



Operating Manual Hänel Lean-Lift - Original Operating Manual -



Operating Manual

Hänel Lean-Lift

Contents

Section	Subject	Page
1	Introduction.....	3
	1.1 Target groups.....	5
	1.2 Documents to be observed for target groups.....	6
	1.3 Notes on this operating manual.....	8
	1.4 Keep in an accessible place as a complete document, change service and copyright.....	9
	1.5 Modification of the Lean-Lift, change of the installation location.....	10
	1.6 Additions to the lift.....	11
	1.7 Personnel requirements.....	12
2	Intended use and misuse.....	13
	2.1 Intended use.....	15
	2.2 Misuse.....	16
3	General safety.....	17
	3.1 Signal words and warning colours.....	19
	3.2 Warning symbols used.....	20
	3.3 Note symbols used.....	22
	3.4 Safety instructions for proper lift operation.....	23
	3.5 Safety signs on the lift.....	27
	3.6 Collision barrier, flooding the lift.....	31
4	Safety equipment on the lift.....	33
	4.1 Requirements for the owner/operator for safe lift operation.....	35
	4.2 Position and function of the safety equipment.....	36
	4.3 Safety equipment for optional supplementary features.....	43
5	Lift operation, operation of the lift.....	45
	5.1 Position and function of the operating elements.....	47
	5.2 Establishing operational readiness.....	53
	5.3 Switching off the lift.....	58
	5.4 Proper loading of the lift.....	59
	5.5 Regular monitoring of the total load of the lift.....	61
	5.6 Operation of the lift with optional supplementary feature.....	67
6	Lift electrical system.....	75
	6.1 Position and markings of the electrical equipment.....	77
	6.2 Electrical equipment.....	78
	6.3 Electrical connection of the lift.....	81
7	Service and maintenance.....	87
	7.1 Prerequisites for performing service and maintenance tasks.....	89
	7.2 Personal safety equipment.....	93
	7.3 Work at heights.....	94
	7.4 Protection from hazardous, unintended movement of the extractor.....	99
	7.5 Lifts in multi-unit networks.....	111
	7.6 Blocked lift run.....	113
	7.7 Regular safety inspection of the lift.....	115
	7.8 Regular service inspection of the lift.....	124
	7.9 Replacing drives and checking/replacing chains.....	127
	7.10 Relubricating the lift.....	133
	7.11 Correcting faults.....	135
	7.12 Spare parts.....	139
	7.13 Decommissioning, disassembly and disposal.....	144
	7.14 Technical data.....	145
	Keyword index.....	149
	Annex A: Overview of Control Modules.....	151
	Annex B: Safety concept for operation at multiple access points.....	153
	Annex C: Test Book for Hänel Lean-Lift.....	157
	Annex D: Authorisation by the owner/operator.....	165

Operating Manual

Hänel Lean-Lift

Chapter 1

Introduction

Thank you for choosing a Hänel lift.

About this document

This "Operating Manual" document is part of the "Technical Documentation" consisting of multiple individual documents, which was included with the delivery of the lift on an order-specific basis in both electronic and paper form. For an overview of all individual documents, refer to the overall table of contents of the technical documentation of your Hänel lift.



Note

Please note that this "Operating Manual" document does not represent the entirety of the contents of an operating manual as the term is used in various standards and directives (e.g. Machinery Directive, DIN EN ISO 20607).

Contents

Here you will find important information about the individual target groups of the technical documentation of the lift, the target groups of this "Operating Manual" document and about the meaning of the safety symbols, signal words, colours and symbols used. This chapter also includes important, safety-relevant information about the lift and how to use it.

Section	Subject	Page
1.1	Target groups	5
1.2	Documents to be observed for target groups	6
1.3	Notes on this operating manual	8
1.4	Keep in an accessible place as a complete document, change service and copyright	9
1.5	Modification of the Lean-Lift, change of the installation location	10
1.6	Additions to the lift	11
1.7	Personnel requirements	12

Operating Manual

Hänel Lean-Lift

1.1 Target groups

Target groups of this "Operating Manual" document

This document was drafted for the following target groups - see green tick mark 

Symbols	Target group	Description / definition
 	Owner/operator	Owner/operator is any natural or legal person who has power of disposition with regard to technical operation of the lift as part of intended use and is responsible for compliance with the statutory provisions and requirements of government agencies valid for proper lift operation at the respective installation location of the lift (particularly with regard to operational and occupational safety).
 	Supervisory personnel of the owner/operator	Supervisory personnel of the owner/operator are persons appointed and/or authorised by the owner/operator to carry out its tasks, particularly with regard to operational and occupational workplace safety.
 	Operators / operating personnel	Operators / operating personnel are persons trained/instructed in lift operation who interact directly with the lift as part of proper operation of the lift (e.g. storing or retrieving articles)
 	Maintenance personnel (authorised by the owner/operator)	Maintenance personnel are persons authorised by the owner/operator to carry out certain tasks on the lift. The authorised personnel authorised by the owner/operator are <u>not</u> permitted to carry out any work on drive components, load-bearing parts or load-carrying equipment and are <u>not</u> permitted to work on the inside of the lift to correct faults in the event of a blocked lift run! Due to the <u>risk of fatal injury</u> , working inside the lift requires special, recently acquired skills and knowledge in addition to general technical qualification and vocational experience!
 	IT specialists (authorised by the owner/operator)	IT specialists are persons authorised by the owner/operator to carry out work via IT interfaces of the lift's microprocessor control system. IT specialists authorised by the owner/operator are <u>not</u> permitted to carry out any work inside of the lift! Due to the <u>risk of fatal injury</u> , working inside the lift requires special, recently acquired skills and knowledge in addition to general technical qualification and vocational experience!
 	Installation / removal personnel (such as Hänel specialists or representatives authorised by Hänel)	Installation / removal personnel are specially trained specialists of the manufacturer representatives authorised by the manufacturer for carrying out the proper installation / removal of the lift
 	Specially trained specialists of the manufacturer or representatives authorised by the manufacturer	Specially trained specialists of the manufacturer or representatives authorised by the manufacturer are persons with a corresponding Hänel certification level who may carry out all maintenance tasks on/in the lift, including work on drive components, load-bearing parts and load-carrying equipment.

Operating Manual

Hänel Lean-Lift

1.2 Documents to be observed for target groups

Additional documents which it is **mandatory** for target groups to observe

For additional important information about this lift (depending on the target group), refer to the included documents listed below. Observing this information is **mandatory**.

If you do not have one of the documents listed below or do not have a complete version, please contact the manufacturer, Hänel GmbH & Co. KG, or its authorised local representative.

Symbols	Target group	Documents that are mandatory to observe
	Owner/operator	• Hänel Lean-Lift User Guide • Lean-Lift Operating Manual • Lean-Lift Power Supply and Foundation Plan • Lean-Lift Installation Requirements for the Owner/operator • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ... Depending on the lift version: • Lean-Lift Operating Manual "Remote-controlled Lift Operation with MP ..."
	Supervisory personnel of the owner/operator	• Hänel Lean-Lift User Guide • Lean-Lift Operating Manual • Lean-Lift Power Supply and Foundation Plan • Lean-Lift Installation Requirements for the Owner/operator • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ... Depending on the lift version: • Lean-Lift Operating Manual "Remote-controlled Lift Operation with MP ..."
	Operators / operating personnel	• Hänel Lean-Lift User Guide • User Guide for the Microprocessor Control System MP ...
	Maintenance personnel (authorised by the owner/operator)	• Hänel Lean-Lift User Guide • Lean-Lift Operating Manual • Lean-Lift Power Supply and Foundation Plan • Lean-Lift Installation Requirements for the Owner/operator • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ... Depending on the lift version: • Lean-Lift Operating Manual "Remote-controlled Lift Operation with MP ..."
	IT specialists (authorised by the owner/operator)	• Hänel Lean-Lift User Guide • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ...

Operating Manual

Hänel Lean-Lift

1.2 Documents to be observed for target groups (continued)

Additional documents which it is mandatory for target groups to observe (continued)

Symbols	Target group	Documents that are mandatory to observe
	Installation / removal personnel (such as Hänel specialists or representatives authorised by Hänel)	• Hänel Lean-Lift User Guide • Lean-Lift Operating Manual • Lean-Lift Power Supply and Foundation Plan • Lean-Lift Installation Requirements for the Owner/operator • Lean-Lift Installation Instructions • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ... Depending on the lift version: • Lean-Lift Operating Manual "Remote-controlled Lift Operation with MP ..."
	Specially trained specialists of the manufacturer or representatives authorised by the manufacturer	• Hänel Lean-Lift User Guide • Lean-Lift Operating Manual • Lean-Lift Power Supply and Foundation Plan • Lean-Lift Installation Requirements for the Owner/operator • Lean-Lift Installation Instructions • User Guide for the Microprocessor Control System MP ... • Technical Description ... Microprocessor Control System MP ... Depending on the lift version: • Lean-Lift Operating Manual "Remote-controlled Lift Operation with MP ..."

Operating Manual

Hänel Lean-Lift

1.3 Notes on this operating manual

Contents

This section contains basic information about the lift.

Manufacturer (see type plate)

Hänel GmbH & Co. KG
Büro- und Lagersysteme
Postfach 11 61
D-74173 Bad Friedrichshall, Germany
Phone: +49 7136 27725
Fax: +49 7136 27741
Internet: www.haenel.de

Scope of validity of the Operating Manual

This Operating Manual is valid for lifts of the following series:

Type: Hänel Lean-Lift
Drives: 1 vertical motor and 1 horizontal motor

Access points: according to order confirmation

Commission number: see type plate on the lift

Year of manufacture: see type plate on the lift

If your lift has multiple access points, the type plate is located on the right below the first access point (see also Chapter 7.14).

Date of issue of the Operating Manual

October 2023

Applicable EC directives

With the technical documentation of the lift and a product description in the official language(s) of the country of use, the lift fulfils the basic safety requirements of the following EC directives:

- Machinery Directive 2006/42/EC
- EMC Directive 2014/30/EU
- The protection objectives of the Directive 2014/35/EU apply to machines. However, hazards caused by electricity are governed exclusively by the Machinery Directive 2006/42/EG.

For more information, refer to the Declaration of Conformity and the European EN 15095. Outside the European Union, the respective laws of the country of use shall apply to the company placing the lift on the market and the owner/operator.

Operating Manual

Hänel Lean-Lift

1.4 Keep in an accessible place as a complete document, change service and copyright

Keep in an accessible place as a complete document

- All technical documentation is part of the lift and must be stored such that it can be reviewed by the respective authorised target group (for more information on target groups, refer to Chapter 1.1).
- Parts of the technical documentation may never be removed. Incomplete technical documentation must be replaced immediately if lost. Contact the manufacturer, Hänel GmbH & Co. KG, or its authorised local representative.

Change service

The technical documentation of the lift is not subject to the change service of the manufacturer. The manufacturer retains the right at all times to change and improve all technical data, information and figures for the purpose of further technical development.

Copyright

All text and images are the protected intellectual property of Hänel® GmbH & Co. KG. Any use that is not expressly permitted by law, specifically including reprinting, reproduction, electronic processing or translation, requires approval from Hänel® GmbH & Co. KG.

Operating Manual

Hänel Lean-Lift

1.5 Modification of the Lean-Lift, change of the installation location

Modifying the Lean-Lift

Modifications are permitted only after a specialised safety concept is created and approved by the Hänel factory and must be carried out by specially trained employees of the manufacturer or the manufacturer's authorised representatives.

The specialists require an appropriate Hänel certification level corresponding to the scope of the work.

The consequences of an unauthorised modification and/or modification by personnel who are not (or not sufficiently) trained and certified by the manufacturer, Hänel:

All safety warranties and certifications shall be rendered null and void. These are:

- a. For the USA/Canada, the ETL label.
- b. For the European Economic Area, the EC Declaration of Conformity.

All warranty claims towards the manufacturer Hänel arising from faulty modification shall be null and void. Hänel shall no longer be responsible for the new safety concept.

The party carrying out the modification must draft a new safety assessment process and safety concept in accordance with EN ISO 12100. All country-specific legal regulations or product standards, as well as country-specific obligations for retrofit must be taken into account by the party carrying out the modification. These are documented for the European Economic Area in accordance with the EC Machinery Directive through the EC Declaration of Conformity and the product standard EN 15095. This modification would then take place under the sole responsibility and at the sole risk of the company carrying out the modification and the owner/operator, and without the technical knowledge of the manufacturer.

Changing the installation location of the lift

Whenever the lift's installation location is changed, it is mandatory to observe the document "Installation Requirements for the Owner/operator".



! DANGER

Risk of fatal injury incurred by unauthorised modifications!

- Any modification without the proper approval of the manufacturer is prohibited.
- There is a **risk of fatal injury** in case of insufficient technical knowledge or following improper procedure!

Operating Manual

Hänel Lean-Lift

1.6 Additions to the lift

Adding equipment to the lift without the manufacturer's approval

Approval from the manufacturer is not necessary when adding the following equipment to the lift when used exclusively by original Hänel accessories/spare parts:

On the lift, but only from the outside of the lift by suitable specialists authorised by the owner/operator:

- Retrofitting a lighting fixture.
- Retrofitting an LED strip.
- Relocating a keyboard arm (there must still be a clear view into the access point).
- Retrofitting an additional container limit stop in the access point.
- Installing partitioning hardware for containers.
- Replacing a piece of interchangeable equipment or spare parts (listed in the spare parts price list), but only from the outside of the lift.
- The following applies for additional containers:
 - The average load of all containers in the lift must not exceed the maximum total load of the lift.
 - The container version must correspond to that originally delivered with the lift.

MP control systems, but only from the outside of the lift by suitable specialists authorised by the owner/operator:

- Retrofitting compartment LEDs.
- Retrofitting a Varioarm system.

Operating Manual

Hänel Lean-Lift

1.7 Personnel requirements

This provides an overview of the qualifications required qualification of the operating and maintenance personnel.

Operating personnel:

Note that only trained operating personnel is permitted to use the lift.

In order to obtain the required qualification for lift operation ("trained operator"), the operator must fulfil the following requirements:

- Be at least 16 years old
- Have sufficient knowledge of the language of the country of use
- Has, at the very least, obtained initial instruction in lift operation and has carefully read the information in the User Guide and has an in-depth understanding of this information, which allows them to operate the lift safely
- Receive follow-up training with regard to all workplace safety matters pertaining to the lift at least 1 × per year.

Trained operators are not permitted to open any service doors!

Qualification as a "trained operator" does not authorise you to reach into the lift through an open service door, lean into the lift or enter the lift (even when the lift is switched off!).

For personnel inside the lift, there is an **acute risk of fatal injury** from the machine movements and suspended loads. Therefore, the lift must be entered only by instructed and specially trained and authorised personnel (such as Hänel after-sales service technicians) and following special safety precautions!

Maintenance personnel:

The maintenance personnel are responsible for the following tasks:

- Carrying out maintenance tasks (service work and repairs) on the lift.
- Carrying out regular safety inspections on the lift.

Depending on the maintenance tasks to be carried out, different requirements apply for the maintenance personnel. For additional information, refer especially to Chapter 7.1

Work inside of the lift always stringently requires not only general technical knowledge, but also specific skills and expertise which are conveyed as part of Hänel training programs/courses (for Europe, refer also to the EC Use of Work Equipment Directive 2009/104/EC and Machinery Directive 2006/42/EC).



! DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door or removed lift panelling and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside of the lift! In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.



! DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door or removed lift panelling and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside of the lift! In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

Operating Manual

Hänel Lean-Lift

Chapter 2

Intended use and misuse

Contents

This section describes which activities can be carried out using the lift and which are prohibited, even if the application seems possible.

Section	Subject	Page
2.1	Intended use	15
2.2	Misuse	16

Operating Manual

Hänel Lean-Lift

2.1 Intended use

Intended use

Hänel lifts are intended exclusively for storage and warehousing purposes in offices and industrial facilities.

The following points in particular must be fulfilled:

- Lift operation is performed only by trained operators.
- Lift operation is performed only if all service openings/lift panelling sections are properly sealed.
- Lift operation is performed only if all the safety equipment on the lift is fully functional.
- The operator does not lean or reach into the lift through an open service door and/or sit, stand or walk inside the lift.
- The containers are loaded and unloaded via the access opening only.
- The permitted ambient temperature range for standard lifts is from +5 °C (+41 °F) to +40 °C (+104 °F).
Max. installation altitude: 1000 m (3281 ft) above sea level
Max. rel. humidity: 50% at +40 °C (+104 °F) or 90% at +20 °C (+68 °F)
- The maximum permitted load carrying capacity of the lift and the containers, which is displayed on the type plate, must not be exceeded. The owner/operator is responsible for ensuring the correct load.
- Leaning into or reaching into the lift through an open service door, removing any panelling, or sitting, standing or walking in the lift is only permitted for instructed and specially trained and authorised personnel (such as Hänel after-sales service) and in accordance with special safety precautions!
- Before entering the inside of the lift and when performing service or repair work, switch off the main switch and secure it from being switched on again using a padlock. All main switches for lifts in multi-unit networks - see Chapter 7.5.
When the service door is open, the actuator latch for the safety switch must be secured on the service door and the main switch using a padlock (all main switches for lifts in multi-unit networks). In this regard, observe Chapter 7.1.
- Lift operation takes place with consideration of and compliance with all instructions valid at the installation location valid at the lift's installation location (including fire protection) and for work safety.

Operating Manual

Hänel Lean-Lift

2.2 Misuse

Misuse

The following points or activities in particular shall be deemed prohibited use:

- Installing or operating the unit outdoors.
- Operating the unit without protection from external forces such as loads from wind and snow.
- Operating the lift outside of the permitted ambient temperature.
- Earthquake-prone areas: the installation and operation of lifts that do not have the special type of construction required may be prohibited in accordance with regional or country-specific regulations. Lifts without an additional special agreement are not structurally designed for use in earthquake-prone areas (see type plate). In the case of an earthquake, persons in the vicinity of the lift may be in danger from collapse of the lift/parts of the lift. For earthquake-prone areas, there are lifts that are specifically constructed and designed based on various seismic zones (refer also to the order confirmation and type plate).
- Lift operation is performed by a untrained operator.
- Lift operation is performed when the maintenance opening or lift panelling is not sealed properly.
- Lift operation is performed when the safety equipment is not fully functional.
- The operator does not lean or reach into the lift through an open service door and/or sit, stand or walk inside the lift.
- Storing hazardous or explosive materials in solid, liquid or gas form (packaged or unpackaged).
- Operating the lift in an explosive, aggressive or corrosive environment, since hot surfaces and sparks are possible inside the lift.
- Storing loose foodstuffs in standard lifts. For lifts in which storing packaged foodstuffs is permitted, additional information about cleaning, disinfection and detergent procedures is provided in a supplement to the operating manual.
- Storing articles, which:
 - Exceed the maximum container load (see type plate, container loading sign).
 - Can shift, open automatically in the lift or are not or cannot be stored such that they are protected from tipping over. These articles can fall out or damage the lift.
 - They protrude beyond the inner contour of the containers from the side or the front/rear. These stored articles can fall down or block the lift run.
 - Exceed the maximum permitted fill level of your lift. By default, the maximum permitted fill level is between 695 mm [27.36 in.] and 735 mm [28.94 in.], depending on the lift/container version. You can find the maximum permitted fill level of your lift in the order confirmation of the technical documentation of the lift.
 - Have a diameter or an edge length of less than 5 mm [0.2 in.] and transparent stored articles, assuming that these stored articles are protruding beyond the container edge or the partitioning hardware. These stored articles cannot be detected by the light barrier system for the article height detection.
- Removal of parts that are screwed on, such as edge reinforcements that are screwed onto containers.
- Manually moving the location of containers by means other than the grips on the front of the containers (for example, by gripping below the container manually).
- Adding additional containers, exchanging containers between lifts, and replacing containers of a lift without proof of release by the Hänel factory.
Without a release, when operating multiple Hänel Lean-Lifts, containers may be used only in the lift for which they were intended.
- Loading using robots or similar automated systems is not permitted without suitable supplementary equipment approved with the manufacturer.
- Operation with modifications that are not approved by the manufacturer.
- Operation without compliance with the service intervals and regulations.
- Transporting humans or animals.
- Climbing into the lift through the access opening.
- Using a lift that is or has been exposed to rain, water or non-negligible vibrations.

Operating Manual

Hänel Lean-Lift

Chapter 3

General safety

Contents

Here, you will find important information about the safety of the lift.

Section	Subject	Page
3.1	Signal words and warning colours	19
3.2	Warning symbols used	20
3.3	Note symbols used	22
3.4	Safety instructions for proper lift operation	23
3.5	Safety signs on the lift	27
3.6	Collision barrier, flooding the lift	31

Operating Manual

Hänel Lean-Lift

3.1 Signal words and warning colours

Meaning of the signal words and warning colours used in this document and on safety signs / signs on the lift

The signal words and colours used have the following meanings:

Signal word and colour

(Symbol in accordance with ISO 3864 or manufacturer-specific)



- Safety instruction
- Preventive measure

(Symbol in accordance with ISO 3864 or manufacturer-specific)



- Safety instruction
- Preventive measure

(Symbol in accordance with ISO 3864 or manufacturer-specific)



- Safety instruction
- Preventive measure

(Mandatory instruction sign)



- Safety-related instructions and safety-compliant workflows

Meaning

High risk of danger

Safety alert symbol with the keyword "DANGER".

High risk, warning of fatal injuries in the event that instructions/requirements are not observed.

White text on red background.

A specific symbol to explain the danger appears in the box to the left.

Moderate risk of danger

Safety alert symbol with the keyword "WARNING".

Moderate risk, warning of possible severe to fatal injuries in the event that instructions/requirements are not observed.

Black text on orange background.

A specific symbol to explain the danger appears in the box to the left.

Low risk of danger

Safety alert symbol with the keyword "CAUTION".

Low risk, warning of possible minor to moderate injuries in the event that instructions/requirements are not observed.

Black text on yellow background.

A specific symbol to explain the danger appears in the box to the left.

Safety instructions

Keyword "SAFETY INSTRUCTIONS"

Instruction for safe work.

White text on green background.

A specific mandatory instruction symbol may appear which explains the required safety measure.

Operating Manual

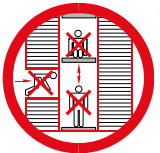
Hänel Lean-Lift

3.2 Warning symbols used

Meaning of the warning symbols used in this document and on safety signs / signs on the lift

The symbols used have the following meanings:

Symbols	Meaning
---------	---------



This symbol informs you that the following are prohibited:

- Entering the lift via the access point.
- Sitting or standing inside the access point or underneath the unsecured extractor.
- Riding in a container or on the extractor.



This symbol informs you that the following are prohibited:

- Leaning into the lift
- Reaching into the lift through an open service door and/or
- Sitting, standing or walking inside the lift.



Notes with this symbol warn you of possible general hazards.



Notes with this symbol warn you of a hazard caused by electrical current.



Notes with this symbol warn you of a hazard caused by suspended loads that can fall a bit or even crash to the ground, and particularly of the extractor falling.



Notes with this symbol warn you of a crushing hazard caused by moving machine parts.



Notes with this symbol warn you of a hazard caused by being pulled in or grasped by moving machine parts.



Notes with this symbol warn you of a hazard caused by parts that tip over.



Notes with this symbol warn you of a hazard caused by falling.

Operating Manual

Hänel Lean-Lift

3.2 Warning symbols used (continued)

Meaning of the warning symbols used in this document and on safety signs / signs on the lift (continued)

Symbols	Meaning
	Notes with this symbol warn you of hand injuries caused by moving machine parts (crushing, cutting, etc.).
	Notes with this symbol warn you of a hazard caused by hot surfaces.
	Notes with this symbol warn you of a hazard caused by: • Storing explosive materials in the lift • Storing these materials in the area surrounding the lift • Development of explosive atmospheres.
	Notes with this symbol warn you of a hazard caused by storing hazardous materials, particularly aggressive or corrosive media.
	Notes with this symbol warn you of a hazard caused by machine movements triggered automatically.
	Notes with this symbol warn you of a hazard caused by the risk of damage to the stored articles due to static electricity.

Operating Manual

Hänel Lean-Lift

3.3 Note symbols used

Meaning of the notice symbols used in this document and on safety signs / signs on the lift

Symbols	Meaning
	Switch off and secure the main switches! This symbol informs you that, before beginning a task, you must switch off the main switch and secure it from being switched on again using a personal padlock.
	Secure the actuator/actuating magnet! This symbol informs you that, before beginning a task, you must lock a personal padlock onto the actuator/actuating magnet of the open service door to keep it from closing.
	
	Wear fall protection equipment! This symbol informs you that, before beginning a task at great heights, you must put on fall protection equipment as personal safety equipment (PSE) against falling.
	Wear safety gear! This symbol informs you that when hazards from falling parts exist, you must wear personal safety equipment.
	See operating manual! This symbol informs you that the operating manual contains safety-related information <u>for instructed and specially trained and authorised personnel</u> (such as Hänel after-sales service) that must be observed.
	Note The word "Note" marks important information that absolutely must be followed.
	Note: The word "Observe:" marks additional information to help to prevent errors.

Operating Manual

Hänel Lean-Lift

3.4 Safety instructions for proper lift operation

Contents

This section contains basic safety instructions for safe use of the Lean-Lift.

The following safety instructions are general rules for safe work at the lift with which compliance is mandatory.

In addition to these, additional hazards and/or safety instructions may exist for certain tasks or operating tasks.

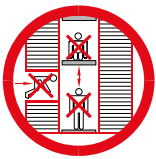
These special safety instructions appear in the text next to the description of the corresponding task.



Note

Safety signs / signs on the lift

Signs with instructions regarding safe use of the lift are attached at various locations of the lift. Compliance with the information on the signs is mandatory! (For further details, refer to Chapter 3.5.



DANGER

Fatal crushing injuries from moving machine parts and falling loads.

For personnel inside the lift, there is an acute **risk of fatal injury** from the machine movements and suspended loads.

A qualification as a "trained operator" does not authorise you to reach into the lift through an open service door, lean into the lift or sit or stand in the lift (even when the lift is switched off!).

Leaning into or reaching into the lift through an open service door, removing any panelling, or sitting, standing or walking in the lift is only permitted for instructed and specially trained and authorised personnel (such as Hänel after-sales service) and in accordance with special safety precautions!

- Never climb into the lift through the access point. If the lift is switched on at that moment, there is an acute risk of fatal injury from moving machine parts or falling loads, e.g. articles!
- Do not transport people or animals in the lift, even for inspection purposes.
- Do not remove any locks or warning signs that secure the lift from being switched on. These usually indicate that someone is working inside the lift.



DANGER

Risk of fatal injury from explosive materials and atmospheres

The lift is not suited for storing explosive or combustible hazardous materials, or for being operated in an explosive atmosphere; these are all prohibited. Solid materials and aerosols can accumulate in gaps inside the lift.

- Do not store any explosive or combustible materials or materials that can create an explosive atmosphere.
- Before switching on the lift, remove all explosive and combustible materials from the danger zone of the lift

Operating Manual

Hänel Lean-Lift

3.4 Safety instructions for proper lift operation (continued)



DANGER

Risk of fatal injury from electric current.

The lift operates at high voltage and correspondingly high amperages.

If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only. Even an amperage as low as 44 mA can be fatal.

Qualification as a "trained operator" does not authorise you to open covers or other means of access to the electrical equipment - even if the lift is switched off!

For additional information about the electrical equipment of the lift, refer to Chapter 6.2

- All covers and means of access to the electrical equipment must always be properly closed during operation of the lift.
- Beware of damaged electrical leads and connections. If you find damaged electrical leads and connections, do not resume lift operation; instead, contact the responsible electrically skilled person immediately. Before the unit is put into service, an electrically skilled person must first repair any damaged electrical leads and connections.
- Before all work, secure the main switch from being switched on again using a padlock. All main switches for lifts in multi-unit networks - see Chapter 7.5.
- Do not remove any locks or warning signs that secure the lift from being switched on. These usually indicate that someone is working on or inside the lift.
- The keys for the means of access to the electrical equipment must be kept in such a way that they are accessible to supervisory personnel/electrically skilled people only.



DANGER

Hazard from dangerous external voltage for lifts in multi-unit networks (shared service door) - see Chapter 7.5).

For lifts in multi-unit networks, hazardous voltage is still present at the following components even when the main switches are switched off:

- The main switches with undervoltage trip
- Terminal strip X1 in the electrical drawer
- At the safety switch on the service door
- at the MP 100 control system

- Before working on these parts, completely disconnect lifts in multi-unit networks from the mains power connection.



WARNING

Hazard from aggressive and corrosive materials. It is prohibited to store hazardous materials in the lift. Stored hazardous materials can be harmful to the health of the operator and cause property damage to the lift or stored articles.

- Do not store any aggressive, corrosive or otherwise hazardous materials.
- For flooding the interior of the lift with media other than air, Hänel currently approves only nitrogen (N₂). The owner/operator must carry out corresponding measures for the safety of the operating personnel.

Operating Manual

Hänel Lean-Lift

3.4 Safety instructions for proper lift operation (continued)



WARNING

Crushing injuries from moving machine parts.
When articles are put into storage or retrieved from storage, there is a danger of severe crushing injuries from the containers and extractor.

- Do not reach into moving machine parts.
- Before using the lift, always check that the safety equipment in the area of the access point(s) is being switched on.
- Manually move containers only using the grips provided on the front of the containers. Never grip below or within the containers for this purpose!



WARNING

Burns from hot surfaces.
The drives with brake and braking resistor can become very hot during operation. Therefore, burns are possible when working on these parts.

- If possible, wait at least 20 - 30 minutes before beginning work so that the drives can cool off.
- If it is not possible to wait that long, wear heat-resistant safety gloves while working.



WARNING

Danger of falling inside the lift.
If maintenance tasks have to be performed at great heights inside the lift, there is a danger of falling.

- Fall protection equipment must be worn for all work at great heights inside the lift.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3.



WARNING

Hazard from erection of the lift on an unsuitable substrate.

The substrate at the installation location must withstand the total weight of the lift, including the maximum total load.

Erection and commissioning only after completion of the test of floor/ceiling load capacity by a structural engineer.

It is not possible to use the lift for monitoring purposes to ensure that the load capacity of the floor is not exceeded.

It is the responsibility of the owner/operator to ensure that the total load of the lift and the load capacity of the installation location are not exceeded.

- Before erecting and commissioning the lift, have the floor/ceiling load capacity at the installation location checked by a structural engineer to ensure sufficient load capacity.
- Earthquake-prone areas: Lifts without an additional special agreement are not structurally designed for use in earthquake-prone areas (see type plate). In the case of an earthquake, persons in the vicinity of the lift may be in danger from collapse of the lift/parts of the lift. For earthquake-prone areas, there are lifts that are specifically constructed and designed based on various seismic zones (refer also to the order confirmation and type plate).



Operating Manual

Hänel Lean-Lift

3.4 Safety instructions for proper lift operation (continued)



Hazard caused by improper loading of the lift.
The load of the containers and the lift is not monitored automatically.

If containers are not loaded properly, this can result in loads and overloads in some places.

Excessive differences in the load of a container over its width will cause loading in one area of the lift and thus lead to damage and/or premature wear.

Here, you will find detailed notes and information on proper loading of the lift in Chapter 5.4.

CAUTION

- The owner/operator is responsible for monitoring the loading process to ensure it is being done properly.
- Check to ensure that the total weight of the stored articles with which you have loaded a container does not exceed the permitted value (maximum container load).
If possible, use the optional internal scale for the monitoring.
If your lift is not equipped with this scale, we recommend always weighing the entire container load using a suitable external weighing device.
- Refer to the type plate and load sign for the maximum load per container and for the entire lift.
- Here, you will find detailed notes and information on proper loading of the lift in Chapter 5.4.

Operating Manual

Hänel Lean-Lift

3.5 Safety signs on the lift

Contents

This chapter provides an overview of the most important safety signs and, where applicable, specifies the location of additional information in the Operating Manual. The signs may vary depending on the lift version (standard/order-specific) - For complete information about the individual safety signs on your lift and their location, refer to the document "SiSchi-LL" in the technical documentation of the lift.

Compliance with the information on the signs is mandatory! Signs that are missing or illegible must be replaced immediately!

Sign

Sign name and additional information

Sign

Sign name and additional information



Short operating instructions;
standard;
(07 100 171/1)
Particularly chapters 2, 3, 4, 7



Safety instructions for standard
model service door;
standard; (07 100 396/1)
Particularly chapters 3, 4, 7



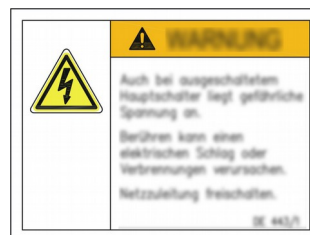
Climbing into the lift prohibited;
standard;
(07 100 313)
Particularly chapters 2, 3, 4, 7



Access prohibited for
unauthorised persons and
prohibition sign for access point
and extractor;
standard;
(07 100 418)
Particularly chapters 2, 3, 4, 7



Voltage at terminal block;
standard;
(07 100 399)
Particularly chapters 6, 7



Electric warning arrow for mains
power line;
standard;
(07 100 443)
Particularly chapters 6, 7

Operating Manual

Hänel Lean-Lift

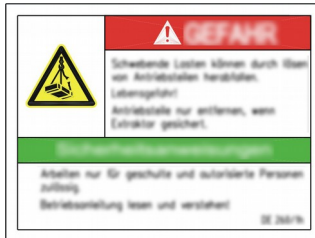
3.5 Safety signs on the lift (continued)

Sign

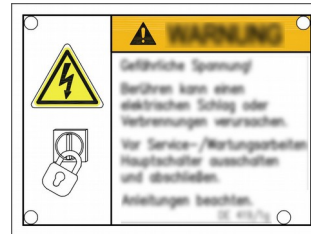
Sign name and additional information

Sign

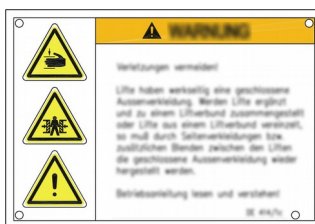
Sign name and additional information



Safety instructions for drive;
standard;
(07 100 260)
Particularly chapter 7



(Electricity warning arrow;
standard; (07 100 419)
Particularly chapters 6, 7



Outside panelling;
standard;
(07 100 414)
Particularly chapters 2, 7



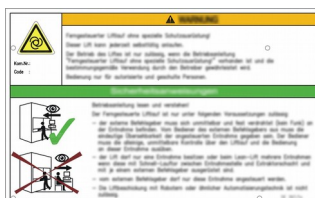
Safety instructions for locking
device;
standard;
(07 100 441)
Particularly chapter 7



Installer's Declaration;
order-specific;
(07 100 400)
Particularly chapters 2, 4, 6, 7



Safety instruction service doors
at special height;
order-specific; (07 100 312)
Particularly chapters 3, 4, 7



Remote-controlled lift operation;
order-specific;
(07 100 397)
Particularly chapters 2, 4
Operating Manual for Remote-
Controlled Lift Operation

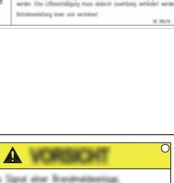
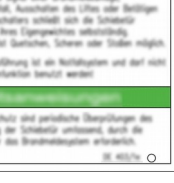


Weighing device;
order-specific;
(07 100 402)
Particularly chapters 2, 5, 7

Operating Manual

Hänel Lean-Lift

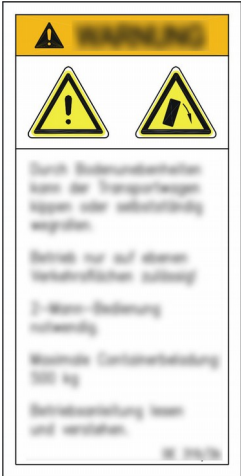
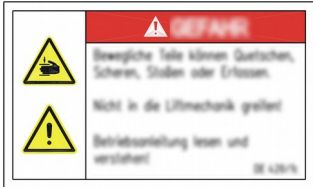
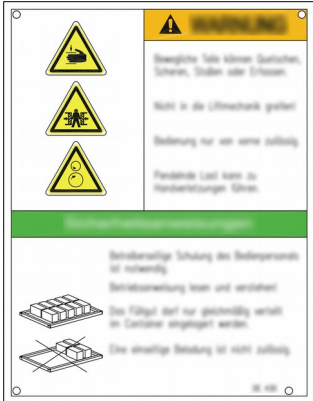
3.5 Safety signs on the lift (continued)

Sign	Sign name and additional information	Sign	Sign name and additional information
	Safety rope; order-specific; (07 100 421) Particularly chapter 7		Interconnected Lean-Lift; order-specific; (07 100 310) Particularly chapters 6, 7
	Forklift loading prohibited/permitted; order-specific; (07 100 395) Particularly chapters 2, 5		Openings in housing; order-specific; (07 100 411) Particularly chapters 2, 7
	Automatically closing door; order-specific; (07 100 403) Particularly chapters 4, 5		Automatic container ejector with side access protection; order-specific; (07 100 423) Particularly chapters 4, 5, 7
	Antistatic earthing; order-specific; (07 100 401) Particularly chapter 2		Automatic container ejector with safety slider; order-specific; (07 100 422) Particularly chapters 4, 5, 7

Operating Manual

Hänel Lean-Lift

3.5 Safety signs on the lift (continued)

Sign	Sign name and additional information	Sign	Sign name and additional information
	Safety instructions for wire mesh; order-specific; (07 100 372) Particularly chapter 2		Enlarged access opening; order-specific; (07 100 417) Particularly chapters 2, 3, 4, 7
	Example: Transporter operation; order-specific; (07 100 319) Particularly chapter 5		Automatic container ejector Hand injury warning; order-specific; (07 100 420) Particularly chapters 4, 5, 7
	Safety instructions - non-EU; order-specific (07 100 427) Particularly chapters 2, 4, 6, 7		Automatic container ejector 2860, 3060, 3260; order-specific; (07 100 430) Particularly chapters 4, 5, 7
	Sticker for frequency converter; order-specific; (07 100 442) Particularly chapters 6, 7		

Operating Manual

Hänel Lean-Lift

3.6 Collision barrier, flooding the lift

Collision barrier

Loading and unloading using cranes and industrial trucks (forklift, lift truck, etc.) into the access point is prohibited due to the possible collision forces!

Loading and unloading with cranes and motorised industrial trucks from the side is prohibited due to the possible collision forces!

Lifts loaded/unloaded using cranes and industrial trucks from the front or from above must be secured by the owner/operator using a suitable collision barrier / impact barrier which is not connected to the lift. Observing statutory workplace safety and accident prevention regulations is mandatory.

The design of the collision barrier / impact barrier must be coordinated by the manufacturer of the crane or industrial truck.

It is mandatory to observe the corresponding warning sign on the left below each access point on the lift!



! WARNING

Hazard from use of industrial trucks and cranes in area immediately surrounding the lift

- Load-carrying components and safety equipment of the lift can be damaged by cranes and industrial trucks (forklift, lift truck, etc.).
- If the lifts are in areas where cranes and industrial trucks are driven, they must be protected by the owner/operator from collision forces/swinging loads and/or a collision barrier.

Optional: Flooding the lift

Flooding the lift with media other than air is currently only approved when using nitrogen (N₂). Before using other media, you must first obtain permission for the specific medium from the Hänel factory.

It is not permitted to use aggressive, corrosive, combustible or explosive media, since hot surfaces or sparks are possible inside the lift. Hot surfaces may develop, for example, from self-heating of drive parts; sparks may be caused by damage to interior parts from improperly stored articles.

All media can escape from the lift. Therefore, the owner/operator must provide a procedure for monitoring the room concentration of the medium used.

Operating Manual

Hänel Lean-Lift

Chapter 4

Safety equipment on the lift

Contents

This section contains an overview of the safety equipment, operating elements and electrical equipment of the lift as well as where it is located and how it works.

Section	Subject	Page
4.1	Requirements for the owner/operator for safe lift operation	35
4.2	Position and function of the safety equipment	36
4.3	Safety equipment for optional supplementary features	43

Operating Manual

Hänel Lean-Lift

4.1 Requirements for the owner/operator for safe lift operation

Contents

This section contains important information about the tasks and duties of the operator for safe lift operation.

In particular, the owner/operator must ensure the following:

- The lift is used for its intended use only; for more information, see Chapter 2,
- The lift is operated only if it is fully functional and free of faults,
- Integrated safety equipment is regularly maintained and checked for proper function; for more information, see Chapters 7.7 and 7.8,
- The safety and warning signs attached to the lift are not removed and are maintained in legible condition at all times (also refer to the document "SiSchi-LL" in the technical documentation of the lift),
- The included, complete technical documentation of the lift is available at the location where the lift is used and is in legible condition and readily accessible,
- the lift is operated solely by operating personnel who have received instruction in lift operation and applicable safety instructions before starting work for the first time; for more information, refer to Chapter 1.7,
- The operating personnel are familiar with the lift user manual and, in particular, the safety instructions contained in it and, once a year, receive training in all pertinent workplace safety and environmental protection matters.
- The supervisory personnel are familiar with the User Guide and Operating Manual, particularly the safety instructions they contain, and ensure that during operation of the lift, all relevant workplace safety and environmental protection aspects are taken into account.
- The maintenance personnel have the skills and expertise that meet the respective requirements; for more information, refer to 7.1.
- Only instructed and specially trained and authorised personnel may perform work inside of the lift. In many cases, in addition to general skills and knowledge, a mandatory requirement for work inside Hänel lifts is specific skills and knowledge conveyed as part of Hänel training programs/courses, refer also to Chapter 7.1.
- Lift operation takes place with consideration of and compliance with the statutory provisions and requirements of government agencies valid at the lift's installation location (particularly with regard to operational and occupational workplace safety).

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment

Contents

Here, you will find an overview of the safety equipment on the lift and its basic functions.



! DANGER

Safety equipment that is not openly accessible or malfunctioning safety equipment is dangerous!

All the safety equipment on the lift must be unobstructed and accessible at all times during lift operation.

Operating the lift with safety equipment that is defective, bypassed, modified or removed is not permitted.

SAFETY INSTRUCTIONS

Regular safety inspection required!

A safety inspection of the lift is required at least once a year to ensure safe operation of the lift at all times. In this context, pay attention to the safety badge on the lift and its expiry date. You can find further information about this in Chapter 7.7.

Overview

The following shows the position of the safety equipment integrated into the lift that you find at each "access point" of the lift in the standard version. For lifts with multiple access points, however, the main switch is present at one access point ("first access point").

Item	Name and function
------	-------------------

- | | |
|---|---|
| 1 | Main switch |
| 2 | Emergency stop button |
| 3 | Safety light curtain/barriers |
| 4 | Service door |
| 5 | Article height detection |
| 6 | High-speed door
(For lifts of type ≤ 3260 , optional supplementary features, for lifts of type > 3660 , standard model) |

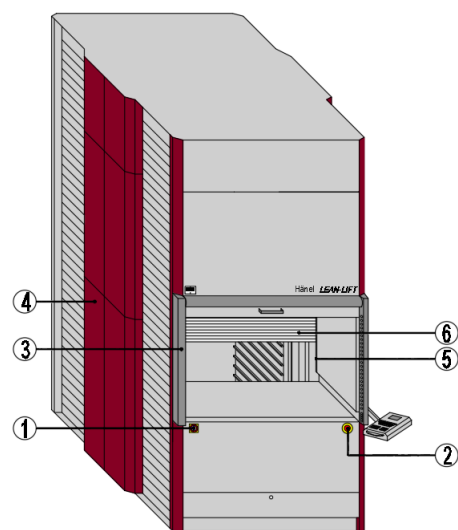


Fig. 1: Integrated safety equipment

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item	Name and function
------	-------------------

1	Main switch
---	--------------------

Each lift is equipped with a main switch for switching the lift on and off. The standard location for this on the left side of the access point.

The main switch is operated through rotation. When the main switch 0 (0 = off) is switched off, the mains supply is interrupted and established again after it is switched on I (I = on). Before you switch on the main switch, observe the procedure described in Chapter 5.2 (Establishing operational readiness).

The main switch of the lift also has an emergency stop function. If the main switch is switched off during live operation by rotating it to position 0, then the mains supply is interrupted, and the lift stops immediately and remains stationary in this position.

After all, the main switch has a shutdown function for certain lift malfunctions and/or supplementary features (Eco-Mode). In this case, the main switch automatically moves to a centre position between I (I = on) and 0 (0 = off).

Before you switch on the main switch from this position, observe the procedure described in Chapter (Establishing operational readiness). 5.2

The switched-off main switch can be secured from being switched on again by attaching a padlock. This padlock may be removed exclusively by the person who attached it to the main switch!

Lift with multiple access points:

In the case of lifts with multiple access points, the main switch is at the first access point only.

The emergency stop button (see item 2) can be pressed to stop lift operation immediately at all other access points. This does not interrupt the mains supply of the lift.

Lifts in multi-unit networks:

Lifts in multi-unit networks are lifts that have a shared service door that grants continuous, inside access to all lifts.

For lifts in multi-unit networks, only the mains supply of the respective individual lift interrupts the switch-off process for the main switch. The mains supply for all the remaining lifts in multi-unit networks cannot be affected by this. The emergency stop function of the main switch for lifts in multi-unit networks functions in the same manner. Only the lift run of the respective lift is interrupted; all the remaining lifts in multi-unit networks cannot be stopped in this process.



Fig. 2: Main switch

SAFETY INSTRUCTIONS

Switching on the main switch

Before you switch on the main switch, observe the procedure described in Chapter 5.2 (Establishing operational readiness).

Secured main switch

Never remove a padlock another person has placed on the main switch!

Observing individual warning signs for the maintenance personnel

Do not switch on the lift if this is prohibited by warning signs another person has attached.

Switch off lifts in multi-unit networks

For lifts in multi-unit networks, only the mains supply of the respective individual lift interrupts the switch-off process for the main switch. The mains supply for all the remaining lifts in multi-unit networks cannot be affected by this.

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item	Name and function
------	-------------------

2	Emergency stop button
---	------------------------------

	Every lift access point is equipped with an emergency stop button.
--	--

	When you press the button, the lift comes to an immediate stop, stays in this position and the button engages in the pressed position.
--	--

	Unlock the emergency stop button by rotating it and follow the instructions on the operating panel display to resume lift operation after the emergency stop situation has been remedied. Ensure that the emergency stop situation has been remedied before unlocking the emergency stop button.
--	--

	The emergency stop button can be pressed to stop lift operation immediately at all other access points.
--	---

	This does not interrupt the mains supply of the lift.
--	---

	For standard lifts, the emergency stop button is on the right side below the access point.
--	--

	<u>Lift with multiple access points:</u>
--	--

	For lifts with multiple access points, each access point has an emergency stop button.
--	--

	<u>Lifts in multi-unit networks:</u>
--	--------------------------------------

	Lifts in multi-unit networks are lifts that have a shared service door that grants continuous, inside access to all lifts.
--	--

	For lifts in multi-unit networks, pressing an emergency stop button interrupts only the lift run of the respective individual lift. The lift runs of all remaining lifts in multi-unit networks cannot be stopped through this process.
--	---



Fig. 3: Pressing/disengaging the emergency stop button

SAFETY INSTRUCTIONS

Disengage the emergency stop button

Ensure that the emergency stop situation has been remedied before unlocking the emergency stop button.

Emergency stop button for lifts in multi-unit networks

For lifts in multi-unit networks, pressing an emergency stop button interrupts only the lift run of the respective individual lift. The lift runs of all remaining lifts in multi-unit networks cannot be stopped through this process.

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item	Name and function
------	-------------------

3	Safety light curtain LV15095 / light barriers with emergency stop function as safety guard.
---	--

Each access opening is safeguarded by default on the outer edge by a self-monitoring safety light curtain or safety light barriers.

If the safety light curtain or one of the safety light barriers is interrupted, the lift comes to an immediate stop or is prevented from starting up. To continue the lift run, follow the instructions on the display of the operating panel.

In case the safety light barrier system of the lift has been tripped by protruding stored articles or parts of the container inner equipment (e.g. flaps), position these stored articles properly/close the respective parts properly.

Safety light curtain LVS or LVH (optional supplementary feature):

For special lift versions, a safety light curtain LVS or LVH safety light curtain is installed at the factory. The light curtains differ from the safety light curtain LV15095 by a higher detection range (smaller distance of the light beams relative to one another) or, for LVH, additionally by the greater distance to the access point.

Lift with high-speed door:

For lifts with a high-speed door or doors, the safety light curtain or safety light barrier function is disabled when the high-speed door is closed.

Lift with multiple access points:

For lifts with multiple access points, the lift run is stopped for all access points when a safety light curtain or safety light barrier is tripped.

Lifts in multi-unit networks:

Lifts in multi-unit networks are lifts that have a shared service door that grants continuous, inside access to all lifts.

For lifts in multi-unit networks, triggering a safety light curtain or safety light barrier interrupts only the lift run of the respective individual lift. The lift run of all remaining lifts in multi-unit networks is not affected by this process.

Safety light curtain/barriers

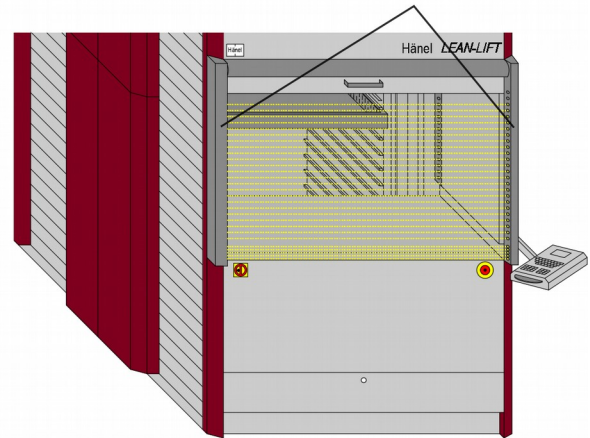


Fig. 4: Safety light curtains/light barriers

SAFETY INSTRUCTIONS

Keep access points free of objects!

The access points of the lift are used exclusively for storage and retrieval operations of containers and therefore must not be used as a work surface or storage surface. Keep all access points free of objects to prevent property damage and personal injury from collisions with retracting/extending containers.

No protruding stored articles

Note that no stored articles may protrude at the sides or forwards/backwards over the inner contour of the containers. These stored articles can fall down or block the lift run. In particular, there must be no transparent or transparently packaged articles or articles with a diameter or edge length of less than 5 mm [0.2 in.] stored, assuming these stored articles protrude beyond the container edge or the partitioning hardware. These stored articles cannot be detected by the light barrier system for the article height detection.

Note:

For the optional supplementary features with the safety concept "Lift run with sliding doors closed only", there is no safety light curtain/are no safety light barriers.

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item Name and function

4 Service door

Each lift is equipped at the bottom with at least one service door at the lift side (standard: left) by means of which direct access to the inside of the lift is possible. Inside the lift, there is an acute **risk of fatal injury** from the machine movements and suspended loads.

Trained operators are not permitted to open any service doors!

A qualification as a "trained operator" does not authorise you to reach into the lift through an open service door, lean into the lift or sit or stand in the lift (even when the lift is switched off!).

Only instructed and specially trained and authorised personnel may walk into the inside of the lift. In this regard, observe Chapter 7.1.

A service door may be opened / locked only by instructed and specially trained and authorised personnel using corresponding tools. In this regard, observe Chapter 7.1.

If any service door is opened, the lift run is stopped immediately by triggering a safety switch or startup is prevented.

If you find an open service door, do not close it! Do not remove any padlocks or warning signs that secure the lift from being switched on! There may be people on the inside of the lift!

The service doors must be unobstructed and accessible at all times!

Lifts in multi-unit networks:

Lifts in multi-unit networks are lifts that have a shared service door that grants continuous, inside access to all lifts.

If a service door is open, the lift run of all lifts in the multi-unit network is stopped immediately or startup is blocked. In this case, the main switches of all the lifts in the multi-unit network automatically switch to a centre position between I (I = on) and 0 (0 = off) to display a fault. Before you switch on the main switch from this position, observe the procedure described in Chapter 5.2 (Establishing operational readiness).

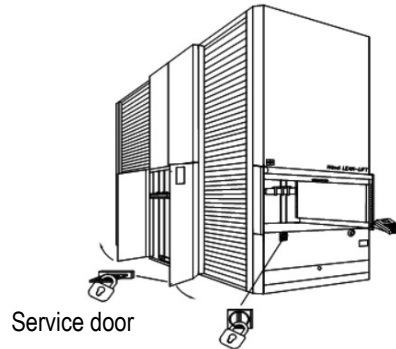


Fig. 5: Example: service door, standard left



! DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door and when entering the **lift**.
- Only instructed personnel that has been specially trained and authorised may perform work inside of the lift!
In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

! WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item Name and function

4 Service door (continued)

SAFETY INSTRUCTIONS



Opening and closing service doors

Before each time the service door is opened, it is always mandatory to switch off the main switch and use a padlock to secure it from being switched on again. For safety reasons, individual locks should be used for this purpose.

If you find an open service door, do not close it!
There may be people on the inside of the lift!

SAFETY INSTRUCTIONS



Secure the actuator/actuating magnet!

Before any work, secure the actuator/actuating magnet of the safety switch with a personally assigned padlock immediately after opening the service door.



Operating Manual

Hänel Lean-Lift

4.2 Position and function of the safety equipment (continued)

Item	Name and function
------	-------------------

5	Article height detection
---	---------------------------------

	The article height detection is a light barrier system in the rear of the access point.
--	--

	A check is run for each storage operation using this system to determine if the articles to be stored exceed the maximum permitted height or are protruding beyond the inner container edge on the front and rear sides of the container. This prevents parts from falling down or blocking the lift run due to stored articles that are too high or protruding.
--	---

	If the stored articles exceed the permitted height or protrudes beyond the inner container edge, the container is not stored; instead, the storage operation is stopped and the container automatically returned to the access position. Wait until this operation is complete, and do not reach into the access point during the operation.
--	---

	To continue the lift run, follow the instructions on the display of the operating panel.
--	---



Note

In conjunction with the article height detection, you must also observe that the storage of the following is not permitted:

- Stored articles that have a diameter or an edge length of less than 5 mm [0.2 in.]
- Transparent stored articles, assuming that these stored articles are protruding beyond the container edge or the partitioning hardware

These stored articles cannot be detected by the light barrier system for the article height detection.

6	High-speed door
---	------------------------

	(For lifts of type $\leq$ 3260, optional supplementary features, for lifts of type $>$ 3660, standard model)
--	--

	The high-speed door is in the rear area of each access point.
--	--

	The closed high-speed door impedes a container or object in the access point from protruding into the lift shaft or falling over into it and colliding with the extractor as a result.
--	---

	For lifts with a high-speed door or doors, the safety light curtain or safety light barrier function is disabled when the high-speed door is closed.
--	---

Operating Manual

Hänel Lean-Lift

4.3 Safety equipment for optional supplementary features

Contents

If the lift has optional supplementary features, additional safety devices can be present on the lift.

For important notes about the position and function of these additional safety devices, refer to chapter 5.6 as well as the Supplementary Description in the technical documentation of the lift.

Comply with the associated warnings/safety instructions!

Operating Manual

Hänel Lean-Lift

Chapter 5

Lift operation, operation of the lift

Contents

Here you will find important information that you must observe when operating the lift and during lift operation.

Section	Subject	Page
5.1	Position and function of the operating elements	47
5.2	Establishing operational readiness	53
5.3	Switching off the lift	58
5.4	Proper loading of the lift	59
5.5	Regular monitoring of the total load of the lift	61
5.6	Operation of the lift with optional supplementary feature	67

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements

Contents

Here, you will find important information about the position and function of the operating elements of the lift.

Note that only trained operating personnel is permitted to use the lift, see Chapter 1.7

Familiarise yourself with the safety equipment on the lift, see Chapter 4.2.

Overview

The following shows the position of the operating elements that you find at each access point of the lift in the standard version. For lifts with multiple access points, however, the main switch is present at one access point ("first access point").

Item	Name and function
1	Main switch
2	Emergency stop button
3	Sliding door (only up to lift type 3260)
4	Operating panel for controlling the lift functions (with interfaces)
5	Containers for holding the stored articles For manual movement, the containers can be equipped with grips on the front.
6	On/off switch for antiglare lighting (optional)

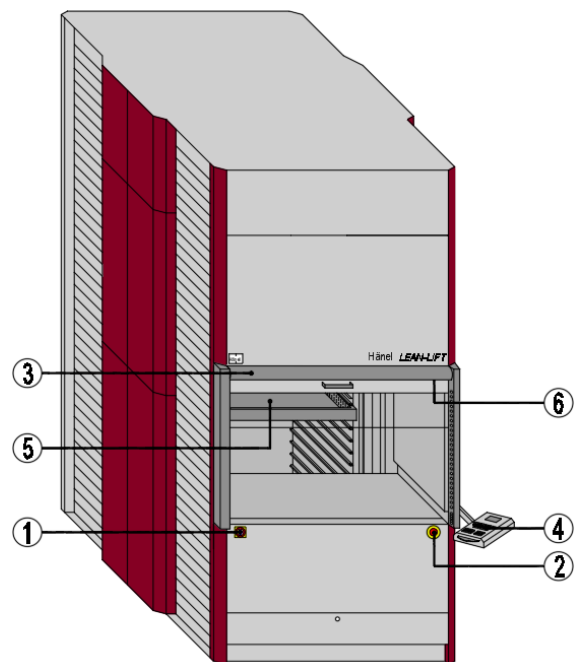


Fig. 6: Operating elements

Note:

To refer to containers, the microprocessor control system uses the term shelf. A shelf corresponds to a container.

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements (continued)

Item	Name and function
------	-------------------

1	Main switch
---	--------------------

	Each lift is equipped with a main switch for switching the lift on and off. The standard location for this on the left side of the access point.
--	--

	The main switch is operated through rotation. When the main switch 0 (0 = off) is switched off, the mains supply is interrupted and established again after it is switched on I (I = on). Before you switch on the main switch, observe the procedure described in Chapter 5.2 (Establishing operational readiness).
--	--

	The main switch of the lift also has an emergency stop function. If the main switch is switched off during live operation by rotating it to position 0, then the mains supply is interrupted, and the lift stops immediately and remains stationary in this position.
--	---

	For additional important information about the function of the main switch, refer to Chapter 4.2
--	--

	In addition, the main switch has a shutdown function for certain lift malfunctions or supplementary features (Eco-Mode). If such a shutoff occurs, the main switch automatically moves to a centre position between I (I = on) and 0 (0 = off).
--	---

	Before you switch on the main switch, observe the procedure described in Chapter 5.2 (Establishing operational readiness).
--	---

2	Emergency stop button
---	------------------------------

	Every lift access point is equipped with an emergency stop button.
--	--

	When you press the button, the lift comes to an immediate stop, stays in this position and the button engages in the pressed position. This does not interrupt the mains supply of the lift. For additional important information about the function of the emergency stop button, refer to Chapter 4.2.
--	--

	Unlock the emergency stop button by rotating it and follow the instructions on the operating panel display to resume lift operation after the emergency stop situation has been remedied. Ensure that the emergency stop situation has been remedied before unlocking the emergency stop button.
--	--



Fig. 7: Main switch

SAFETY INSTRUCTIONS

Switching on the main switch

Before you switch on the main switch, observe the procedure described in Chapter 5.2. (Establishing operational readiness).

Secured main switch

Under no circumstances remove any padlock attached to the main switch!

Observing individual warning signs for the maintenance personnel

Do not switch on the lift if this is prohibited by warning signs!



Fig. 8: Pressing/disengaging the emergency stop button

SAFETY INSTRUCTIONS

Disengage the emergency stop button

Ensure that the emergency stop situation has been remedied before unlocking the emergency stop button.

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements (continued)

Item	Name and function
------	-------------------

3	Sliding door (only up to lift type 3260)
---	---

	By opening and closing the sliding door manually on the handle, direct access to the access point can be established/prevented. By locking the sliding door, it can be secured against unwanted opening. In the standard model, the lift run is possible only if the sliding door is completely open.
--	---

	<u>Lifts with multiple access points:</u>
--	---

	If lifts are equipped with multiple access points with sliding doors, a lift run is possible by default, even if the sliding doors are completely open at multiple access points.
--	---

Electric sliding door (optional supplementary feature only up to lift type 3260)

The automatic sliding door does not have a handle. There is a risk of injuries from crushing, striking or cutting injuries when the electrically operated sliding door closes. Therefore, do not reach into the area of the sliding door or access point during the closing process.

Automatic closing sliding door in case of fire (optional supplementary feature only up to lift type 3260)

When the lift is switched on, this sliding door is opened/closed manually using the handle during regular lift operation.

Make sure when opening the door that it is opened all the way to the end position.

Also make sure the automatically closing sliding door closes on its own in the following cases because of its own weight:

1. Each time the lift is switched off,
2. In the event of a power outage,
3. By pressing the test button,
4. By the signal from an operator-side fire detection system.

Consequently, if you reach in when the door is closing, it is possible to receive a crushing, cutting or impact injury. Therefore, do not reach into the area of the sliding door or access point during the closing process.

Therefore, this emergency system for use in case of fire must not be used for operating the lift by pressing the test button.

Be absolutely certain to have the fire detection system inspected regularly by a company that is qualified to do so. This inspection must also include an examination of the activation of the sliding door.



Fig. 9: Sliding door handle with lock

SAFETY INSTRUCTIONS

Keep access points free of objects!

The access points of the lift are used exclusively for storage and retrieval operations of containers and therefore must not be used as a work surface or storage surface. Keep all access points free of objects to prevent property damage and personal injury from collisions with retracting/extending containers.



! WARNING

Risk of injury when closing the electrical sliding door!

- There is a risk of injuries from crushing, striking or cutting injuries when the electrically operated sliding door closes.
- Therefore, do not reach into the area of the sliding door during the closing process.



! WARNING

Risk of injury for automatically closing sliding door!

- When the automatically closing sliding door is closing, there is a danger of crushing, impact or cutting injuries.
- Therefore, do not reach into the area of the sliding door during the closing process.

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements (continued)

Item Name and function

4 Operating panel

An operating panel is attached at every access point of the lift. The operating panel is used to control all lift functions and consists of a display (with touch function where applicable depending on the control system) and input keys (function keys, number and letter keys). For additional information, refer to the "Operating Manual for the Microprocessor Control System" MP12_ Lean-Lift or MP14_ Lean-Lift valid for your lift.



Fig. 10: Example for MP12N: Operating panel

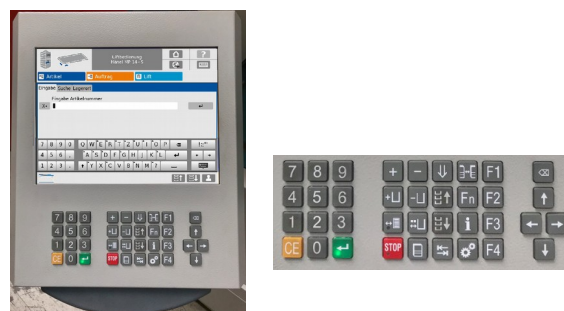


Fig. 11: Example for MP14: Operating panel

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements (continued)

Basic functions of the operating panel

Item	Name and function
------	-------------------

- | | |
|-----|--|
| 4-a | Main operating panel for controlling all lift functions |
| 4-b | Display |
| 4-c | Main key block for entering characters and letters (only for MP12_, main key block, for MP14, can be called up only in display with touch function) |
| 4-d | Function keys for calling up individual functions and navigating in input fields.
You can see which keys have been assigned on the display. |
| 4-e | "Red stop" button for stopping the lift immediately.
The illumination of the red LEDs integrated into the "stop" button signals that the lift is either not yet ready for operation or a fault is present. |
| 4-f | "Green return key" () for confirming inputs and carrying out the safety system self-test.
The illumination of the green LED integrated into the "return key" signals that the lift is ready for operation. |
| 4-g | "Orange CE key" for clearing entries |
| 4-h | Number block for entering numbers such as when: <ul style="list-style-type: none"> • For selecting containers • for entering article numbers, quantity, article names etc. |

Note:

To refer to containers, the microprocessor control system uses the term shelf. A shelf corresponds to a container.

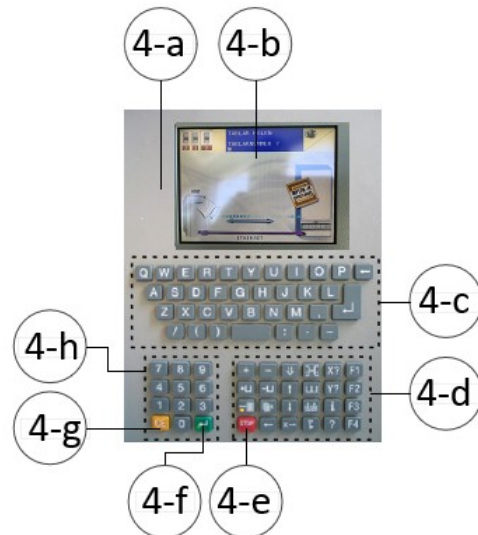


Fig. 12: Example for MP12N: Operating panel

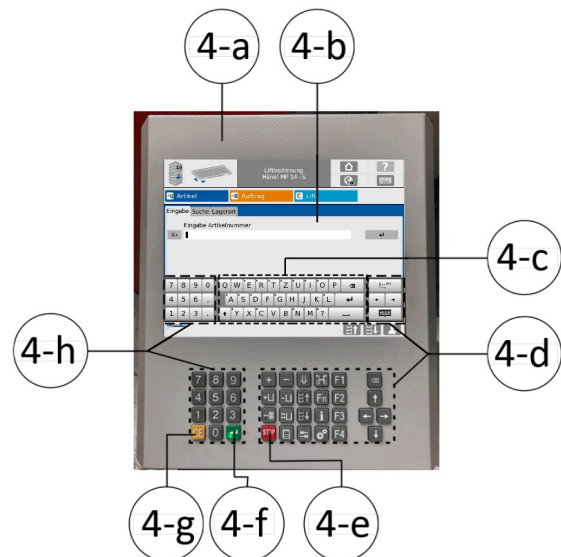


Fig. 13: Example of MP14: Operating panel

Operating Manual

Hänel Lean-Lift

5.1 Position and function of the operating elements (continued)

Item	Name and function
------	-------------------

5	Containers
---	-------------------

	Containers are used to hold your stored articles for storage in the lift or to make them available for retrieval and removal. Depending on the makeup of the stored articles, there are different container versions. Depending on the model, the containers are equipped with different handles for manual movement. Grasp the containers only by the provided handles.
--	--

	<u>For each lift, an individual, maximum container load is defined, which you can obtain from the container loading sign.</u> By default, this type of sign is on the right side of the interior of each access point.
--	--

	When operating the lift, ensure that:
--	---------------------------------------

- | | |
|--|--|
| | <ul style="list-style-type: none">– Stored articles must, at all times, be stored in the container versions (if necessary, with the corresponding inner equipment) provided for this purpose.– Container versions with locking mechanisms are properly locked after each loading and unloading operation. |
|--|--|

	For further information about the proper loading of the containers, refer to Chapter 5.4.
--	---

6	On/off switch for anti-glare lighting (optional)
---	---

	To improve visibility conditions at the access point, optional anti-glare lighting is available. This lighting system can be switched on and off using a separate switch that is located above the access point. The lighting can also be switched on and off by operating the main switch.
--	---

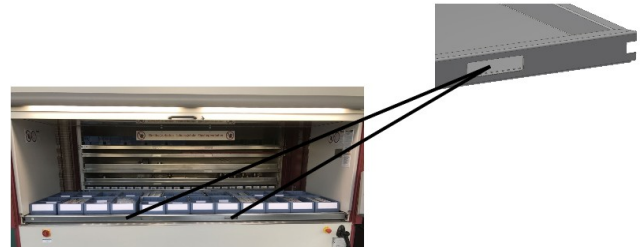


Fig. 14: Container / Container handles

SAFETY INSTRUCTIONS

Using container handles

For manual movement, the containers are equipped with grips on the front. Grasp the containers only by the provided handles, and be sure not to grasp the containers from the bottom or reach inside them!



Note

Adding additional containers, exchanging containers between lifts, and replacing containers of a lift without proof of release by Hänel (the manufacturer) are not permitted. Without proof of release by Hänel, when operating multiple lifts, containers must be used only in the lift provided for them.

Note:

To refer to containers, the microprocessor control system uses the term shelf. A shelf corresponds to a container.



Fig. 15: On/off switch for antiglare lighting

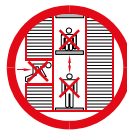
Operating Manual

Hänel Lean-Lift

5.2 Establishing operational readiness

Contents

Here, you will find important information on how to establish the operational readiness of the lift and which steps are necessary to do so. You cannot operate the lift until operational readiness has been established.



DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door or removed lift panelling and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside of the lift! In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.



DANGER

Risk of fatal injury for personnel in the lift!

- Do not remove any of the padlocks on the lift. They indicate that persons are working in or on the lift.
- Do not switch on the lift if this is prohibited by warning signs.



DANGER

Risk of fatal injury from explosive materials and atmospheres

- Do not store any explosive or combustible materials or materials that can create an explosive atmosphere.
- Before switching on the lift, remove all explosive and combustible materials from the danger zone of the lift.

5.2 Establishing operational readiness (continued)

SAFETY INSTRUCTIONS

Check that the safety equipment is functioning properly!

- Before each time the lift is switched on, it is mandatory to ensure that the safety equipment in the area of the access point(s) does not have any obvious damage.
- A safety inspection of the lift is required at least once a year to ensure safe operation of the lift at all times. In this context, pay attention to the safety badge on the lift (at the first access point) and its expiry date.

Observe:

For further information about lift operation, refer to the "User Guide for the Microprocessor Control System" valid for your lift.

- in the "User Guide for the MP12 Lean-Lift and Multi-Space" or "User Guide for the MP14.... Lean-Lift and Multi-Space" or
- in the "Technical Description of the MP12..." or "Technical Description of the MP14..."

Operating Manual

Hänel Lean-Lift

5.2 Establishing operational readiness (continued)

Switching on the lift

Proceed as follows when switching on the lift:

Step	Task
------	------

1	Switching on the lift
---	------------------------------

	Before <u>each</u> time the lift is switched on, it is mandatory to ensure the following:
--	---

- | | |
|--|---|
| | <ul style="list-style-type: none">– No persons are in the lift– All service openings / lift panelling sections are properly sealed <u>and</u>– The lift does not have any obvious damage. |
|--|---|

In case not all the above-mentioned points are present or there is doubt about this, do not switch on the lift.

If you find an open service door, do not close it! Do not remove any padlocks or warning signs that secure the lift from being switched on! There may be people on the inside of the lift!

The main switch is operated through rotation. When the main switch 0 (0 = off) is switched off, the mains supply is interrupted and established again after it is switched on I (I = on).

Switch the main switch from 0 to the I position.

Alternative main switch with centre position:

The main switch for some lift versions has an additional shutdown function for certain supplementary features (Eco-Mode) and/or certain lift malfunctions. If such a shutoff occurs, the main switch automatically moves to a centre position between I (I = on) and 0 (0 = off). If you find the main switch in the centre position between 0 and I, you first have to turn it to the 0 position before you can turn the main switch to I position.

If you cannot switch on the main switch, an error is present. In this case, do not make any further attempts to switch on the lift.

SAFETY INSTRUCTIONS

Lift operation is performed only by trained operators.

The lift may be operated only by trained operators who are familiar with the function of the lift and the safety equipment of the lift (see Chapter 4).



Fig. 16: Example: Main switch for switching the lift on and off

Note:

For lifts with multiple access points, the main switch is at the first access point.

SAFETY INSTRUCTIONS

Switching on the main switch

Before each time the main switch is switched on, it is mandatory to ensure the following:

- No persons are in the lift
- All service openings / lift panelling sections are properly sealed and
- The lift does not have any obvious damage, particularly at the safety equipment in the area of the access point(s).

In case not all the above-mentioned points are present or there is doubt about this, do not switch on the main switch.

Secured main switch

Under no circumstances remove any padlock attached to the main switch.

Observing individual warning signs for the maintenance personnel

Do not switch on the lift if this is prohibited by warning signs.

Operating Manual

Hänel Lean-Lift

5.2 Establishing operational readiness (continued)

Step	Task
------	------

2	Opening the access point
---	---------------------------------

	Lean-Lifts up to lift type 3260 are equipped by default with a manually opening sliding door at each access point. If your lift has a deviating safety concept for operation (e.g. lift run with sliding door closed only, multiple access points, high-speed door), refer to the lift machine documentation for the respective procedure.
--	--

	Unlock the sliding door at the access opening at which you want to work by turning the key on the lock and use the handle to open the sliding door all the way.
--	---

	To improve visibility conditions at the access point, the lighting available as an option can be switched on.
--	---

	<u>Lifts with automatic sliding doors (optional):</u>
--	---

	The automatic sliding door does not have a handle. Refer to the respective lift technical documentation for the corresponding procedure for opening the automatic sliding door.
--	---

	<u>Lifts with multiple access points:</u>
--	---

	If lifts are equipped with multiple access points with sliding doors, a lift run is possible by default, even if the sliding doors are completely open at multiple access points (for more information, refer to Annex B with the possible safety concepts for multiple access points).
--	---



Fig. 17: Handle on the sliding door

SAFETY INSTRUCTIONS

Keep access points free of objects!

The access points of the lift are used exclusively for storage and retrieval operations of containers and therefore must not be used as a work surface or storage surface. Keep all access points free of objects to prevent property damage and personal injury from collisions with retracting/extending containers.

Note:

If the sliding door cannot be opened because of an interlock (available as an option), observe the display of the control panel.

Operating Manual

Hänel Lean-Lift

5.2 Establishing operational readiness (continued)

Step Task

- 3 **Operating panel** (safety self-check of control system error message)
- Wait until after the lift has switched on until the control system is ready to start. When it is ready to start, the following appears on the display:
- The control system type (MP)
 - The version No. of the control system
 - The "Return" symbol (↩)

Press the green "Return" key and hold it for approx. 1 second to start the safety system self-test.

If the safety system self-test is successful, the red LED in the "Stop" key subsequently goes out and the green LED in the "Return" key is illuminated. The lift is now ready for operation.

If an error message appears during the safety system self-test, follow the display instructions.

Observe:

The following explains only a few of the basic functions of the operating panel in conjunction with establishing the operational readiness.

For additional information on operating the lift, refer to the "Operating Manual for the Microprocessor Control System" MP12_ Lean-Lift or MP14 Lean-Lift.



Fig. 18: Example for MP 12N: Operating panel "Return" key

SAFETY INSTRUCTIONS

In case of an error message, follow the display instructions.

In case an error message appears on the display of the control panel, follow the instructions on the screen exactly.

When the lift is ready for operation, the input window shown here appears.
The lift is now ready for input.

For basic information about manual storage of stored articles in the lift (loading products for storage, retrieval from storage / access point) without using storage management functions, refer to the "Lean-Lift User Guide" in the technical documentation of the lift.

For complete information on lift operation, refer to the "User Guide to the Microprocessor Control System" MP12_ Lean-Lift and Multi-Space or MP14 Lean-Lift and Multi-Space or the "Technical Description MP12_ or MP14".



Fig. 19: Example for MP 12N: Operating panel input window display

Operating Manual

Hänel Lean-Lift

5.3 Switching off the lift

The main switch can be switched off through rotation. When the main switch 0 is switched off (0 = off), the mains supply of the lift is interrupted. For lifts with multiple access points, the main switch is at the first access point only.

The main switch of the lift also has an emergency stop function. If the main switch is switched off during live operation by rotating it towards the left, then the mains supply is interrupted, and the lift stops immediately and remains stationary in this position.

For additional important information about the function of the main switch and its importance in the safety concept of the lift, refer to Chapter 4.



Fig. 20: Example of main switch

SAFETY INSTRUCTIONS

Lift operation is performed only by trained operators.

The lift may be operated only by trained operators who are familiar with the function of the lift and the safety equipment of the lift (see Chapter 4).

Step	Task
1	If no emergency stop or emergency off situation is present, ensure that before switching off, storage or retrieval operations at all access points of the lift are completely finished.
2	Only then may you switch off the lift by turning the main switch to the 0 (0 = off) position. The entire mains supply is now disconnected.
3	If the lift will not be used any more, we recommend closing and locking the sliding door (if present) at the corresponding lock.

Operating Manual

Hänel Lean-Lift

5.4 Proper loading of the lift

Contents

Here, you will learn important information with which compliance is mandatory about proper loading of the lift:

- Requirements for the stored articles,
- Maximum container load
- Maximum total load

Proper loading is the responsibility of the owner/operator.

Requirements for the stored articles

When putting articles into storage in the lift, it is mandatory to observe that not all objects or materials may be put into storage. In this regard, it is mandatory to observe the safety instructions to the right.

In particular, make sure that no stored articles are put into storage that:

- Must not be stored in the lift for safety reasons
- Are not stored in the container in a way that is protected from slipping/tipping over or is not properly sealed and/or
- due to the weight, causes the permitted maximum container weight of the respective lift to be exceeded (for additional instructions about this, see the following sections),
- They protrude beyond the inner contour of the containers from the side or the front/rear.

SAFETY INSTRUCTIONS

Requirements for the stored articles

In conjunction with the storage of stored articles, it is mandatory to observe the points listed below:

No articles must be placed into storage that:

- Exceed the maximum container load (see type plate, container loading sign)
- Can shift, open automatically in the lift or are not or is not/cannot be stored such that they are protected from tipping over. These articles can fall out or damage the lift.
- They protrude beyond the inner contour of the containers from the side or the front/rear. These stored articles can fall down or block the lift run.
- Exceed the maximum permitted fill level of your lift. By default, the maximum permitted fill level is between 695 mm [27.36 in.] and 735 mm [28.94 in.], depending on the lift/container version. You can find the maximum permitted fill level of your lift in the lift machine documentation.
- Have a diameter or an edge length of less than 5 mm [0.2 in.] and transparent stored articles, assuming that these stored articles are protruding beyond the container edge or the partitioning hardware. These stored articles cannot be detected by the light barrier system of the article height detection system.
- contains unpackaged foodstuffs (in standard lifts), contains hazardous or explosive materials in solid, liquid or gaseous form (packaged and unpackaged).

Operating Manual

Hänel Lean-Lift

5.4 Proper loading of the lift (continued)

Maximum container load

For each storage operation of articles in the lift, it is mandatory to ensure that the maximum container load is not exceeded (by weighing manually if necessary).

For each lift, an individual, maximum container load is defined, which you can obtain from the container loading sign of the lift. By default, the container load sign is on the right side of the interior of each access point.

If your lift is equipped with different container versions, note that for each container version in the lift, its individual, maximum container load must not be exceeded. In this case, each container is labelled on the container edge with the respective authoritative maximum container load. For additional information in this regard, refer to the Annex to the Power Supply and Foundation Plan.

Without a written release from Hänel, containers may be used only in the lift for which they were intended. Adding more containers or replacing containers between lifts is not permitted without a corresponding release.

Distributing the load uniformly within a container

Wherever possible, distribute the load within a container uniformly over its entire width and depth. A heavy load in some places causes premature wear and damage to the lift.

Maximum total load of the lift

Do not exceed the maximum total load of the lift according to the type plate. The type plate is located below the first access point of the lift, to the right below the access point.

An overload of the lift can have negative effects on the lift structural stability and result in the permitted load capacity of the floor/ceiling being exceeded at the respective lift's installation location.



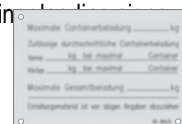
WARNING

Hazard from overload of the lift.

Overloading the lift can cause substantial personal injury and property damage.

- The load of the containers and the lift is not monitored automatically. If containers are not loaded properly, this can result in loads and overloads in some places.
- Excessive differences in the load of a container over its width/depth will cause one-sided loading of the lift and thus lead to damage and/or premature wear.
- The maximum container load as described in the type/container load sign must not be exceeded.
- Do not exceed the maximum total load of the lift according to the type plate. Exceeding the maximum total load of the lift can result in the permitted load capacity of the floor/ceiling being exceeded at the respective lift's installation location.
- The owner/operator is responsible for monitoring the loading process to ensure it is being done properly and for checking the loading process at regular intervals, see Chapter 5.5.

Container



Type plate

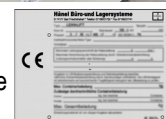


Fig. 21: Position of type plate (only at the first access point) / container loading sign (at each access point)



Note

- If your lift is equipped with different container versions, always observe their individual, maximum container load!
- Please note that, even for lifts in multi-unit networks, every lift can have an individual maximum container load!

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift

Contents

Here you will find important information on how to ensure by means of regular checks of the individual carrier loads that the maximum permitted total load of the lift and the permitted load capacity of the floor/ceiling at the lift's installation location are complied with.

As part of regular checks, it is mandatory to ensure that the maximum container load, the maximum number of containers and the maximum total load of the lift are not exceeded.

The respective procedure for this depends on:

1. The microprocessor control system installed in your lift and - if your lift is equipped with an MP 12 N microprocessor control system - the software version of this control system.

For information on how to determine the type of your microprocessor control system and the installed software version, refer to the User Guide ... Microprocessor Control System MP...

2. The presence of an integrated weighing device.

As long as your lift is equipped with an integrated weighing device, the current weight of the container/shelf load appears on the display during each storage/retrieval operation.

Without a written release from Hänel, containers may be used only in the lift for which they were intended. Adding more containers or replacing containers between lifts is not permitted without a corresponding release.

A Lifts with MP 12 N from software version 3.3 and MP 14, all versions

with weighing device

Due to the high number of daily measuring processes to be expected as part of shelf storage / retrieval operations, it is also necessary to check the correct measurement of weighing results in regular time intervals between the annual safety inspections. It is necessary to check the correct function of the shelf weighing device for the early detection of a potential malfunction at least once quarterly. For the operation/concrete procedure for this purpose, refer to the document "Supplementary Description of the Shelf Weighing Device for Lean-Lift, Multi-Space" in the Technical Documentation of the Lift.



WARNING

Hazard from overload of the lift.

Overloading the lift can cause substantial personal injury and property damage.

- The load of the containers and the lift is not monitored automatically. If containers are not loaded properly, this can result in loads and overloads in some places.
- Excessive differences in the load of a container over its width/depth will cause one-sided loading of the lift and thus lead to damage and/or premature wear.
- The maximum container load as described in the type/container load sign must not be exceeded.
- Do not exceed the maximum total load of the lift according to the type plate. Exceeding the maximum total load of the lift can result in the permitted load capacity of the floor/ceiling being exceeded at the respective lift's installation location.
- The owner/operator is responsible for monitoring the loading process to ensure it is being done properly.

SAFETY INSTRUCTIONS

Container weighing device!

The container weighing device provided does not meet the requirements of IEC 61508 for the functional safety of programmable safety-related systems. Therefore, it can be used if necessary as auxiliary equipment for determining the total container load, but must not be used for the purpose of monitoring to ensure that the load capacity of the floor/ceiling is not exceeded.

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift (continued)

A Lifts with MP 12 N from software version 3.3 and MP 14, all versions (continued)

Without weighing device

The owner/operator is responsible for monitoring the loading process to ensure it is being done properly.

The supervisory personnel of the owner/operator must carry out regular, periodic verifications by weighing using a suitable external weighing device to ensure that the maximum container load, the maximum number of containers and the maximum total load of the lift are not exceeded.

If your lift is equipped with different container versions, note that for each container version in the lift, its individual, maximum container load must not be exceeded. In this case, each container is labelled on the container edge with the respective authoritative maximum container load. For additional information in this regard, refer to the Annex to the Power Supply and Foundation Plan.

B Lifts with other microprocessor control systems - predecessor versions

As part of regular checks, it is mandatory to first ensure that the maximum number of containers of the lift is not exceeded.

For information on how to show the number of containers on the display of the operating panel, refer to the document "User Guide ... Microprocessor Control System MP ... Lean-Lift, Multi-Space" in the technical documentation of the lift.

In the event that there are too many containers in the lift, keep removing containers until the maximum number of containers" is reached.

With weighing device

Due to the high number of daily measuring processes to be expected as part of shelf storage / retrieval operations, it is also necessary to check the correct measurement of weighing results in regular time intervals between the annual safety inspections. It is necessary to check the correct function of the shelf weighing device for the early detection of a potential malfunction at least once quarterly. For information on the operation/specific procedure for this, refer to the document "Supplementary Description of the Shelf Weighing Device for Lean-Lift, Multi-Space" in the technical documentation of the lift.

SAFETY INSTRUCTIONS

Container weighing device!

The container weighing device provided does not meet the requirements of IEC 61508 for the functional safety of programmable safety-related systems. Therefore, it can be used if necessary as auxiliary equipment for determining the total container load, but must not be used for the purpose of monitoring to ensure that the load capacity of the floor/ceiling is not exceeded.

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift (continued)

B Lifts with other microprocessor control systems- predecessor versions (continued)

Without weighing device

The owner/operator is responsible for monitoring the loading process to ensure it is being done properly.

The supervisory personnel of the owner/operator must carry out regular, periodic verifications by weighing using a suitable external weighing device to ensure that the maximum container load, the maximum number of containers and the maximum total load of the lift are not exceeded.

If your lift is equipped with different container versions, note that for each container version in the lift, its individual, maximum container load must not be exceeded. In this case, each container is labelled on the container edge with the respective authoritative maximum container load. For additional information in this regard, refer to the Annex to the Power Supply and Foundation Plan.

To monitor compliance with the maximum total load of the lift, we recommend determining the load of each container during each storage and retrieval operation and making a written list of the values for all containers. Keep a list broken down by container numbers, for which you can enter the corresponding measured weight.

Depending on your lift features, you have to use **one of the following methods B1, B2** to monitor your actual lift load:

You must determine whether your actual number of containers is equal to, less than (see Section B1) or greater than (see Section B2) the max. no. of containers.

→ For this purpose, take the values for the "number of containers" and the "max. no. of containers" from the Annex of the Power Supply and Foundation Plan in the technical documentation of the lift or type plate.

Your lift has two rack towers - at the front and rear. Between these towers, the extractor functions as the retrieval unit.

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift (continued)

B1 Procedure for lifts with number of containers less than or equal to the max. number of containers

If you do not want to use the recommendation to always weigh the total container load for this lift version, you can use the following method in regular intervals as an aid to orientation for the weights actually present in the lift.

However, we expressly point out that this method is based on values obtained in a spot check and thus can provide only a rough approximate value with regard to the maximum total load of the lift.

Estimating the lift load

→ Read the "Maximum container load" on the type plate on your lift. The type plate is located below the first access point.

Estimate which containers have the heaviest loads.

Then, weigh the container load of several of these identified containers at an external, suitable weighing device.

Note:

The weights of the partitioning hardware, bins etc. must be added to the container load.

Compare the actual container load with the "Maximum container load" you have read from the type plate.

If you determine that the actual load of one container exceeds the value you have read, you have to check all containers in the lift.

You have to keep unloading overloaded containers until the "Maximum container load" specified on the type plate is no longer exceeded.

Example: The actual load of 5 heavily loaded containers is compared to the read value.

Maximum container load: 250 kg (551 lbs.), weighed loads: 230 kg (507 lbs.), 241 kg (531 lbs.) 265 kg (584 lbs.), 229 kg (504 lbs.), 245 kg (540 lbs.).

Result: you have to unload the container with 265 kg (584 lbs.) by at least 15 kg (33 lb.).

Because the spot check has shown an overload, you now have to check all containers in the lift in the described manner. You then have to unload overloaded containers.

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift (continued)

B2 Procedure for lifts with number of containers above the max. no. of containers

To prevent overloading a container and/or lift tower, you have to check the load of the containers and towers at regular intervals. For this purpose, you have to weigh the entire container load using a suitable external weighing device.

To monitor compliance with the maximum total load of the lift, we recommend determining the load of each container during each storage and retrieval operation and making a written list of the values for all containers. Keep a list broken down by container numbers, for which you can enter the corresponding measured weight.

Note:

The weights of the partitioning hardware, bins etc. must be added to the container load.

Monitoring of maximum container load

→ Read the "Maximum container load" on the type plate on your lift. The type plate is located below the first access point.

No container may be loaded beyond the limit for the "Maximum container load".

*Example: Maximum container load: 250 kg (551 lbs.).
Your intended container load weighs in at 273 kg (602 lbs.).
This means that you have to unload the container with 273 kg (601 lbs.) by at least 23 kg (51 lbs.) so that you do not exceed the 250 kg (551 lbs.) limit.*

Monitoring of maximum total load of the lift

→ Read the "Maximum total load" on the type plate on your lift. The type plate is located below the first access point.

→ You can find the value of the "container empty weight" in the Power Supply and Foundation Plan annex in your lift technical documentation.

Neither of the two rack towers in the lift may be loaded over the limit for the "Maximum total load".

As a check, refer to your list with the container numbers and the weighed container load.

Then, determine the storage location of each container in the front or rear lift tower via a query in the control system. For the procedure, refer to the "Technical Description of the MP12..." for the microprocessor control system.

Operating Manual

Hänel Lean-Lift

5.5 Regular monitoring of the total load of the lift (continued)

B2 Procedure for lifts with number of containers above the max. no. of containers (continued)

Note the storage location (front or rear lift tower) for the corresponding container number.

Count all container empty weights and the weighed container load (incl. the weights of the partitioning hardware, bins etc.) separately for the front and rear lift tower. This way, you can determine your actual total load in each lift tower.

*Example: Maximum total load: 20,000 kg (44,092 lbs.)
(2x 10,000 kg (22,046 lbs.)).*

This means that the front and rear lift tower in the lift can each be loaded with a maximum of 10,000 kg (22,046 lbs.).

You calculate a total weight of 8,975 kg (19,786 lbs.) for the front lift tower and a total weight of 10,166 kg (22,412 lbs.) for the rear lift tower. You determine that your lift has exceeded its capacity limit. You now have to unload one or more containers from the rear lift tower by at least 166 kg (365 lbs.).

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature

Contents

This section contains important information about operation of lifts with optional supplementary features. For the respective supplementary features of your lift, refer to your order confirmation (part of the technical documentation of the lift).
Comply with the associated warnings/safety instructions!

Emergency power supply

The lift can be operated temporarily with the optional supplementary feature "Additional selector switch for emergency power operation" and an emergency power supply provided by the owner/operator (e.g. using an emergency mains power supply unit) in case of a power outage or mains power supply shutoff.

The connection of the lift to an emergency mains power supply and the operation of the lift using an emergency mains power supply are the sole responsibility of the owner/operator.

For selection and proper connection of a suitable emergency mains power supply at the owner/operator's location, see Chapter 6.3

In standard lifts, the additional selector switch for emergency power operation is immediately to the left of the first access point.

During regular operation of the lift, the lift must be switched on and off at the lift main switch only.

The selector switch for emergency power operation is operated by turning and has 3 switch positions:

Mains power position,
0 (0 = Off),
Emergency power position.

For regular operation of the lift, this operating mode selector switch must be in the left "Mains power" position.

In the centre position 0 (0 = Off), the mains supply of the lift is interrupted.

If you want emergency power operation, move this switch to the right position, "Emergency power". Make sure that the emergency power supply at the owner/operator's location is ready for operation.

So that the lift can be operated temporarily with emergency power, it is then necessary to switch on the lift at the main switch. For operation of the main switch, see Chapter 5.1.

Before you switch on the main switch, observe the procedure described in Chapter 5.2 (Establishing operational readiness).

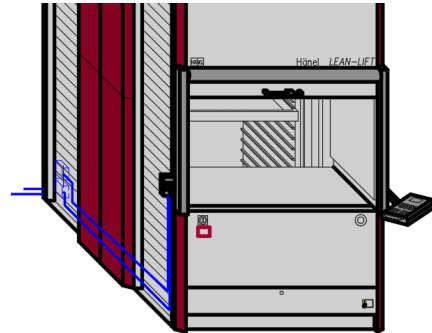


Fig. 22: Connection of the emergency power supply

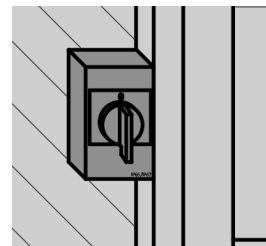


Fig. 23: Example of selector switch for emergency power operation

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Lifts with remote control

Depending on the supplementary features of your lift as described in the order confirmation (part of the technical documentation), observe the additional operating manuals "MANL-LL-EXT, MANL-LL-EXT1, MANL-LL-EXT2 and MANL-LL-EXT3".

These include, in particular:

- Remote-controlled lift operation including container / shelf pre-positioning, container / shelf transfer (only for multiple access points).

Lifts with antistatic earthing

To ensure that lifts with antistatic earthing can be operated properly, it is necessary for the antistatic earthing to be checked at regular intervals in time.

Lifts with optional openings in the housing

If the lift is equipped with optional openings in the lift housing at the request of the customer, these are completely sealed at the factory.

If these openings are opened, it is the sole responsibility of the owner/operator to ensure that afterwards, they are closed off again properly (for complete protection against reaching into the inside of the lift). There is a substantial risk of injury if anyone reaches or bends into an exposed opening in the lift housing. Operation of the lift with an opening in the lift housing that is not properly sealed is not permitted.

Note:

To prevent damage, no one may walk on or into the headpiece of the lift!



WARNING

Risk of injury with exposed openings!

- Moving parts and suspended loads in the inside of the lift can fall down, crush, shear, bump or catch and lead to severe injuries.
- There is a substantial risk of injury if anyone reaches or bends into an exposed opening in the lift housing.
- Danger of falling when working on openings in the upper area of the lift!
The headpiece of the lift cannot be walked in or on.
- Work at heights requires special qualification. In this regard, observe Chapter 7.3.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Lifts with ground-level access point

Optionally, the lifts are available with a ground-level access point for loading with pallets using a standard lift truck.

Under no circumstances is it permitted to enter the ground-level access point, even if the lift is switched off. There is a risk of fatal injury if anyone enters the ground-level access point during lift operation.

For storing/retrieving the pallets, the only auxiliary equipment that may be used is a standard lift truck with tandem fork rollers. Motorised auxiliary equipment such as electrically operated lift trucks, forklifts etc. must not be used for this purpose.

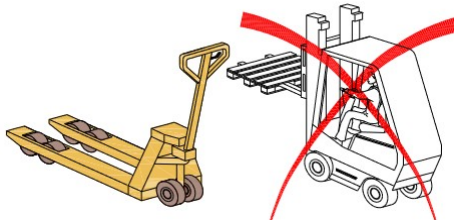


Fig. 24: Standard lift truck



DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door or removed lift panelling and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside of the lift!
In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

Note

Because during the loading and unloading process, the empty weight of the lift truck places a load on the container, this weight must be subtracted from the maximum container load. The container can be damaged if it is overloaded.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Lifts with a transporter

The transporter can be used to temporarily remove containers from the lift for the loading/unloading process or to work on the stored articles and manually roll them away from the lift.

The transporter is moved using the handles provided for this purpose on the left and right.

Each transporter has a locking system with which, if it is brought up against the access point of the lift, is fastened in place automatically, preventing the transporter from rolling away accidentally. This locking mechanism is released on the transporter by pulling up the actuators below the handles.

When docking the transporter to the lift, do not reach between the lift and the transporter. Grasp the containers only by the provided container notches. There is a crushing hazard.

Each transporter also has a container locking mechanism (right in standard version, for lift widths > 2460 or type 1000 kg on the left and right). If the container is pushed up properly and completely, the locking mechanism locks automatically. When a container is pushed back into the lift, this locking mechanism must be released manually by folding it to the outside.

Always ensure that the container is properly locked in place before moving the transporter.

When using a transporter for container transport outside the lift, please observe the following points:

- The transporter may be operated on level, flat traffic surfaces only / floors only. Due to unevenness of the floor or surfaces with a downhill slope, the transporter can roll away or tip over automatically, particularly in case of uneven load. Ensure that the container is loaded evenly.
- For a container load > 500 kg (1102 lbs.) or lift width > 2460 mm (96.85"), even for 2-person operation, more difficult ergonomic requirements for the operating personnel must be expected.
- When manually pushing a container into the access point, positioning inaccuracy may result (see display). If this occurs, then the container must be properly (re)positioned.
- The transporter may be moved manually only. Moving it using motorised tractor vehicles is not permitted.
- Without a release from the Hänel factory, when operating multiple Lean-Lifts, containers may be used only in the lift for which they were intended.

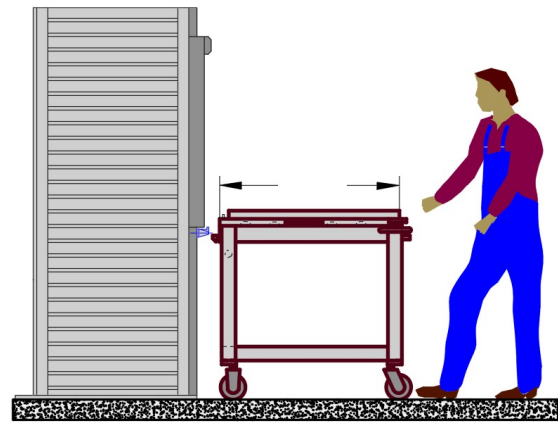


Fig. 25: Transporter with locking mechanisms

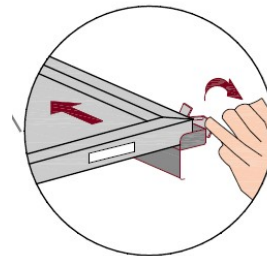


Fig. 26: Container locking mechanism on the transporter



WARNING

Danger of injuries from crushing!

- There is a crushing hazard when reaching between the lift and transporter. When docking the transporter to the lift, do not reach between the lift and the transporter.
- Due to floor surfaces that are uneven or have a downhill slope, the transporter can roll away on its own or tip over automatically, particularly in case of uneven load. Ensure that the container is loaded evenly.
- Container can fall down if the locking mechanism is missing. Always push the container onto the transporter completely and in an orderly manner.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Guide rails

For easier loading and unloading or to work on the stored articles, a container positioned in the access opening can be positioned manually on the guide rails in front of the lift. Depending on the model, the guide rails are fixed or fold-down.

When pushing the containers into or out of the lift, do not reach between the containers and guide rails. Grasp the containers only by the provided container notches. There is a crushing hazard.

Optionally, a manual container locking on one/both sides is possible (right in standard versions, for type > 500 kg on left and right). If the container is pushed up properly and completely, the locking mechanism locks automatically. When a container is pushed back into the lift, this locking mechanism must be released manually by folding it to the outside.

When using guide rails, also observe the following points:

- For a container load > 500 kg (1102 lbs.) or lift width > 2460 mm (96.85"), even for 2-person operation, more difficult ergonomic requirements for the operating personnel must be expected.
- When manually pushing a container into the access point, positioning inaccuracy may result (see display). If this occurs, then the container must be properly (re)positioned.
- Without a release from the Hänel factory, when operating multiple Hänel Lean-Lifts, containers may be used only in the lift for which they were intended.
- Because of the possible collision forces, loading and unloading from the side using forklifts or similar motorised loading equipment is strictly prohibited.
- Lifts loaded or unloaded from the front using forklifts or similar motorised loading equipment must be secured by the owner/operator using a suitable connected collision barrier which is not connected to the lift.
- This must reliably prevent damage to the lift/guide rails. The design of the collision barrier must be coordinated by the owner/operator with the manufacturer of the conveyor.
- Pay attention to the rollers on the guide rails and, when loading/unloading stored articles with loading equipment, be sure not to move the container

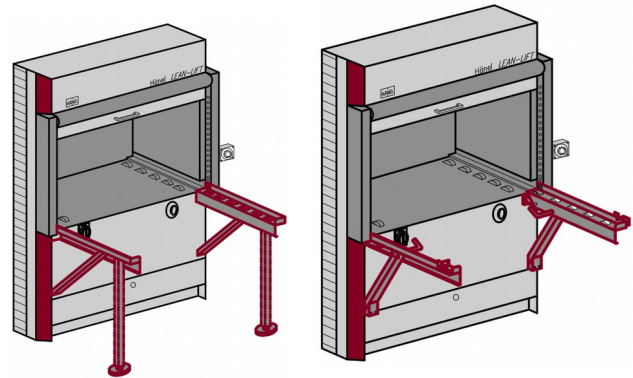


Fig. 27: Examples of guide rails

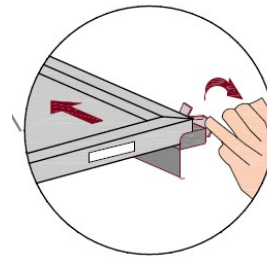


Fig. 28: Optional container locking mechanism on the guide rails



WARNING

Hazard from use of industrial trucks and cranes in area immediately surrounding the lift

- Load-carrying components and safety equipment of the lift can be damaged by cranes and industrial trucks (forklift, lift truck, etc.).
- If the lifts are in areas where cranes and industrial trucks are driven, they must be protected by the owner/operator from collision forces/swinging loads and/or a collision barrier.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Operating the fold-down guide rails

When manually pushing a container onto the two guide rails, these must have been folded out properly (in horizontal position).

To do so, follow this procedure for each guide rail:

- Use one hand to lift the guide rail over 90°.
- Then you have to put your other hand on the handle and turn the support for the guide rails towards the back up to the front panel.
- Lower the guide rail and insert the end of the support into the holder profile. When folding out the guide rails, make sure that the support of the respective rail dips completely into the holder intended for this. If folded out incorrectly, the guide rails can accidentally fold down!
- Repeat the procedure at the other guide rail.

To fold down the guide rails, proceed in the reverse order.

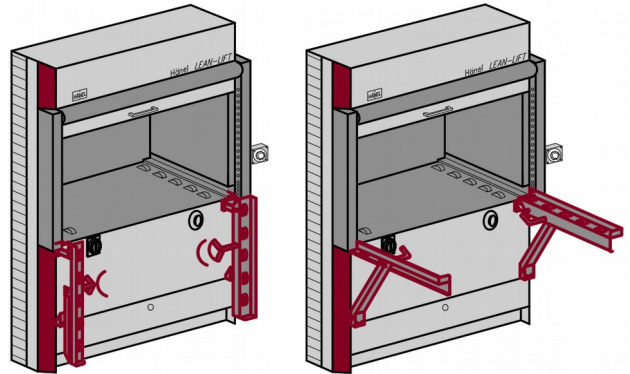


Fig. 29: Fold-down guide rails



WARNING

Danger of crushing from fold-down guide rails!

- If folded out incorrectly, the guide rails can accidentally fold down!
- Lifting the guide rails can lead to the supports accidentally coming loose. As a result, the guide rails can fold down and parts can fall.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Lifts with automatic container ejector

For easier loading and unloading of articles or for processing articles, the container positioned in the access opening can be automatically positioned on the guide rails in front of the lift.

Do not reach into the area of the access opening / guide rails during the automatic process of insertion/ejection. The insertion/ejection area is protected from access by two safety light curtains (at the front edge of the guide rails and inside in front of the access opening) and by spring-mounted side panels.

The safety light curtain at the front edge of the guide rails is automatically active during the ejector movement of a container onto the guide rails. After the insertion movement is completed, the outer safety light curtain is automatically deactivated again.

If a safety light curtain is interrupted, the lift / container ejector comes to an immediate stop or is prevented from starting up. To continue the process, follow the instructions on the display of the operating panel.

For lifts with automatic container ejection, also observe the following points:

- Always keep all access points and the insertion/ejection area free of objects to prevent property damage and personal injury from collisions with retracting/extending containers.
- Lifts with an automatic container ejector can only be operated from the front.
- The main switch (only at one access point) and the emergency stop button is located outside, on the left or right, on the guide rails - see illustration to the right.
- It is not possible to load a lift container with a high-lift truck that has a front wheel fork pair.
- Lifts loaded or unloaded from the front using forklifts or similar motorised loading equipment must be secured by the owner/operator using a suitable connected collision barrier which is not connected to the lift.
- When using a crane or other forklifts in the area immediately surrounding the lift, make sure that no lift-operating personnel becomes injured and no lift part becomes damaged during the loading/unloading of articles.



Fig. 30: Automatic drawer with main switch on the left side of the lift and emergency stop button on the right side of the lift



WARNING

Hazard from use of industrial trucks (forklifts, lift trucks, etc.) and cranes in the area immediately surrounding the lift

- Lift operators can become injured from crushing.
- Load-carrying components and safety equipment of the lift can become damaged.
- If the lifts are in areas where cranes and industrial trucks are driven, they must be protected by the owner/operator from collision forces/swinging loads and/or a collision barrier.

Operating Manual

Hänel Lean-Lift

5.6 Operation of the lift with optional supplementary feature (continued)

Pick-O-Light system (variable) in the access point

To enable easier localisation of a particular article within a container in the access point, the variable Pick-O-Light system can be used.

The exact position of the article in the container is indicated by a light beam.

To indicate the position of the article, the Pick-O-Light system moves horizontally on the top side of the access point.

To avoid crushing injuries and damage to lift parts, do not reach into the travel range on the top side of the access point.

For more information on the proper use of this supplementary feature, please refer to the document entitled "Supplementary Description of the Pick-O-Light system (variable) Microprocessor Control System Z-LPAVER.MP__".



WARNING

Hazard during the travel movement of the Pick-O-Light system

There is a crushing hazard from reaching into the travel range of the Pick-O-Light system on the top side of the access point. To avoid injuries and damage to lift parts, do not reach into this area.

Operating Manual

Hänel Lean-Lift

Chapter 6

Lift electrical system

Contents

Here you will find important information about the lift electrical system.

Section	Subject	Page
6.1	Position and markings of the electrical equipment	77
6.2	Electrical equipment	78
6.3	Electrical connection of the lift	81

Operating Manual

Hänel Lean-Lift

6.1 Position and markings of the electrical equipment

Contents

Here you will find important information about the position and marking of the electrical equipment used.

Overview of the position and marking

All electrical equipment is clearly labelled using signs to ensure proper identification.

For information about the respective position and marking of the electrical components, refer to Annex A of this Operating Manual and the electrical system bill of materials in the technical documentation of the lift.

Operating Manual

Hänel Lean-Lift

6.2 Electrical equipment

Contents

Here you will find important information about the electrical components in or on the lift, insofar as these are not operating elements or safety equipment.

These parts of the electrical equipment of the lift are described in detail (position and function) in Chapter 4.2 (Safety equipment) and Chapter 5.1 (Operating elements).

For additional information, particularly about the respective position of the electrical components, refer to Annex A of this Operating Manual, as well as the technical documentation of the lift (electrical system bill of materials, circuit diagrams).

Before carrying out work on the electrical equipment of the lift, familiarise yourself with the position and function of the safety equipment (see Chapter 4.2) and the operating elements of the lift (see Chapter 5.1).

Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer, refer to Chapter 7.1.

Permitted ambient conditions

The electrical equipment is designed for the following ambient conditions:

Permitted temperature range: +5 °C to +40 °C
(+41 °F to +104 °F)

Max. installation altitude: 1000 m (3281 ft) above sea level

Max. rel. humidity: 50% at +40 °C (104 °F) or 90% at +20 °C (68 °F)

Protection class: IP 22

You are responsible for using appropriate additional measures, such as air conditioners, to prevent any harmful effects caused by occasional formation of condensation in the lift.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.

Operating Manual

Hänel Lean-Lift

6.2 Electrical equipment(continued)

Electrical drawer/tray

The electrical drawer with electrical and electronic components is under the access point by default and under the first access point for lifts with multiple access points - see also Chapter 5.1 and Annex A. In the standard version, you can open an electrical drawer by unlocking it with a square spanner.

In addition to the electrical drawer, lift versions with optional supplementary features or multiple access points also have an electrical tray with further electrical and electronic components. This is located in each access point (refer also to Annex A). To open an electrical tray, unscrew the screws on the cover.

Control system

The control system (electrical, electronic components and microprocessor control system) is located in the electrical drawer and - optionally - in the electrical tray.

For more information on the control system, refer to the corresponding chapters in the technical documentation of the lift.

Lift drives (vertical and horizontal)

The lift is equipped with two drive units, with which the containers can be moved vertically and horizontally in the lift.

Each drive unit consists of an electric motor, gearbox and electromagnetic spring pressure brake. For optimum lift running, the drive units are controlled by a frequency converter.

Electrical safety devices

The lift has electrical devices for protection against short circuit and overload.

In the event of a short circuit, a protective motor switch integrated into the main switch interrupts the mains power supply to the entire lift (main switch switches into centre position; for more information, refer to Chapter 4.2).

A thermosensor in the winding of each drive unit monitors the motor temperature. Additionally, the power consumption of the drive units is monitored by the frequency converter. In case of overheating or overload, the safety chain is interrupted and the lift stops.

In addition, the control circuit is monitored by circuit breakers in the electrical control system.

Vertical position detection

The extractor is equipped with two positioning sensors for exact position detection:

- The sensor for the front storage area is installed at the front left.
- The sensor for the rear storage area is installed at the rear right.

Operating Manual

Hänel Lean-Lift

6.2 Electrical equipment(continued)

Horizontal position detection

The horizontal positions of the container and extractor chain are detected or monitored by proximity switches at the following positions:

- At the access point and
- On the extractor.

Additionally, the horizontal movement is monitored by a sensor (incremental encoder).

Operating Manual

Hänel Lean-Lift

6.3 Electrical connection of the lift

Contents

Here you will find important information on the electrical connection prerequisites required of the owner/operator for commissioning and operating the lift.

Before you, as an electrically skilled person, carry out work on the electrical equipment of the lift, familiarise yourself with the position and function of the safety equipment (see Chapter 4.2) and the operating elements of the lift (see Chapter 5.1).

Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer, (for more information, refer to Chapter 7.1).



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3

DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.
- For lifts in multi-unit networks, even more components/connections are energised. In this regard, observe the circuit diagram in the technical documentation of the lift as well as Chapter 7.5.

Operating Manual

Hänel Lean-Lift

6.3 Electrical connection of the lift (continued)

Owner/operator prerequisites

For the Lean-Lift, the owner/operator has to provide a mains power supply in accordance with the "Installation Requirements for the Owner/Operator" document as well as the "Power Supply and Foundation Plan".

The owner/operator has to provide at least one suitable power socket for the tools necessary to install the lift, such as electric screwdrivers etc.

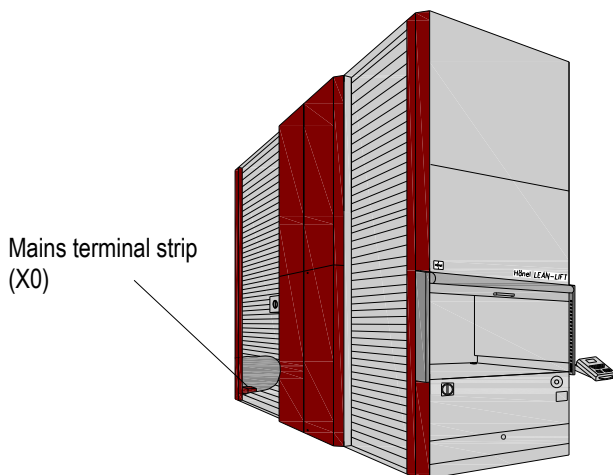


Fig. 31: Mains terminal strip



! DANGER

There is a risk of fatal injury when working on the live electrical system!

The mains power supply cable may be connected to the mains terminal strip only by an electrically skilled person provided by the owner/operator and has to remain de-energised until the on-site installation supervisors approve it for being switched on.

The electrically skilled person is allowed to enter the lift only in the presence of the on-site installation supervisors.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

Exception:

Tasks that must be carried out with voltage present (such as measurements).

SAFETY INSTRUCTIONS



Secure the actuator/actuating magnet!

Before any work, secure the actuator/actuating magnet of the safety switch with a personally assigned padlock immediately after opening the service door.



Note:

The cable entry point for the owner/operator's mains power line with a separate earth wire is located on the rear side of the lift.

Any deviations must be specified when the order is placed and be described in the order confirmation.

Operating Manual

Hänel Lean-Lift

6.3 Electrical connection of the lift (continued)

Mains power supply connection and wire cross-sections of the owner/operator's mains power line

The lift's electrical equipment is designed as standard for connection to a three-phase alternating current (three-phase current) TN power system (L1/L2/L3/N/PE) in accordance with IEC 60364-1 (separate neutral and earth wire in the same power system):

3 outer conductors,
1 neutral conductor,
1 earth wire,
1 additional separate earth wire (wire cross-section, at least 2.5 mm² (AWG 14)) in accordance with IEC 60204-1 (due to the leakage current of the frequency converter > 3.5 mA).

Connection to a three-phase alternating current (three-phase current) TN power system (L1/L2/L3/PE) without a neutral conductor is also optionally available at a surcharge:

3 outer conductors,
1 earth wire,
1 additional separate earth wire (wire cross-section, at least 2.5 mm² (AWG 14)) in accordance with IEC 60204-1 (due to the leakage current of the frequency converter > 3.5 mA).

All other mains power systems are to be co-ordinated with the supplied lift by owner/operator in co-ordination with the responsible energy company.

Note:

The lift's existing electrical equipment must match the specific on-site connection conditions (mains power system, voltage and frequency). The owner/operator may have to ask the responsible energy company for the required data.

The owner/operator must observe the following:

The owner/operator's mains power line

- Must be connected to the mains terminal strip (X0) of the lift intended for this,
- Must not be connected using a plug connector.

The mains supply voltage and fuse protection of the mains power line at the owner/operator's location

- must conform to the specifications on the type plate.

If the customer employs a residual current circuit breaker at the installation site,

- a "universal, time-delayed residual current circuit breaker (Type B)" is required in accordance with EN 50178 or IEC 755.

Wiring installation

The wiring installation provided by the owner/operator must conform to the following standards:

- IEC 60364-4-43
- IEC 60364-5-52

Operating Manual

Hänel Lean-Lift

6.3 Electrical connection of the lift (continued)

Mains power supply connection and wire cross-sections of the owner/operator's mains power line (continued)

Wire cross-section

The minimum wire cross-section for the mains power line provided by owner/operator must be selected based on the lift power/type in accordance with the specifications on the type plate and in the document entitled "Installation Requirements for the Owner/Operator" (see the technical documentation for the lift).

The following standards are used as a base:

- IEC 60364-5-52, Table B.52-1 and B.52-4 using the A2 method of installation, or
- NFPA 79 (National Fire Protection Association), Table 12.5.1.

Selecting the fuse protection

As a safety device for protection from overload and short circuits in the mains power line provided by owner/operator, it is recommended that the owner/operator provide the following safety devices according to IEC 60364-4-43:

- Miniature circuit breaker with overcurrent and short-circuit trip, with standard "B" trip characteristic,
- Fuses with fuse links with standard gG trip characteristic (standard type: full-range protection, general application).

The maximum fuse protection for the mains power line provided by the owner/operator must be selected based on the lift power/type in accordance with the specifications on the type plate and in the document entitled "Installation Requirements for the Owner/Operator" (see the technical documentation for the lift).

However, the customer-side or owner/operator specifications are authoritative in this context.



Note

The impedance of the energy supply, including the mains power line to the power supply terminal box of the lift provided by the owner/operator, must not exceed

300 milliohms at mains supply voltages ≤ 240 V and

must not exceed 500 milliohms at mains supply voltages > 240 V.

Note:

For the minimum wire cross-section, the thermally relevant mains current (root mean square of the mains current) has been determined for a vertical lift at the max. possible lift height taking into account the different movement directions for the longest possible continuous operation. The root mean square of the mains current is approx. 70% of the nominal mains current. Furthermore, a potential voltage drop has been taken into account; the individual wire cross-sections are higher than the standard specification for this reason.

Note:

Due to the soft starter with frequency converter, no current surges need to be taken into account for designing the fuse protection.

The main switch for the lift is equipped with an integrated protective motor switch for protection from overload and short circuits. The setting value for the protective motor switch is set to the thermally relevant mains current (root mean square).

If the customer employs a residual current circuit breaker at the installation site, due to the frequency converter a "universal, time-delayed residual current circuit breaker (Type B)" is required in accordance with EN 50178 or IEC 755.

Operating Manual

Hänel Lean-Lift

6.3 Electrical connection of the lift (continued)

Connection for the optional "Selector switch for emergency power operation" supplementary feature

It is mandatory that the emergency power supply be connected by a suitable electrically skilled person.

If your lift has the optional "Selector switch for emergency power operation" supplementary feature (see Chapter 5.6), then next to the power terminal strip for the power supply in the standard version there is another mains terminal strip (emergency power mains terminal strip X10) to which the emergency power supply provided by the owner/operator (e.g. by means of an emergency mains power supply) can be connected - regarding this, see the figure to the right.

Connection of the lift to the emergency power supply and operation of the lift using an emergency power supply are the sole responsibility of the owner/operator.

With respect to the mains power supply connection and wire cross-sections, the same specifications as those for the power supply in the standard version apply to connection of the emergency power mains terminal strip X10 provided by the owner/operator.

For equipotential bonding, the additional, separate earth wire (at least 2.5 mm² (AWG 14)) must also be additionally connected to the emergency mains power supply.

The emergency power supply must comply with the technical specifications in accordance with Chapter 6.3.

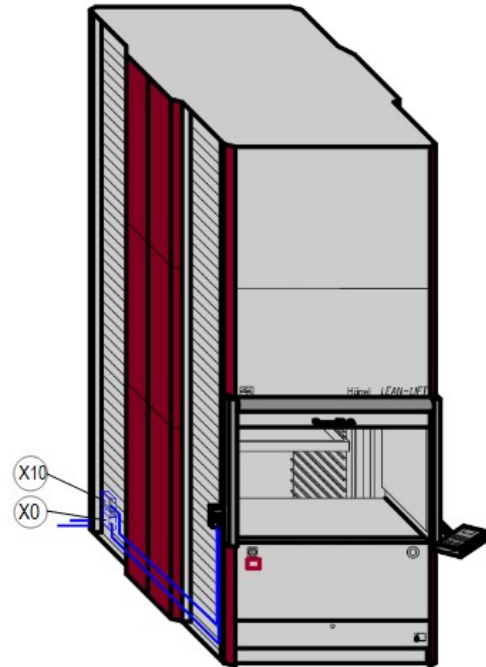


Fig. 32: Emergency power mains terminal strip

Operating Manual

Hänel Lean-Lift

Chapter 7

Service and maintenance

Contents

Here you will find important information about service, maintenance and final decommissioning of the lift.

Section	Subject	Page
7.1	Prerequisites for performing service and maintenance tasks	89
7.2	Personal safety equipment	93
7.3	Work at heights	94
7.4	Protection from hazardous, unintended movement of the extractor	99
7.5	Lifts in multi-unit networks	111
7.6	Blocked lift run	113
7.7	Regular safety inspection of the lift	115
7.8	Regular service inspection of the lift	124
7.9	Replacing drives and checking/replacing chains	127
7.10	Relubricating the lift	133
7.11	Correcting faults	135
7.12	Spare parts	139
7.13	Decommissioning, disassembly and disposal	144
7.14	Technical data	145

Operating Manual

Hänel Lean-Lift

7.1 Prerequisites for performing service and maintenance tasks

Contents

Here you will find important information which must be observed as service and maintenance tasks are performed!

Target group(s) for performing service and maintenance tasks:	
For an overview of target groups, see Chapter 1.1	
	
	Only with corresponding training from the manufacturer or its authorised representatives Only in a <u>limited scope</u> as described in Chapter 7

Working inside the lift includes all work that requires leaning into or reaching into the lift and/or being inside the lift.

Before the aforementioned target groups may perform work inside the lift, they must be familiar with:

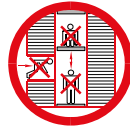
- The information contained in [Chapter 1](#) (Introduction), particularly target groups and personnel requirements;
- The information contained in [Chapter 3](#) (General safety), particularly the signal words and warning colours, warning symbols and note symbols used;
- The information contained in [Chapter 4](#) (Safety equipment on the lift), particularly the location and function of the safety equipment;
- The information contained in [Chapter 5](#) (Lift operation), particularly the information on establishing operational readiness and proper loading;
- All of the information contained in this [Chapter 7](#) (Service and maintenance)!



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.

Operating Manual

Hänel Lean-Lift

7.1 Prerequisites for performing service and maintenance tasks (continued)

Who is authorised to enter the lift and/or work inside the lift?

When entering the lift, there is a **risk of fatal injury** from unsecured, suspended loads or falling articles.

The owner/operator is responsible for ensuring that only instructed and specially trained and authorised personnel (referred to below as: "authorised personnel") have access to the inside of the lift - for Europe, see the harmonised product standard EN 15095 for this.

Lifts in multi-unit networks have a shared service door.

When entering lifts in a multi-unit network, therefore, it is mandatory to observe the particular safety instructions as described in Chapter 7.5.

A. Specially trained specialists of the manufacturer or its authorised representatives



- Scope of the work corresponding to the Hänel certification level including work on drive components, load-bearing parts and load-carrying equipment.
- Work at heights requires special qualification. When work is carried out at heights in the lift, the manufacturer or its authorised representatives work together with external specialists for work at heights who have been adequately trained specifically for this work (professional industrial climbers).

B. Personnel authorised by the owner/operator - but not for work on parts of the drive, load-bearing parts and load-carrying equipment



Only with corresponding training from the manufacturer or its authorised representatives
Only in a limited scope as described in Chapter 7

Due to the **risk of fatal injury**, entering lift and/or working inside the lift requires not only general technical qualification and vocational experience, but also special, recently acquired skills and knowledge, particularly for establishing a safe condition of the lift, which are taught as part of Hänel training programs/courses. However, personnel authorised by the owner/operator are **not** permitted to work on drive components, load-bearing parts or load-carrying equipment and are **not** permitted to work inside the lift to resolve faults in the event of a blocked lift run!

For this purpose, service technicians of the manufacturer and its authorised representatives have received instruction and special training by the manufacturer.

SAFETY INSTRUCTIONS



Wear and use personal safety equipment!

Before any work on the lift is begun, the personal safety equipment required for the respective work must always be put on and used - see Chapter 7.2.

Operating Manual

Hänel Lean-Lift

7.1 Prerequisites for performing service and maintenance tasks (continued)

Whenever the owner/operator, after drafting a documented hazard assessment, authorises personnel to enter the lift and/or work inside the lift, it does so on its own authority! Observing the following is mandatory for the owner/operator:

- Each time before a person enters the inside of the lift / begins work inside the lift, the authorisation by the owner/operator must be documented in writing in accordance with Annex D and be included with the technical documentation for the lift.
- Maintenance tasks may only be carried out by employees who are suitable for this task and have been assigned this task by the employer. They must have the necessary technical knowledge for carrying out the maintenance order through their professional education or continued education. This includes corresponding vocational training, vocational experience with comparable equipment and recent vocational experience multiple times a year.
- Before subcontracting the work to third-party companies, the owner/operator must define the safety requirements and requirements for the qualification of the maintenance personnel.
- Before maintenance work begins, the owner/operator, who is directly responsible for operation of the lift, must have corresponding safety measures carried out on the lift to be maintained.
- Safety measures in conjunction with the maintenance tasks must be defined by the employer, who is directly responsible for the completion of the work as the result of a documented hazard assessment. Compliance is also mandatory in this regard with the warnings and safety instructions on the instruction sheets included with the corresponding original Hänel spare parts and in the technical documentation for the lift.
- Due to the **risk of fatal injury**, entering the lift and working inside the lift requires not only general technical qualification and vocational experience, but also special, recently acquired skills and knowledge, particularly for establishing a safe condition of the lift, which are taught as part of Hänel training programs/courses (for Europe, also see the EC Use of Work Equipment Directive 2009/104/EC regarding this). In particular, the owner/operator and (where applicable) the third-party company commissioned by the owner/operator must ensure that the persons assigned to carry out the work are sufficiently familiar with the special features of the lift being repaired so that they can identify and counteract any hazardous situations that arise.
- Work at heights requires special qualification. When work is carried out at heights in the lift, the manufacturer and its authorised representatives work together with external specialists for work at heights who have been adequately trained specifically for this work (professional industrial climbers).

Operating Manual

Hänel Lean-Lift

7.1 Prerequisites for performing service and maintenance tasks (continued)

Who is permitted to work on drive parts, load-bearing parts and load-carrying equipment, and who is permitted to work inside the lift to resolve faults in the event of a blocked lift run?



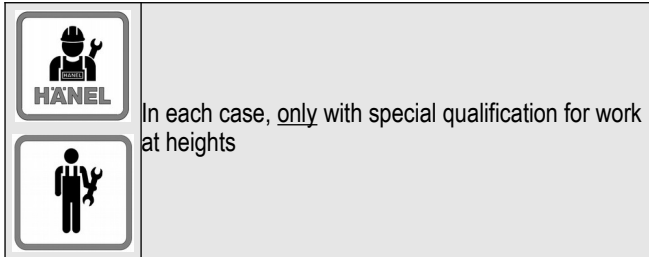
Due to the **risk of fatal injury**, this is only permitted for specially trained specialists of the manufacturer or representatives authorised by the manufacturer.

Examples of this work include all work on:

- "Vertical" drive unit
- Drive chains
- Vertical chains (with tensioners)
- Drive train for the vertical drive (drive shaft, bearing block, bearing bolts, chain wheels, bearings, coupling element)

In the event of a blocked lift run, it is mandatory to observe the particular safety instructions as described in Chapter 7.6.

Who may carry out work at heights inside the lift?



In each case, only with special qualification for work at heights

Work at heights inside the lift may be performed only by instructed and specially trained and authorised personnel who **additionally** possess a special qualification for carrying out work at heights - for more information, refer to Chapter 7.3.

Accident prevention regulations

For all work, the legal accident prevention regulations applicable to the respective country of use always have overriding authority. Furthermore, the owner/operator may have additional special regulations that also have to be taken into consideration.

Furthermore, the following safety instructions must be observed.

Required padlocks

You need at least one padlock per lift for all service and maintenance tasks. For security reasons, use individual locks to which only you have the keys.

Operating Manual

Hänel Lean-Lift

7.2 Personal safety equipment

Contents

Here you will find important information on how to select and use suitable personal safety equipment (PSE).

Only instructed and specially trained and authorised personnel may perform work inside the lift; see Chapter 7.1.

Personal safety equipment

Before any work on the lift is begun, the personal safety equipment required for the respective work must always be put on and used. The respective national regulations apply.

In particular, the following is regularly required for carrying out work on the lift:

- Safety shoes and a safety helmet with chin guard to protect against falling parts,
- safety glasses if necessary,
- protective gloves as protection against injuries from corners and as protection from burns on hot drive parts,
- At least two padlocks; you need a corresponding amount of additional locks for lifts in multi-unit networks (all main switches and actuators/actuating magnets on the service doors). For safety reasons, only use locks for which you alone have the key.
- Personal safety equipment against falling (restraint/fall arrest system) for all work at great heights; see Chapter 7.3.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

SAFETY INSTRUCTIONS



Wear and use personal safety equipment!

Before any work on the lift is begun, the personal safety equipment required for the respective work must always be put on and used.

Operating Manual

Hänel Lean-Lift

7.3 Work at heights

Contents

Here you will find important information about safely carrying out work at great heights (work at heights).

Target group(s) for carrying out work at heights:	
For an overview of target groups, see Chapter 1.1	
	Only with special qualification for work at heights
	Only with special qualification for work at heights Only with corresponding training from the manufacturer or its authorised representatives. Only in a <u>limited scope</u> as described in Chapter 7

Work at heights

Work at heights requires special qualification.

This includes the verifiable skills and knowledge for safely handling the personal safety equipment against falling taught as part of special training (training with suitable restraint/fall arrest systems) as well as safely handling the auxiliary equipment required for carrying out work at heights (for example, verifiable ability to operate a raised working platform safely).

Individual personnel must not carry out work at heights alone. It is mandatory to find a second person specially trained in rescue from heights to watch during the entire duration of the work at heights and help immediately in the event of an emergency.

Who may carry out work at heights inside the lift?

Work at heights inside the lift may be carried out only by personnel who have special qualification for work at heights and who are instructed and specially trained and authorised personnel as described in Chapter 7.1.

If the person used to carry out work at heights inside the lift does not have all of the qualifications, this person must be instructed to carry out the work by someone who is instructed and specially trained and authorised as described in Chapter 7.1.

When work is carried out at heights in the lift, the manufacturer and its authorised representatives work together with external specialists for work at heights who have been adequately trained specifically for this work (professional industrial climbers).



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to this chapter 7.3



Operating Manual

Hänel Lean-Lift

7.3 Work at heights (continued)

Observe:

Outside Europe, the corresponding laws, standards and accident prevention regulations for work at heights and for fall protection equipment apply.

Personal protection for work at heights

Access to the lift at a great height is possible only from outside (for example, by using a raised working platform) via the upper service opening.

A. Personal protection when using a raised working platform, scaffolding or stair tower

Only a raised working platform, scaffolding or stair tower is permitted as auxiliary equipment for work at great heights.

If a raised working platform is used, it is mandatory to observe that the personnel used to carry out the work at heights must verifiably be able to operate the corresponding raised working platform safely.

Before using a raised working platform, it is mandatory to use the personal safety equipment against falling (suitable restraint system) and the attachment points in accordance with the manufacturer's operating manual for the raised working platform and to observe the safety instructions and notes included there.

When using scaffolding or a stair tower, the personal protection against falling is provided by the existing railing or according to the manufacturer's operating manual.

B. Personal protection at insufficiently secured fall-risk zones

For work on insufficiently secured fall-risk zones, the owner/operator or its safety officer must provide or create inspected and permitted attachment points for personal protection (for the European Union: see EN 795). For these attachment points the owner/operator must provide a test log from a person authorised for this or the approval of a structural engineer.

When carrying out such work, suitable personal safety equipment against falling must be used (depending on the height, e.g. a suitable restraint system or fall arrest system with deceleration device).

For proper use of the personal safety equipment, please observe the specifications and instructions from the respective manufacturer.

The owner/operator must block off the area around an insufficiently secured fall-risk zone to prevent access by unsecured personnel.

SAFETY INSTRUCTIONS



Wear and use personal safety equipment!

Before any work on the lift is begun, the personal safety equipment required for the respective work must always be put on and used.

SAFETY INSTRUCTIONS



Second person required for work at heights!

Individual personnel must not carry out work at heights alone. It is mandatory to find a second person specially trained in rescue from heights to watch during the entire duration of the work at heights and help immediately in the event of an emergency.

SAFETY INSTRUCTIONS



Wear fall protection equipment!

Therefore, the safety rope of the fall protection equipment must be attached to a point outside the lift that is permitted and suitable for the respective work.

Operating Manual

Hänel Lean-Lift

7.3 Work at heights (continued)

Personal protection in the lift

Vertical Safety rope

A vertical safety rope can be pulled in to provide fall protection for people at the specific height in the lift. This is part of the personal safety equipment.

Only professional industrial climbers in co-operation with specially trained specialists with appropriate schooling such as specialists of the manufacturer or representatives authorised by the manufacturer are authorised to use the vertical safety rope.

Equipment with a steel feed line is present on all lifts from model year Week 09 / 2002 and later with a height of > 4 m [157.5 in] for pulling in a vertical safety rope. The steel feed line is not suitable for use as a vertical safety rope, nor is it permitted to be used for that purpose. Its sole purpose is for pulling in the safety rope.

The equipment with the steel feed line is located on the left or right (depending on the lift version) behind the service door on the lift supporting tube.

Before beginning to carry out work inside the lift, it is mandatory that you familiarise yourself with the information contained in the following Chapters 7.4, 7.5 and 7.6 - particularly the hazard warnings and safety instructions listed there.



! DANGER

Risk of fatal injury from handling personal protection incorrectly!

- The steel feed line is not suitable for use as a vertical safety rope, nor is it permitted to be used for that purpose. Its sole purpose is for pulling in the safety rope.
- Only specially trained specialists of the manufacturer or representatives authorised by the manufacturer may pull in the vertical safety rope.
- Wear protective gloves when pulling in the safety rope.

Operating Manual

Hänel Lean-Lift

7.3 Work at heights (continued)

Pulling in the vertical safety rope

Follow these steps when pulling in the safety rope of the fall protection equipment:

Step	Task
------	------

- | | |
|---|---|
| 1 | Check to ensure that no containers are on the extractor and the extractor is at ground level. If it is not, empty and lower it now. |
| 2 | Switch off the main switch and secure it from being switched on again using a padlock (all main switches for lifts in multi-unit networks, see Chapter 7.5). |
| 3 | Open the side service door and immediately use the padlock assigned to you to secure the actuator/actuating magnet of the safety switch on the service door from being switched on again. |
| 4 | Release the tensioner of the steel feed line and unhook the end of the steel feed line. |

SAFETY INSTRUCTIONS

Working inside the lift!

Before beginning to carry out work inside the lift, it is mandatory that you familiarise yourself with the information contained in the following Chapters 7.4, 7.5 and 7.6 - particularly the hazard warnings and safety instructions listed there.

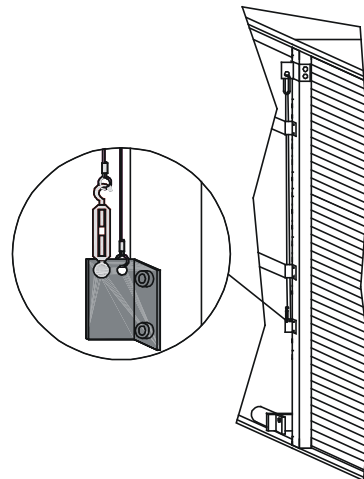


Fig. 33: Steel feed line tensioner

Operating Manual

Hänel Lean-Lift

7.3 Work at heights (continued)

Step	Task
------	------

- | | |
|---|--|
| 5 | Using a carabiner, hook one end of the safety rope into the drill hole provided on the lower holder (on the lower lift frame). |
|---|--|

Note:

Remove the storage container with the locking device before attaching the cable securing device.

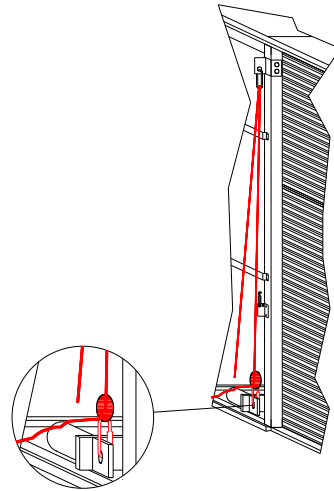


Fig. 34: Hooking in the safety rope

- | | |
|---|---|
| 6 | <p>Pull the end of your safety rope through the other eyelet of the steel feed line.</p> <p>Make an eyelet using the end of the safety rope and fasten it in place, for example using two cable ties.</p> <p>Alternatively, you can also use a cable support grip system for securing the rope. You can find the information on properly using this system in the manufacturer's documentation.</p> |
|---|---|

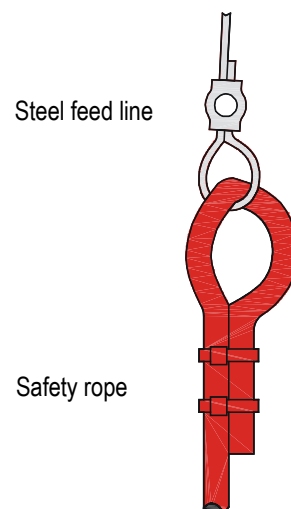


Fig. 35: Drawing in the safety rope

- | | |
|---|---|
| 7 | Using the steel feed line, pull in the safety rope until its end reaches you again. |
| 8 | If the safety rope is not being used, fasten its free end so that the rope is taut (e.g. using a carabiner attached to the holder of the vertical drive or the holder on the lower lift frame). |

Observe:

For proper use of the personal safety equipment against falling, please observe the specifications and instructions from the respective manufacturer.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor

Contents

Here you will find important information on how to protect the extractor from hazardous, unintended movement.

The extractor is a suspended load that can fall.

Working underneath the unsecured extractor is prohibited due to the **risk of fatal injury**.

Target group(s) for protecting the extractor from hazardous, unintended movement:	
<i>For an overview of target groups, see Chapter 1.1</i>	
	
	Only with corresponding training from the manufacturer or its authorised representatives. Only in a <u>limited scope</u> as described in Chapter 7

Only instructed and specially trained and authorised personnel may perform work inside the lift; see Chapter 7.1.

Each time before work inside the lift is begun, the extractor (for lifts in multi-unit networks: all extractors - see also Chapter 7.5) must always be secured against hazardous, unintended movement with a method described in this chapter.

In the event of a blocked lift run, it is mandatory to observe Chapter 7.6!

Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in this Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to this Chapter 7.3



WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

A. Securing the extractor by lowering it to ground level

Securing method A (securing by lowering the extractor) must not be used if a vertical chain or drive chain is opened or work is performed on chain wheels of the aforementioned chains! For additional information about the chains of the lift, refer to Chapter 7.9

The simplest and safest method for securing an extractor is to lower it to ground level.

Select the corresponding program function on the lift control system for this. To do so, proceed as follows:

Press "Key button" 

Select "4 System services run sequence"

Select "3 Lower extractor to ground level"

The password required for this is: 15734. Then follow the additional instructions on the display and observe the respective safety instructions.

If you cannot select the "Lower extractor to ground level" function or lowering the extractor all the way is not possible, the **risk of fatal injury** means that only authorised personnel according to Chapter 7.1 are permitted to secure the extractor using securing method B in this Chapter 7.4! In the event of a blocked lift run, it is mandatory to observe Chapter 7.6!

After the extractor has been lowered to ground level, it is mandatory to observe the following points when opening a service door:

1. Switch off the main switch and secure it from being switched on again using a padlock (all main switches for lifts in multi-unit networks).
2. Secure the actuator/actuating magnet of the safety switch at every open service door with a personally assigned padlock.

For lifts in multi-unit networks:

Before entering lifts in multi-unit networks, make sure that the extractors of all lifts have been lowered to ground level, or that they have been secured against falling with securing method B (locking device) - see also Chapter 7.5.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

SAFETY INSTRUCTIONS



Secure the actuator/actuating magnet!

Before any work, secure the actuator/actuating magnet of the safety switch with a personally assigned padlock immediately after opening the service door.



SAFETY INSTRUCTIONS

After completing maintenance tasks

Before establishing operational readiness, ensure the following:

- All maintenance tasks have been properly completed,
- Tools, extraneous parts and any articles that may have fallen have been removed from the lift,
- The locking device, if it was used, has been completely removed and properly stored again,
- There is no longer anyone in the lift,
- The padlock has been removed from the actuator/actuating magnet of the service door safety switch and the service door has been closed,
- Padlocks on the main switch (for lifts in multi-unit networks: all main switches) have been removed again.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device

The locking device has been specially developed for securing the extractor of the respective lift type. It locks the vertical chains and thus also the extractor. The locking device can be used regardless of the current extractor position.

Each locking device consists of two identical sets (A) - a set is referred to as a "safety module" in the following - which are attached to the left and right sides of the lift for securing the extractor at the vertical chains. Work in the inside of the lift may not be carried out until the two safety modules have been properly installed.

The locking device is a safety-related component and must never be technically modified in any way. It may be used only as described in the following for the intended lift type.

However, the simplest and safest method for securing the extractor is to lower it to ground level - see previous section.

Due to risk of fatal injury, securing method B (securing the extractor using the locking device) is permitted only for specially trained and authorised personnel as described in Chapter 7.1. In addition to general technical qualification and real-world experience, it requires special, recently acquired training on safe use of the locking device from the manufacturer or its authorised representatives.

Securing method B (securing the extractor using the locking device) must not be used if a vertical chain or drive chain is opened or work is performed on chain wheels of the aforementioned chains! For additional information about the chains of the lift, refer to Chapter 7.9.

For model year Week 17 / 2008 or later, all lifts are equipped with a locking device at the factory.

Note:

If your Lean-Lift is not equipped with the locking device, you can retrofit the locking device. For more information on the locking device, contact the Hänel factory or one of the Hänel representatives.

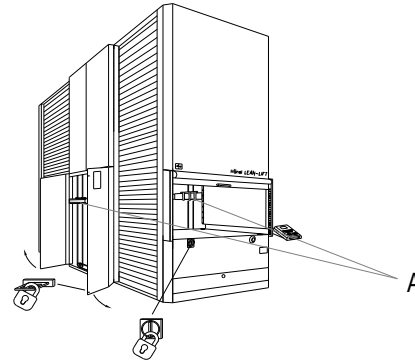


Fig. 36: Locking device



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in this Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3



Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

All work involving the locking device demands exact adherence to the procedures and safety instructions described below.

Always proceed as follows to use and install the locking device properly:

- B1.** Required tools for installing the locking device
- B2.** Storing containers and positioning the extractor
- B3.** Switching off the main switch and securing it from being switched on again
- B4.** Opening the service doors and securing them with a padlock
- B5.** Removing the safety module
- B6.** Checking the safety module
- B7.** Installing the locking device

B1. Required tools for installing the locking device

Each time before the locking device is used, it is necessary to check whether the tool required for installing the locking device is present.

Quantity	Name
1	Allen key, 6 mm (0.24")
1	Allen key, 8 mm (0.315 in.)
1	Ring or open-end spanner, 13 mm (0.51")
1	Ring or open-end spanner, 17 mm (0.669 in.)



DANGER

Incorrect use or incomplete installation of the locking device poses a risk of fatal injury!

- Due to the risk of fatal injury, only specially trained and authorised personnel are permitted to use the locking device.
- Incorrect or incomplete installation of the locking device can lead to fatal injuries.
- The locking device must not be used if a vertical chain or drive chain is opened or work is being performed on chain wheels of the aforementioned chains!



WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B2. Storing containers and positioning the extractor

Before working inside the lift, remove the container from the extractor, if possible.

The locking device can be used regardless of the current extractor position.

In the event of a blocked lift run, it is mandatory to observe Chapter 7.6!

B3. Switching off the main switch and securing it from being switched on again

The main switch must be switched off and secured from being switched on again using a padlock (all main switches for lifts in multi-unit networks).

B4. Opening the service doors and securing them with a padlock

Open the side service door and lock the actuator/actuating magnet of the safety switch by attaching your own padlock.

B5. Removing the first safety module

The first safety module of the locking device for the service door side is normally located in a separate storage container on the extractor shaft floor directly behind the service door.

For removing this first safety module, entering the drive shaft is prohibited as there is danger of the extractor falling.

Always remove all of the storage containers from the lift with the first safety module. This also ensures the accessibility of the attachment point for any use of a safety rope.

SAFETY INSTRUCTIONS

Lifts in multi-unit networks!

Secure all extractors against falling (if possible), beginning with the extractor at the service door, by lowering them to ground level.

If this is not possible, completely install each of the locking devices in the order in which the areas inside the lift need to be entered. Always start installation on the service door side. For lifts in multi-unit networks, the special safety instructions under Chapter 7.5 also apply.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

SAFETY INSTRUCTIONS



Secure the actuator/actuating magnet!

Before any work, secure the actuator/actuating magnet of the safety switch with a personally assigned padlock immediately after opening the service door.

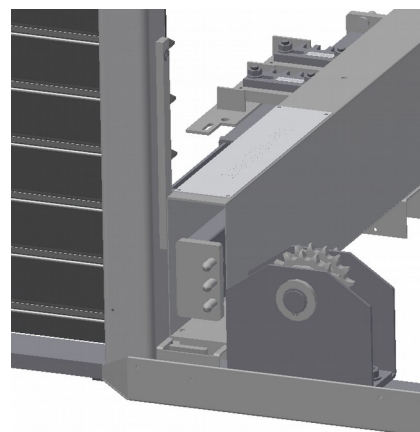


Fig. 37: Safety module storage

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B6. Checking the safety module

Before using each locking device safety module, check it to make sure it is complete and matches the corresponding lift type.

To make sure it is complete, please refer to the following table. Are there missing or damaged parts? Do not continue the work. Contact the manufacturer or its authorised representatives.

The parts match the corresponding lift type if all of the following features are present:

1. The spacing of the holes in the supporting tube must match the spacing of the bolts on the connecting pieces.
Test: It must be possible to easily and fully insert the bolts for the connecting pieces into the holes of the supporting tubes.
2. The mark **A** on the centre linking piece (see Fig. 38) has to match the container depth (635, 825, 1047 or 1270) of the lift; for this, refer to the last number of the lift type marking on the type plate (e.g. 1300-**635**, 2460-**825**, etc.).
3. The mark **B** on the notched chain holder (see Fig. 38) has to match the chain pitch of the vertical chain (5/8" or 3/4") - for more information, refer to Chapter 7.9.
Test: It must be possible to easily and fully insert the notched chain holder into the holes of the chain links.
4. Using the provided high-strength screws of strength class 12.9, the hex nuts and the washers is mandatory!

In the event that one of the features listed above is not present or you have doubts about whether the feature is present, do not continue the work. Contact the manufacturer or its authorised representatives.

SAFETY INSTRUCTIONS

Inspect the safety modules of the locking device before use!

Each time before a safety module is used, it is necessary to check whether:

- All parts are existing.
- The safety modules have no damage.
- The safety modules match the lift type (in accordance with the type plate).

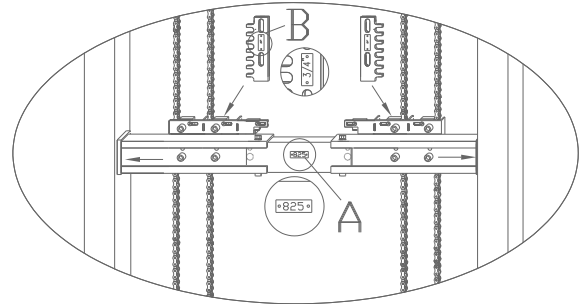


Fig. 38: Marks on the locking device

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B6. Checking the safety module (continued)

Single parts of a safety module per extractor side:

Item	Quantity	Name
1L	1	Connecting piece Left (2 variants with different bolt spacing)
1R	1	Connecting piece Right (2 variants with different bolt spacing)
2	1	Linking piece Centre (mark A : depending on the lift type: 635, 825, 1047, 1270 - also see the lift type plate at the access point regarding this)
3	2	Chain securing plate
4	4	Notched chain holder (mark B : chain construction type depending on the lift type: 5/8" or 3/4" - also see Chapter 7.9)
5	2	Socket head cap screw DIN912/ISO4762 - M8x110 - 12.9
6	4	Washer DIN125/ISO7089-8
7	2	Hex nut DIN934/ISO4032-M8
8	8	Socket head cap screw DIN912/ISO4762 - M10x45 - 12.9
9	8	Washer DIN125/ISO7089-10
10	8	Hex nut DIN934/ISO4032-M10

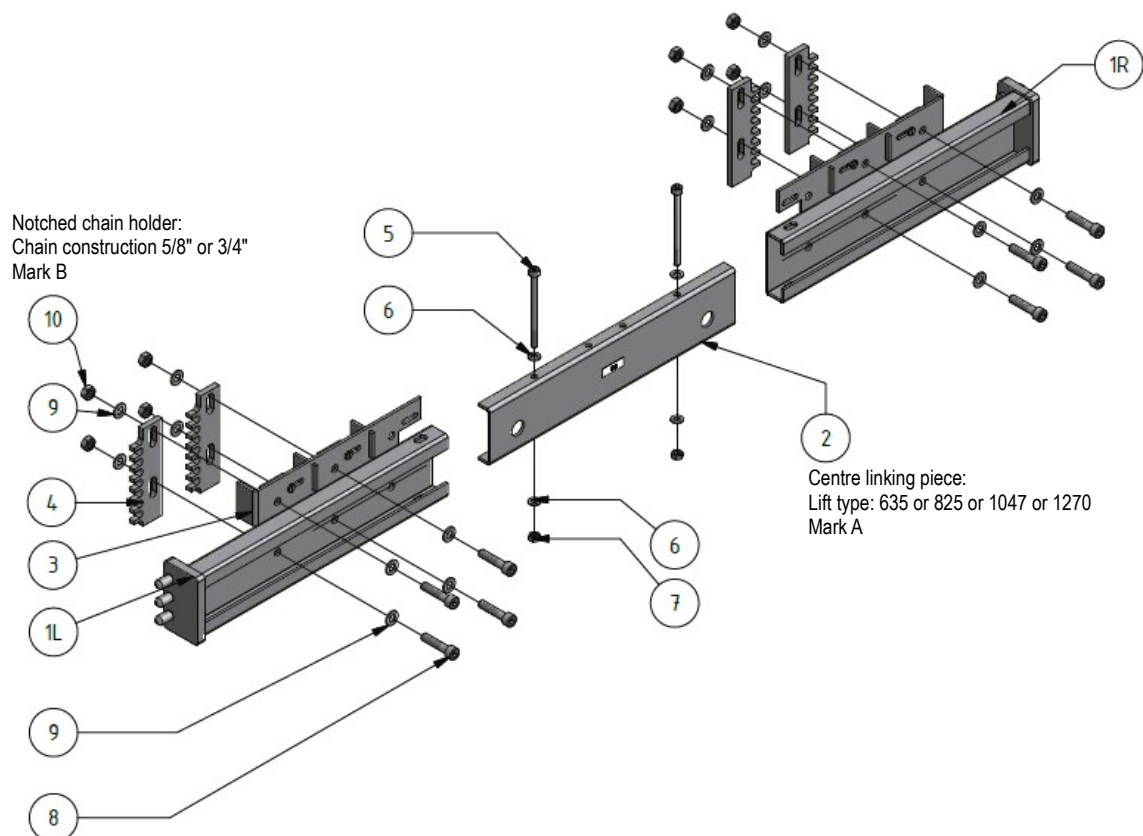


Fig. 39: Single safety module parts per extractor side

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B7. Installing the locking device

Each locking device consists of two identical safety modules attached to the left and right side of the lift for securing the extractor at the vertical chains.

SAFETY INSTRUCTIONS

Install the locking device on both sides!

Always attach the locking device on both sides, i.e. one safety module on the left side of the extractor and one on the right. Work in the inside of the lift may not be carried out until the two safety modules have been properly installed.

Step Task

- 1 Take apart the safety module for the service door side as follows - refer also to the figure below:
 - Unscrew the screw connections (5), (6), (7)
 - Pull apart the safety module (1L), (2), (1R)
 - Remove all 4 notched chain holders (4) by unscrewing the screw connections (8), (9), (10)



Note

Are any individual parts of the locking device missing or damaged? Do not continue the work. Contact the manufacturer or its authorised representatives.

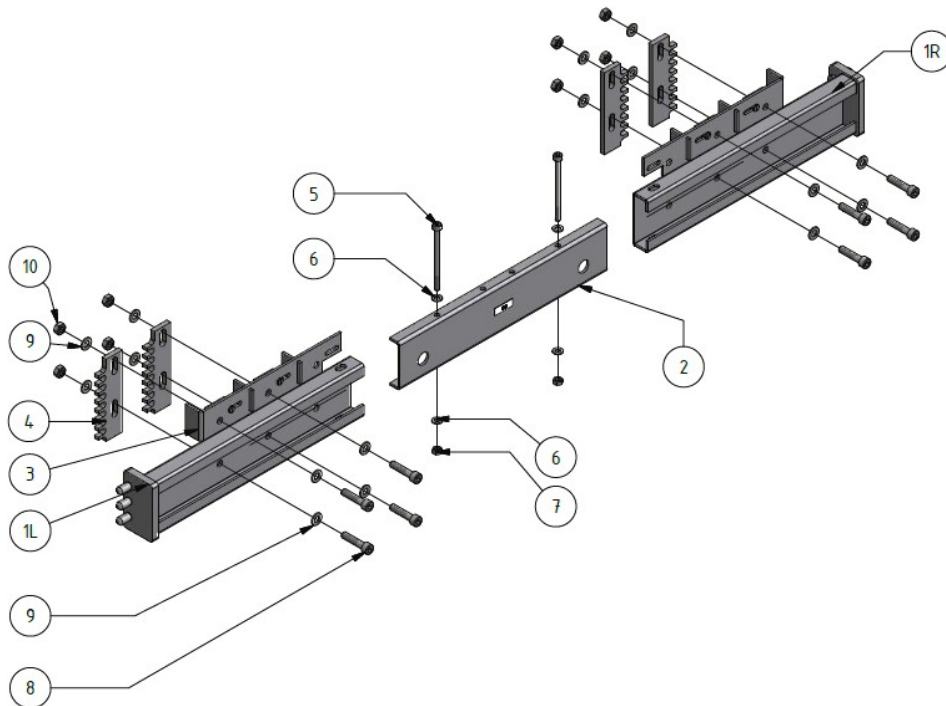


Fig. 40: Taking apart the safety module

- 2 Connect the left connecting piece (1L) to the outer hole of the centre linking piece (2) through the screw connection (5), (6), (7). Then push the right connecting piece (1R) onto the centre linking piece (2).

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B7. Installing the locking device (continued)

Step	Task
------	------

- | | |
|---|---|
| 3 | <p>Install the first safety module on the lift (on the service door side) (installation height approx. 1.8 m [70.9 in]):</p> <ul style="list-style-type: none">- First insert the left connecting piece (1L) into the holes on the left supporting tube of the lift.- Then pull the safety module apart and insert the right connecting piece (1R) into the holes on the right side in the right supporting tube of the lift.- Screw the right connecting piece (1R) to the centre linking piece (2) with the screw connection (5), (6), (7). |
|---|---|

Note:

After this installation step, check to make sure that the connecting pieces (1L), (1R) with the linking piece (2) are properly positioned on the supporting tubes and the screw connections (5), (6), (7).

SAFETY INSTRUCTIONS

Attach the locking device!

It is mandatory that you install the first safety module on the upper end of the service door without entering the lift. You may not enter the lift to install the second safety module until after the first safety module has been properly installed on the service door side.



Note

Is it impossible to install the locking device as described or does the locking device not sit correctly?

Do not continue the work. Contact the manufacturer or its authorised representatives.

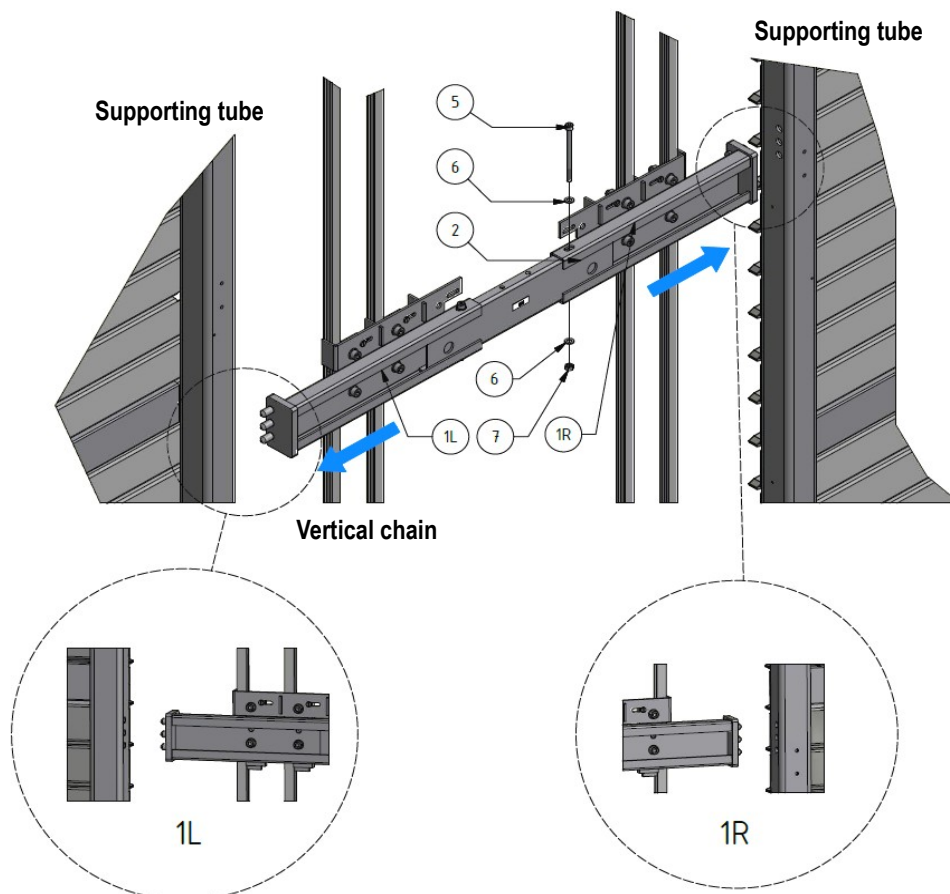


Fig. 41: Inserting the safety module

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B7. Installing the locking device (continued)

Step	Task
------	------

- | | |
|---|--|
| 4 | <p>Install the notched chain holders (4) and attach the chain securing plate (3):</p> <ul style="list-style-type: none">- Push the chain securing plates (3) into the safety position against the vertical chains on both sides.- Insert the notched chain holders (4) into the vertical chains.- Screw two notched chain holders (4) to both the left connecting piece (1L) and right connecting piece (1R) using the screw connections (8), (9), (10). |
|---|--|

Note:

The notched chain holders (4) can be screwed on only after the chain securing plates (3) have been pushed into the safety position against the vertical chains.

The position of the screw head (8) must be taken into account; regarding this, see the figure to the right

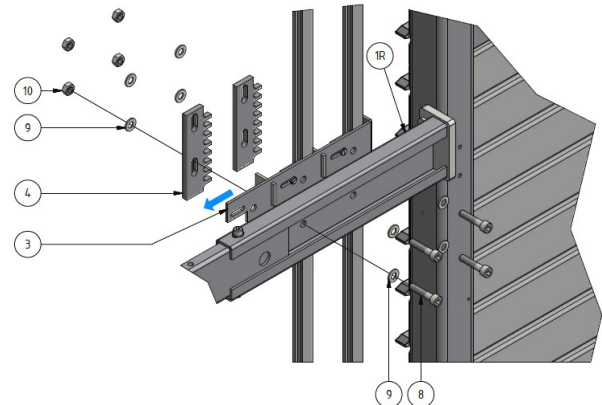


Fig. 42: Installing the notched chain holders and chain securing plate

SAFETY INSTRUCTIONS

Use only high-strength screws!

Using the provided high-strength screws of strength class 12.9, the hex nuts and the washers is mandatory!

Note:

After this installation step, check to make sure that the two chain securing plates (3) and the four notched chain holders (4) at the vertical chains are properly positioned, and that the screw connections have been installed correctly (8), (9), (10).

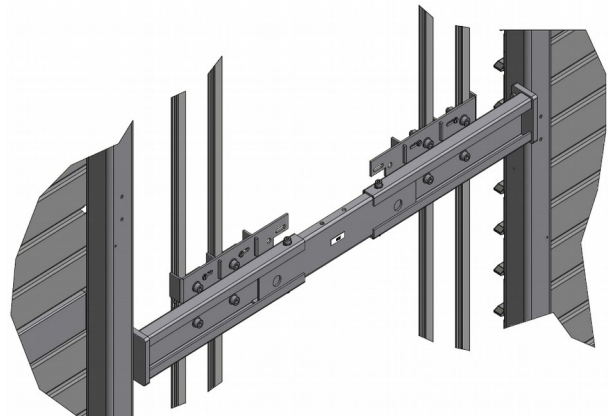


Fig. 43: Finished installation of the safety module with notched chain holders and chain securing plate



Note

Is it impossible to install the locking device as described or does the locking device not sit correctly?

Do not continue the work. Contact the manufacturer or its authorised representatives.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

B7. Installing the locking device (continued)

Step	Task
------	------

- | | |
|---|---|
| 5 | <p>The safety module for the opposite extractor side is stored on the floor of the rear lift shaft.</p> <p>Now remove the second safety module from the bottom of the rear lift tower and check it as described in the previous Section B6.</p> |
|---|---|

Work in the inside of the lift may not be carried out until the two safety modules have been properly installed.



! DANGER

Risk of fatal injury inside the lift!

When installing the locking device, do not move or stand under the extractor before it has been properly secured with at least the safety module on the service door side.

SAFETY INSTRUCTIONS

Attach the locking device!

Install the first safety module on the upper end of the service door without entering the lift. You may not enter the lift to install the second safety module until you have properly installed the first safety module on the service door side. When inside the lift, do not step on covers, cables or the like!

SAFETY INSTRUCTIONS

Entering lifts in the multi-unit network!

Do not enter the multi-unit network until the extractors of all lifts have been secured against falling with securing method A (lower to ground level) or securing method B (locking device)!

For lifts in multi-unit networks, the special safety instructions under Chapter 7.5 also apply.

- | | |
|---|---|
| 6 | <p>Installation of the second safety module at the opposite extractor side:</p> |
|---|---|

Repeat work steps 1 through 4 as described previously.

For lifts in multi-unit networks:

Do not enter the multi-unit network until the extractors of all lifts have been secured against falling with securing method A (lower to ground level) or securing method B (locking device) - see Chapter 7.5.

Operating Manual

Hänel Lean-Lift

7.4 Protection from hazardous, unintended movement of the extractor (continued)

B. Securing the extractor using the locking device (continued)

Uninstalling the locking device

To remove the locking device, proceed as follows:
Start by removing the safety module across from the service door.
To do so, unscrew the screw connections (5), (6), (7), push the safety module together and screw the loose connections back in. Then lay this safety module flat on the floor of the rear lift shaft. There must not be any parts protruding into the extractor shaft or the loadable container supports.

Afterwards, remove the safety module **on the service door side** from outside the lift. To do so, unscrew the screw connections (5), (6), (7) - see Section B7, pull the safety module apart and reinsert all of the screws finger-tight.

In the event that parts of the locking device are damaged, they must be replaced promptly.

Regarding this, contact the manufacturer or its authorised representative.

Insert the safety module on the service door side into the separate storage container and place the container at the provided location on the extractor shaft floor directly behind the service door. There must not be any parts protruding into the extractor shaft or the loadable container supports.

After completing maintenance tasks, you must be sure to follow the safety instructions to the right.

SAFETY INSTRUCTIONS

Lifts in multi-unit networks!

Remove the locking devices in the order in which the areas inside the lift no longer need to be entered.

For lifts in multi-unit networks, the special safety instructions under Chapter 7.5 also apply.

SAFETY INSTRUCTIONS

After completing maintenance tasks

Before establishing operational readiness, ensure the following:

- All maintenance tasks have been properly completed,
- Tools, extraneous parts and any articles that may have fallen have been removed from the lift,
- The locking device, if it was used, has been completely removed and properly stored again,
- There is no longer anyone in the lift,
- The padlock has been removed from the actuator/actuating magnet of the service door safety switch and the service door has been closed,
- Padlocks on the main switch (for lifts in multi-unit networks: all main switches) have been removed again.

Switch on the lift and carry out a lift run (removing/storing a container) to make sure that the lift is ready for operation and the operating panel display does not show any error messages.

Operating Manual

Hänel Lean-Lift

7.5 Lifts in multi-unit networks

Contents

This section contains important information about lifts in multi-unit networks.

Lifts in multi-unit networks

If, in accordance with your order confirmation (part of the technical documentation for the lift), they consist of directly adjacent lifts or lifts in a multi-unit network, then - as a special feature - there is a passageway between the lifts.

Because of this, additional safety instructions must be observed when work is performed on lifts in multi-unit networks.

Service access door for lifts in multi-unit networks

Each time before entering the inside of the lift:

- The extractors of all lifts must be unloaded and secured against falling - for more information, refer to Chapter 7.4.
- The main switches of all lifts must be switched off (to the "0" position) and each secured from being switched on again with a personally assigned padlock.
- For each of all the open service doors, the actuator/actuating magnet of the safety switch must be secured with a personally assigned padlock immediately after it is opened.

In this regard, it is mandatory to observe the following safety instructions!

Working on the electrical system of lifts in multi-unit networks

Even when the main switches have been switched off, there is hazardous voltage at the main switches, at the safety switches of the service doors and at the terminal strip, particularly X1 and F19 (see circuit diagram) in the electrical drawer!

Before working on the aforementioned components of the lift electrical system, always be sure to disconnect the mains power connection and check the components to make sure they are de-energised!



! DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to this Chapter 7.3



! DANGER

Danger due to external voltage for lifts in multi-unit networks!

For lifts in multi-unit networks, hazardous voltage is still present at the following components even when the main switches are switched off:

The main switches with an undervoltage trip, the terminal strip, particularly X1 and F19 (see circuit diagram), in the electrical drawer, on the service door safety switch.

Before working on the aforementioned components of the lift electrical system, always be sure to disconnect the mains power connection and check the components to make sure they are de-energised!

7.5 Lifts in multi-unit networks (continued)

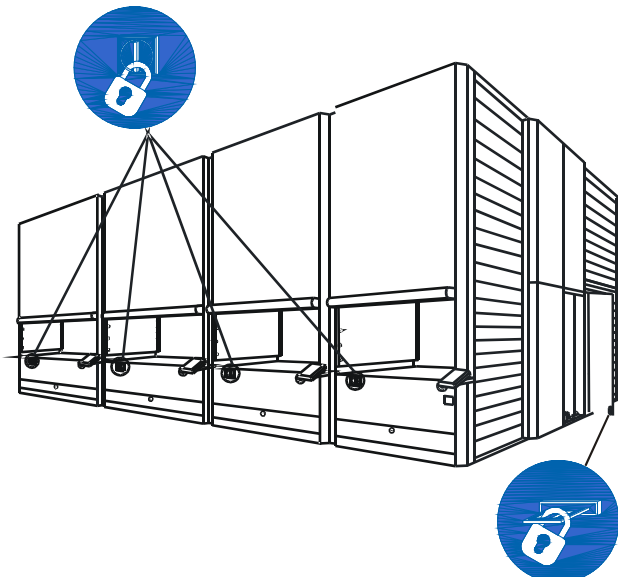


Fig. 44: Securing the main switch and actuator

SAFETY INSTRUCTIONS

Unload and secure all extractors!

Working inside the lift requires that extractors be unloaded and secured against falling for all the lifts in the multi-unit network. Secure all extractors by lowering them to ground level. If this is not possible, you have to secure them using the locking device - regarding this, it is mandatory that you refer to Chapter 7.4.

Completely install each of the locking devices in the order in which the areas inside the lift need to be entered. Always start installation on the service door side.

SAFETY INSTRUCTIONS



Switch off and secure the main switches of all lifts!

Before beginning the work, you must always make sure that the main switches of all lifts have been switched off (to the "0" position) and each secured against being switched on again with a personally assigned padlock.

SAFETY INSTRUCTIONS



Secure the actuator/actuating magnet!

Before any work, secure the actuator/actuating magnet of the safety switch with a personally assigned padlock immediately after opening the service door.



For lifts with 2 service doors, you must secure each open service door with the padlock assigned to you.

SAFETY INSTRUCTIONS

After completing maintenance tasks

Before establishing operational readiness, ensure the following:

- All maintenance tasks have been properly completed,
- Tools, extraneous parts and any articles that may have fallen have been removed from the lift,
- The locking device, if it was used, has been completely removed and properly stored again,
- There is no longer anyone in the lift,
- The padlock has been removed from the actuator/actuating magnet of the service door safety switch and the service door has been closed,
- Padlocks on the main switch (for lifts in multi-unit networks: all main switches) have been removed again.

Operating Manual

Hänel Lean-Lift

7.6 Blocked lift run

Contents

Here you will find important information about the "Blocked lift run" fault.

The term "Blocked lift run" is used in this operating manual for a certain type of faults in which the extractor of the lift is mechanically blocked. For the lift run error messages pertaining to a blocked lift run, refer to Chapter 7.11 in this operating manual and to the "Technical Description MP..." for the microprocessor control system.

The "Blocked lift run" faults are faults with a complex fault pattern; for safety reasons, the resolution of these requires special knowledge and skills.

Target group(s) for resolution of the "Blocked lift run" fault:
For an overview of target groups, see Chapter 1.1



DANGER

Risk of fatal injury inside the lift when there is a blocked lift run!

- Stored article that blocks the lift run, other moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- Due to the **risk of fatal injury**, leaning or reaching into the lift through the open service door as well as entering the lift and being under the extractor are strictly prohibited until the blockage has been eliminated!
- Due to the increased danger of falling items, the locking device must not be installed when there is a blocked lift run!
- For safety reasons, work to resolve a fault must never be done underneath the extractor.
- Work inside the lift when there is a blocked lift run may only be done by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level. In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires a special qualification and a second person that can render help immediately in an emergency; for more information, refer to Chapter 7.3



Operating Manual

Hänel Lean-Lift

7.6 Blocked lift run (continued)

Removing blockages

There may be many reasons for a blocked lift run.

First, always try to resolve the lift run fault from outside the lift using the error message on the lift display as described in the specifications for fault resolution in Chapter 7.11 of this operating manual and in the "Technical Description MP..." for the microprocessor control system.

If the fault cannot be resolved in this way, in all probability there is a mechanical blockage. For safety reasons, **only specially trained specialists of the manufacturer or representatives authorised by the manufacturer** (e.g. Hänel after-sales service) may remove the blockage. The specialists require an appropriate Hänel certification level corresponding to the scope of the work. In this regard, observe Chapter 7.1.

Auxiliary equipment provided by the owner/operator for resolving faults

If the lift run is blocked in one area that you can no longer access from the ground, the following auxiliary equipment is required:

- Raised working platform, alternatively scaffolding or stair tower for access to the lift at height

In addition, due to work at heights, it may be necessary to use industrial climbers.

After completing maintenance tasks, you must be sure to follow the safety instructions to the right.

Lifts in multi-unit networks

For lifts in multi-unit networks, Chapter 7.5 additionally contains version information, warnings and safety instructions, which absolutely must be observed.

SAFETY INSTRUCTIONS

Working only above the extractor

For safety reasons, work to resolve a fault must only be done above the extractor. Observing statutory workplace safety and accident prevention regulations is mandatory.

No use of the locking device when there is a blocked lift run

Due to the increased danger of falling items, the locking device must not be installed when there is a blocked lift run!

SAFETY INSTRUCTIONS

After completing maintenance tasks

Before establishing operational readiness, ensure the following:

- All maintenance tasks have been properly completed,
- Tools, extraneous parts and any articles that may have fallen have been removed from the lift,
- The locking device, if it was used, has been completely removed and properly stored again,
- There is no longer anyone in the lift,
- The padlock has been removed from the actuator/actuating magnet of the service door safety switch and the service door has been closed,
- Padlocks on the main switch (for lifts in multi-unit networks: all main switches) have been removed again.

Switch on the lift and carry out a lift run (removing/storing a container) to make sure that the lift is ready for operation and the operating panel display does not show any error messages.

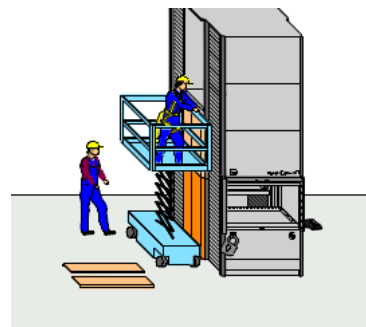


Fig. 45: Example: auxiliary equipment for resolving faults

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift

Contents

Here you will find important information about the regular safety-related inspection of the lift.

A safety inspection of the lift is required at least once a year to ensure safe operation of the lift at all times. These safety inspections are used in part to determine whether the respective condition of the lift still meets the applicable safety requirements and whether service and/or repair measures are necessary.

Target group(s) for carrying out the regular safety inspection of the lift:	
For an overview of target groups, see Chapter 1.1	
	
	Only with corresponding training from the manufacturer or its authorised representatives. A corresponding qualification in accordance with this Chapter 7.7 is mandatory!

Carrying out the safety inspection

In addition to general technical qualifications and vocational experience, carrying out the safety inspection requires specialised, recently acquired knowledge of the applicable lift system and applicable workplace safety and safety instructions!

Service technicians from the manufacturer and authorised representatives undergo comprehensive training in carrying out safety inspections on Hänel lifts and can promptly carry out safety-related service and/or repair measures using original spare parts if necessary.

If the owner/operator tasks someone other than personnel authorised by the manufacturer with carrying out a safety inspection, the owner/operator's shall be liable for the inspection! The owner/operator, and the personnel assigned by the owner/operator if applicable, must ensure that the lift is in a safe and functional state after concluding the safety inspection. If the safety inspection is not carried out, is not carried out in a timely manner or is carried out by insufficiently qualified persons or persons not authorised to do so by the manufacturer, this lies solely in the area of responsibility of the owner/operator and results in a corresponding liability exemption for the manufacturer!



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.

WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

Scope of inspection and inspection records

The following checklist (refer also to the "F-SICH3" document in the technical documentation of the lift) for the scope of the regular safety inspection is based on the requirements of EN 15095.

All safety inspections must be documented - you will find the preprinted form of an inspection record for this in Annex C3.

Depending on the applicable laws in the country of use, the periods and the scope of the safety inspections may vary. Therefore, the applicable regulations of the country of use always take precedence, particularly those pertaining to the earth wire and insulation test.

Operating time of the system _____ h Run cycles of the system _____

1.	Mechanical system and documentation	(extract)	Evaluation Requirements fulfilled
1.1	Design <i>For general proper working condition, including the operating conditions (loaded - unloaded) and assessment of the ambient conditions (e.g. space requirements - temperature - humidity) and intended use according to the Operating Manual.</i>	Check	Yes ☐ No ☐
1.2	Deflection <i>for greater than permitted material load of structural components (e.g. deflection of containers). No overload found.</i> <i>The lift is loaded.</i> <i>The container surfaces are sufficiently evenly loaded.</i> <i>(Otherwise, check <u>all</u> containers and reduce the load(s) accordingly)</i>	Check (if the lift is loaded) Yes ☐ No ☐ Yes ☐ No ☐	Yes ☐ No ☐ Yes ☐ No ☐
1.3	Stability <i>for plumb installation, with structural reinforcement provided by the owner/operator where necessary (see the operating manual, Chapter 7.14 Technical Data for "Lift anchoring provided by owner/operator").</i> <i>Lift height: m</i> <i>Anchoring provided by owner/operator / anchoring of the lift required.</i> <i>Anchoring provided by owner/operator / anchoring of the lift is present.</i>	Check Yes ☐ No ☐ Yes ☐ No ☐	Yes ☐ No ☐ Yes ☐ No ☐
1.4	Installation Instructions and Operating Manual <i>That it is present in the local language. The information must be complete and guarantee safe operation according to the intended use.</i>	Check	Yes ☐ No ☐
1.5	Securing against falling out or down <i>for loose or inadequately secured inner equipment of the containers. All protruding articles (such as storage boxes) are detected by light barriers.</i>	Check	Yes ☐ No ☐
1.6	Safety signs <i>for compliance with the document "SiSCHI-LL".</i>	Check	Yes ☐ No ☐

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

1.	Mechanical system and documentation	(extract)	Evaluation Requirements fulfilled
1.7	Signs <i>Whether the information from the Operating Manual that is essential for safe operation is attached to the outside of the lift in a clearly legible and permanent manner. (see "Safety instructions" sign)</i>	Check	Yes ☐ No ☐
1.8	Securing of hazard areas <i>whether equipment such as sliding doors, service openings, panelling or structural extensions can only be removed using a tool and/or are electrically locked. When there are multiple access points, only one may be open or active. <u>Only for multi-unit set-ups:</u> Are shaft panelling and intermediate panels present for all lifts?</i>	Check	Yes ☐ No ☐
1.9	Protection against hazardous movements <i>for prevention of hazard areas such as crush or cut points. It must not be possible to reach above or below safety devices.</i>	Check	Yes ☐ No ☐
1.10	Inner equipment <i>for prevention of hazardous conditions caused by loose/unsecured inner equipment.</i>	Check	
1.11	Vertical chains / drive and connecting shafts <i>For damaging abrasion and scratch marks, cracks or missing parts and adequate lubrication.</i>	Check	Yes ☐ No ☐
1.12	Type plate <i>for minimum specifications such as the manufacturer name, model year, commission number, total load (in accordance with EN 15095), container load (compartment load in accordance with EN 15095) and electrical specifications: connection values, conductor cross-sections & safeguards provided by the customer. (not available until model year 2006).</i>	Check	Yes ☐ No ☐
1.13	Service access <i>Is there an access door for service work on the Lean-Lift at the bottom and top?</i>	Check	Yes ☐ No ☐
1.14	Extractor alignment & stop position <i>Inspect whether the vertical extractor alignment relative to the side parts and the vertical extractor holding position are correctly adjusted as described in the installation instructions.</i>	Check	Yes ☐ No ☐
1.15	Extractor (only for extractor with rollers) <i>Clamp present for all extractor rollers on the extractor? Also see Spare parts price list LL-237.</i>	Check	Yes ☐ No ☐
1.16	Base <i>Has the bottom frame been checked to ensure it is supported by shims in the areas where the rectangular tubes, drives and chain wheels are located?</i>	Check	Yes ☐ No ☐
1.17	Visual inspection of locking device <i>Both locking devices are housed properly and completely in the provided storage container and have no missing parts, deformations or damage.</i>	Check	Yes ☐ No ☐

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

2.	Electrical system	(extract)	Evaluation Requirements fulfilled
2.1	General notes <i>for proper installation and equipment of the system. Safety-related parts must be suited to the application or bear a corresponding certification mark.</i> <i>Visually inspect the wiring and measure the</i> <i>a) Protective earth resistance and b) insulation resistance</i> <i>in accordance with "DIN VDE 0701-0702" or "EN 50110-1". Documentation of the values.</i> <i>When working on the electrical system, follow the safety instructions.</i>	Check	Yes ☐ No ☐
2.2	Main switch (including main service switch) <i>For good visibility, good accessibility and ability to be locked.</i> <i>All service access doors that are not visible from the access point are secured by main service switches or service door switches.</i>	Check	Yes ☐ No ☐
2.3	Main service switch (duplicated where applicable) <i>for good visibility, good accessibility and ability to be locked.</i> <i>All service access doors that are not visible from the access point are secured by main service switches.</i> <i>When the main service switch is switched off, operation of the lift is not possible.</i>	Check	Yes ☐ No ☐
2.4	Vertical motor - current load <i>the motor current during the upwards movement of a loaded container:</i> <i>Motor current "M1" A Estimated load weight kg</i>	Check	Yes ☐ No ☐
2.5	Safety devices <i>the safety light barriers or safety light barrier curtain with integrated start-up testing (ESPE type 4 in accordance with EN 61496-1).</i> <i>Inspection carried out with test bar ☐</i> <i>[As described in the operating or technical instructions of the manufacturer]</i>	Check	Yes ☐ No ☐
2.6	Control and monitoring devices <i>for good accessibility and clear and permanent labelling.</i>	Check	Yes ☐ No ☐
2.7	Operating PC as control position <i>directly (for example on a pivoting arm) at the access opening ☐</i> <i>and with a clear view to the access opening</i> <i>or at another location in connection with a light curtain barrier ☐</i> <i>at a distance in front of the input/access opening</i> <i>or at another location in connection with an electrically locked sliding door ☐</i>	Check	Yes ☐ No ☐ Without PC ☐
2.8	Lighting (optional) <i>for adequate illumination and protection from possible mechanical damage.</i> <i>Option not available ☐</i>	Check	Yes ☐ No ☐
2.9	Emergency control devices <i>For proper function at all access points (emergency stop or red/yellow main switch).</i>	Check	Yes ☐ No ☐
2.10	Coupling of panelling <i>For example, near the service door switches.</i> <i>For "setting up multi-unit networks", this must automatically switch off the main switch of each lift so that it cannot be switched on again.</i>	Check	Yes ☐ No ☐

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

2.	Electrical system	(extract)	Evaluation Requirements fulfilled
2.11	Container weighing device at the access point (if present)	Check	Yes ☐ No ☐
	<i>Note:</i> Check the fault memory / log of lift run errors for the container weighing device. <i>In the access point</i> In accordance with Hänel Installation Instructions "INST/INSTWIEG", Chapters 5 and 6 Reference dimension [E]: mm Standard dimension [C]: mm <i>At the access point with automatic container ejector</i> in accordance with Hänel Installation Instructions "INST/LL-AWieg", Chapter 5 and 6 <i>On the extractor</i> as described in the Hänel Installation Instructions "INST/ExtWieg", Chapters 6 and 7 Weighing a weight of kg in accordance with the above-mentioned Hänel Installation Instructions: Measured values at 4 corners [1] kg [2] kg [3] kg [4] kg		
2.12	Residual current circuit breaker (optional)	Check	Yes ☐ No ☐
	A residual current circuit breaker is present Yes ☐ No ☐ Actuating the test button must cause the residual circuit breaker to trigger. NOTE Various optional circuits, such as power sockets or lighting, can be equipped with a residual current circuit breaker.		
2.13	Fault memory / log of lift run errors	Read out and evaluate	Yes ☐ No ☐
	<i>Note:</i> To do so for "MP12N" control systems (~ 2012 or later), save the "Log of lift run errors" locally with the JUMP software using the "Download" function. "Run error statistics" created using the "Open data backup" and "Configuration of the display" functions ☐		

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

3.	For work on electrical systems		
----	--------------------------------	--	--

the following safety measures, among others, must be followed:

- It must be carried out by a qualified person (described in "TRBS 1203 Part 3" or "NFPA 70" - Qualified person -).
- Suitable measuring instruments (according to EN 61557), measurement conditions and circuits must be used. Regular function checks of the devices are required.
- The systems must be de-energised (for example, by switching off the main switch).
Caution:
For lifts with the "Main switch with undervoltage trip" feature, voltage is still present at the corresponding terminals (see circuit diagram)!
- The de-energised state must be secured (for example, by locking the main switch).
- The system must be earthed and short-circuited (where necessary).
- Cover or block off neighbouring live parts.

For the sequence of the required tests of the primary circuits, refer to

»EN 60204-1«	Electrical equipment of machines (Section 18) (for putting into service for the first time) or
»EN 50678, EN 50699«	Repair - Change - Testing or the
»EN 50110-1«	Operation of Electrical Installations (here, for periodic inspections with a fixed connection)
Measuring device inspection	Carry out function testing before starting measurements, observing these limit values of the test dummy: PE: 0.05 0.15 Ω ISO: 1.95 2.05 MΩ The reference point is connected to the test dummy terminal "PE2" using the alligator clip. The test probe is connected to the "PE" test point to carry out the earth wire self-test and is connected to the "ISO" test point to carry out the insulation resistance self-test.
Visual inspection	For suitability for intended use. Assess the condition of the mains supply line and cabling of the entire electrical system. Damaged cables or wires must be replaced immediately. The lift must not be switched on again and put into operation until after the replacement.
Earth wire resistance	≤ 0.1 Ω Company requirement for fixed connections If extensions are present, carry out a measuring line compensation.
Insulation resistance	≥ 1 MΩ at 500 V The measurement of the system can be carried out partially.

Amend the specified measuring points and areas to be measured according to the electrical equipment.

If the required measured values are not complied with, the cause must be determined immediately and be corrected by a corresponding repair if necessary!

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

Where applicable, enter other required test points into the blank fields.

Area — Location		Earth wire resistance [Ω]
Access side, panelling	Left	
	Right	
	Area of main switch	
Drive motor, PE contact	Vertical	
	Horizontal	
Access point	Bottom access point cover	
	Roller guide rails (if present)	
Power socket, PE contact of peripheral device. . . .	Barcode reader	
	Printer	
Lighting (optional), PE contact	Lamp 1	
	Lamp 2	
	Lamp 3	
	Lamp 4	

Measuring device	ID / serial No.	calibrated up to:

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

Important points when measuring the insulation resistance (after de-energising the system):

*The "Z4" input filter must be disconnected from the de-energised circuit.
(This filter displays a measured value < 1 MW due to the integrated capacitors!)*

The following parts should be disconnected from the de-energised circuit (and bypassed if necessary):
Unit control systems, lighting fixtures (using power contactors) and all connected peripheral devices (pull the plugs).

Load circuits must be connected through, for example by actuating all load contactors and protective motor switches.

Contacts of fuses and circuit breakers must be closed. Alternatively, a partial test can be carried out. Before the test, be sure to check the contact assignment of the electrical system by comparing it with the respective circuit diagram.

Where applicable, enter other required test points into the blank fields.

Location		Area of the circuit		Insulation resistance	
from		→	to		[MΩ]
X0	Terminals 1 to 4	→	Q1	Main switch with motor protection (new)	
		→	Q2/Q1	Main switch and motor protection (old)	
		→	X1	Terminals 9.....11 (new) Terminals 10.....12 (old)	
Q2	Main switch	→	T1	Transformer	
Q1	Protective motor switch	→			
		→			
		→	*K0	Power contactor	
		→		Pow.unit	
		→	U1	Frequency converter (input)	
U1	Frequency converter (output) /	→	K1 K2	Motor contactor	
Z3	Output filter	→		Motor contactor	
K1 K2	Motor contactor(s)	→	M1	Vertical drive motor	
		→	M2	Horizontal drive motor	
		→	*M3	Drive motor	

* Optional depending on equipment

Operating Manual

Hänel Lean-Lift

7.7 Regular safety inspection of the lift (continued)

After the inspection is passed

After the safety inspection is successfully completed, it is to be documented in the technical documentation for the lift.

After the safety inspection has been successfully completed by a specially trained and authorised specialist (of the manufacturer or its authorised representatives), the inspection sticker to the right is attached.

The next inspection date is marked on it.

The sticker is attached in the access point on the right side of the side panel or the short operating instructions.

When there are multiple access points, the sticker is attached to the first access point only.

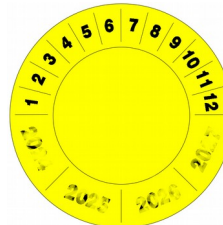


Fig. 46: Hänel inspection sticker (worldwide)

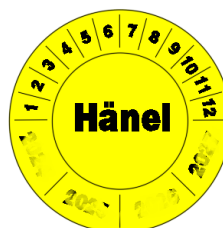


Fig.47: Hänel inspection sticker (Germany, Switzerland, the Netherlands)

Operating Manual

Hänel Lean-Lift

7.8 Regular service inspection of the lift

Contents

Here you will find important information about the regular service inspection of the lift.

An annual service inspection of the lift is required to continuously maintain the status and value of the lift and to avoid damage and subsequent lift failures. This service inspection is used in part to determine comprehensively whether any service and/or repair measures are required.

Target group(s) for carrying out the regular service inspection of the lift:	
For an overview of target groups, see Chapter 1.1	
	
	Only with corresponding training from the manufacturer or its authorised representatives A corresponding qualification in accordance with this Chapter 7.8 is mandatory!

Carrying out the service inspection

In addition to general technical qualifications and vocational experience, carrying out the service inspection requires specialised, recently acquired knowledge of the applicable lift system and applicable workplace safety and safety instructions!

Service technicians from the manufacturer and its authorised representatives have undergone comprehensive training in carrying out service inspections on Hänel lifts and can promptly carry out safety-related service and/or repair measures using original spare parts if necessary.

If the owner/operator tasks someone other than personnel authorised by the manufacturer with carrying out a service inspection, the owner/operator shall be liable for the inspection! The owner/operator, and the personnel assigned by the owner/operator if applicable, must ensure that the lift is in a safe and functional state after concluding the service inspection.

Scope and documentation of the service inspection

The required scope of a service inspection can be found in the following checklist (refer also to the "F-SICHB4" document in the technical documentation for the lift).

All service inspections which are undertaken must be documented; see Annex C (Test Book).



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.

WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

Operating Manual

Hänel Lean-Lift

7.8 Regular service inspection of the lift (continued)

1.	Mechanical system	Evaluation Requirements fulfilled
1.1	Signs <i>In the local language with the essential information from the Operating Manual are attached to the outside of the lift in a clearly legible and permanent manner. (see "Brief operating instructions" sign)</i>	Yes ☐ No ☐
1.2	Safety signs <i>Are present and fully intact in compliance with the current "SiSchi-LL" document.</i>	Yes ☐ No ☐
1.3	Installation and operation conditions <i>Conform to the intended use (loaded - unloaded) and the assessment of the ambient conditions (e.g. space requirements - temperature - humidity)</i>	Yes ☐ No ☐
1.4	Test run <i>For generally functional condition with consideration of the ambient conditions and the intended use according to the Operating Manual.</i>	Yes ☐ No ☐
1.5	Running noise (particularly for bearing units, chain guides) Normal ☐ operating as intended Abnormal → ☐ reason found and corrected ☐	Yes ☐ No ☐
1.6	Drive and carrying chains / drive catch chains <i>Spot-check of chain links carried out at various places. (approx. every 1 to 2 m (3' 3" to 6' 6")) and checked to see if the chain tension is correct. Sufficient lubrication guaranteed for the drive catch guides</i>	Yes ☐ No ☐
1.7	Connecting shafts <i>Check for proper fastening (torque check where applicable)</i>	Yes ☐ No ☐
1.8	Extractor chain wheels / bevel gears <i>Check for deformation or other damage. All fasteners are present and fully functional (secure fit, torque check). Sufficient lubrication is guaranteed for the bevel gears</i>	Yes ☐ No ☐
1.9	Gear motor <i>All fasteners are present and fully functional (secure fit, torque check). The permanent lubrication is ensured. There are no leaks.</i>	Yes ☐ No ☐
1.10	Guide tracks and rollers (vertical guide) <i>Visual and manual check (by running your hand across surfaces) for deformation and damage. Check the position and fit of the supporting roller axis bolts.</i>	Yes ☐ No ☐
1.11	Extractor (only for extractor with rollers) <i>Clamp present for all extractor rollers on the extractor? Also see Spare parts price list LL-237.</i>	Yes ☐ No ☐
1.12	Door locks (of the access points and service access doors) <i>and their keys are present and fully functional.</i>	Yes ☐ No ☐
1.13	Door mechanical system (at the access point) <i>The guides move easily and the cables are fully functional and undamaged.</i>	Yes ☐ No ☐
1.14	Special versions — structural extensions <i>Technical values and specific information about use must be taken from the project-specific operating manual and checked for safe function.</i>	Yes ☐ No ☐

Operating Manual

Hänel Lean-Lift

7.8 Regular service inspection of the lift (continued)

2.	Electrical system		Evaluation Requirements fulfilled
2.1	Wiring <i>The labels of all conductors and terminals are present and correct.</i> <i>The conduits have no sharp edges and moving conductors are in no danger over their entire traverse path.</i> <i>The insulation of conductors, cables and all cable bushings are undamaged.</i> <i>Screw, clamp and plug connectors are in correct position and make secure contact.</i>		Yes ☐ No ☐
2.2	Mains power supply <i>The operating and control voltage, the layout of the mains power line and the motor power consumption conform to the specifications on the order-specific circuit diagram and the lift type plate.</i> <i>Main switch undervoltage trip present for multi-unit networks. Function check carried out at all main switches.</i>		Yes ☐ No ☐
2.3	Control system	<i>Installed control system type</i> <i>All functions (and every storage compartment) can be selected and carried out.</i>	Yes ☐ No ☐
2.4	Protective motor switch <i>Function according to specifications of circuit diagram.</i> <i>Note: For models "Without protective motor switch Q1 in the electrical drawer", the variable protective motor switch is integrated in the main switch.</i>		Yes ☐ No ☐
2.5	Emergency control devices	<i>(including main switches and main service switches)</i> <i>All actuators and switching elements are undamaged and functional.</i>	Yes ☐ No ☐
2.6	Safety devices at all access points <i>The installed light barriers are installed according to their intended use and</i> <i>Self-monitoring light barrier (yellow, ESPE type 4),</i> <i>Self-monitoring light curtain directly in front of the access point (LVS, ESPE type 4),</i> <i>Self-monitoring light curtain at a distance of the access point (LVH, ESPE type 4),</i>	☐ ☐ ☐	Yes ☐ No ☐
2.7	Limit switches / proximity switches / positioning sensors / height detection <i>All installed limit switches, sensors and fill level detection system checked for correct function.</i>		Yes ☐ No ☐
2.8	Display of compartment LEDs	<i>Option not available</i> ☐	Yes ☐ No ☐
2.9	Soil deposits	<i>(in electrical installation spaces or on electrical components)</i> <i>that either mechanically or thermally impairs proper function has been removed, e.g. on fans (FC), light barriers or light curtains.</i>	Yes ☐ No ☐

Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains

Contents

Here you will find important information regarding the maintenance and replacement of drives and chains.

However, Lean-Lifts are designed so that no provision is made for service work on drives and chains. Once wear has reached a certain point, the drives and/or chains have to be replaced.

Target group(s) for work on drives, load-bearing parts and load-carrying equipment:

For an overview of target groups, see Chapter 1.1



Work on drives, load-bearing parts and load-carrying equipment may be performed only by instructed and specially trained specialists of the manufacturer or representatives authorised by the manufacturer; see Chapter 7.1.

The specialists require an appropriate Hänel certification level corresponding to the scope of the work.



! DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3.



Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains (continued)

Drives

General

No provision is made for service work on the drives. Once wear has reached a certain point, the affected drive must be replaced.

Due to risk of fatal injury, work on drives, load-bearing parts and load-carrying equipment may be carried out only by instructed and specially trained specialists of the manufacturer or representatives authorised by the manufacturer. In this regard, observe Chapter 7.1.

The specialists require an appropriate Hänel certification level corresponding to the scope of the work.

All drives consist of an electric motor, gearbox and electro-magnetic brake. Do not separate the drive components, interfere with the operation of the components by hand or modify existing settings. In the event of faults/defects in a drive part, always replace the entire drive.

Installation point of the drives

The vertical drive is located in the extractor shaft behind the service doors on the bottom of the lift.

The horizontal drive is located on the underside of the extractor.

Replacing the drives

In the event of faults/defects in a drive, always replace the entire drive. In this context, the following points in particular must be observed:

- Due to **risk of fatal injury**, work on the drive may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer.
- Before work on the drive is begun, the extractor has to be secured against falling - see Chapter 7.4.
- The drives used in Hänel lifts are special designs. Therefore, when replacing a drive, keep in mind that the drive being replaced may only be replaced with a drive with identical technical parameters (motor power, gear ratio, drive pinion number of teeth, etc.). In this regard, also observe Chapter 6.2.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3.



Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains (continued)

The drives used in Hänel lifts are special designs. Only original Hänel replacement parts may be used for the replacement. Parts from other manufacturers and/or unauthorised installation will result in forfeiture of warranty claims and liability claims against the manufacturer. The drive being replaced may only be replaced with a drive with identical technical parameters (motor power, gear ratio, drive pinion number of teeth, etc.). In this regard, also observe Chapter 6.2.

The service life and the wear of drives are affected to a high degree by individual factors (intensity and duration of the load, environmental factors such as temperature, humidity, etc.). Since drives are safety-related parts, their actual, individual wear should be inspected at regular intervals (as part of the safety inspection, for instance) and worn parts should be replaced as needed. Depending on the intensity of lift use, replacing additional parts may be recommended in this context.



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.



WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains (continued)

Chains

General

Each lift has three different chain sets:

- Vertical chains (four pieces)
- Drive chains (two pieces)
- Extractor chains (two pieces).

Due to risk of fatal injury, work on drives, load-bearing parts and load-carrying equipment may be carried out only by instructed and specially trained specialists of the manufacturer or representatives authorised by the manufacturer. In this regard, observe Chapter 7.1.

The specialists require an appropriate Hänel certification level corresponding to the scope of the work.

Inspecting the chains

The proper status of the chains must be verified at regular intervals, at least once a year, see "Regular safety inspection" - Chapter 7.7.

Do not relubricate chains

All chains are lubricated for life. They must not be relubricated, since the lubricant would significantly contaminate the containers and articles stored in the lift.

Do not retighten the chains manually

It is important to ensure that all chains are taut. The vertical chains have an automatic chain tensioner for this reason. The other chains are installed with pre-tension and cannot be retightened.

If the existing tension on a chain is no longer sufficient, the associated chain set is worn and has to be completely replaced - refer to the following section.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3.



Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains (continued)

Replacing the chains

The service life and the wear of chains are affected to a high degree by individual factors (intensity and duration of the load, environmental factors such as temperature, humidity, etc.). Since chains are safety-related parts, their actual, individual wear should be inspected at regular intervals (as part of the safety inspection, for instance) and worn parts should be replaced as needed. Depending on the intensity of lift use, replacing additional parts may be recommended in this context.

When replacing chains, the following points in particular must be observed:

- Due to **risk of fatal injury**, work on the vertical and drive chains may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. In this regard, observe Chapter 7.1. Before work on the vertical or drive chains is begun, the extractor has to be secured against falling with a special method. The securing methods described in Chapter 7.4 must not be used if a vertical chain or drive chain is opened or work is performed on chain wheels!
- The chains used in Hänel lifts are special designs. Only original Hänel replacement parts may be used for the replacement. Parts from other manufacturers and/or unauthorised installation will result in forfeiture of warranty claims and liability claims against the manufacturer. Chains being replaced may be replaced only with chains that have identical technical parameters (chain rigidity, type of construction, dimension, number of chain links, length tolerance, lubrication, etc.). The chains must not be shortened and no offset chain links can be used. In addition, observe the following section and Chapter 7.12.
- If a chain is worn out, the respective chain set has to be replaced (both chains for drive and extractor chains; all four chains for vertical chains).



DANGER

Risk of fatal injury when opening vertical/drive chains!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Before work on the vertical or drive chains is begun, the extractor has to be secured against falling with a special method. The securing methods described in Chapter 7.4 must not be used if a vertical chain or drive chain is opened or work is performed on chain wheels!



WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

Operating Manual

Hänel Lean-Lift

7.9 Replacing drives and checking/replacing chains (continued)

Replacing the chains (continued)

Name of the chains	Lift height	Lift type 250, Container width up to 3260	Lift type 500 and 700, Container width up to 3260	Lift type 1000, Container width up to 3260	Quantity
Extractor chain With increased rigidity and limited tolerance	All	Duplex roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-2 Depending on the lift spacing 25 (0.98"), 37.5 (1.48"), 75 (2.95"), 90 (3.54"), 125 (4.92")	Duplex roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-2 Depending on the lift spacing 37.5 (1.48"), 75 (2.95"), 90 (3.54"), 125 (4.92")	Duplex roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-2 Depending on the lift spacing 75 (2.95"), 90 (3.54"), 125 (4.92")	2
Vertical chain With increased rigidity and limited tolerance	≤ 15 m	Single roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-1	Single roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-1	Single roller chain ISO 606 3/4"-ANSI60H-1	4
	> 15 m	Single roller chain ISO 606 3/4"-ANSI60H-1	Single roller chain ISO 606 3/4"-ANSI60H-1	-	4
Drive chain With increased rigidity and limited tolerance	≤ 15 m	Single roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-1	Single roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-1	Single roller chain ISO 606 3/4"-ANSI60H-1	2
	> 15 m	ES Single roller chain ISO 606 3/4"-ANSI60H-1 HS Single roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-1	ES Single roller chain ISO 606 3/4"-ANSI60H-1 HS Single roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-1	-	2
The chains listed above are lubricated for life with a special wax in consideration of the risk of contaminating stored articles.					

Name of the chains	Lift type 500 and 700, Container width 3660 to 4460	Quantity
Extractor chain 1 With increased rigidity and limited tolerance	Duplex roller chain DIN 8187/ ISO 606 5/8" x 3/8" 10B-2 Depending on lift spacing 37.5 mm (1.48 in), 75 (2.95 in)	2
Extractor chain 2 (feed chain) With increased rigidity and limited tolerance	Single roller chain DIN 8187/ ISO 606 1/2" x 5/16" 08B-1	2
Vertical chain With increased rigidity and limited tolerance	Duplex roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-2	4
Drive chain With increased rigidity and limited tolerance	Duplex roller chain DIN 8187/ ISO 606 3/4" x 7/16" 12B-2	2
The chains listed above are lubricated for life with a special wax in consideration of the risk of contaminating stored articles.		

Operating Manual

Hänel Lean-Lift

7.10 Relubricating the lift

Contents

Here you will find important information for the required regular lubrication work on lift components.

Target group(s) for performance of relubrication work:	
For an overview of target groups, see Chapter 1.1	
	

Relubrication work constitutes work on drive components, load-bearing parts and load-carrying equipments, and for this reason it may be performed only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer.

In this regard, observe Chapter 7.1.

Improper or faulty relubrication can result in substantial technical faults and to impairment of the safety concept of the lift.

Each time before work inside the lift is begun, the extractor (for lifts in multi-unit networks: all extractors - see also Chapter 7.5) must always be secured against hazardous, unintended movement with a method described in Chapter 7.4. In the event of a blocked lift run, it is mandatory to observe Chapter 7.6 !

The lift is designed so that the majority of components are lubricated for life and do not have to be relubricated. In the event of wear, the respective components have to be replaced, see Chapter 7.9:

- All of the chains in the lift are lubricated for life. Any added lubricant on the chains would be spun off during operation and thus would contaminate the containers and stored articles.
- All of the drives are lubricated for life. Interacting with the lubrication on the drives can lead to function errors and is not permitted.
- The plastic sliders on the containers have special sliding characteristics and must not be lubricated. Lubricant impairs the sliding characteristics and can ruin the plastic sliders.

The following components of the lift must be checked for adequate lubrication at least once a year and be relubricated if necessary:

- Bevel gears of the extractor
- Guides for the sliding blocks of the extractor chains.

These are likewise the only components that may be relubricated.



DANGER

Risk of fatal injury when doing relubrication work inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Relubrication work constitutes work on drives, load-bearing parts and load-carrying equipment, and it may be performed only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Improper or faulty relubrication can result in substantial technical faults and to impairment of the safety concept of the lift.



WARNING

Burn hazard inside the lift!

The drives can become very hot during operation. Therefore, burns are possible if contact is made with these parts.

SAFETY INSTRUCTIONS



Switch off and secure the main switch!

Before beginning the work, you must switch off the main switch(es) and secure them from being switched on again with a personally assigned padlock.

Operating Manual

Hänel Lean-Lift

7.10 Relubricating the lift (continued)

Do not relubricate drives

The drives are lubricated for life. Tampering with the lubrication can lead to malfunctions and is not permitted. In the event of wear, the respective components have to be replaced, see Chapter 7.9.

Technical information about the drives

Leroy Somer drives

Lubricant in the gearboxes:

Mobil SHC 634

Gearbox type depending on the lift version:

2201, 2501, 2601

Respective lubricant quantity in accordance with the manufacturer's specification.

You can also obtain information about the drive at the website of the manufacturer: www.leroy-somer.com.

SEW drives

Lubricant in the gearboxes:

Klüber-Synth GH 6-680 CLP PG 680

Gearbox type depending on the lift version:

S32, S37, S47

S62, S67, S77, S87

Lubricant in the gearboxes:

SEW GearOil Poly 460 E1 CLP PG 460 Synth

Gearbox type depending on the lift version:

S77p, S87p

The respective specification on the type plate of the drive applies

Respective lubricant quantity in accordance with the manufacturer's specification.

You can also obtain information about the drive at the website of the manufacturer: www.sew-eurodrive.de.

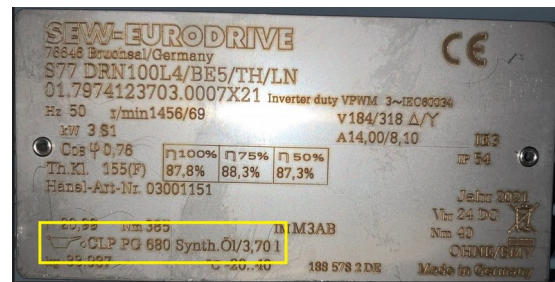


Fig. 48: Example of type plate for SEW drive

Relubrication of bevel gears and guides

The following lubricants are to be used exclusively:

- **Bevel gears of the extractor**
Lubricant: Klüberplex AG 11-462 (Klüber)
Ordering information: LL-501
- **Guides for the sliding blocks of the extractor chains.**
Lubricant: Klüberbtop SK 01-205 (Klüber)
Ordering information: LL-500

Lubricants must be applied in a thin and even coat

You can obtain the required lubricants from the Hänel factory or one of the Hänel representatives.

Other lubricants are not permitted!

Operating Manual

Hänel Lean-Lift

7.11 Correcting faults

Contents

Here you will find a list of possible faults during operation and options for correcting them.

Target group(s) for correcting faults:	
For an overview of target groups, see Chapter 1.1	
	
	Only with corresponding training from the manufacturer or its authorised representatives. Only in a <u>limited scope</u> as described in Chapter 7.11.
	Regarding training and instruction of the operating personnel / maintenance personnel, also see Chapter 7.1.

Working inside the lift includes all work that requires leaning into or reaching into the lift and/or being inside the lift.

Before the aforementioned target groups may perform work inside the lift, they must be familiar with:

- The information contained in **Chapter 1** (Introduction), particularly target groups and personnel requirements;
- The information contained in **Chapter 3** (General safety), particularly the signal words and warning colours, warning symbols and note symbols used;
- The information contained in **Chapter 4** (Safety equipment on the lift), particularly the location and function of the safety equipment;
- The information contained in **Chapter 5** (Lift operation), particularly the information on establishing operational readiness and proper loading;
- All of the information contained in this **Chapter 7** (Service and maintenance)!



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.



- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes. Work at heights requires special qualification; for more information, refer to Chapter 7.3



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations. Voltage is present at the mains supply terminals in the control unit even when the main switch is switched off.

Operating Manual

Hänel Lean-Lift

7.11 Correcting faults (continued)

List of possible faults

For more information on possible faults, refer to the "Lean-Lift User Guide" and the "User Guides for the MP 12... and MP 14... Control Systems".

In the event of error messages, follow the operator prompts shown on the display.

Note:

If a fault cannot be corrected with the following list of measures from outside the lift - without leaning into, reaching into or being in the lift - the fault has to be corrected by instructed and specially trained and authorised personnel (such as Hänel after-sales service) - for more information, refer to Chapter 7.1.

Hänel after-sales service requires the commission number as shown on the type plate and the error display on the lift display if applicable.

Fault	Possible cause of the fault	Solution for the fault from outside the lift:
Dark display, Lift cannot be moved	No supply voltage is present.	 From outside the lift by a person authorised by the supervisory personnel of the owner/operator: Check that the main switch is switched on. Switch it off and back on if necessary.
		 From outside the lift by a suitable electrically skilled person authorised by the owner/operator: - Check whether all fuses on the mains side are in good condition. - Check whether all of the short-circuit overload protectors in the electrical drawer are switched on. - Check that all fuses on the electronic control system are functioning properly (see the "Circuit diagrams for the MP CPU I+II, power component, safety component I, Lean-Lift auxiliary board, lighting") - Examine the electrical system according to circuit diagram for a short-circuit.
		 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift
Display with error message, "Critical error /....." or "lift run error / System error"	Defect in the lift control system, also safety-related	 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift

Operating Manual

Hänel Lean-Lift

7.11 Correcting faults (continued)

Fault	Possible cause of the fault	Solution for the fault from outside the lift:
Display with error message, "Lift run error /" Lift cannot be moved or stops suddenly	The safety circuit has been interrupted. Refer to MP user guide, Chapter "Error messages" or "Fault messages during lift run", For example: Safety light curtain or safety light barriers triggered, service door not sealed properly, emergency stop or stop key pressed	 From outside the lift by a person authorised by the supervisory personnel of the owner/operator: • Check for objects in the area of the access point monitored by the safety light curtain or safety light barriers. • Check that the service door is sealed properly. • Check whether the emergency stop button is disengaged. • Check whether the sliding door is open as far as it will go. Enable operational readiness at the operating panel by pressing the "Return" key.
		 From outside the lift by a suitable electrically skilled person authorised by the owner/operator: • Checking safety equipment according to the circuit diagram
		 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). • For working inside the lift
	Incorrect signal from proximity switch in the access opening	 From outside the lift by a person authorised by the supervisory personnel of the owner/operator: • Check that the container is positioned correctly in the access opening.
		 From outside the lift by a suitable electrically skilled person authorised by the owner/operator: • Clean the proximity switch button in the access opening. • Check that the proximity switch is working correctly.
		 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). • For working inside the lift

Operating Manual

Hänel Lean-Lift

7.11 Correcting faults (continued)

Fault	Possible cause of the fault	Solution for the fault from outside the lift:
Display with error message "Lift run error / Motor overloaded", Lift stops suddenly	Container is overloaded. Refer to MP user guide, Chapter "Error message during lift run",	 From outside the lift by a person authorised by the supervisory personnel of the owner/operator: In instances of the "Lift run error / Motor overloaded 7" error message, there may not be a fault on the lift; instead, the container may be overloaded. Try to move the container back to the access opening as described in the MP user guide and reduce the weight of stored articles in the container. If the error message cannot be cleared this way:  Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift
	Defect/blockage in the mechanical system of the lift e.g. stored article have blocked the lift run inside of the lift	 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift
Stored articles have fallen in the lift	One or more containers have been loaded incorrectly.	 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift
Individual containers can no longer be stored/retrieved Display with error message	Refer to MP user guide, Chapter "Error message during lift run",	 From outside the lift by a person authorised by the supervisory personnel of the owner/operator: Try to correct the fault as described in the MP user guide. If the error message cannot be cleared this way:  Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift
Lift makes excessive noise during operation Lift jerks when starting up	There is a defect or fault in the mechanical system of the lift or the positioning system	 Correction only by instructed and specially trained and authorised personnel (such as Hänel after-sales service). For working inside the lift

Operating Manual

Hänel Lean-Lift

7.12 Spare parts

Contents

Here you will find important information on spare parts lists and how to order spare parts.

Installation of spare parts may be carried out only if the installation requirements have been met and the safety instructions have been observed. In such cases, observe the corresponding chapter(s) in this Operating Manual, as well as the safety instructions provided with the spare parts.

Necessary ordering information

To process your order quickly and accurately, we need the following information:

- The commission number of the lift (see the lift type plate for example)
- The name or type of the spare part
- The spare part number
- The quantity you are ordering.

Terms of delivery

These terms apply for all spare parts orders:

- Orders placed by telephone must be confirmed in writing.
- Shipment takes place according to our general sales and warranty provisions.

Incorrect deliveries

We shall not be liable for the costs or other consequences that arise from incorrect deliveries in the following cases:

- An order placed by telephone is not confirmed in writing.
- The order does not contain all required information.

Liability and warranty

Only original Hänel replacement parts may be used for replacing parts. Parts from other manufacturers and/or unauthorised installation will result in forfeiture of warranty claims and liability claims against the manufacturer.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control system even when the main switch is switched off.

Operating Manual

Hänel Lean-Lift

7.12 Spare parts (continued)

Available spare parts

Only original Hänel replacement parts may be used for replacing parts. The following spare parts are available:

 Installation/replacement of the following spare parts only from <u>outside the lift</u> by maintenance personnel authorised by the owner/operator! You must observe Chapter 7.1 regarding this!			
Description	Material	Function	Spare part number
Access point			
Roller for drawer at access point for guide rails or transporters	Plastic	Support rollers for containers	LL-112
Plastic limit stop for access point	Plastic	Removal stop-lock for the container	LL-133
Lock with 1 key for sliding door	Steel	Sliding door lock	LL-146
Lighting panel	Steel	Holder for lighting fixture	LL-150
Containers			
Containers	Steel	Storage of articles	LL-400
Miscellaneous			
Touch-up paint	Chemical product	Colour	LL-505

 Installation/replacement of the following spare parts only from <u>outside the lift</u> by maintenance personnel that has additional qualification as an electrically skilled person and is authorised by the owner/operator! You must observe Chapter 7.1 regarding this!			
Electrical/electronic systems			
Only the parts from the electrical system bill of materials (see technical documentation of the lift) that can be replaced from outside the lift.			

Operating Manual

Hänel Lean-Lift

7.12 Spare parts (continued)

	Installation/replacement of the following spare parts inside the lift only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer! You must observe Chapter 7.1 and 7.4 regarding this!		
Description	Material	Function	Spare part number
Electrical/electronic systems			
All of the parts from the electrical system bill of materials (see technical documentation of the lift) that require entering the lift to perform the replacement.			
Access point			
Door cables	Steel	Sliding door suspension	LL-143
Side panel	Steel	Side panel in the access point	LL-130, LL-131
Housing			
Service door	Steel	Panelling section	LL-015, LL-016
Bottom front panel	Steel	Panelling section below the access point	LL-030

Operating Manual

Hänel Lean-Lift

7.12 Spare parts (continued)

	Installation/replacement of the following spare parts inside the lift only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer! You must observe Chapter 7.1 and 7.4 regarding this!		
Description	Material	Function	Spare part number
Vertical drive			
"Vertical" drive unit	Metal, plastic, Chemical product	Drive of the vertical chain	LL-300
Set of vertical chains (4 pieces) complete with chain joint	Steel	Vertical suspension of the extractor	LL-330, LL-331
Set of drive chains (2 pieces) complete with chain joint	Steel	Connecting chains for the vertical chains with the drive	LL-340, LL-341
Coupling element of the vertical drive	Steel	Connection of the drive shaft	LL-310
Drive shaft of the vertical drive	Steel	Connection of the chain wheels	LL-311
Bottom chain wheels	Steel	Chain wheels	LL-317, LL-318
Self-aligning bearing	Steel	Bearing of the drive shaft	LL-319
Top chain wheels	Steel	Chain wheels	LL-321
Extractor			
"Horizontal" drive unit	Metal, plastic, Chemical product	Drive of the extractor chain	LL-200
Set of bevel gears	Steel	Part of the drive train of the extractor chain	LL-214
Set of extractor chains (2 pieces) complete with drive catch/ chain joint	Steel	Horizontal transport chains for the container load/ejection point	LL-217, LL-218
Sliding block	Plastic	Guide blocks under the extractor drive catches	LL-219
Rolling roller of the extractor	Plastic	Support rollers for the container	LL-235
Guide roller of the extractor	Plastic	Guides the extractor during vertical movement	LL-240
Coupling element of the extractor	Steel	Connection of the drive shafts	LL-210
Chain wheel, drive and guide side	Steel	Part of the drive	LL-215, LL-216
Plastic insert for guiding the vertical chain	Plastic	Vertical chain guide	LL-245
Extractor, complete	Steel, plastic, chemical product	Extractor, complete	LL-290

Operating Manual

Hänel Lean-Lift

7.12 Spare parts (continued)

	Installation/replacement of the following spare parts inside the lift only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer! You must observe Chapter 7.1 and 7.4 regarding this!		
Description	Material	Function	Spare part number
Containers			
Container notch, right and left	Plastic	Notch for drive catch on the extractor chain	LL-410, LL-411
Container sliders	Plastic	Sliders on bottom of container	LL-412
Miscellaneous			
Lubricant for extractor bevel gears	Chemical product	Lubricant	LL-501
Lubricant for the guides for the sliding blocks of the extractor chains	Chemical product	Lubricant	LL-500

Operating Manual

Hänel Lean-Lift

7.13 Decommissioning, disassembly and disposal

Contents

Here you will find important information about decommissioning, disassembly and disposal of the lift.

Target group(s) for decommissioning, disassembly and disposal:	
For an overview of target groups, see Chapter 1.1	
	
	Regarding training and instruction of the operating personnel / maintenance personnel, also see Chapter 7.1.

Decommissioning and disassembly

If the lift is still ready for operation, then the owner/operator must remove all articles from the lift before the lift is decommissioned and disassembled.

Decommissioning and disassembly of the lift may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer! There is a risk of fatal injury if decommissioning and disassembly are not done properly! Articles and containers must be completely removed from the lift before it is disassembled!

Furthermore, decommissioning the lift requires that the owner/operator provide an electrically skilled person to disconnect the power supply.

For instructions on disassembling the decommissioned lift, refer to the "Lean-Lift Installation Instructions".

For instructions regarding the required auxiliary equipment to be provided by the owner/operator for disassembly, refer to the "Installation Requirements for the Owner/operator".

Disposal

For instructions on disposal of the decommissioned lift / individual lift parts, refer to the "Lean-Lift Installation Instructions".

That document also lists the materials used.

Legal regulations

Decommissioned lifts / individual lift parts must be disposed of in accordance with the respective national regulations.

If you have questions about proper disposal of individual lift parts, then contact the environmental officer of your company or the environmental/disposal authority responsible for you.



DANGER

Risk of fatal injury when working inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries.
- There is a **risk of fatal injury** when leaning or reaching into the inside of the lift through an open service door and when entering the lift.
- Only instructed and specially trained and authorised personnel may perform work inside the lift - for more information, refer to Chapter 7.1.
- Each time before work inside the lift is begun, the extractor must always be secured against falling with one of the methods described in Chapter 7.4.
- Work on drive components, load-bearing parts and load-carrying equipment may be carried out only by specially trained specialists of the manufacturer or representatives authorised by the manufacturer. The specialists require an appropriate Hänel certification level corresponding to the scope of the work.



- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.
- Work at heights requires special qualification; for more information, refer to Chapter 7.3



DANGER

Danger for unqualified personnel!

- If work on the electrical equipment is not carried out properly, there is a risk of fatal injury! Therefore, these tasks may be performed by qualified electrically skilled personnel only.
- Tasks carried out with voltage present (such as measurements) may be carried out only by qualified and specially trained and authorised personnel in accordance with applicable legal accident prevention regulations.
- Voltage is present at the mains supply terminals in the control system even when the main switch is switched off.

Operating Manual

Hänel Lean-Lift

7.14 Technical data

Contents

Here you will find the technical data for the lift

Name	Value
Permitted ambient conditions	
Ambient temperature / installation altitude / humidity	+5 °C to +40 °C (+41 °F to +104 °F). Max. installation altitude: 1000 m (3281 ft) above sea level. Max. rel. humidity: 50% at +40 °C (104 °F) or 90% at +20 °C (68 °F)
Installation in earthquake zones outside of Germany	Lifts without an additional special agreement are not structurally designed for use in earthquake-prone areas outside of Germany (refer also to the order confirmation and type plate). Erection of a lift in earthquake-prone areas is not permitted without a special additional agreement with the manufacturer!
Outdoor installation	Outdoor installation
Reinforcement provided by owner/operator	Necessary for certain lift types and lift heights - refer also to the order confirmation and type plate (For details, see the Power Supply and Foundation Plan). Lifts with lift width ≤ 3260 starting from a lift height of: 8000 mm [315 in] for the lift type "840-635, 840-825" 10,000 mm [393.7 in] for all other lifts Lift with a lift width > 3260 : - All lifts
General	
Width	See order confirmation
Depth	See order confirmation
Height	See order confirmation
Container dimensions	See order confirmation
Sound pressure level in accordance with DIN EN ISO 11201, Most recent version, measurement with integrated sound-level meter according to IEC 61672-1, Class 1.. The specified value is an emission value and does not simultaneously represent a workplace immission value. Although there is a relationship between emission and immission levels, it is not possible to derive from this whether protective measures for the operator's personnel are needed or not. Factors which can influence the immission level present at the workplace are: the duration of the exposure to sound, the oscillation and reflective properties of the space where the lift is installed, additional noise sources in the space where the lift is installed, the operator's specific lift load, etc. The permitted workplace immission values can vary from country to country.	Equivalent continuous sound pressure level of the lift at the lift workstation. For the operating cycles for loading a container for storage from the access point and retrieving a container from the upper area of a lift tower, with moderate container load: $L_{eq} < 70 \text{ dB(A)}$.

Operating Manual

Hänel Lean-Lift

7.14 Technical data (continued)

Name	Value
Weights	
Max. container load	See type plate and order confirmation
Max. total load of the lift	See type plate and order confirmation
Total weight	See order confirmation
Largest single part weight	See Installation Requirements for the Owner/Operator
Container empty weight	See Power Supply and Foundation Plan

Operating Manual

Hänel Lean-Lift

7.14 Technical data (continued)

Name	Value
Electrical system	
Supply voltage	See type plate and order confirmation
Control voltage	24 VAC
Connected load	See type plate and order confirmation
Nominal power consumption	See type plate and order confirmation
Max. power consumption	1.5 x the nominal power consumption
Internal fuse protection of the unit	See rated current specified on type plate
Fuse protection provided by owner/operator	See Chapter 6.3
Control system type	see order confirmation

Type plate

The type plate is located on the right below the 1st access point. There you can also find information about the electrical drives and the load carrying capacity, which depend on the lift version and the country of use:

Mode:	Duty cycle (max. 100 %)
Phases	Three-phase current
Frequency	Depends on the lift version, owner/operator, and country of use
Supply voltage	Depends on the lift version, owner/operator, and country of use
Power consumption	Nominal power consumption of the lift in (A)
Power:	Connected load of the lift in (kW / HP)
Motor type:	Motor types used for vertical and horizontal drives
Circuit diagram	Document No. of the circuit diagram
*:	Indicates whether or not installation is permitted in earthquake zones outside of Germany.
**:	Note whether anchoring provided by owner/operator is required.
Max. container load: (until 2015: Permitted average container load)	Maximum load of one container depending on the lift version in (kg / lbs)
Max. number of containers:	Maximum number of containers in the lift
Max. total load:	Maximum total load of the lift in (kg / lbs)

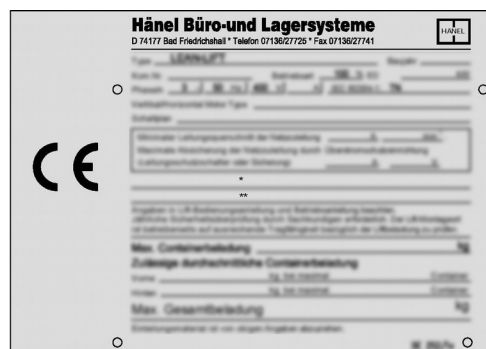


Fig. 49: Type plate

Operating Manual

Hänel Lean-Lift

7.14 Technical data (continued)

Container loading sign

The type plate is located on the right side panel at each access point.

Max. container load: (until 2015: Permitted average container load)	Maximum load of one container depending on the lift version in (kg / lbs)
Max. number of containers:	Maximum number of containers in the lift
Max. total load:	Maximum total load of the lift in (kg / lbs)

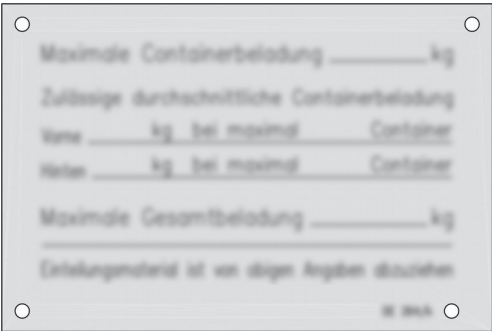


Fig. 50: Container loading sign

Operating Manual

Hänel Lean-Lift

Keyword index

	Page		Page
Accident prevention regulations.....	92	Note symbols.....	22
Additions to the lift.....	11	Openings in the housing.....	68
Antistatic earthing.....	68	Operating elements.....	47
Article height detection.....	42	Operating panel.....	50
Authorised personnel.....	90	Operating personnel.....	12
Automatic container ejector.....	73	Padlocks.....	92
Blocked lift run.....	113	Personal protection.....	95
Chains.....	130	Personal safety equipment.....	93
Change service.....	9	Personnel requirements.....	12
Checking/replacing chains.....	127	Pick-O-Light.....	74
Collision barrier.....	31	Pick-O-Light system.....	74
Container loading sign.....	148	Proper loading.....	59
Containers.....	52	PSE.....	93
Control system.....	79	Reinforcement provided by owner/operator.....	145
Decommissioning.....	144	Relubricating the lift.....	133
Disassembly.....	144	Remote control.....	68
Disposal.....	144	Replacing drives.....	127
Drives.....	128	Requirements for the owner/operator.....	35
Earthquake zones.....	145	Residual current circuit breaker.....	83
Electrical connection.....	81	Safety equipment.....	36
Electrical drawer/tray.....	79	Safety equipment on the lift.....	33
Electrical equipment.....	77p.	Safety inspection.....	115
Electrical safety devices.....	79	Safety instructions.....	23
Emergency power supply.....	67	Safety light curtain.....	39
Emergency stop button.....	38, 48	Safety rope.....	96
Establishing operational readiness.....	53	Safety signs.....	27
Faults.....	135	Scope of validity of the Operating Manual.....	8
Flooding the lift.....	31	Service.....	87
Fuse protection.....	84	Service door.....	40
Ground-level access point.....	69	Service inspection.....	124
Guide rails.....	71	Shelf.....	52
High-speed door.....	42	Signal words.....	19
Horizontal position detection.....	80	Signs on the lift.....	27
Inspection sticker.....	123	Sliding door.....	49
Intended use.....	15	Spare parts.....	139
Lift drives (vertical and horizontal).....	79	Supplementary features.....	67
Lift electrical system.....	75	Switching off the lift.....	58
Lifts in multi-unit networks.....	111	Switching on the lift.....	55
Locking device.....	101	Target groups.....	5
Main switch.....	37, 48	Technical data.....	145
Mains power line.....	83	Transporter.....	70
Mains power supply connection.....	83	Type plate.....	147
Maintenance.....	87	Vertical position detection.....	79
Maintenance personnel.....	12	Warning colour.....	19
Manufacturer.....	8	Warning symbols.....	20
Maximum container load.....	60	Weighing device.....	61
Maximum total load.....	60	Wire cross-sections.....	83
Misuse.....	16	Work at heights.....	94
Modification.....	10		

Operating Manual

Hänel Lean-Lift

Annex B: Safety concept for operation at multiple access points

To prevent users at multiple access points from endangering each other, the following variants are possible:

Variant 1:

Lean-Lift with guide rails

Observe:

- Simultaneous operation at multiple access points by specially trained and authorised personnel is possible. (However, the extractor can be used by one operator only.)
- The "blanking" function enables a lift run even when the sliding doors of the other access points are completely closed.
- Driving the extractor (lift run) is possible only if no safety light barrier/safety light curtain is triggered and no container is in another access point. (Container must be pulled onto guide rails or stored).

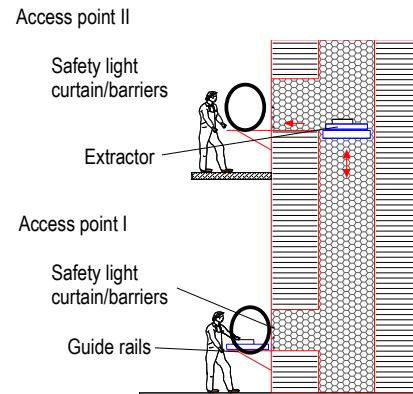
The following versions are not possible:

- Supplementary module Remote-controlled Lift Operation
- Supplementary module Shelf transfer
- Lift safety equipment is not triggered during standstill
- Shelf detent function
- Shortened guide rails
- without sliding door

Function:

The extractor moves the selected container into the access point. The safety light barriers are / safety light curtain is active. As soon as the container has been pulled onto the guide rails, driving the extractor is possible (see Access point I).

A container is on the guide rails in front of the access point.
The safety light curtain is / the safety light barriers are active.
The container can be processed. The extractor can be driven.



○ => Work area

Operating Manual

Hänel Lean-Lift

Annex B: Safety concept for operation at multiple access points (continued)

Variant 2:

Lean-Lift with high-speed door between access point and extractor shaft

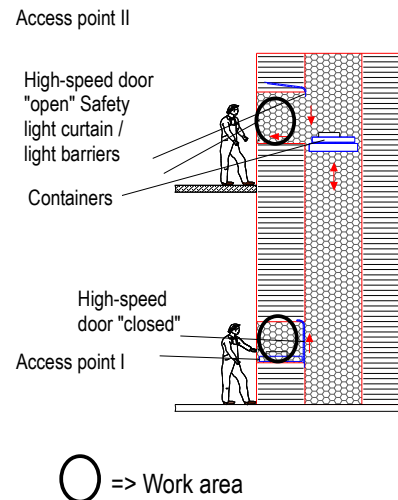
Observe:

- Simultaneous operation at multiple access points is possible. (However, the extractor can be used by one operator only.)
- Driving the extractor (lift run) is possible only if all high-speed doors at the access points are closed.
When high-speed doors are closed, the safety light curtains of the corresponding access points are bypassed. As a result, the "Lift safety system is not triggered during standstill" option is already integrated.
- Three carriers need to be blocked above each access point via the high-speed door.
- Supplementary module "Remote-controlled Lift Operation" is possible with consideration of the operating manual supplement "Remote-controlled Lift Operation with MP...".
- Supplementary module "Shelf transfer" (direct forwarding of a shelf into another access point) is possible with consideration of the operating manual supplement "Remote-controlled Lift Operation with MP...".
- Shelf locking function is **not** possible.

Function:

The extractor drives the selected container into the access position. The high-speed door opens and the container is pushed from the extractor into the access point. Then, the high-speed door closes again. The container can now be processed, and it is possible to drive the extractor for the other access point (see Access point I).

A container is located in the access point. The high-speed door to the extractor shaft is closed. The container can be processed, and driving the extractor is possible. The safety light barriers are / curtain is **not** active when the high-speed door is closed.



Operating Manual

Hänel Lean-Lift

Annex B: Safety concept for operation at multiple access points (continued)

Variant 3:

Lean-Lift with "Lift run with sliding doors closed only"

Optional: Automatic sliding door with "Safety device is not triggered during standstill".

Observe:

- Not suited for alternating-side operation; Variant 2 (high-speed door) is preferred for alternating-side operation due to its better operability!
- No safety light curtain or safety light barriers present (does not apply to option: Automatic sliding door with "Lift safety system is not triggered during standstill").
- Shelf detent function is possible (container is not locked for shelf transfer function).
- For lift type 2860, 3060, 3260, only possible with automatic sliding door.
- One carrier needs to be blocked above each access point via the door locking mechanism.
- Supplementary module "Remote-controlled Lift Operation" is possible with consideration of the operating manual supplement "Remote-controlled Lift Operation with MP...".
- Supplementary module "Shelf transfer" (direct forwarding of a shelf into another access point) is possible with consideration of the operating manual supplement "Remote-controlled Lift Operation with MP...".
- When one door is opened, a lift run is not possible and no other doors can be opened.
- Cannot be combined with the version "Automatically closing sliding door in case of fire".
- Not possible for lift types > 3260 through 4460

Function:

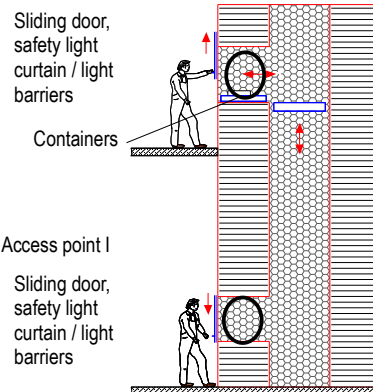
The extractor drives the selected container into the access point. The sliding door is opened manually, and the container can be processed. After processing is finished, the sliding door can be closed manually, and the extractor can be driven again (see Access point I).

The safety sliding door can be opened only after it is unlocked. The control system unlocks it after the lift run for the other access point is completed. A prompt to open the door appears on the display.

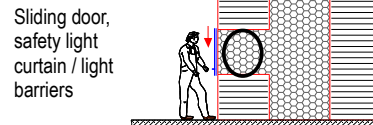
Driving the extractor (lift run) is possible only if all sliding doors at the access points are closed and locked.

=> No work is possible on the container during the lift run.

Access point II



Access point I



○ => Possible work area after the lift run

Operating Manual

Hänel Lean-Lift

Annex C: Test Book for Hänel Lean-Lift

Contents

Here you will find a pre-printed Test Book for the lift from which you can make copies.

Annex	Subject	Page
C1	Lift data	159
C2	Minimum requirements to be observed for inspections	161
C3	Inspection certifications	163
D	Authorisation by the owner/operator	165

Operating Manual

Hänel Lean-Lift

C1 Lift data

The C1 form may be photocopied and duplicated. For the lift version, see the order confirmation in the technical documentation for the lift and the type plate on the lift

Owner/address: _____ _____		
Installation location: _____		
Type: _____	Model year: _____	
Requisition number: _____		
Commissioning date: _____ _____		
Modification date: _____	by: _____	Job number: _____
Modifications: _____ _____		
Modification date: _____	by: _____	Job number: _____
Modifications: _____ _____		
Modification date: _____	by: _____	Job number: _____
Modifications: _____ _____		

Operating Manual

Hänel Lean-Lift

C2 Minimum requirements to be observed for inspections

Regular inspection of the lift

An inspection of the lift is required at least once a year to ensure safe operation of the lift at all times. These inspections are used in part to determine whether the respective condition of the lift still meets the applicable safety requirements and whether service and/or repair measures are necessary.

The owner/operator is responsible for ensuring that each Hänel lift is inspected at least one per year to verify its safe condition. Therefore, the applicable standards and regulations of the respective country of use always apply, particularly those pertaining to earth wire and insulation test (for Europe, the EC Use of Work Equipment Directive and the harmonised standard EN 15095). For the (minimum) scope of inspection, see Chapter 7.7 and 7.8.

Carrying out inspections

In addition to general technical qualifications and vocational experience, carrying out the safety inspection requires specialised, recently acquired knowledge of the applicable lift system and applicable workplace safety and safety instructions!

Service technicians from the manufacturer and authorised representatives undergo comprehensive training in carrying out safety inspections on Hänel lifts and can promptly carry out safety-related service and/or repair measures using original spare parts if necessary.

If the owner/operator tasks someone other than personnel authorised by the manufacturer with carrying out a safety inspection, the owner/operator shall be liable for the inspection! The owner/operator, and the personnel assigned by the owner/operator if applicable, must ensure that the lift is in a safe and functional state after concluding the safety inspection. If the safety inspection is not carried out, is not carried out in a timely manner or is carried out by insufficiently qualified persons or persons not authorised by the manufacturer to do so, this lies solely in the area of responsibility of the owner/operator and results in a corresponding liability exemption for the manufacturer!

Safety inspection

- Operating conditions with increased lift load (e.g. many lift runs, multi-shift operation), high or one-sided lift load, increased levels of dirt etc. require shorter intervals.
- Inspection according to the "Protocol for Safety Inspections Lean-Lift F-SICHB3" (see Chapter 7.7 and attachment in the technical documentation of the lift).

Service inspection

- Operating conditions with increased lift load (e.g. many lift runs, multi-shift operation), high or one-sided lift load, increased levels of dirt etc. require shorter intervals.
- Inspection according to the "Protocol for Safety Inspections Lean-Lift F-SICHB4" (see Chapter 7.8 and attachment in the technical documentation of the lift).



! DANGER

Risk of fatal injury inside the lift!

- Moving parts and suspended loads inside the lift can fall down, crush, shear, bump or catch and lead to fatal injuries. There is a risk of fatal injury when leaning or reaching into the inside of the lift through an open service door and when entering the **lift**.
- Only instructed personnel that has been specially trained and authorised may perform work inside of the lift! In this regard, observe Chapter 7.1.
- Never climb into the lift through the access point. Never use the lift to transport persons - not even for inspection purposes.

Operating Manual

Hänel Lean-Lift

C3 Inspection certifications

Form C3 can be photocopied and duplicated.

Notes on proper use of the form

All required service and safety inspections must be documented in their entirety. To that end, corresponding entries must be made in the subsequent table **and** the original copies of the corresponding maintenance certification and test log must be added to this test book. When doing so, ensure that - at a minimum - the service/inspection scope provided by the manufacturer is carried out in accordance with the current versions of the F-sichb3 and F-sichb4 documents. For the current versions provided in the delivery of the lift, see Chapter 7.7 and 7.8 the lift operating manual as well as the supplement in the technical documentation for the lift.

Inspection date	Name of the inspector	Service/inspection form used Service/inspection form	Findings Inspection sticker granted / not granted / unresolved deficiencies
Signature of the inspector		Signature of the owner/operator	

Inspection date	Name of the inspector	Service/inspection form used Service/inspection form	Findings Inspection sticker granted / not granted / unresolved deficiencies
Signature of the inspector		Signature of the owner/operator	

Inspection date	Name of the inspector	Service/inspection form used Service/inspection form	Findings Inspection sticker granted / not granted / unresolved deficiencies
Signature of the inspector		Signature of the owner/operator	

Inspection date	Name of the inspector	Service/inspection form used Service/inspection form	Findings Inspection sticker granted / not granted / unresolved deficiencies
Signature of the inspector		Signature of the owner/operator	

Operating Manual

Hänel Lean-Lift

Annex D: Authorisation by the owner/operator

Due to the **risk of fatal injury**, entering the lift and/or working inside the lift requires special, recently acquired skills and knowledge in addition to general technical qualification and vocational experience! For this purpose, service technicians of the manufacturer and its authorised representatives have received instruction and special training by the manufacturer.

The owner/operator is responsible for ensuring that only authorised personnel according to Chapter 1.2 of the operating manual have access to the inside of the lift:

Whenever the owner/operator, after drafting a documented hazard assessment, authorises personnel to enter the lift and/or work inside the lift, it does so **on its own authority!** Each authorisation of personnel from the owner/operator for the purposes of entering the lift and/or working inside the lift must be documented using this form and added to the technical documentation of the lift.

Form D can be photocopied or duplicated for this purpose.

The owner/operator: _____ hereby confirms that Mr/Ms: _____ (hereinafter also referred to as "authorised personnel") has been authorised to lean into the lift, reach into the lift, sit, stand or walk in the lift and/or carry out work inside the lift. The owner/operator most recently created a documented hazard assessment for leaning into the lift, reaching into the lift, sitting, standing or walking in the lift and/or carrying out work inside the lift and provided this in writing to the authorised person. This hazard assessment specifically contains the necessary protection and safety measures in conjunction with the maintenance task. The owner/operator has notified the authorised personnel of the urgent need to follow the warning and safety instructions in the technical documentation for the lift and the instruction sheets from original Hänel spare parts.	☐ Yes ☐ No
The authorised personnel have the following technical qualifications and recently acquired skills and knowledge: – If the authorised personnel are employees of owner/operator or acting on the behalf of the owner/operator: The authorised personnel have the necessary technical knowledge to carry out the maintenance order using their professional education and continued education. This includes corresponding vocational training, vocational experience with comparable equipment and recent vocational experience multiple times a year. – If the authorised personnel are employees of a third party commissioned by an owner/operator or acting on the behalf of a third party: The owner/operator has defined the safety requirements and requirements for the qualifications of the maintenance personnel and received evidence these requirements have been met. – Entering the lift and working inside the lift requires - in addition to general technical knowledge - mandatory special skills and knowledge, particularly for creating a safe state of the lift, which is conveyed as part of Hänel training programs/courses (for more information, in Europe, refer also to the EC Use of Work Equipment Directive 2009/104/EC). In addition, the owner/operator and any third-party companies commissioned by the owner/operator must ensure that the personnel used to carry out the work are familiar with the special aspects of the lift to be repaired to the extent that any hazardous situations that may occur can be detected and avoided. The authorised personnel have these necessary skills and expertise. – The owner/operator must expressly notify the authorised personnel of the following points: a) The authorised personnel are not permitted to carry out any work on drive components, load-bearing parts or load-carrying equipment and are not permitted to work inside the lift to correct faults in the event of a blocked lift run - see Chapter 7.6 ! b) The authorised personnel may carry out work on the lift electrical system (with the exception of the electrical systems for the lift drives) only if they have additional qualifications as electrically skilled personnel! c) The authorised personnel may carry out work at heights only if they have corresponding additional qualifications and the necessary auxiliary equipment!	☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No
The owner/operator bears sole responsibility for authorisation! Authorisation on the part of the manufacturer can be provided only if all of the points above have been marked "Yes".	