basis, it does not require any additional care measures.

To clean it regularly, wipe the interior and exterior of the Tray transport trolley with a soft cloth. Use for cleaning a soft cleaning cloth or an uncoated sponge. Use degreasing liquid cleansers that are approved for food industry.

Never use chloride-containing cleaning agents, abrasive cleaning powder or other dry cleaning agents, steel wool, steel sponges and/or sharp-edged items.

Dry well the appliance after carrying out wet cleaning, in order to prevent the development of mould, uncontrolled growth of germs and bacteria and, consequently, contamination of the appliance.

The middle wall has sufficient space for cleaning the rear wall, floor and roof of the trolley. For a more thorough cleaning you can remove the middle wall also without using tools.

To remove the middle wall, proceed as follows:

- Lift the middle wall.
- Tilt the lower edge above the holder to the side.
- Remove the middle wall.

7.3.1 Cleaning and care measures

Cleaning and care measures	Action	daily	weekly	monthly	if required
Interior of the Tray transport trolley	clean	x			
Interior of the Tray transport trolley	disinfect		x		
Tray transport trolleys for mechanical damages	Check			x	
Condensate pan at the bottom area (only on models with passive cooling)	empty	x			x

7.4 Special Care Instructions

The resistance to corrosion of stainless steels is based on a passive layer which is formed on the surface when oxygen is admitted. The oxygen in the air is sufficient for the formation of the passive layer, so that faults or damage to the passive layer can be remedied again automatically by mechanical action.

The passive layer develops or reforms more quickly when the steel comes into contact with flowing water containing oxygen. The passive layer can be chemically damaged or disrupted by agents having a reducing (oxygen-consuming) action when the steel comes into contact with them in concentrated form or at high temperatures.

Such aggressive substances are for example:

- substances containing salt and sulphur
- chlorides (salts)
- seasoning concentrates (e.g. mustard, vinegar essence, seasoning cubes, saline solution)

Further damages can occur due to:

- extraneous rust (e.g. from other components, tools or rust film)
- iron particles (e.g. grinding dust)
- contact with non-ferrous metals (element formation)
- lack of oxygen (e.g. no admission of air, low-oxygen water).

General working principles for the handling of appliances made of "refined stainless steel":

- Always keep the surface of appliances made from stainless steel clean and accessible to the air.
- Use cleaning agents suitable for stainless steel. No bleaching and chloride-containing cleaning agents should be used.
- Remove layers of lime scale, grease, starch and egg-white daily by cleaning. Corrosion can occur underneath these layers due to lack of air admission.
- After each cleaning operation remove all cleaning agent residues by wiping thoroughly. Afterwards, the surface should be thoroughly dried.
- Do not bring parts made from stainless steel into contact with concentrated acids, seasonings, salts etc. for longer than is absolutely necessary. Acid fumes which generate during cleaning of tiles also promote the corrosion of "refined stainless steel".
- Avoid damaging the surface of the stainless steel, particularly by metals other than stainless steel.
- Residues of extraneous metals produce extremely small amounts of chemical elements which can cause corrosion. In any case, contact with iron and steel should be avoided because that leads to extraneous rust. If stainless steel comes into contact with iron (steel wool, steel particles from pipes, water containing iron), this can be a trigger for corrosion. Therefore, for mechanical cleaning use exclusively refined steel wool or brushes with natural, plastics or refined steel bristles. Steel wool or brushes with unalloyed steel lead to extraneous rust due to abrasion.

8 Spare Parts and Accessories

Service work should only be carried out by authorised specialist staff.

Defective components should only be replaced with **HUPFER®** original parts or identical spare parts. That is the only way to guarantee a safe operation. We must inform you that a perfect functionality of the appliance can only be ensured if you use recommended original parts by **HUPFER®**. No or only conditionally suitable spare parts may jeopardise the warranty.

Spare parts and accessories can be ordered at **HUPFER®** -Service (Tel. +49 2541 805-0) When ordering spare parts or in the event of after-sales service always specify the order number and specifications on the rating plate of the tray transport trolley.

On request, **HUPFER®** -Service (Tel. +49 2541 805-0) provides recommendations and information about induction crockery, covers and trays.

8.1 Spare Parts and Accessories List

Spare part, part number	Item designation	Type	Q-ty
4000152	Fixed caster	Ø 160 T1 Steel galvanised	
4000151	Swivel caster	Ø 160 T1 Steel galvanised, total brake	
0125052	Swivel caster	Ø 200 Steel galvanised	
0125102	Swivel caster	Ø 200, Stainless steel	
0124489	Cold storage plate	1/1 GN	
0163324	Cold storage plate	1/1 GN with grip holes	
0163040	Tray	1/2 EN with centre bar	
0163356	Tray	1/1 EN separated for thermal partition	
0163034	Tray	1/1 GN separated for thermal partition, with 2 induction positions	
0124553	Shelf for beverage containers	Lengthwise insertion: Width 370 mm	
0124552	Shelf for beverage containers	Lengthwise insertion: Width 530 mm	
7215010	Stacking slide basket	530/370/108, Stainless steel, plastic-coated	
0162628	card holder	107/72/44 attachable	
7500895	Paper clamp	Stainless steel 90/18/70	
0163218	Gallery	revolving, for TTW 1	
0163219	Gallery	revolving, for TTW 2	
0162961	connection components	for IAS	