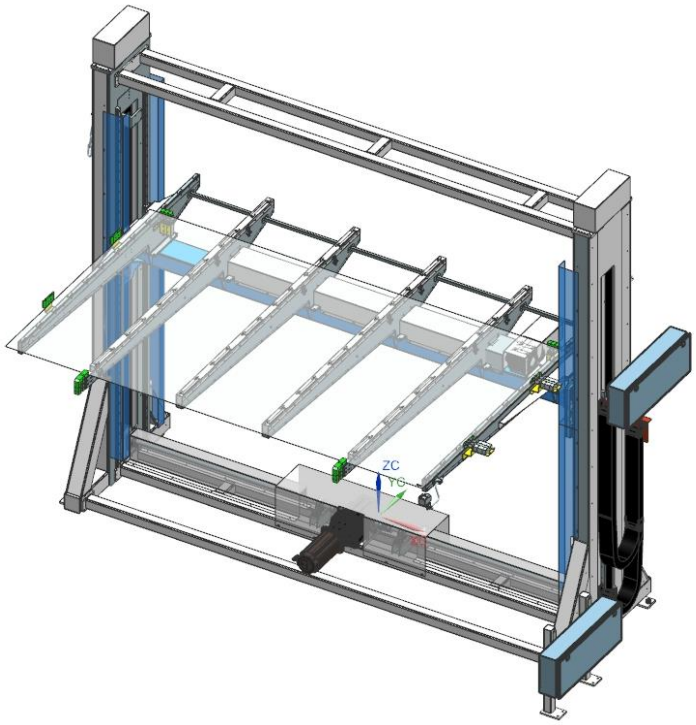
Operating manual



Customer:	SAGE Electrochromics Inc., (Faribault) 2 Sage Way, Faribault, MN 55021 USA
Customer order No.:	Order from 25th of July 2018
Contract-Number:	88440
OLBRICHT Automation Machine Name:	Lifting Conveyor
OLBRICHT Automation Project-No.:	801.01 - 150
Year of manufacturing:	2019
Manufacturer:	-Brünen Phone: +49(0)2856 / 9099960 E-Mail: info@olbricht.de

Table of Contents

1 Important basic information

1.1 Intended use

The Lifting Conveyor constructed in accordance with its intended use and may be used exclusively for the points listed below.

- Lifting the glass
- Centering the glass
- Conveying the glass (see documentation).

Any use outside these specifications is considered as contrary to the intended use. The manufacturer is not liable for any damage resulting from this. The operator bears the entire risk.

Intended use also includes observing the operating, maintenance and service conditions as prescribed by the manufacturer. Only genuine spare parts from the manufacturer may be used as replacements.

The Lifting Conveyor may only be used, serviced and repaired by persons who are acquainted with the characteristics of the machine and who have been advised of the dangers involved.

The instructions concerning the operation, service and safe handling of the machine, as described in this operator's manual and stipulated by the manufacturer in the form of warning signs and warning symbols on the machine, must be observed when using the machine.

The relevant accident prevention regulations and the other generally recognized safety-related must be observed when using the machine.

Unauthorized modifications to the Lifting Conveyor are not permitted. They will exclude the manufacturer's liability for any resulting damage.

1.2 Reasonably foreseeable misuse

A reasonably foreseeable misuse according to the Machinery Directive is defined as the use of the machine in a way not described in these instructions.

1.3 Legal Notes

1.3.1 Warranty instructions

The warranty period for the equipment supplied by the Seller shall be 12 (twelve) months, starting from the date of FAT. The warranty is limited to proprietary parts and manufacturing parts, made by Olbricht Automation GmbH.

In case of defects of equipment, being found during the inspection on site, test-run, or demonstration, the defect will be checked by both parties. If the Seller is responsible for the defect, the Seller shall repair or re-supply the equipment at his own expense. If the Buyer is responsible for the defect, then the Seller will give his assistance to repair or re-supply the equipment to the plant site. Costs thus incurred must be paid by the Buyer.

1.3.2 Copyright

Unless otherwise agreed, we own the copyrights of all of us delivered drawings, programs and documentations.

Drawings, programs and documentations will only be used by our customers and end-customers in accordance with the contract.

It is not allowed to give drawings, programs and documentations on third parties without permission from the Olbricht Automation GmbH.

1.3.3 EC Declaration of Conformity

Extract of EC Declaration of Conformity:

Olbricht Automation GmbH

Hamminkelner Straße 30, D-46499 Hamminkeln

declare under our sole responsibility that the machine:

Lifting Conveyor

complies with the following provisions in its delivered version:

Machinery Directive 2006/42/EG, Appendix I.

EMC Directive 2004/108/EC

➔ See full „EC Declaration of Conformity“ on CD Rom

2 User instructions

2.1 About this operator's manual

The operator's manual contains important information for safe use, correct use and maintenance of the Lifting Conveyor. Your attention will help to prevent angers, reduce repair costs and downtime and will increase the reliability and service life of the machine.

The entire documentation, which consists of this operator's manual and all documentation provided by the supplier, must be used when working at the machine.

When the machine is sold, the operator's manual must be transferred with it. The operator's manual is intended for the operator of the Lifting Conveyor and anyone involved in operating and maintaining it. It must be read, understood and applied by every person who is entrusted with the following work on the machine:

- Operation
- Maintenance
- Repairing faults
- Safety

The operator's manual does not replace your personal responsibility as the owner and operator of the Lifting Conveyor.

2.2 Structure of the operator's manual

The operator's manual is divided into 6 key areas in terms of content:

- user instructions,
- safety instructions,
- machine details,
- instructions for operating the Lifting Conveyor
- maintenance

2.3 Instructions and procedures

Steps that the operator must carry out are shown as a numbered list.

1. Instruction for action step 1

2. Instruction for action step 2

Instructions that only have one step are not numbered. The same applies for action steps that do not have a specific sequence. A bullet is placed in front on these instructions:

- Handling instruction

2.4 Abbreviations

CE (dt.: EG, engl.: EC)	Communauté Européen (dt.: Europäische Gemeinschaft, engl.: European Community)
DIN	German Industry Standard
EN	European Standard
PLC (dt.: SPS)	Programmable Logic Controller
EMC	Electromagnetic Compatibility Directive
LVD	Low Voltage Directive
UVV	accident prevention regulation
max.	Maximum
min.	Minimum
ca.	circa
e.g.	for example
etc.	et cetera
VDC	Direct current
VAC	Alternating current
Hz	Hertz (frequency)
N	Neutral conductor
PE	ground
V	voltage
h	hour
min	minute
s	second
d	diameter
L	length
mm	millimeter
m	meter
Type	Kind of object or definition
No.	number
Qty	Quantity

3 Safety

3.1 General Information

The chapter on safety contains basic safety instructions and safety regulations for working and operating when using the Lifting Conveyor.

All instructions in this chapter must be observed to ensure safe handling and trouble-free operation of the Lifting Conveyor.

There are also additional warnings in the other chapters of this operator's manual, which must also be observed. The warning instructions are given before the respective actions.

Warning instructions with regard to OEM components are contained in the applicable supplier documentation. These warning instructions must also be observed.

3.2 Meaning of warnings

The warnings in the operator's manual are classified according to how serious the anger is and the probability of its occurrence. The danger signs and symbols are provided to advise the user of other unavoidable dangers that may be encountered when operating the Lifting Conveyor.

The warning instructions used are structured as follows:

DANGER

Type and source of danger

This warning advice warns of a danger posing an immediate threat to the health and life of persons.

Ignoring this warning will result in very serious injury or death.

- Read this operating instruction carefully and follow the warning advice.

WARNING

Type and source of danger

This warning advice warns of a possible dangerous situation for the health of persons.

Non adherence to this warning advice leads to serious injury.

- Read this operating instruction carefully and follow the warning advice.

CAUTION

Type and source of danger

This warning advice warns of a potentially dangerous situation for personal health or of material and environmental damage.

Ignoring this warning will result in very serious injury or death.

- Read this operating instruction carefully and follow the warning advice.

NOTICE

General instructions include tips for usage and useful information but not warning of dangers.

3.3 General information on the safety of the machine

The Lifting Conveyor is designed and manufactured to the state of the art in technology and the generally accepted rules of engineering. However, operation and maintenance of the machine may involve danger to the health of the user or other persons or may adversely affect the machine and other property.

Therefore, operate the Lifting Conveyor:

- when it is in good condition and safe to operate in traffic,
- with safety and danger awareness.

This requires that you are familiar with the content of this operating manual, the applicable accident protection regulations and the generally recognized rules of safety and apply these rules as required.

3.4 Instructions for the owner

The owner is responsible for the designated use of the Lifting Conveyor.

3.4.1 Qualification of personnel

Persons who are responsible for the operation, maintenance or repair of the Lifting Conveyor must have read and understood these operating instructions, particularly the chapter on safety and warning notices on the corresponding activities, before starting work.

- Representatives of Olbricht Automation GmbH will instruct the operator in the operation and maintenance of the Lifting Conveyor.
- The operator must ensure that new operating and maintenance personnel are instructed with the same care and to the same extent in operating and maintaining the machine, taking these operating instructions into consideration.
- The machine may only be operated by trained personnel authorized by the owner.
- Persons who are apprentices, in training or under instruction may only work on the machine under the supervision of an experienced person.
- Maintenance and repair work must be carried out by appropriately qualified persons.

3.4.2 Accident prevention

The owner of the machine is responsible for observing the regulations applicable in the country of operation.

The following instructions must also be observed:

- Do not climb up on the machine.
- When working below the machine, protect your head by a helmet, because of the extended roller bars.
- Long hair must be tied back or otherwise secured and garments must be close-fitting. Jewelry, like chains, is not allowed.

3.5 Information on operating safety

To avoid dangerous situations, the Lifting Conveyor must only be used in an operationally safe condition.

3.5.1 Checks before putting the machine into operation

Before the first and every subsequent operation, check the Lifting Conveyor to make sure that it is safe to operate.

- Is all safety equipment on the Lifting Conveyor installed and functional?
- Is there any person in the danger zone of Lifting Conveyor?

3.5.2 Operation

- If the Lifting Conveyor malfunctions, stop the machine immediately and lock it. Have the fault repaired immediately by qualified technicians.
- Operate the Lifting Conveyor only with the protective covers.
- Rotating machine components can cause serious injury. Make sure that body parts or clothing never come close to rotating components.

3.5.3 Maintenance and repair

Maintenance and repair work involves additional hazards that do not occur during operation of the machine.

- Take particular care when carrying out maintenance and repair work. Work very carefully and with awareness of danger.

3.5.4 Spare parts

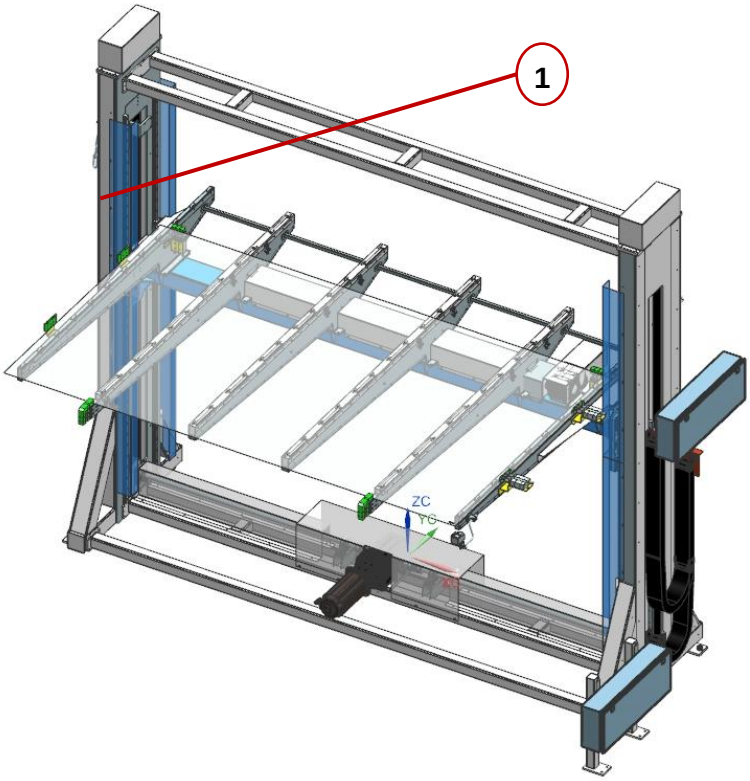
- Observe the maintenance and repair intervals specified in this operator's manual exactly.
- Also observe the maintenance and repair intervals for the supplied components. See the supplier documentation for the relevant intervals
- Spare parts must at least comply with the technical standards specified by the manufacturer. This is assured with original spare parts.

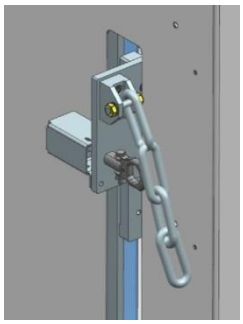
3.5.5 Maintenance and repair work

- Disconnect the power supply before all cleaning, maintenance and repair work and when troubleshooting. Wait until all moving parts of the machine have stopped moving.
- Disconnect the power supply before working on the electrical system.
- Make sure that no unauthorized person can switch on the Lifting Conveyor.

3.6 Safety equipment on the machine

3.6.1 Position of protection devices





3.6.2 Function of protection covers

The protection devices are designed to protect your health and life.

- Only operate the Lifting Conveyor with mounted protection devices.
- Do not use the deflection and protection device as a climbing aid. It is not designed for this. You may be in danger of falling.

Nr	Function
1	This padlock must be installed and the movable part must be fixed before maintenance.

WARNING

Type and source of danger

This warning advice warns of a possible dangerous situation for the health of persons.

Non adherence to this warning advice leads to serious injury.

- Read this operating instruction carefully and follow the warning advice.

3.6.3 Warning stickers

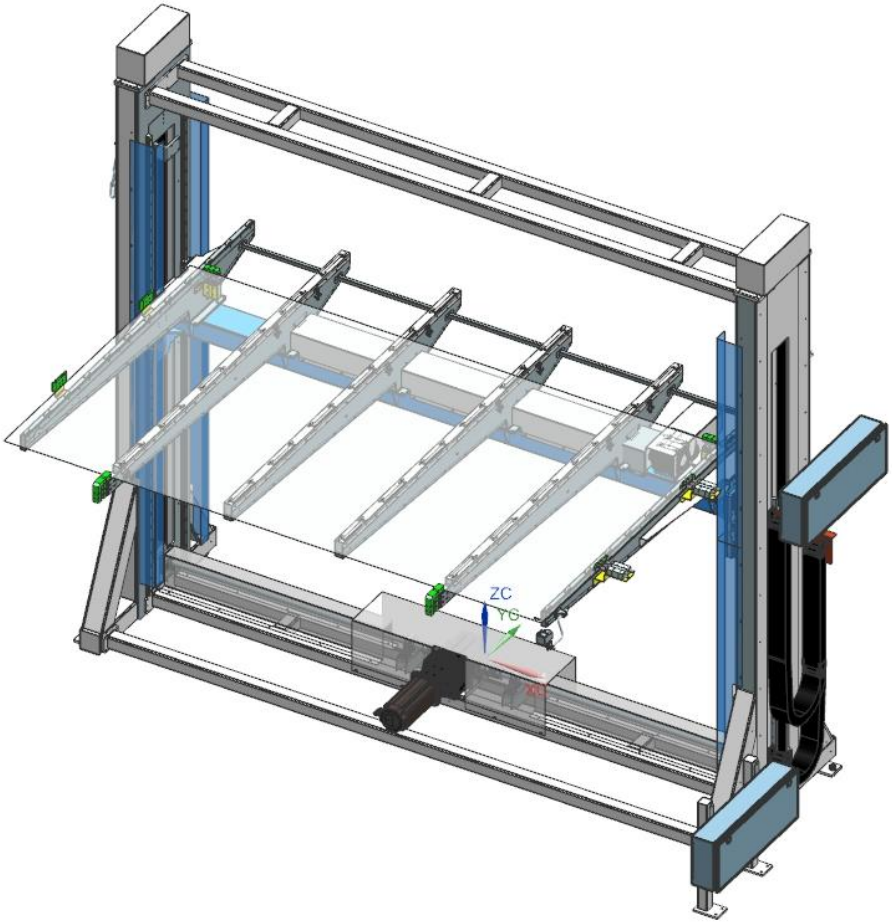
Sticker	Designation
	**Read operator's manual and safety instructions** Before placing the machine in operation, read and observe the operator's manual and warning instructions. The operator's manual explains in detail how to operate the machine and contains information on safety, operation and maintenance.
	Wear safety gloves!
	Wear safety-work-shoes!
	Wear protective clothes!
	Wear safety glasses!
	Warning! Crushing of hands. ➔ To warn of a closing motion of mechanical parts of equipment

4 Technical Data

4.1 Functional Description

The general structure of the Lifting Conveyor is shown below. The Lifting Conveyor is driven by servo motors and has an up and down movement of 2100mm.

The Lifting Conveyor consists of two main parts. The first part is the carrier frame and the second part is the up and down driven conveyor part in the middle. The Lifting Conveyor is driven by a servo motor at the bottom. The rotating belt and pulleys obtained from the servo motor move the conveyor up and down. The conveyor is operated by a second servo motor on the system.



4.2 Product description

WARNING

Malfunction of machine

Any use outside these specifications is considered as contrary to the intended use. The manufacturer is not liable for any damage resulting from this. The operator bears the entire risk.

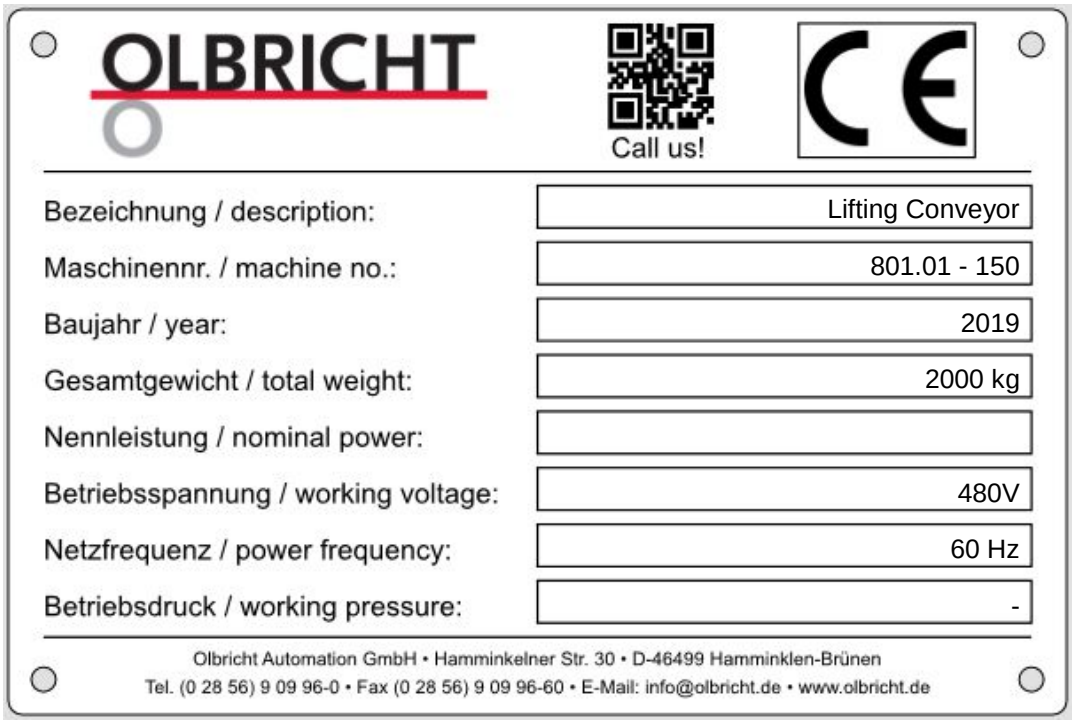
The Lifting Conveyor is built for the purpose of lifting and conveying glass (see table below).

Glass type	Rectangular electrochromic glass called Motherboards (MB)
Width	1850 mm
Length	3200 mm
Glass thickness	2,2 mm
Glass weight	~ 30 kg

4.3 Dimensions and weight

Dimension	Value
Length	4270 mm
Width	2524 mm
Height	3510 mm
Weight	1708 kg
Transport height(min)	825 mm
Transport height(max)	2925 mm
Stroke	2100 mm

4.4 Identification plate



5 Transport

5.1 Delivery

The condition and completeness of the machine must be checked. In case of damages caused by transport, make photos. It must be recorded and the report must be signed. Serious damages caused by transport, which have impact on the functioning and safety of the machine, must be processed only in agreement with the manufacturer.

5.2 In-house Transport

Crane must be used for transport and assembly.

Transport with Crane;

- ✓ The lifting conveyor must be transported by removing the glass carrier arms.
- ✓ Special handling ropes must be used.
- ✓ Care must be taken that the mechanical equipment is not damaged during the connection of the ropes.
- ✓ Two ropes must be used for transport.
- ✓ Specially designed constructions should be used for transport.

During transportation, care must be taken not to damage the pneumatic elements, motor and bearing systems on the system and to ensure that they should not be transported from these points.

- ✓ The rope suitable for the dimensions of the transport pack should be used.
- ✓ Transport should be carried out by fixing it close to the center of gravity of the pack.
- ✓ Do not forget any tools on the pack during transportation.

CAUTION

Damaging of machine and hurting of people

- The transport of machine must only be carried out by suitable, trained and expressly authorized personnel.
- Establish the transportation route in good time and remove possible obstacles.
- A check must be made to ascertain that all safety and transport devices are fit for operation.

5.3 Storage

- The machines must be stored in closed rooms at a room temperature between 5°C (41°F) and 40°C (104°F) and a relative humidity of max. 60% (non-condensing).
- In case of a longer storage time, it's necessary to preserve all uncoated metal machine parts (shafts, bearings etc.) e.g. the corrosion preventive compound Tectyl 846 K19, this is based on wax (for preserving until 12 month).
- For removing any corrosion preventive compound use cleaning solvent.
- Cover the machines with suitable cover-material to keep them free from dust.
- In case of sea transport a hermetically sealed foil is also allowed.

6 Installing and commissioning

6.1 Safety

CAUTION

Damaging of machine and of hurting people

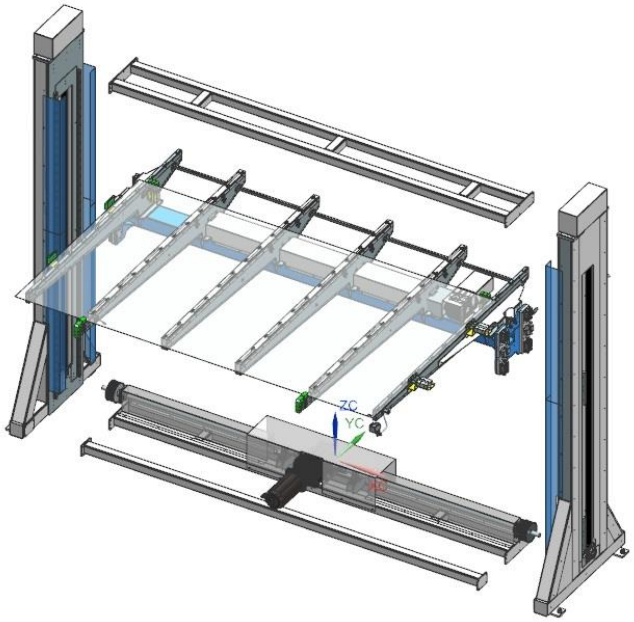
- The machine may only be assembled and disassembled by qualified technicians. These persons must be familiar with relevant regulations relating to the prevention of accidents and industrial safety.
- Work on the electrical and pneumatic systems must be carried out by qualified technicians only.

- The working area should be neat, tidy and hazard free.
- Only appropriate, tested and calibrated tools may be used.

6.2 Assembly and disassembly

6.2.1 Assembly

- The machine is delivered in 4 units.
- For the placing of roller conveyor on the support frame see chapter 5.2.
- The drawings in chapter 10.1 must be observed.



Strength class	Screw tightening torque MA acc VDI 2230 (Nm)									
	M5	M6	M8	M10	M12	M16	M20	M24	M27	M30
8.8	6.2	10.5	25	50	86	215	410	710	1050	1400
10.9	8.7	15	36	70	121	300	580	1000	1450	2000
12.9	10.5	17.5	43	84	145	360	700	1200	1750	2400

6.2.2 Disassembly

- Before start disassembling, make sure that no glass is placed on the machine and that the power supply (air and electric power) for the complete system has been switched off!
- The drawings in chapter 10.1 must be observed.

6.3 Electrical Installation

- Motors and other electrical components are pre-installed
- Limit switches have to be wired

6.4 Commissioning

6.4.1 Preconditions

NOTICE

Before the system is released, a qualified person must carry out a visual and functional test.
This is to make sure that the machines are in a safe condition and there are no defects or damages due to improper installation.

- Mechanical equipment installed.
- Transport securing devices dismounted.
- Electrical equipment installed and connected.
- Safety and monitoring equipment installed and functioning.
- The function test checks all processes occurring without goods during operation of the machines

7 Operation manual

➔ See document „Operation manual of M2S Load-Unload-System“ on CD Rom

8 Service and maintenance

8.1 Safety

WARNING

Moving parts

For cleaning and lubrication all drives of the machine and adjacent machines must be switched off from the power supply. The maintenance work may only be started when the entire machine system has come to a standstill.

CAUTION

Working with chemicals

The safety data sheets and the specific regulations of all chemicals and cleaning agents used for the operation and maintenance of the machine, must be observed.

8.2 Maintenance

- Excess oil and grease must be removed immediately. After completion of the maintenance work, it must be checked whether all protection and safety devices are correctly installed again.
- The machine must be cleaned regularly to ensure a long life of the machine and its production. A weekly cleaning is recommended. Some parts need special care.
- Geared motors, electric drives and other purchased machine parts are to be maintained in accordance with the operating instructions of the manufacturers.
- All fasteners on moving machine parts must be checked for their correct fastening and securing at intervals of 3 months.

Parts	Activity / Remark	Time interval
Lubrication of sprockets	Grease Lubrication	Monthly
Bolts and Sensor connections	Visual check	Daily
Position and tension of chain	Check by hand	Weekly
The chain	Visual check for damage	Weekly
External cables and power cord	Visual check for damage	Monthly
Reducer oil	Check for oil shortage or contamination	6-monthly
Lifting conveyor	Check by hand	6-monthly
Carrier arms	Visual check for wear	Daily
Pneumatic equipment	Speed control Sensor control	Monthly
All hoses and fittings	Visual check (the line)	Daily
All hoses and fittings	Check connections by hand	Monthly

8.3 Service Address

OLBRICHT Automation GmbH
Hamminkelner Str. 30
D-46499 Hamminkeln-Brünen

T:+49 (0) 28 56 / 9 09 96-0
F:+49 (0) 28 56 / 9 09 96-60
info@olbricht.de
www.olbricht.de

9 Disposal

9.1 Safety

WARNING

Pollution of the environment due to unsuitable disposal of gear oil.

Gear oil are not fully biodegradable. Therefore oil must not be disposed off in the environment in an uncontrolled manner.

- The proper disposal of used oil must only be undertaken by the authorized maintenance personnel.
- Soak up or dam up oil that has run out of equipment with sand, soil or absorbent material.
- Collect gear oil in a suitable container provided for the purpose and dispose of it in accordance with the local statutory requirements.
- Draining and penetration of oil into the sewerage system.
- Penetration of oil into the water drain by setting up barriers of sand or earth or other appropriate barrier methods.

WARNING

Environmental pollution due to the unsuitable disposal of packaging material

Packaging material contains chemical compounds, which must be dealt with appropriately.

The specialized disposal of packaging material takes place via an appropriately authorized disposal company with adherence to the national regulations.

Do not burn packaging material or dispose of it as household refuse.

Disposal only by authorized companies.

9.2 Disposal

The following points apply without restriction. The precautions laid down as a result of national regulations are to be carried out implicitly.

1. Make sure that no glass or any products lie on the Lifting Conveyor.
2. Switch off the supply of air and electric power.
3. Wear personal protection equipment.
4. Dismantling of machine.
5. All parts, auxiliary and operating substances are to be removed from the Lifting Conveyor by specialist personnel. In so doing these parts are to be sorted into specific categories.
6. All waste products are then to be disposed of in accordance with local regulations and directives for recycling or special refuse categories by authorized companies.

10 Spare parts

10.1 Assembly drawings with parts lists

Qty	Drawing No.	Designation	Parts list	Weight [kg]
1	801.01.150000_1_1_A0	LIFTING CONVEYOR ASM	801.01.150_LIFTIN…	1708
1	801.01.151000___A1_1_1	LIFTING-CONVEYOR_BODY-ASM	801.01.150_LIFTIN…	1077
1	801.01.151100___A1_1_1	LIFTING_CONVEYOR_G1	801.01.150_LIFTIN…	378.5
1	801.01.151170___A1_1_1	SAFETY_PIN_ASSM	801.01.150_LIFTIN…	4.7
1	801.01.151180___A3_1_1	LIFTING-CONVEYOR_CABLE-TRACK_ASM	801.01.150_LIFTIN…	12.5
1	801.01.151200___A1_1_1	LIFTING_CONVEYOR_G2	801.01.150_LIFTIN…	453
1	801.01.152000___A1_1_1	LIFTING-CONVEYOR_DIRVE-UNIT_ASM	801.01.150_LIFTIN…	100
1	801.01.153000___A0_1_1	TB_LIFTING_CONVEYOR_MOVING_GROU	801.01.150_LIFTIN…	500
2	801.01.153200___A1_1_1	SYM_TB_LIFTING_CONVEYOR_ROLLER	801.01.150_LIFTIN…	44
2	801.01.153300___A1_1_1	TB_LIFTING_CONVEYOR_ROLLER_G1	801.01.150_LIFTIN…	47.5
1	801.01.153400___A1_1_1	TB_LIFTING_CONVEYOR_ROLLER_G2	801.01.150_LIFTIN…	40.5
1	801.01.153500___A1_1_1	TB_LIFTING_CONVEYOR_ROLLER_G3	801.01.150_LIFTIN…	46.5

10.2 Spare parts

10.2.1 Classification of spare parts

The parts lists of the assembly drawings have a column “Spares” (see figure below). It shows where the spare parts are located. The spare parts are labeled with **I, II, III**.

	**Classification of spare parts according the need to keep them available**
Classification	**Explanations:**
I	Spare parts that should be available at start-up, because they can fail at any time.
II	Spare parts to be expected for replacement within a two-year operation life-time, depending on normal wear and stress.
III	Spare parts, to be expected for replacement after more than a two-year operation life-time, depending on normal wear and stress, it is recommended to have them on stock.

OLBRICHT
Glass Processing & Handling Technologies

Olbricht Automation GmbH

PART LIST

Project No / Machine ID:	801.01
Customer name:	SAGE
Owner:	Ahmet ALGUR
Edit by:	HS,AA,AT,RE
Rev. date & No:	19/12/2019

#	Part / Component No.	Part / Component Name	Unit	Qty	Brand	CLASS.
1	VTUG-14-SR8-S1T-Q10L-DQL-Q6S-3GKLL (572230)	Valve block	Pcs	1	FESTO	I
2	DFM-20-50-P-A-GF (170844)	Pneumatic cylinder	Pcs	6	FESTO	I
3	SMT-8M-A-PS-24V-E-0,3-M8D (574334)	Proximity sensor for cylinder	Pcs	12	FESTO	I
4	MBPS3002BS1	Pneumatic clamping element	Pcs	4	ZIMMER	II
5	E6.40.087.150.0 (1 unit at 65 links)	Cable channel (e-chain series)	Pcs	1	IGUS	I
6	E6.400.087.12	Cable channel mount. brackets set, pivoting	Pcs	1	IGUS	I
7	28222	Cable channel seperator (e-chain series)	Pcs	120	IGUS	III
8	M-L-HTD14-15000/055	Timing belt for lift	Pcs	1	GATES	I
9	T-V-T5-04825/016	Timing belt for conveyor	Pcs	4	GATES	I
10	Clampex 250 25x34	Hub to shaft coupling	Pcs	4	KTR	II
11	ROTEX GS 28 AL-H hub 1.0 Ø35H7 key DIN 6885/1-J9	Shaft to shaft coupling	Pcs	4	KTR	II
12	ROTEX GS 28 spider 98 Sh-A-GS red	Shaft to shaft coupling	Pcs	2	KTR	II
13	22350.0621	Lifting pins - self locking system	Pcs	1	HALDER	III
14	IFS205	Normally open sensor	Pcs	3	IFM	I
15	IFS207	Normally close sensor	Pcs	2	IFM	I
16	6001-2RS	Bearing (Ø12)	Pcs	18	SKF	I
17	6007-2RSR	Bearing	Pcs	4	INA-FAG	I
18	TKVD30 (L=2850mm)	Guideways	Pcs	4	INA-FAG	II
19	KWVE30-B	Carrier	Pcs	8	INA-FAG	II
20	UCF 207	Square flange bearing	Pcs	10	INA-FAG	I
21	UCP 207	Housing unit	Pcs	2	INA-FAG	I
22	UCF 205	Housing unit	Pcs	4	INA-FAG	I
23	SR-1000	Barcode reader	Pcs	1	KEYENCE	II
24	VPL-B0752E-PK12AA	480VAC, 75mm Bolt Circle Frame Size, 2 Magnet Stacks, 4900 RPM Rated Speed, Standstill Torque 1.61Nm, Max Torque 4.39Nm, Multiturn Encoder, Keyless Shaft, SpeedTec Right Angle	Pcs	1	ALLEN BRADLEY	I
25	VPL-B1653C-PJ14AA	480V AC, 165mm Bolt Circle Frame Size, 3 (Three) Magnet Stacks, C Winding, 2500 RPM Rated Speed, 18 bit Single-turn and 12 bit Multi-turn Digital High Resolution Encoder, Keyed Shaft, SpeedTec Right Angle DIN Connector, 325° rotatable, 24V DC Holding Brake	Pcs	1	ALLEN BRADLEY	I
26	K49AQA140/4	Speed [1 / min]: 1400 / 36.86 Total gear ratio: 37.98 Output torque Mamax [Nm]: 500 Mounting position: M1A 9005 Jet black (51390050) Output Shaft [mm]: 35x70 Adapter centering diameter (B5) [mm]: 130 Adapter hole circle diameter (E5) [mm]: 165 Adapter coupling bore (D1) [mm]: 28 Permissible output radial load at n = 1400 [N]: 7310 1. Quantity of reducer lubricant [Liters]: 1.65 Mass moment of inertia [10^{-4} kgm²]: 3.01 Net weight [Kg]: 41 Additional feature Output Shaft: 35x70 mm Lubricant: CLP PG 220 (-25 / +40 ° C): 1.65 Liters Joint adhesive Adhesive bonding II Premium Sine Seal - FKM	Pcs	1	SEW	I
27	KA29/T AQH80/1	Bevel gear unit Overall gear ratio : 30,11 Output torque Mamax [Nm] : 126; Mounting position : M1A Base / top coat : 9005 Jet Black (51890050); Surface protection: OS2; Hollow shaft [mm] : 25; 2 seal FKM; Adapter centering diameter (B5) [mm] : 60; Adapter hole circle diameter (E5) [mm] : 75; Adapter coupling bore (D1) [mm] : 11; Clamping ring design Permitted output overhung load at n1=1500 [N] : 4400 Lubricant quantity 1st gear unit [Liter] : 0,7 Mass moments of inertia (referring to the input side) [10^{-4} kgm²] : 0,29 Net weight [Kg] : 10,13 Additional feature Lubricant: CLP PG 460 - NSF-H1(-20 / +60 °C): 0,7 Liter Joint bonding Joining adhesive II Premium Sine Seal - FKM T- Torque arm for shaft mounted feature stainless steel	Pcs	1	SEW	I

10.2.2 Instruction for the use of spare parts

- Only use original-manufactured-equipment (OEM)-spare parts.
- When ordering spare parts, please refer always to Olbricht Automation assembly-drawing-number and part-number. Proprietary spare-parts have to be identified with:
  a) Name of supplier/manufacturer
  b) Component designation
  c) Component identification-number
- The part-number in the part list is identical with the part-number on the associated assembly drawing.
- Some spare parts need special assembly instructions, operating manuals or data sheets.
  ➔ See folder „Assembly drawings” on CD ROM.

NOTICE

By using other spare parts, the safety and function of the machine are not guaranteed any longer. In this case Olbricht Automation assumes no responsibility.

10.2.3 Spare parts lists

➔ See folder „Spare parts list” on CD ROM.

11 Applicable Documents

11.1 Assembly Drawings

➔ See folder „ Assembly drawings” on CD ROM.

11.2 OEM Parts Documentation

➔ See folder „ OEM Parts Documentation” on CD ROM.

11.3 Wiring diagrams

➔ See folder „Wiring diagrams” on CD ROM.

11.4 Spare parts list

➔ See folder „Spare parts list” on CD ROM.

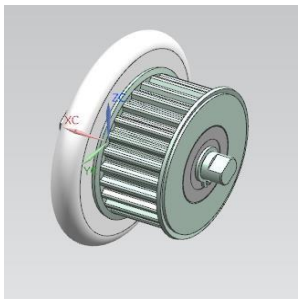
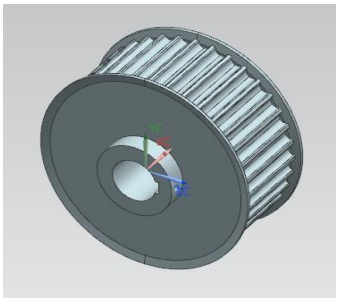
12 Preventive maintenance

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Sensors	5760 (12 months considering 16 hours a day every day including holidays)	• Integrity • Fixings • Check correct operation	In case of failure or malfunction, replace. For further information, refer to the manufacturer's instructions manual.



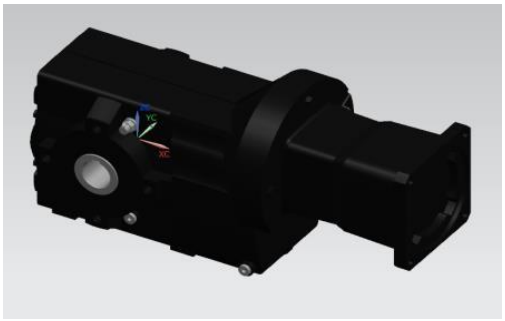
Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Pulleys and Rollers	2880 (6 months considering 16 hours a day every day including holidays)	• Wear • Damage • Noise Level Anomalies	Replace in the event of excessive wear

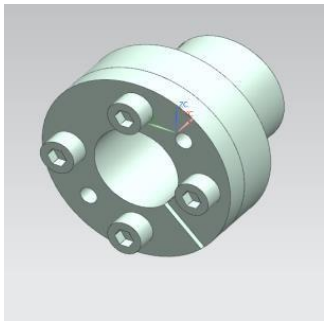
Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Gearbox	2880 (6 months considering 16 hours a day every day including holidays)	• Integrity • Fixings ✓ Screws tightness ✓ Lubrication ✓ Cleaning	Replace in the event of excessive wear. Clean using a dry and clean cloth. If necessary, use suitable detergents



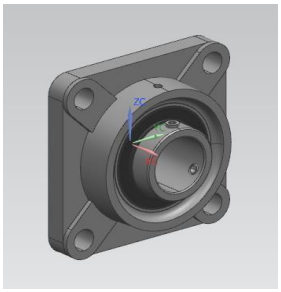
Pictures are only for illustration purpose.

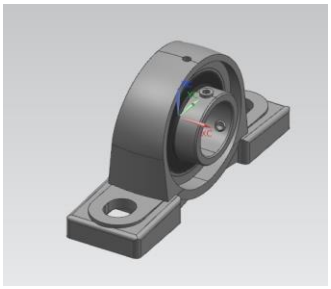
Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Shrink Disk	2880 (6 months considering 16 hours a day every day including holidays)	• Integrity • Malfunction	Replace in the event of excessive wear



Pictures are only for illustration purpose.

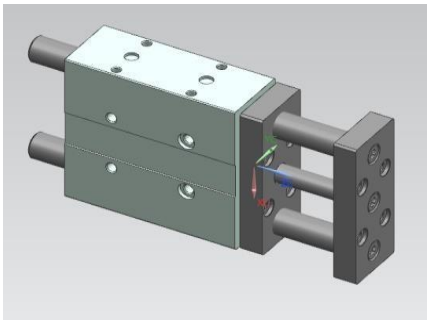
Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Bearing Units	1440 (3 months considering 16 hours a day every day including holidays)	✓ Lubrication • Integrity • Noise Level Anomalies	Grease(if required)





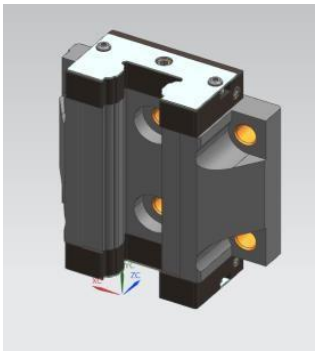
Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Guided Drivers	480 (1 month considering 16 hours a day every day including holidays)	• Sensors • Guide • Speed	For further information, refer to the manufacturer's instructions manual.



Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Carriage For Linear Guide	1440 (3 months considering 16 hours a day every day including holidays)	• Damage • Noise Level Anomalies ✓ Lubrication ✓ Cleaning	For further information, refer to the manufacturer's instructions manual. Lubricate the sliding tracks

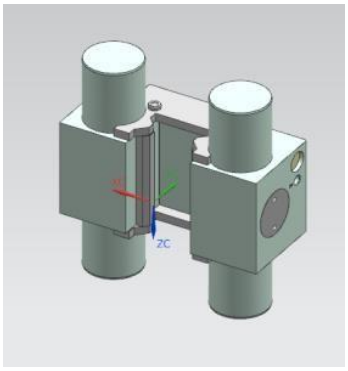


Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Belts	480 (1 month considering 16 hours a day every day including holidays)	• Damage • Wear • Tensioning	Tension the belts if necessary Replace in the event of excessive wear

Pictures are only for illustration purpose.

Intervention:		CHECK	
Maintenance:		Preventive	
Components	**Frequency (hours)**	**• Check ✓ Maintenance**	**Warnings**
Clamping and Braking Elements	2880 (6 months considering 16 hours a day every day including holidays)	• Damage • Noise Level Anomalies ✓ Cleaning	For further information, refer to the manufacturer's instructions manual.



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