LRK250/500/700/1000

07.14 -

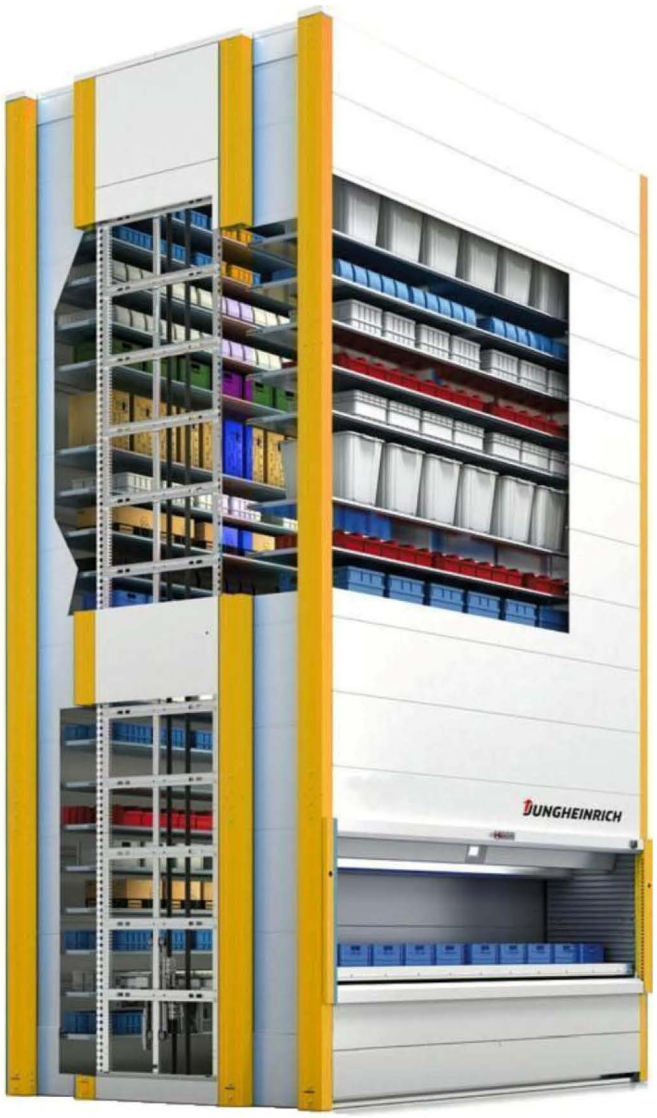
Instructions

GB

51402975

03.20

LRK250
LRK500
LRK700
LRK1000



JUNGHEINRICH

1.6 Representation conventions

1.6.1 Typographic conventions

5	Position number for components
❶	Item number for fastening material (e.g. screws, washers, nuts) is indicated in the black circle ❶.
Menu	Names of menus and menu buttons are displayed in **bold**.
Message	Messages shown by the system (status messages, warnings, system messages) are displayed in **bold**.
✓	Function button that the user must press.
Menu > **menu command**	A menu and a menu command to be selected one after the other.
[mm]	Measurement units are specified in square brackets [...].
☞	This symbol indicates paragraphs that contain important information.
❗	This symbol indicates troubleshooting that might take place as regards the software.
✓	This symbol indicates a condition that must be fulfilled before you can perform certain activities.
⇨	This symbol indicates an intermediate result of an operating step or the result of an operating instruction.
■	This symbol indicates the availability of options / combinations in tables.
|	This symbol is used in captions when an image shows several variants. The symbol separates the variant-specific components of the caption. The order of the captions corresponds to the order of the variants in the illustration (from left to right or top to bottom).

1.6.2 Graphical representation

The graphics (drawings) in this document are examples and may deviate slightly depending on the product type.

In case of considerable differences between the product types, an individual drawing is provided and the product type is specified in the caption. If the drawing is generally valid, no product type is indicated in the picture subtitle.

Example 2: Lateral reflection

The example shows the extracting process from the access opening to lift. Here, shiny parts are stored side by side. In this case, the light beam is reflected by the shiny object **[A]** . The object **[B]** is deflected in the middle, i.e., the object has not been detected by the height detection light barrier.

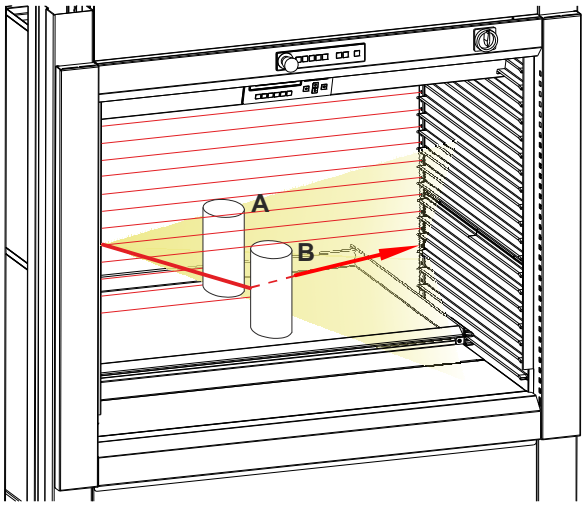


Fig. 3: height detection system of lateral reflection

Remedy:

- If possible, colour the reflecting edge/side matt black.

2.5.2 Safety equipment

Safety equipment must be worn and/or used during all service work.

Fig. 10: Safety equipment

1	Safety helmet	2	Protective glares
3	Full body harness	4	Protective gloves
5	Safety shoes		

This safety equipment must consist of at least the following devices:

- Main switch lock
- Full body harness as per EN 361
- Magnetic foil warning sign "SERVICE WORK IN PROGRESS"
- Safety helmet
- Helmet lamp/working lights
- Safety shoes
- Protective gloves
- Protective glares
- Toothed belt lock
- Fall arrester as per EN 360
- Fall protection runner with belt shock absorber according to EN 795 or 355

or other safety equipment of an equivalent quality

Important Information

The test intervals of the safety equipment must be complied with.

Unit dimensions LRK700

TB Tray width [mm]	TT Tray depth [mm]	GB Unit width [mm]	GT Unit depth [mm]	GH Unit height [mm]	X Minimum distance from the ceiling [mm]	TH Table height [mm]
1250	610	1580	2363	2550 - 20050	20	833
1250	813	1580	2972	2550 - 20050	20	833
1250	864	1580	3125	2550 - 20050	20	833
1650	610	1980	2363	2550 - 20050	20	833
1650	813	1980	2972	2550 - 20050	20	833
1650	864	1980	3125	2550 - 20050	20	833
1850	610	2180	2363	2550 - 20050	20	833
1850	813	2180	2972	2550 - 20050	20	833
1850	864	2180	3125	2550 - 20050	20	833
2050	610	2380	2363	2550 - 20050	20	833
2050	813	2380	2972	2550 - 20050	20	833
2050	864	2380	3125	2550 - 20050	20	833
2150	610	2480	2363	2550 - 20050	20	833
2150	813	2480	2972	2550 - 20050	20	833
2150	864	2480	3125	2550 - 20050	20	833
2450	610	2780	2363	2550 - 20050	20	833
2450	813	2780	2972	2550 - 20050	20	833
2450	864	2780	3125	2550 - 20050	20	833
2850	610	3180	2363	2550 - 20050	20	833
2850	813	3180	2972	2550 - 20050	20	833
2850	864	3180	3125	2550 - 20050	20	833
3050	610	3380	2363	2550 - 20050	20	833
3050	813	3380	2972	2550 - 20050	20	833
3050	864	3380	3125	2550 - 20050	20	833
3250	610	3580	2363	2550 - 20050	20	833
3250	813	3580	2972	2550 - 20050	20	833
3250	864	3580	3125	2550 - 20050	20	833
3650	610	3980	2363	2550 - 20050	20	833
3650	813	3980	2972	2550 - 20050	20	833
3650	864	3980	3125	2550 - 20050	20	833
4050	610	4380	2363	2550 - 20050	20	833
4050	813	4380	2972	2550 - 20050	20	833
4050	864	4380	3125	2550 - 20050	20	833

3.3.4 Tray types

3.3.4.1 Tray Light | Medium | Strong LRK250/500/700 (standard/ESD version)

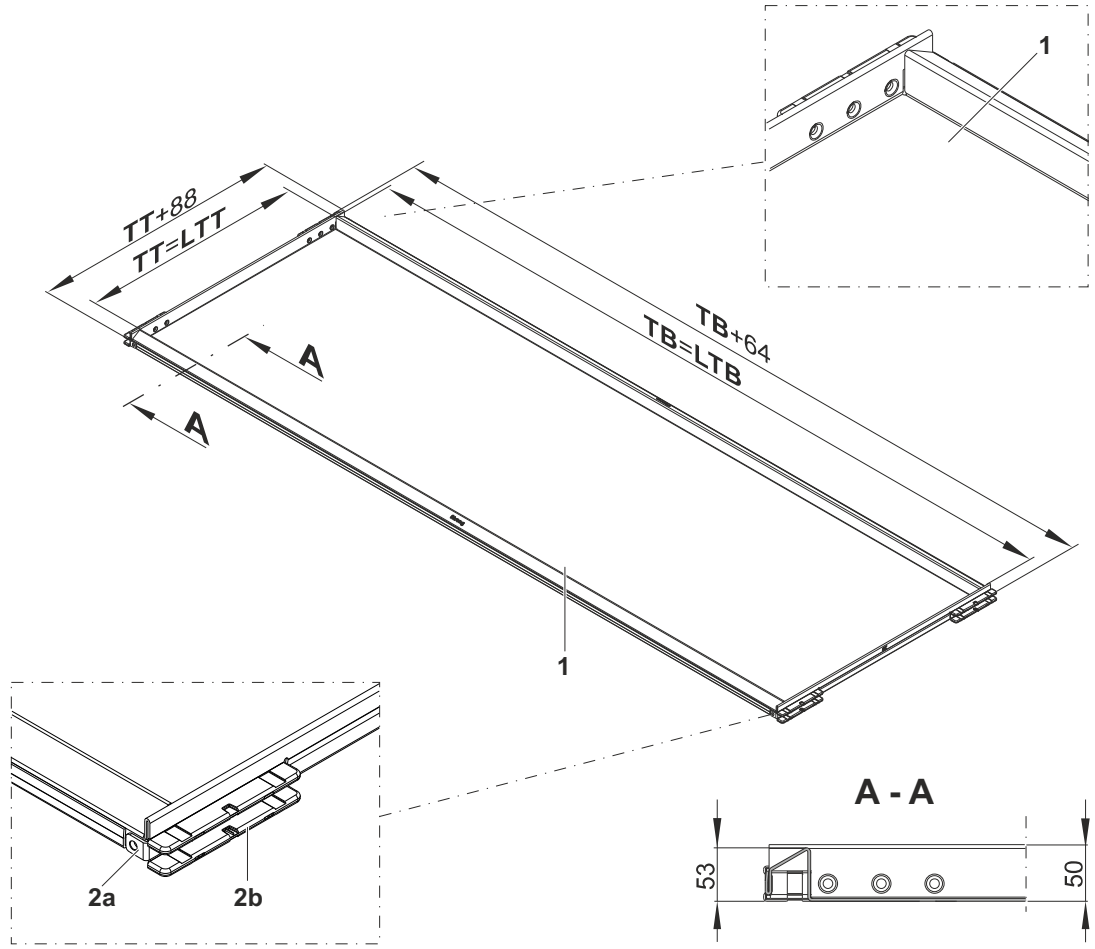


Fig. 20: Tray Light | Medium | Strong

1	Tray basin	2a	Corner support
2b	Slide skid (standard/ESD version)		
TW	Tray width	LTB	Inner tray width
TD	Tray depth	LTT	Inner tray depth

Important Information

In the corner area, the inner shelf width is reduced by 3 mm due to the attachment of the corner supports. The attachment of the corner supports results in 3 holes ø 9 mm in each of the tray side walls.

3.3.4.3 Tray 75 3 Medium 1 0 0
LRK500/700 (standard/ESD version)

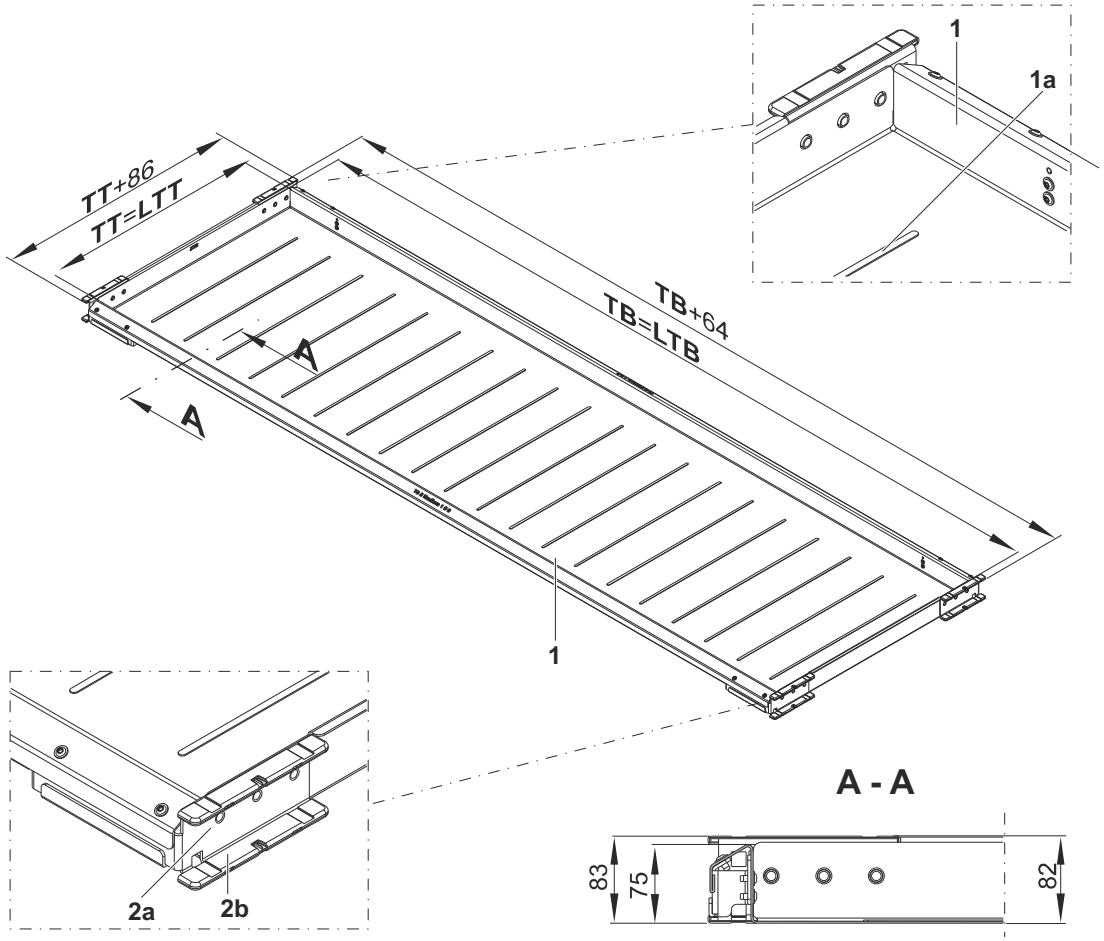


Fig. 22: Tray 75 3 Medium

1	Tray basin	1a	Base embossing
2a	Corner support	2b	Slide skid (standard/ESD version)
TW	Tray width	LTB	Inner tray width
TD	Tray depth	LTT	Inner tray depth

Important Information

In the corner area, the inner shelf depth is reduced by 7 mm and the inner shelf width by 3 mm due to the attachment of the corner supports. The attachment of the corner supports results in 3 holes ø 9 mm in each of the tray side walls.

3.3.4.8 Tray 80 5 Medium 0 0 0 LRK1000 (standard version)

Tray for storage of EURO pallets and pallet cages.

Tray 80 5 Medium 0 0 0 tray width 1250 mm x tray depth 1270 mm

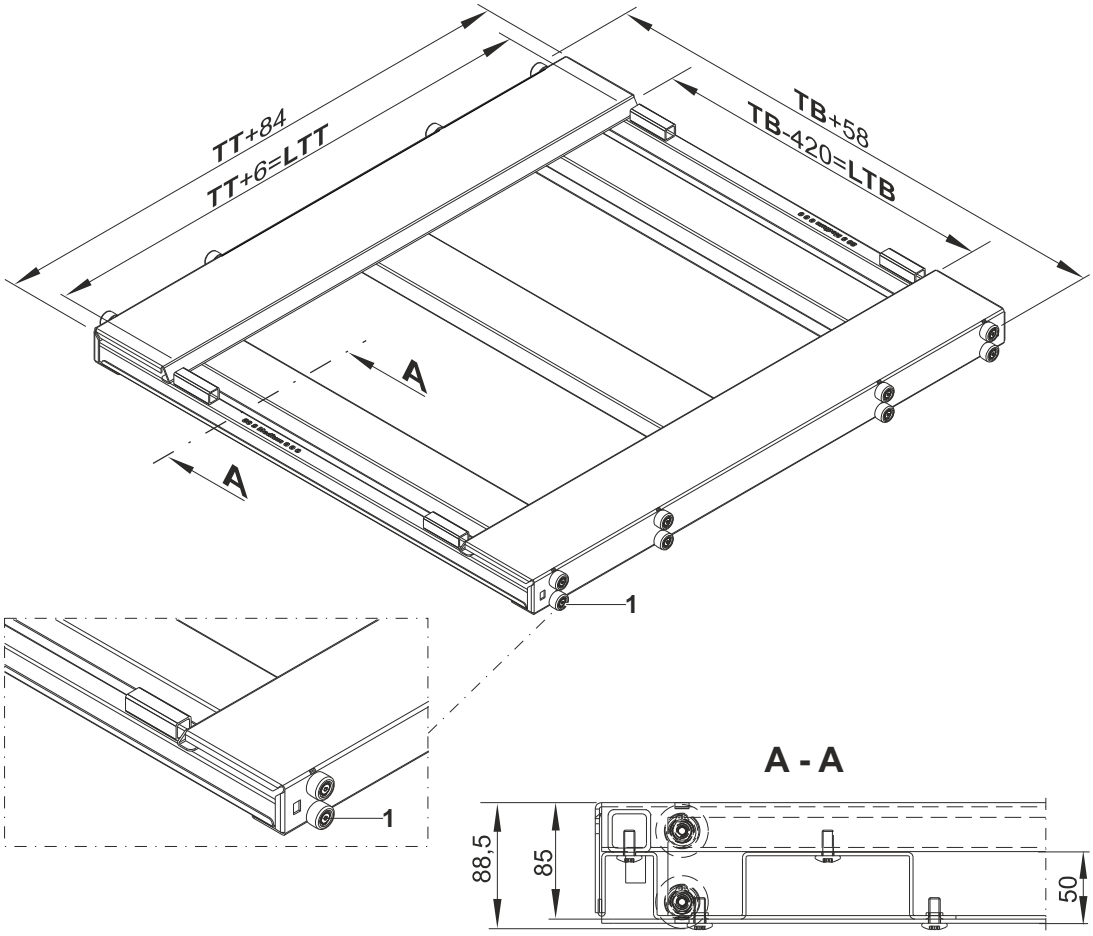


Fig. 27: Tray 80 5 Medium 0 0 0 tray width 1250 mm x tray depth 1270 mm

TW	Tray width	TD	Tray depth
LTB	Inner tray width	LTT	Inner tray depth
1	Tray roll ø 37 x 22 mm		

LRK1000 technical data

Technical data	Values		
Required minimum ceiling height	Unit height +20 mm		
Minimum distance to wall	Min. 250 mm on both sides		
Condition of footprint	See *Evenness of the floor* [▶ *18*]		
Installation of multiple units	Units can be installed directly adjacent to one another, i.e. side by side.		
Height grid	100 mm		
IP rating for unit housing	IP42		
Total gross load capacity	See *Type plate data* [▶ *85*]		
Usable tray dimensions	See *Type plate data* [▶ *85*]		
Tray load capacity	See *Type plate data* [▶ *85*]		
Tray dead weight	See *Tray types* [▶ *51*]		
Protection against breakage of the toothed belt	10x		
Safety devices	Operator protection light curtain at the access opening Isolation of the extractor shaft by a safety shutter (lift door)		
Sound pressure level	70 dB (A) $^{\pm 10\ dB(A)}$ (depending on speed settings, unit fill level and type of storage goods)		
Permissible ambient temperature	In operation Not in operation	+5 °C to +40 °C –20 °C to +70 °C	
Permissible relative humidity	10% to 90% Condensation must be avoided		
Maximum temperature change	In operation Not in operation	15 °C/h 10 °C/5 min	
Prohibited operation	In potentially explosive atmospheres In presence of corrosive gases		
Access for service work	From the side (service panel)		
Unit height	2550 - 20050 mm		
Unit widths	1580 mm/2180 mm/2780 mm/3380 mm/4380 mm		
Unit depths	2363 mm/3125 mm/4343 mm		
Min. tray spacing			
• Tray 121 4 Medium 100 | 110 | 120 | 130 • Tray 80 5 Medium 000	150 mm		
Storage location grid	50 mm		
Max. height of stored goods	See *Tray safety distance* [▶ *46*]		
IP protection class for drives	Shutter door drive Extractor drive (horizontal) Lift drive (vertical)		IP54 IP55 IP55
Lift door drive	0.06 kW (3-phase) 0.25 kW (3-phase)		
Extractor drive (horizontal)	0.75 kW (3-phase)		
Extractor speed (vertical)	XLD 1000		
• Extractor speed (vertical, 100% load)	0.50 m/s		
• Vertical extractor speed, empty	0.75 m/s		
• Horizontal storage/retrieval speed	0.39 m/s		
Lift drive (vertical)	XLD	4.0 kW (3-phase)	
Max. line cross-section	XLD	6.0 mm^2	

☞ **Important information!**

Elevated leakage currents occur as a result of the use of frequency inverters in the drive systems. Leakage currents are not fault currents but occur during operation and cannot be entirely avoided. In order to comply with additional requirements from the EN 60204-1 standard for electrical equipment with earth leakage currents larger than 10 mA, the manufacturer provides an additional PE connection on the mains connection.

LRK1000

GB Unit width [mm]	GT Unit depth [mm]	TT Tray depth [mm]	X [mm]	Y [mm]
TB + 330 mm	2363	610	274.7	1403.3
	3125	864	528.7	1657.3
	4343	1270	934.7	2063.3

GB = TB + 330 mm

GT = (3 x TT) + 533 mm

X = TT - 335,3 mm

Y = TT + 793,3 mm

GB	Unit width [mm]	TB	Tray width [mm]
GT	Unit depth [mm]	TT	Tray depth [mm]
X	Spacing of outer load-bearing sections	Y	Spacing of inner load-bearing sections

6 Switching on/off the unit

Switching on the unit

1. Turn the main switch to the "I" position.

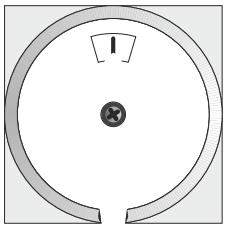


Fig. 42: Main switch switched on

⇨ After the unit has been switched on, the controller checks the system.

Important Information

This process may take a few seconds. During this process, no entries can be made on the operator panel.

⇨ Any error states are displayed as error messages.

⇨ The safety functions are checked.

⇨ The menu that was active when the unit was switched off is displayed again.

2. Establish the operational readiness of the unit (see *Setting the unit ready for operation* [▶ *102*]).

⇨ You have switched on the unit and established operational readiness.

Switching off the unit

✓ There is no user logged on to the unit.

✓ The extractor is in the access opening.

- Turn the unit's main switch to the "0" position.

⇨ You have switched off the unit and de-energised the unit.

7.3 Status bar

The status bar provides information on current and completed activities, error states that have been detected and violations of specifications.

Fig. 47: Status bar

1 **Status display**
The display changes in accordance with the respective status.
1a Number of the current access opening
1b Warning to the status message

2 **Tray number**
Displays the number of the tray currently standing in the access opening.

3 **Status message**
Displays the status message in clear text

4 **Host communication** [10)]
Connection to an superordinate computer system (stock management system)

5 **Logged in user**
3 user profiles have been saved in the control unit. These profiles cannot be edited.[11)]

default	Access authorisation to the standard functions
temp	Time-bound access authorisation to all functions.
service	Access authorisation to the service functions

6 **Time/Progress bar**
6a - Display of the current time
6b - Display of the progress bar

10) This function is only available if **JHC2000** has been deactivated.

11) Only if the **User management** option is activated.

5. Press the function key below the function button .

   ⇨ The data record has been created.

⇨ The cursor jumps to the **Tray** field.

! To edit a data record:

a) Shorten the material designation in the **Material** input field. The **Material** field is limited to 20 characters.

b) Press the function button ✓.

⇨ The **Pen & Paper** menu is displayed.

⇨ The **Material changed** status message is displayed.

⇨ The data record has been edited is highlighted in blue.

Cancel the input:

! You wish to discard the current change and return to the **Pen & Paper** menu.

a) Press the function button ×.

⇨ The **Do you want to cancel the changes?** message is displayed.

b) In order to confirm the message and go to the **Pen & Paper** menu, press the function button ✓.

⇨ You return to the **Pen & Paper** menu.

⇨ The data record has not been created.

8.5.1 Providing/returning tray (semi-automatic mode)

During every drive, i.e. whenever a tray is moved, the **positioning screen** is displayed. No input is possible as long as the **positioning screen** is displayed.

In the status line, the relevant status message about the current status of the process is displayed.

8.5.1.1 Providing tray (semi-automatic mode)

✓ The **Semi-automatic mode** menu is selected.

1. Enter the tray number in the **Tray** field.

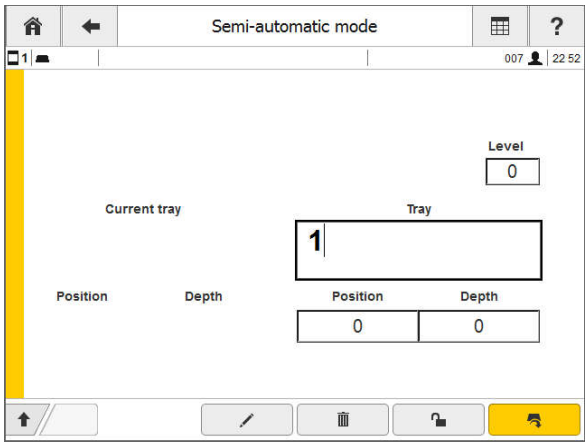


Fig. 67: Menu Semi-automatic mode - Providing a tray - Entering a tray number

2. Only if necessary: Enter further values in the **Position** and **Depth** fields in order to determine the position of the material more accurately.
3. Press the function button or confirm the input by pressing ENTER.
   ⇨ The **positioning screen** is displayed.
   ⇨ The **Fetch tray** status message is displayed.

Important Information

If there is already a tray in the access opening, this tray is returned first to its respective storage location before the requested tray is transported to the access opening (see *Returning tray (semi-automatic mode)* [▶ *143*]). When returning the tray, the **Restore tray** status message is displayed.

⇨ The tray is provided in the access opening.

⇨ The **Semi-automatic mode** menu is displayed.

⇨ The number of tray, the position and depth of the material as well as the height of the material and the permissible load are displayed. The current load is also displayed if the **Weight management Adjustable speeds** options are activated (option package **Speed and control**).

⇨ The tray number of the tray provided in the access opening is displayed in the status bar and the **Current tray** field.

Field	Description	Input field	
	The tray is moved to an optimum free storage location at the bottom of the unit. **space upper** The tray is moved to an optimum free storage location at the top of the unit. **fix** The tray is moved to a pre-determined storage location at the bottom or top of the unit.		
Height[32)]	Displays current height of storage goods in [mm] or grid size (1 grid = 25 mm) on the tray that is currently in the access opening		
Reserved height[32)]	Entry of the maximum possible height for a tray plus material.	Num.	(4)
Reserved shelf[32)]	Entry of the shelf onto which the tray is set down when it is returned to storage.	Num.	(4)
Reserved side[32)]	Entry of the side of the unit on which the tray is set down when returned to storage. **rear** Rear side of the unit **Front** Front side of the unit	Drop-down list	
Capture loading[33)]	Activating/deactivating the **Capture loading** code. If the **Capture loading** code is activated, the optimum lift speed is determined automatically after weighing, depending on the tray load. If the **Capture loading** code is deactivated for individual trays, the operator is responsible for proper loading of the trays. For all trays with a lift speed >100% as set in the tray table, this value is reduced to 100% automatically when the **Weight management** management option is deactivated.	Checkbox	
Load per carrier[34)]	Displays the permissible load per carrier for the tray currently in the access opening. The display can be set to **kg** (kilograms) or **lb** (pounds). The weight shown corresponds to the specifications on the type plate.		
Current load[34)35)36)]	Entry of the actual load per carrier in **kg** (kilograms) or **lb** (pounds). If the **Adjustable speeds** option is activated, the current load per carrier can be entered individually for each tray. The lift speed and current load per carrier are interdependent and are corrected automatically by an internal validation routine. The operator is responsible for ensuring correct tray loading.	Num.	(4)
Speeds Extractor[35)]	Extractor speed limit in % (e.g. for delicate kinds of storage goods). The value can be adjusted from 10% to 100%.	Num.	(3)

32) The field is displayed only if in the **Mode** field, the **near shelf**, **near opening** or **fix** storage strategy has been selected.

33) Possible only if the **Weight management** option is activated.

34) The field is displayed only if the tray corresponds to the standard.

35) The field is displayed only if the **Adjustable speeds** option is activated

36) If in addition to the **Adjustable speeds** option, the **Weight management** option is also activated, then instead of the **Current load** field, the **Capture loading** field is displayed.

8.5.6 Control measurement of tray load (semi-automatic mode)

Important Information

The **Weighing** function is available only if the **Weight management** option is activated.

The **Weighing** function can be called up via the following menu:

- Menu **Semi-automatic mode** ▶ Switch-over function button ▶ Function button

The **Weighing** function can be used to determine the tray load by means of a control measurement without returning the tray to the unit.

8.5.6.1 Carrying out control measurement (weighing)

✓ The **Semi-automatic mode** menu is selected.

✓ A tray is located in the access opening.

1. Press the switch-over function button .
   ⇨ The second level of the function buttons is displayed.
2. Press the function button .
   ⇨ The tray is pulled from the access opening and positioning on the extractor.
   ⇨ The measurement drive takes place and is limited to 5 seconds.
   ⇨ The load is determined and evaluated.
   ⇨ The load is displayed in the **Current load** field.

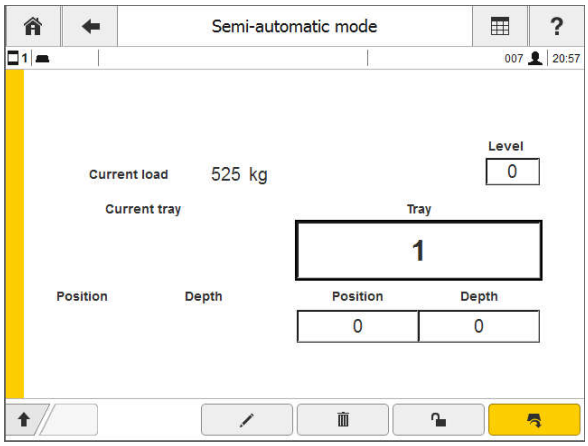


Fig. 85: Menu Semi-automatic mode - Weighing

⇨ The tray is moved back from the extractor and positioned in the access opening.

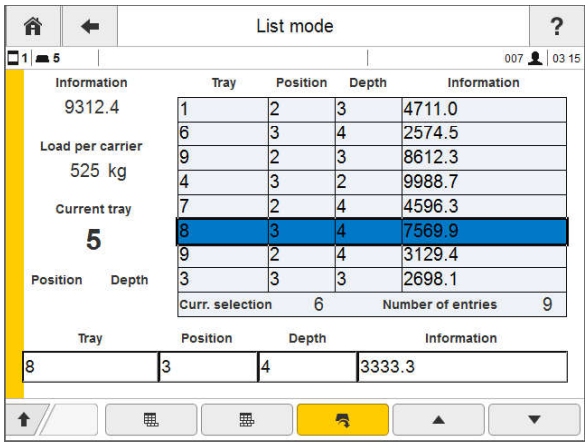


Fig. 96: Menu List mode - Editing data record

3. Press the switch-over function button .
   ⇨ The second level of the function buttons is displayed.

4. Press the function button .
   ⇨ The data record was edited.
   - or -
   The **Declined** status message is displayed.

! To create a data record:

a) Check the tray number of the data record. The tray number is not present. It is possible that the tray has been relocated.

b) Return the respective tray (see *Defining the tray settings of a new tray to be stored* [▶ *153*]).

c) Enter the tray number in the **Tray** field again.

d) Press the function button .
   ⇨ The data record was edited.

⇨ The cursor jumps to the **Tray** field.

Function buttons on the Efficiency menu

Fig. 108: Function buttons Menu Efficiency

	> Efficiency		**> Operating hours**
	> Last service data		**> Versions**

Description Menu OP settings (OPTouch)

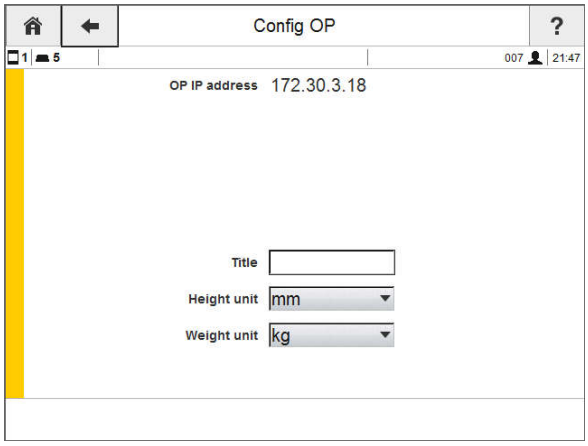


Fig. 120: Menu OP settings - OPTouch

Field	Description	Input field
OP IP address	Display of the IP address of the control unit	
Title	The product designation can be replaced by any text.	Alphanum. (17)
Height unit	Selection of units **Shelf** (1 grid = 25 mm), **mm** (millimetre) or **inch**	Pick list
Weight unit	Selection of units **kg** (kilogramme) or **lb** (pound)	Pick list

Setting the OPTouch display

✓ The **OP settings** menu is selected.

1. Select the setting that you wish to change.
   ⇨ The selected setting is now highlighted in grey.
2. Make the desired change.
3. To save the setting, press the ← navigation button.
   ⇨ The changed settings have been saved.

⇨ You return to the **Information** menu.

Technical data	Values			
LRK	**250**	**500**	**700**	**1000**
Communication interface	CAN – for control			
Grid position modules	50 mm grid, minimum spacing 100 mm			
Number of position modules	Max. 31 pcs			
Power supply	24 V DC			

Technical data	Values			
LRK	**250**	**500**	**700**	**1000**
Connection	6-pin mini DIN connector			
Supply voltage	5 V DC			
Power consumption	Max. 275 mA			
USB				
Version	USB 2.0			
Data transfer rate	480 Mbps			
Version	Type A			
Output current	Max. 0.5 A			

9.10 RFID reader

A user logs in using a RFID reader (receiver). The login data is transferred wireless from a data carrier, the RFID chip (transmitter/transponder), to the RFID reader (receiver). The RFID reader (receiver) is integrated in a user-friendly way. A RFID system consists of the RFID reader (receiver) with antenna and a RFID chip (transmitter/transponder). The RFID chip (transmitter/transponder) has a unique ID on delivery that can be assigned to a user. The user administration knows the code and compares it when the user logs on. When logging in, the user briefly holds his RFID chip (transmitter/transponder) against the head (antenna) of the RFID reader (receiver) and thus identifies himself.

This offers the following advantages for the user:

- Access to the unit is only granted to authorised and approved persons.
- No manual login to the unit/system via the keyboard is necessary.
- No password is required.

Information about the applicable RFID chips (transmitter/transponder):

- The specifications of the RFlD chips (transmitter/transponder) can be found in the technical data.
- The RFID chips (transmitter/transponder) can be ordered via the Sales Product Configurator.

Important Information

The option "RFID Reader" option excludes the option "Additional display alphanumeric" because both options are connected to the RS232 interface of the operator panel **OP JH-Control** but only one RS232 interface is available on the operator panel.

9.17.1 User rights/profiles

By means of user rights (profiles), access to the control functions is locked/unlocked.

The following 3 profiles are pre-defined in the control unit. It is only after the **User management** option is activated that the **default** and **service** users can be edited.

Number	default	service	temp	Description
01	■	■	■	**Automatic mode** (with connected host/stock management system)
02	■	■	■	**Semi-automatic mode** (Request/return tray, tray transfer, list mode)
03	■	■	■	**Insert/remove trays** (Position/remove tray) (requires 2!)
04		■	■	**Tray properties** (Speeds, Reserved Pos.) (requires 3!)
05		■	■	**Administration** (Manage users & groups)
06		■	■	**Set options** (Activate options)
07		■	■	**Service operation** (Move and reference)
08			■	**Service opperation +** (Position with standard speed) (requires 7!)
09			■	**Editing tables** (Edit tables, create and delete trays, shelves) (requires 4!)
10		■	■	**Parameter settings** (Operator settings)
11			■	**Parameter settings +** (Service settings) (requires 10!)
12		■	■	**Sensor diagnostics** (Visualise sensor states)
13	■	■	■	**Stock density** (Compress storage location, create free space)
14			■	**Initialisation** (Commissioning of the unit via automatic execution)
15			■	**Reset control** (reset control unit)
16			■	**Selflearns** (synchronise tables)
17			■	**Logfiles** (Access to logs/logfiles (action and error memory))
18			■	**Reserved**
19			■	**Reserved**
20			■	**Reserved**
21		■	■	**Reserved**
22	■	■	■	**Display information** (Access to the menu)
23		■	■	**Display Administration** (Display administration area) (inputs not possible)
24		■	■	**Display service** (Display administration area) (inputs not possible)
25	■	■	■	**Display semiautomatic** (Display semi-automatic mode)
26	■	■	■	**Display automatic** (Display automatic mode)
27	■	■	■	**Pen & Paper** (Access to the function)
28		■	■	**Pen & Paper - Service** (Service authorisation for the function)
29			■	**Reserved**
30			■	**Reserved**
31			■	**Reserved**
32				**Reserved**

9.17.2 Activating user management

✓ The **Option packages** menu is selected.

✓ The option package **Ergonomics** is activated.

- In the **Option packages** menu, check the **Ergonomics** box.

⇨ The option "**User management**" is activated together with the option package**Ergonomics**.

9.17.5 Edit user group

You use the following menus to access the **Edit user group** function:

- **main menu** > menu button **Administration** > menu button **User groups**
- Menu **Edit user** > shift-function button > function button

Description of the Edit user group menu

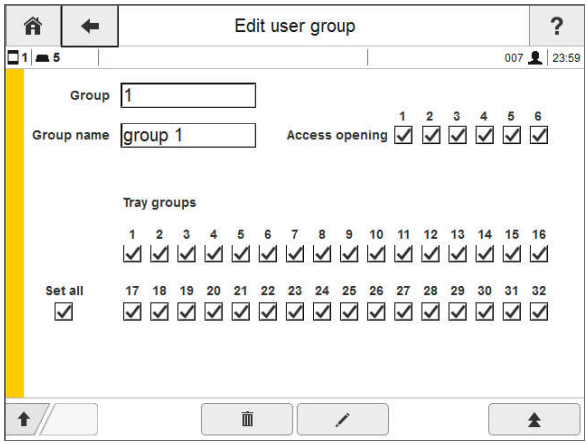


Fig. 142: Menu Edit user group

Field	Description	Input field	
Group	Number of the selected user group.	Num.	(2)
Group name	Name of the selected user group.	Alphanum.	(20)
Tray groups	Selection of tray groups/areas that is assigned to a user group. Tray groups can describe entire areas of trays, individual trays or a mix of the two. The allocation of individual trays to tray groups is directly indicated in the tray table.	Check box	
Set all	Selecting all tray groups/areas	Check box	
Access opening	Allocation of access openings(s) to the group (1 to 6 access openings in the unit), i.e. to which access oepning the user group has access.	Check box	

Important Information

The **229.x - Ergonomics multilevel** parameter is opening-specific, i.e. the check-mark must be set for every access opening.
229.1 – Ergonomics multilevel = 1. Access opening
229.2 – Ergonomics multilevel = 2. Access opening
229.3 – Ergonomics multilevel = 3. Access opening
229.4 – Ergonomics multilevel = 4. Access opening
229.5 – Ergonomics multilevel = 5. Access opening
229.6 – Ergonomics multilevel = 6. Access opening

2. To deactivate the option and update the value, press the function button  .
   ⇨ The **Values refreshed** status message is displayed.

⇨ The **Ergonomics multilevel** option is deactivated.

9.19.2 Providing one or more trays in the access opening (multilevel)

✓ The **Ergonomics multilevel** option is activated (see *Activating/deactivating multilevel* [▶ *250*]).

✓ The **Semi-automatic mode** menu is selected.

1. Enter the tray number in the **Tray** field.
2. – Optional –
   To determine the position of the material more precisely, enter additional values in the **Position** and **Depth** fields.
3. Enter the value of the work level at which the tray is to be provided in the **Level** field.
4. Press the function button 
   – or –
   Confirm your input with the ENTER key.
   ⇨ The **positioning screen** is displayed.
   ⇨ The status message **Fetch tray** is displayed.

Important Information

If there is already a tray in the access opening at the chosen work level, this tray is returned first to its respective storage location before the requested tray is transported to the access opening (see *Returning tray (semi-automatic mode)* [▶ *143*]). When returning the tray, the **Restore tray** status message is displayed.

   ⇨ The tray is provided in the access opening.
5. To provide additional trays in the access opening, repeat steps 1 to 4.

⇨ Another tray is provided in the access opening.

9.22.1 Activating/deactivating vertical photo cells shaft monitoring

Important Information

The **Service** function can only be activated by an authorised person.

The **Parameter settings** menu can be accessed from the following menus:

- **main menu** > menu button **Service** > menu button **Settings**

Activating

✓ The **Parameter settings** menu is selected.

1. Select the input field at the bottom left and enter the parameter value 120.2.
2. Confirm your input with the ENTER key.
3. Select the input field at the bottom right and enter the value 1.
4. Confirm your input with the ENTER key.
5. To activate the option, press the function button  .
   ⇨ The status message **Values refreshed** is displayed.

⇨ The option "Vertical photo cells shaft monitoring" is activated.

Deactivating

✓ The **Parameter settings** menu is selected.

1. Select the input field at the bottom left and enter the parameter value 120.2.
2. Confirm your input with the ENTER key.
3. Select the input field at the bottom right and enter the value 0.
4. Confirm your input with the ENTER key.
5. To deactivate the option, press the function button  .
   ⇨ The status message **Values refreshed** is displayed.

⇨ The option "Vertical photo cells shaft monitoring" is deactivated.

9.28 Transport cart

LRK250/500/700

The platform trolley is to be used only for transporting trays. Any other use, such as the **transportation of persons, is considered an unintended use and is prohibited at all times**.

⚠ WARNING

Warning about hand injuries from the platform trolley tipping over and/or falling storage goods

If the platform trolley tips over and/or storage goods fall off the trolley, there is a risk to personnel of crushing and shearing injuries.

- Use tray locking to lock the tray on the transport cart.
- Ensure that the platform trolley is not overloaded. Do not exceed the permitted load capacity of platform trolleys. Details of the total load capacity is specified on an adhesive plate, "Total load capacity", affixed to the platform trolley.
- Wear safety shoes.

⚠ WARNING

Warning about hand injuries from the platform trolley rolling away

If the platform trolley rolls away, it can cause crushing or shearing injuries.

- Always engage the parking brake when loading, unloading or parking a platform trolley.
- Use platform trolleys only on level surfaces. If you need to use the platform trolley on an uneven surface, unload the trolley first and ensure that the inclination of the surface you want to move the trolley over does not exceed 2%.
- Do not use motorised vehicles to move the platform trolley.
- Ask a second person to help when handling loads over 300 kg.

The platform trolley has a centring mechanism that makes it easier to dock with the access opening and transfer trays.

The platform trolley has a uniform depth and can accept trays of any standard depth. The various tray versions only differ in their widths.

Roller conveyors in the access opening ensure smooth, easy tray movement during tray transfer.

Technical data	Values	
LRK	250/500	700
Effective load (= tray dead weight + tray load capacity)	up to 600 kg	up to 760 kg

Dimensions of the manual hinged tray extraction

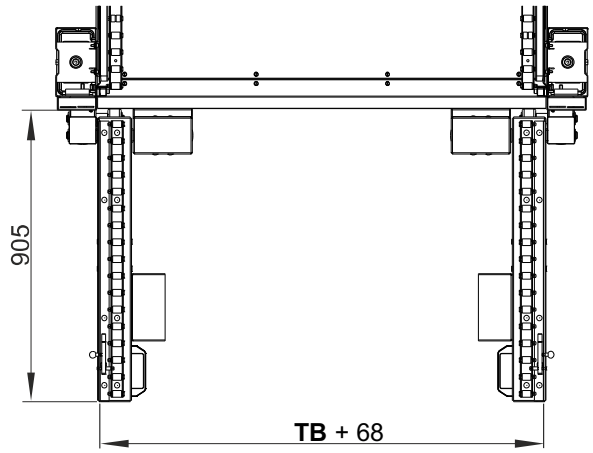


Fig. 164: Dimensions of manual hinged tray extraction LRK250/500

TB Tray width

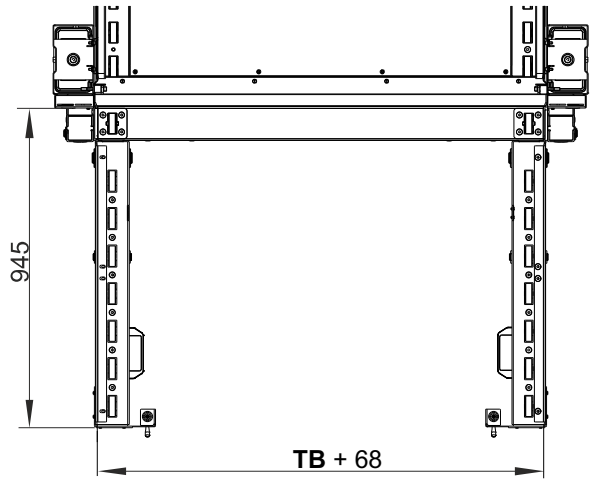


Fig. 165: Dimensions of manual hinged tray extraction LRK700

TB Tray width

4. Pull the tray onto the tray extraction for fork lift handling.

Important Information

If the "**Tray locking**" locking option is activated, the tray must first be unlocked by pressing the function button or moved out of the finger hold.

5. Lock the tray using the tray locking on the tray extraction for fork lift handling.

⇨ The tray is provided on the tray extraction for fork lift handling.

9.30.3 Returning a tray to storage from the tray extraction for fork lift handling

CAUTION

Damage to the unit and the tray extraction

An excessively strong removal of the tray from the access opening on to the table extraction can damage the end stops. An excessively strong returning of the tray into the access opening can damage the shutter door.

- Pull the tray carefully onto the tray extraction and brake on time so that it does not ram against the end stops of the tray extraction.
- Return the tray carefully into the access opening and brake on time so that it does not ram against the shutter door in the access opening.

✓ The **Tray extraction forklift handling with roller track** option is activated (see *Activating/deactivating tray extraction for fork lift handling* [▶ *289*]).

✓ A tray is present on the tray extraction.

✓ The **Semi-automatic mode** menu is selected.

1. Unlock the tray on the tray extraction.
2. Push the tray into the access opening.
3. Press the function button .
   – or –
   Confirm your input with the ENTER key.
   ⇨ The positioning screen is displayed.
   ⇨ The **Restore tray** status message is displayed.
   – or –
   The status message **Tray out of Position** is displayed.

! To return the tray to storage:

a) Correct the tray position until the status message is no longer shown and the tray is positioned correctly in the access opening.

b) Press the function button .
   – or –
   Confirm your input with the ENTER key.
   ⇨ The positioning screen is displayed.

⇨ The tray is returned to storage.

9.32.2 Safety devices for property protection

Proximity sensor tray in stop position

The sensor **[1]** is used to monitor the presence of a tray on the full tray extraction. The sensor **[1]** is queried for plausibility before, during and after a movement. If the sensor query **[1]** is not plausible, the extraction movement is either stopped immediately or not executed at all. The sensor **[1]** is located in the front area of the left chain drive.

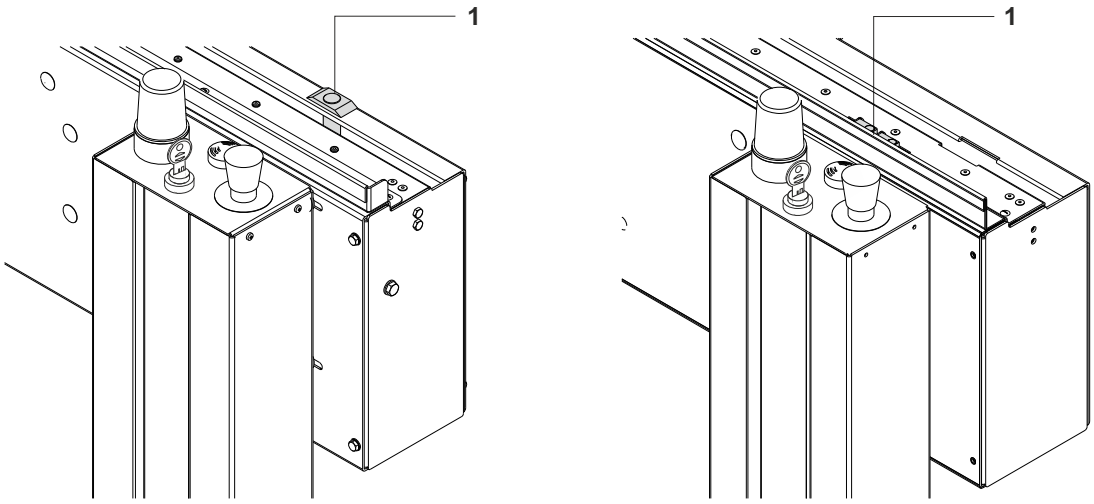


Fig. 180: Proximity sensor tray in stop position -B12 LRK250/500/700 | LRK1000

1 Proximity sensor tray in stop position -B12

Height detection light curtain

The height detection light curtain is used for monitoring:

- whether a tray is correctly positioned before it is discharged.
- whether storage goods overlap the tray edges during put operations

If this is the case, an extraction movement is either stopped immediately or not executed at all. The height detection light curtain is located in the rear of the access opening.

TB Tray width [mm]	TT Tray depth [mm]	Variable [mm]			
		A	B	C	D
3050	610/864				3380
4050	610/864				4380

Important Information

The support frame for the electrically powered lifting unit is attached to the foundation with heavy-duty anchors. No special foundation is required for these heavy-duty anchors.

Important Information

Knowledge of the content of the documentation provided by Demag is a basic requirement to protect personnel from danger and prevent incorrect operation, and to ensure proper and safe operation of the unit as a result. Changes of any kind or extensions/modifications to the system require written approval from Demag.

The following documents are included in the scope of delivery from Demag:

- **Operating manual/accessories/spare parts** Demag chain drive DC-Com 1-10
- **Operating manual/spare parts** KBK system – suspended tracks and hoists
- **EC Declaration of Conformity**
- **Test certificate for electric chain hoist** TYPE DC-Com 5
- **Test book** (German language only)

The operating company [73] is obliged (within the jurisdiction of the Federal Republic of Germany, according to BGV D8 section 23) to complete or commission such measures as are required to ensure that the load-carrying devices and machines that are ready for operation can function safely prior to initial commissioning. These measures must properly take into account the static and dynamic characteristics of the machine. The results of the inspections must be entered into the test book and verified by the inspector. Each crane system must be inspected as required (and at least once a year) by an authorised and competent [74]. The results of these routine inspections must be entered into the test book and verified by the inspector.

73) An operator (person, company) is an entity which operates and uses the unit properly or gets it operated by suitable and trained persons.

74) A person in-charge is a person who has sufficient knowledge about the unit due to his technical training and experience. They have to be sufficiently familiar with applicable national occupational health and safety regulations, accident prevention regulations and generally recognised rules of technology to be able to assess the operational safety of units.

9.39 Unit support

LRK250/500/700/1000

From a unit height of over 10050 mm, units must be supported/secured on-site by the customer.

Important Information

The unit support option can be selected and ordered with the Sales Product Configurator.

Important Information

The effect on building stability from supporting the load exerted by the unit and the fixing materials required must be clarified with the customer (consult a structural engineer).

General criteria:

- Unit supports are required for unit heights as follows: one support from a unit height > 10000 mm and two supports from a unit height > 20000 mm (unit supports are safe to use only for units ≤ 30000 mm).
- The distance from the bottom edge of the unit to the first unit support must not exceed 10000 mm.
- The distance between the unit supports must not exceed 10000 mm.
- The distance from the top unit support to the top edge of the unit must not exceed 10000 mm.
- The unit support systems must be selected based on the structural conditions on site. As a result, two separate systems may in fact be required for each **LRK**.
- Only for standalone units with no wind load.
- Earthquake load is not taken into account.

– Unit support, shaft and ceiling opening

– Unit support, wall

Support situations

- Case 1: Unit support in a shaft or ceiling opening
- Case 2: Unit support only on one wall (on one side of the unit)

Results of structural analysis

- The design chosen for the unit mounting bracket provides adequate stability.
- The existing building is not included in this structural analysis, i.e. only the load introduced (by the anchors) into the existing building is determined.
- **Base material for the anchors: Concrete, minimum thickness 120 mm**
  Heavy-duty anchor W-HAZ-S-A2K-30-M8x107

Max. internal force variable, which must be introduced into the building at the level of the horizontal mounting bracket
These are j-times rated forces

10 Messages

The system displays messages to inform the operator about ongoing and completed activities, detected fault conditions, and specification violations.

Safety-relevant errors are displayed until they are corrected and the error message is confirmed. Less critical warnings and messages on upcoming or completed system activities are displayed only for a short period of time. No input confirmation is required here.

If you need to contact our service department to report a fault, please always provide the respective message number. The software does not display this number for status messages. However, you can find the status number by consulting the status message table.

10.1 Status messages

Number	Message text	Description
1000	**No function**	
1001	**Machine active**	The unit drive system is active and a positioning process takes place.
1002	**Done**	The function has been completed successfully.
1003	**Declined**	The function has not been executed.
1004	**Data correction**	During plausibility test, the input data has been corrected by the software.
1005	**Searching reference**	The system is referenced, i.e., it returns to its reference position.
1006	**Shelf detection**	This status is displayed in service mode.
1007	**Tray detection**	This status is displayed in service mode.
1008	**Fetch tray**	Process ' Retrieve tray from storage location' is active.
1009	**Restore tray**	Process 'Transport tray to storage location' is active.
1010	**Enter number**	An entry is required.
1011	**Abort process**	The process, e.g., storage compression, has been aborted by the operator.
1012	**Process closed**	The process, e.g., storage compression, has been ended by the operator.
1013	**Shelf detection**	This status is displayed in service mode.
1014	**Interval time**	This status is displayed in service mode.
1015	**Values refreshed**	This status is displayed in service mode.
1016	**Activation succeeded**	This message appears after successful unlocking of the option package.
1017	**Tray in machine**	This message is displayed when deleting a tray located in the unit.
1018	**process aborted**	The process, e.g., storage compression, has been aborted by the operator.
1019	**Enter tray data**	This status is displayed in service mode.
1020	**Initialisation hardware**	This status is displayed in service mode.
1021	**CAN bus warning**	Contact a service technician!
1022	**Tray transfer**	This status is displayed in the Semi-automatic mode during the tray transfer.
1023	**Tray extraction is occupied**	This status is displayed if a tray is requested and another tray is already located on the full tray extraction.
1024	**Value assumed**	This status is displayed in service mode.
1025	**Slider brake is open**	This status is displayed in service mode.
1026	**Delete tray data**	This status is displayed in service mode.

Number	Message text	Description
4621	**Tray is in the 1st opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening. Return the tray first in the other opening and then request the tray again.
4622	**Tray is in the 2nd opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening.
4623	**Tray is in the 3rd opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening. Return the tray first in the other opening and then request the tray again.
4624	**Tray is in the 4th opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening. Return the tray first in the other opening and then request the tray again.
4625	**Tray is in the 5th opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening. Return the tray first in the other opening and then request the tray again.
4626	**Tray is in the 6th opening**	You have requested a tray that is either already present in the current access opening or present in a different access opening. Return the tray first in the other opening and then request the tray again.
4627	**Extractor fingerhold in other opening**	Unlock the tray lock by returning the tray to the relevant access opening or, in semi-automatic mode, press F5 and remove the tray from the access opening.
4628	**Invalid increments**	The extractor drive is transmitting invalid encoder values. Please contact the service technician!
4629	**Relative lift run not on web**	Faulty lift positioning. Please contact the service technician!
4630	**Lift timeout**	Lift travel timeout. Please contact the service technician!
4631	**Set finger hold front side?**	This message is displayed only in the special service mode. Please contact the service technician!
4632	**Set finger hold rear side?**	This message is displayed only in the special service mode. Please contact the service technician!
4633	**Set finger hold inside?**	This message is displayed only in the special service mode. Please contact the service technician!
4634	**Set finger hold outside?**	This message is displayed only in the special service mode. Please contact the service technician!
4636	**Interrupt shutter door movement**	If supply voltage fails during shutter door movement, the message is displayed after power is restored. The shutter door must be referenced in service mode.
4700	**Programme error: Pointer**	Please contact the service technician!
4702	**PLC peripheral device - access error**	Please contact the service technician!
4703	**Unknown chain**	Invalid extractor chain length. Check the input for the tray depth. If the tray depth is correct, please contact the service technician!
4704	**invalid system type / frequency converter**	This message is displayed only in the special service mode. Please contact the service technician!
4705	**PLC state: STOP**	Controller has stopped. Please contact the service technician!
4711	**Switch the machine OFF and ON again**	The controller is in a stop state due to a serious fault. Please contact the service technician!
4800	**LCS Remote Support**	LCS remote support – no server connection possible.
4801	**Problem with data reception**	LCS remote support – faulty data reception.
4802	**Problem with creating a job**	LCS remote support – function has failed.

11.10 Checking warning and information signs

All warning and information signs are safety devices and must not be removed. They must be clearly visible at all times.

For further information on attachment of warning and information signs, refer to the instructions on pasting included in the unit documentation.

Signs which are illegible or damaged must be replaced.

11.11 Cleaning

Important Information

Follow the safety instructions when cleaning (*Safety regulations for service work* [▶ *28*])

Cleaning the personal protection light curtain

The optical window can be cleaning with a soft and damp cloth, depending on the degree of contamination. Under no circumstances should you use aggressive solvents, as otherwise the range is reduced and faults can occur.

Cleaning the operating console

You must not use any aggressive cleaning agents or solvents for cleaning, as otherwise damage can be caused to the surfaces.

Cleaning “Clean room” units.

Important Information

The cleaning intervals and cleaning agents are to be defined by the operator in accordance with the requirements of the clean room classification.

11.12 Technical support

For further information and technical support, please contact your local service centre or the responsible sales organisation.