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# Operating manual

## CLEANlift telescopic lifting column

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Original operating manual Version 1.0.

This applies to all lifting columns made since 01.02.2012.

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## 1. General

### 1.1 Preface

This operating manual describes the construction, use and maintenance of the Cleanlift telescopic lifting column. Our products are subjected to functional and quality control before they leave the premises of our factory. Please use the appropriate contact channels to inform us if you have any problems with our products.

We guarantee all of our products. This however requires type-specific correct usage in accordance with the specifications and responsible maintenance of the products.

Changes in the prescribed operation or usage specifications affect performance and durability, and may only be made with permission from ASSTEC and at the customers own risk, and are hence not covered by the warranty of the manufacturer.

### 1.2 Read me

Please read the operating manual before putting the device into operation. Observe all instructions and warnings about hazards associated with using the device.

The operating manual is part of the unit and contains basic instructions that must be followed during installation and maintenance. Therefore, keep this operating manual and make it available to all persons working with the device at any time.

### 1.3 Glossary

Abbreviation, technical terms	Description
EMC	Electromagnetic compatibility

## 2. Safety

### 2.1 Safety fundamentals

Correct assembly and installation is the prerequisite for safe operation of this product.

#### 2.1.1 General regulations

The user is obliged to operate the device only in perfect condition. Besides the recommendations cited in this document, the following regulations also apply:

- relevant accident prevention regulations
- generally recognized safety regulations
- user's national rules and regulations
- workplace internal safety regulations

### 2.2 Applied safety information

This operating manual contains the most important instructions for operating the device safely. The safety instructions must be observed by all persons who work with the device. Additionally, permissible local rules and regulations for accident prevention must be observed.

The symbols used in this manual for safety instructions have the following meanings:



#### Warning

This symbol indicates information, which if not followed can result in extensive damage to property. The safety instructions must be unconditionally observed.



#### Important

This symbol indicates important usage information. Non-compliance can lead to malfunctions.

### 2.3 Applied warning and mandatory signs

Covering or removal of warning and mandatory signs are not allowed. These signs have been provided for your safety. Outdated or invalid warning signs or instructions are to be removed only by an authorized person or, where appropriate, be replaced by new ones.



#### Warning

Warning, dangerous high voltage.

## 2.4 Specific hazards

### Risk management file



#### Important

A risk management file has been created. It is intended only for internal use and not for the customer. In the course of an internal audit, it can be submitted to the customer for inspection.

## 2.5 Residual risks

Specific residual risks associated with the device are not known.

## 2.6 Regarding organization, personnel

Access to electrical equipment is only reserved for qualified persons who are not only familiar with the equipment, but also with the associated devices and all hazards of an electrical appliance.

The operator is obliged to only allow qualified staff members who are familiar with basic work-place safety and accident prevention regulations and have permanent access to these rules.

Furthermore, you must also have read and understood chapter "Safety" in this operating manual and have been trained and instructed according to the specified requirements.

Changes to or conversions of the device are strictly forbidden without prior knowledge and permission of the manufacturer.

### 3. Device description

#### 3.1 General

##### 3.1.1 Designated use

The device is designed for lifting and lowering of loads and persons. The main application areas are in adjustable furniture (e.g. (assembly) workplace, tables, cupboards), medical engineering (e.g. incubators, patient beds), mechanical engineering (e.g. paint mixing systems, handling technology), automotive (e.g. seats, table adjustment).

The device is classified according to the Machinery Directive (EC Directive 2006/42 / EC) as partially completed machine.

Installation is prohibited until it has been determined that the machine in which the partially completed machine is to be installed complies with the provisions of the machinery directive. Installation is only permitted for qualified staff.

Compliance with these operating instructions includes appropriate staff training for the specified job, adherence to service, maintenance and safety regulations.

##### 3.1.2 Operating conditions

As far as possible, please comply with the following recommendations, so that a consistent performance with minimum maintenance of the device can be assured.



##### Operation

Temperature:	+10°C to +40°C
Operation mode:	10% (S3); 1 min EIN, 9 min AUS
Ambient conditions:	for dry rooms only

##### Storage, Transportation

Temperature:	-20°C to + 60°C
Humidity:	max. 95%

## 3.2 Specifications

### 3.2.1 Overview

Device ID	
Article number	Description
14375	Telescopic lifting column CL350-1600
14377	Telescopic lifting column CL400-1600
14379	Telescopic lifting column CL450-1600
14381	Telescopic lifting column CL500-1600
14383	Telescopic lifting column CLH-1600
14376	Telescopic lifting column CL350-3200
14378	Telescopic lifting column CL400-3200
14380	Telescopic lifting column CL450-3200
14382	Telescopic lifting column CL500-3200
14384	Telescopic lifting column CLH-3200

### 3.2.2 Mechanical and electrical properties

max. lifting force (pressing)	Article 14375, 14377, 14379, 14381 und 14383: 1600N Article 14376, 14378, 14380, 14382 und 14384: 3200N
max. sideward load	Longitudinal: 1200Nm static 500Nm dynamic  transversally: 450Nm static 255 Nm dynamic
max. lifting speed	9 mm/s at 24V without load
drive	Internal DC drive, integrated limit switches and 2 Hall encoders
cable feed	Standard length 1200mm, 8-pin plug



### 3.2.3 Weights and dimensions

LxBxH [mm] (retracted)	280/240x684x60 (500mm stroke length version)
LxBxH [mm] (extended)	280/240x1148x60 (500mm stroke length version)
Weight [kg]	Approx. 11 (500mm stroke length version)

## 4. Function description

### 4.1 Lifting column

Nicely shaped lifting column in modern design for various positioning tasks. Extremely quiet, internal DC drive with optional lifting force of either 1600N (single drive) or 3200N (two drives) and a travel speed of 9 mm/sec. Particularly suitable for height-adjustable (assembly) work places.

Available for installation of the lifting column are 4 M8 screw channels in the inner profile. On the outside is an adaptor plate with an elongated hole.

A minimum screw depth of at least 32mm is recommended for the screw channel.

For fastening attachments to the external profile of the lifting column there are 6 hidden 8mm universal channels that extend the entire length of the lifting column (external profile). The channels are only open at the connecting points. The remaining channel areas are closed to prevent the entry of foreign bodies or debris. The telescopic lifting column is especially suitable for clean room applications because of its closed structure.

#### 4.1.1 Operational safety and function

Before initial operation the lifting column must be checked for damages. Do not exceed maximum load values specified in the technical data sheet.

Note the following when raising or lowering the lifting column: the limit switches should be activated during movement to switch off the lifting column at the upper and lower ends.

### 4.2 Switches and Controls

Available for use are the following functions of various motor controls for up to 8 drives.

- synchronization of up to 8 motors (synchronization controls)
- electronic limit switches
- speed control (Soft Start)
- power regulation
- collision avoidance (automatic stop, automatic reverse function)
- two adjustable motor groups

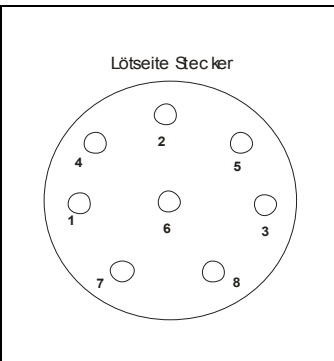
In addition to the above are two manual control switch types. Type 1 has 2 up and down keys. Type 2 has 4 up and down keys with a memory function.

## 4.3 Special case - tensile load

Coordinate your activities with the manufacturer if the telescopic lifting column is to be subjected to tensile loads.

## 4.4 Electrical connection

### 4.4.1 Pin assignment connector type MAS 80S

	1, 7	Motor plus – on (yellow)
	2, 4	Motor minus – on (grey)
	5	Hall encoder Gnd (brown)
	3	Hall encoder +5V (white)
	8	Hall encoder 1 open collector output (green)
	6	Hall encoder 2 open collector output (blue)

## 5. Packaging, transport und installation

### 5.1 Packaging und transport

Do not expose the telescopic lifting column to extreme temperatures, shock, vibration and excessive moisture.

#### 5.1.1 Unpacking and inspection

Individual items should be carefully unpacked. Check the items for any shipping damage.

Examine the lifting column after unpacking, both inside and outside for possible damages. Immediately report any damage/s to the carrier and notify the appropriate representatives.

## 6. Assembly and initial operation

### 6.1 Synchronous control types LogicS and Compact

#### 6.1.1 Installation (only for service technicians)

- insert the standard DIN plugs into the 8-pin M1 to M4 sockets of the control device.
- now connect the 7-pin DIN standard plug to the HS socket of the control unit.
- plug the power cord of the control unit into a 230V mains socket.

#### 6.1.2 Initial operation

At the start of initial operation, the control unit has to be initialized.

To do this, the button „Down" on the controls must be pressed until all drives have reached the lower end position. After that, the key must remain pressed for a further 5 seconds. Thus the controller is set to the initial position of the motors.

The above procedure should always be repeated after every interruption of power (power failure, etc.).

#### 6.1.3 Operation

Pressing the up or down buttons drives the motors upwards or downwards.

#### 6.1.4 Saving drive positions in memory

The controller enables the saving of 6 different positions.

To do this, move the motor in each case to the desired position, then press the "S" button and then keys "1", "2", "3" .... "6" respectively to define and save the position. After the positions have been saved it is possible to move the motors to any of your preferred positions by pressing button "1"... "6". Keep the preferred key pressed until the motor reaches the required position.

## 6.2 Synchronized control type SCT

### 6.2.1 Installation (only for service technicians)

- insert the standard DIN plugs into the 8-pin M1 to M4 sockets of the control device
- now connect the DIN 6-pin operating cable plug to the HS socket of the control
- Plug the power cord of the control unit into a 230V mains socket.

### 6.2.2 Initial operation

At the start of initial operation, the control unit has to be initialized.

To do this, press the buttons "Up" and "Down" on the controller until all motors have reached the lower end position. After that, press the key again for an additional 3 seconds. The controller confirms the initialization procedure with an acoustic signal that sounds 3 times. The controller is now ready for use.

### 6.2.3 Operation

Pressing the up or down buttons drives the motors upwards or downwards.

## 7. Setup, assembly

### 7.1 Synchronous operation of lifting columns

In the ideal case, two or more lifting columns are arranged parallel side by side, and thus operated absolutely synchronously.

The manufacturing tolerances of the lifting columns as well as the accessories that are partly manufactured by the customer may result, in the worst case, in jamming or even damage to the lifting column.

Please take note of the following information to avoid this.

### 7.2 Carefully compensate for height differences

When several lifting columns are connected to a rigid component (table frame, profiles, etc.), they are forced to adopt a common height. Setting up the system on an uneven surface can deform the lifting columns. Fault-free, synchronous operation of the lifting columns is then no longer guaranteed. The use of adjustable base plates or pedestals and careful setup can prevent damage.

### 7.3 Precise alignment

If two or more lifting columns are not aligned exactly parallel to each other, the upper mounting points change. If the lifting columns are rigidly connected to one another, considerable strain on the guide elements and drive components of the lifting columns results. This can cause damage. The use of adjustable base plates and precise alignment can prevent damage.

### 7.4 Incorrect connection

If two or more lifting columns are connected to solid frames or profiles, plates etc. of steel or aluminum, it must be absolutely ensured that the connections are neither bent nor twisted. The connection plates or brackets must be mounted so that they lie flat on the lifting column. Transverse forces can arise in a strained assembly, which can in turn damage the guide and drive elements of the lifting column. The use of rubber elements for assembly and mounting can be very helpful in some cases.

## 8. Maintenance and care

### 8.1 Frequency and scope of maintenance work

High quality parts are used in the construction of the lifting columns. These are extremely easy to maintain. Nevertheless, appropriate care can greatly extend the lifespan of the components.

In general, the lifting columns should be serviced externally every 6 months. We recommend the use of a PTFE-containing, liquid lubricant spray for the guide channels, to reduce wear and thereby ensure smooth movement and reduced noise during operation. Opening the columns is not necessary and would result in the loss of the warranty.

#### 8.1.1 General remarks

- Make sure that no liquid penetrates into the device and clean it with a dry soft cloth.
- The device can be first wiped with a slightly moist cloth. But make sure that no liquid penetrates into the device and wipe it again with a dry soft cloth.

### 8.2 Spare parts, accessories, consumable materials

#### 8.2.1 Spare parts

Article number	Description

#### 8.2.2 Accessories

The complete range of accessories can be found on the product page under "Accessories for CleanLift telescopic lifting column" in our sales documents.

#### 8.2.3 Consumable materials

Article number	Description



## 9. Repair

### 9.1 Warranty

Upon delivery of the lifting columns, controls and operating switches, the user must examine these components to find out whether they are suitable for his application. There is no warranty for any oral or written design proposals. The assembly parts themselves have a warranty period of 24 months or maximum lifespan (except wear parts), as far as it is proven that the components were used properly or that any special application was approved by us. Parts to be repaired must be delivered carriage paid.

Our warranty obligation automatically expires if the customer makes changes or repairs or let repairs or changes be done by third parties. Expenses exceeding the material value or time value of the parts will not be recognized. The customer is responsible for any electrical and wiring work on the drives.

## 10. Disposal

To facilitate the disposal and recycling of defective or no longer needed parts, we have prepared the following classification table of different materials for recycling or incineration

We encourage you to completely disassemble the product to enable optimal disposal or recycling.

The main components are listed in the table below.

Item	Component	Disposal
Drives	Spindle and motor	Metal waste
	Plastic case	Plastics recycling, Incineration
	Cable	Waste cable, Incineration
	Circuit board	Electronic waste
Controls	Circuit board	Electronic waste
	Plastic case	Plastics recycling, Incineration
	Cable	Waste cable, Incineration
	Power transformer	Metal waste
Switches	Plastic case	Plastics recycling, Incineration
	Cable	Waste cable, Incineration
	Circuit board	Electronic waste
Internal & External metal parts	Extruded parts	Metal waste

## 11. Declaration of Incorporation

**Manufacturer** ASSTEC Assembly Technology GmbH & Co. KG  
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 Documentation authority: Marc Blessing

Products	Article number	Description
	14375	Telescopic lifting column CL350-1600
	14377	Telescopic lifting column CL400-1600
	14379	Telescopic lifting column CL450-1600
	14381	Telescopic lifting column CL500-1600
	14383	Telescopic lifting column CLH-1600
	14376	Telescopic lifting column CL350-3200
	14378	Telescopic lifting column CL400-3200
	14380	Telescopic lifting column CL450-3200
	14382	Telescopic lifting column CL500-3200
	14384	Telescopic lifting column CLH-3200

**Declaration** The product was developed, designed and manufactured in accordance with the following guidelines and standards.

**Applied guidelines** 2006/42/EC Machinery Directive

**Applied standards**

EN 12100-1	Safety of machines – Basic concepts, general design principles - Part 1: Basic terminology, methodology
EN 12100-2	Safety of machines – Basic concepts, general design principles - Part 2: Technical principles.

This partially completed machine may only be put into operation if it has been definitely determined that the machine into which the partially completed machine is being installed complies with the provisions of this directive.

Rottweil, 1 February 2012

Marc Blessing



Managing Director

Name

Signature

Identification of signatory