WIRTH GMBH

Operating Instructions

Vacuum based lifting device for glass and façade elements

OKTOPUS® GLASS-Jack GL-CC 1200

Serial no.: A 810 930

Technical Documentation
BA 000 257
02/2017
This technical documentation corresponds to the status as of the issue date.

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1.1 Manufacturer's information

Manufacturer's name and registered office:

WIRTH GMBH
Installation Systems Division
Brehnaer Straße 1
D-06188 Landsberg

Device characteristics:

Product description:	OKTOPUS® GLASS-Jack GL-CC
Type:	OKTOPUS® GLASS-Jack GL-CC 1200
Serial number:	(see type plate)
Year of manufacture:	(see type plate)
Weight:	approx. 210 kg (with suction frame for flat glass panes, 8 suction pads, s. fig. 1)
	approx. 240 kg (with suction frame for flat glass panes, 12 suction pads, s. fig. 2)
	approx. 285 kg (with suction frame for curved glass panes, 20 suction pads, s. fig. 3)
Working Load Limit:	max. 800 kg (8 suction pads ∅400 mm)
	max. 1200 kg (12 suction pads ∅400 mm)
	max. 1000 kg (20 suction pads ∅280 mm)
	see also section 2.3 Symbols and markings
CE mark:	according to EC-Declaration of Conformity Annex 3

Inspection tag according to Annex 4 attached to the device.

1.2 Service workshop

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1.3 Scope of application

The operating instructions on hand represent the state-of-the art and the safety measures defined by the European Machinery Directive valid at the editing date of the manual.

Diverging or amending national regulations may not be considered eventually.

The user is exclusively responsible to observe such regulations.

2 Proper use of the OKTOPUS®

2.1 Functional principle and safety concept of the OKTOPUS® system

Devices of the OKTOPUS® system are ***"load lifting attachments"*** operating according to the principle *"vacuum lifter"*. They are mounted to a hoist or operate as a stand-alone unit and are used for handling and positioning large-sized construction elements.

The basic functional principles of the OKTOPUS® system are:

⇒ controlled suction and release of large-sized construction elements having sufficient inherent stability using one or more suction pad(s) of the OKTOPUS®,

⇒ transport and positioning of the sucked elements by manipulating the OKTOPUS®,

⇒ vernier positioning of the elements attached to the OKTOPUS® by controlling the OKTOPUS® axes (if available).

For various fields of application we offer different designs and types of the OKTOPUS®. These differ depending on the used hoist, the loads to be lifted, the required positioning movements and the used controls.

For further information please contact us or visit our website at www.wirth-gmbh.com.

Specific safety requirements, which have been taken into account during construction, execution, technical documentation and in drawing up the operating instructions, result from the function of the OKTOPUS® being a "load lifting attachment".

Therefore, strict adherence to the instructions and information for proper and safe use given in the operating manual is a prerequisite for the manufacturer's warranty during the stipulated warranty period.

Combining the OKTOPUS® with a hoist is the responsibility of the OKTOPUS® user. The user himself is responsible for proper implementation of the relevant guidelines and instructions. The instructions given in this operating manual by the OKTOPUS® manufacturer are considered to be additional support.

Prior to initial startup of the machine the suitability of the combination OKTOPUS®/forklift or crane in operating conditions has to be checked by skilled personnel.

Furthermore, the OKTOPUS® has to undergo regular inspections by an expert (see point 4.1). An expert is a person that due to his technical training and experience has sufficient knowledge in the area of load lifting attachments and is familiar with relevant occupational and safety instructions, regulations and generally recognized codes of practice which enables him to assess operational safety of load lifting attachments.

The initial inspection of the combination hoist/OKTOPUS® as well as the successful performance of the annual inspection of the OKTOPUS® by an expert has to be documented.

The OKTOPUS® manufacturer offers expert inspections as a service and documents the inspections on the OKTOPUS® by placing the inspection tag on the inspection card according to Annex 4 with the indication of the next test date.

2.2 Safety instructions

(1) When selecting a crane, consider the influence of the dead-weight load and load capacity of the **OKTOPUS® GLASS-Jack GL-CC 1200**, the wind and acceleration loads, the intended and unintended load eccentricities on the Working Load Limit and/or the stability of the crane as well as resulting reductions of the carrying capacity diagrams of the crane.

(2) **Never use a** damaged, not fully functional or not complete OKTOPUS®!

(3) Prior to initial startup **have an expert check and document** the combination crane/ OKTOPUS®!

(4) Only operate the crane with an **operating license**!

(5) Only operate OKTOPUS® and minicrane if you are familiar with **the control and display elements as well as the operating manuals**. You have to know how the functions affect the entire installation!

(6) **Prior to using** OKTOPUS® and crane check the function of the **control and display elements** as well as **the warning devices!**

(7) Ensure that the crane operator is able to overview the assembly and installation site!

(8) Agree on **hand signals** with the rigger or installer for the necessary crane movements!

(9) It is absolutely necessary to observe the maximum Working Load Limit of the **OKTOPUS® GLASS-Jack GL-CC 1200** stipulated in section **2.3 Symbols and markings**! These specifications only apply to a working height corresponding 400 m above sea level!

(10) If the suction pads are covered by **protecting cowls**, these have to be **removed** before startup!

(11) Only work at wind speeds **less than 30 km/h**, otherwise you risk uncontrollable swinging of the load!

(12) **Check the suction rubbers daily for damages**; if necessary replace the suction rubbers by new ones.

(13) **Clean the suction areas** of the glass panes. **Do not place** the suction pads on **protective film, releasing agents** or similar, but remove it at least at the contact areas of the suction pads.

(14) **Never stand or walk under the suspended load**!

(15) Make sure that **nobody climbs** the OKTOPUS® GLASS-Jack GL-CC 1200 or the suspended load and **tries to ride along.**

(16) **Stop working instantly if the alarm buzzer sounds and/or the red warning light is illuminated!** In this case the system is severely damaged and there is the risk that the sucked load might drop. Carefully lower the OKTOPUS® together with the sucked load with the help of the crane until the load is securely placed. The cause of the alarm has to be found and removed. In case of unrecoverable errors all operations with the OKTOPUS® have to be discontinued immediately. The OKTOPUS® has to be secured against further use.

(17) In case of **incidents** and maintenance work turn off the OKTOPUS®. Therefore, turn the main switch to position OFF!

(18) Never employ the OKTOPUS® in **explosive areas or in the area of aggressive media!**

(19) Take into consideration that **low temperatures** and **high humidity may cause freezing of the vacuum system**!

(20) **Never attempt to lift damaged glass or façade elements!**

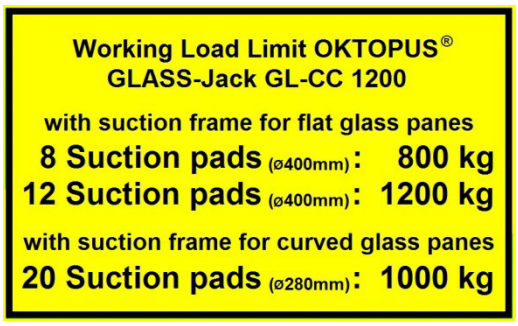
(21) **Do not lift** the load **higher than necessary**!

(22) **Never** leave the lifted load unsupervised!
(23) **Do not suck wet elements**, because
  a. **Working Load Limit is decreased considerably** and
  b. the vacuum system or the control system of the OKTOPUS® could be damaged!
(24) After use, protect the suction pads of the OKTOPUS® against damage by using protection cowls!
(25) **Always** wear suitable protective clothing, helmets, gloves and safety shoes!
(26) **Never lift more than one** glass or façade element at a time!
(27) Comply with the stipulated **maintenance information**:
  - **daily visual and functional inspection** (battery's charge level, vacuum gauges, suction pads, warning light, signal light, alarm buzzer, control panel)!
  - depending on the operating conditions, **but at least annually,** inspection by an expert!
(28) Never modify the OKTOPUS® in a way that safety is impaired. **Otherwise the manufacturer's warranty will be void!**
(29) Do not remove information signs, safety signs and inspection tags and plates from the OKTOPUS®. **Otherwise the manufacturer's warranty will be void!**

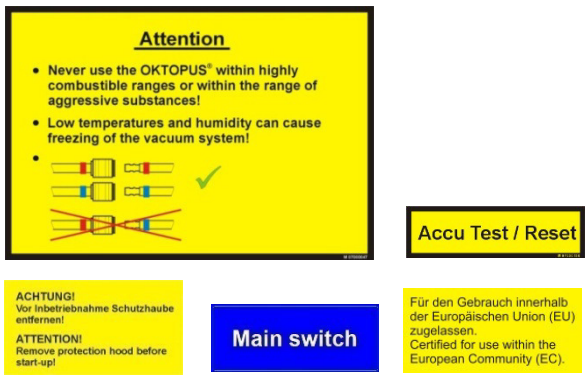
2.3 Symbols and markings

Signal word	Meaning	Consequences of non-compliance
DANGER	Warns of imminent threat of danger	Death or serious injury or substantial material damage as consequence.
WARNING	Warns of potential threat of danger	Death or serious injury or substantial material damages are possible.
ATTENTION	Warns of possibly dangerous situation	Light injury or material damages are possible.

Next to the type plate the following safety-related signs and pictographs are attached to the OKTOPUS®:



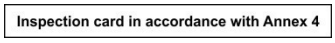
(Working Load Limit OKTOPUS®)



(General information / Warning signs)

(Before operating, read and comply with operating manual as well as safety instruction!)

(Beware of suspended load)



(Inspection card)

2.4 Structure and use of the OKTOPUS®

The OKTOPUS® GLASS-Jack GL-CC 1200 is a vacuum-based load lifting attachment for large-sized glass and façade elements with sufficient inherent stability and an at least partially smooth and airtight surface. It is designed to be used as an attachment for mini cranes and is coupled directly to the boom. Depending on the used suction frame it is possible to handle flat glass, curved glass (concave/convex with bending radius ≥ 2 m) or window elements. The OKTOPUS® GLASS-Jack GL-CC 1200 can be operated inside as well as outdoors.

The functional main assemblies of the OKTOPUS® are (s. fig. 1 to 3):

- die vacuum unit (2), that contains all components for generating and maintaining the vacuum,
- the adapter crane boom (12) for attaching the vacuum unit to the boom,
- the vacuum gauges (15) for indicating the existing negative pressure,
- die cylinders (4, 13) for tilting and swiveling the load,
- the red warning light (16) and the alarm buzzer (17), that indicate a hazardous situation, as well as the green signal light (21), that defines the working range,
- the main switch (20) for turning the device on/off and the transmitter of the radio remote control (s. Abb. 9) for operating the OKTOPUS®.

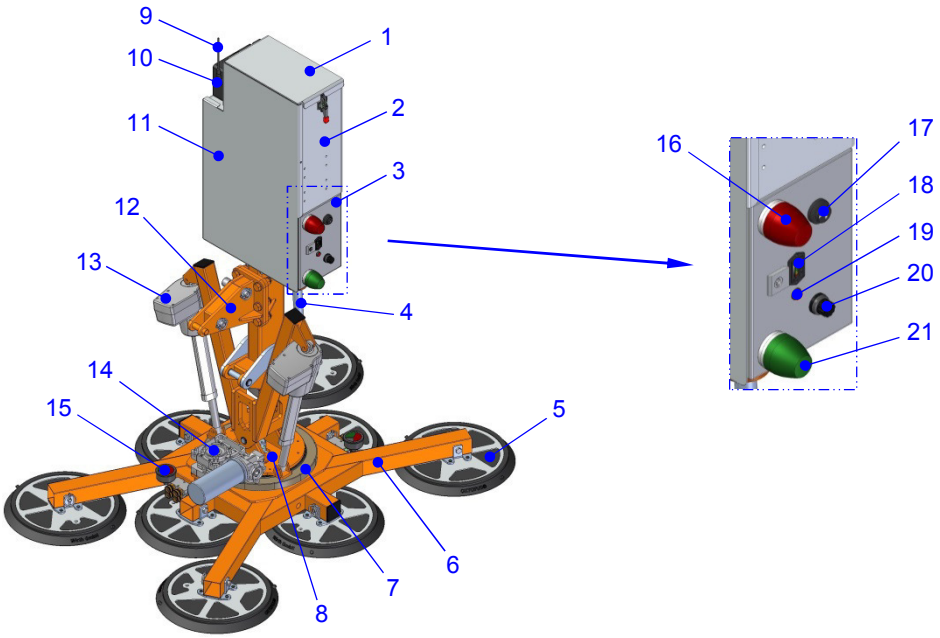
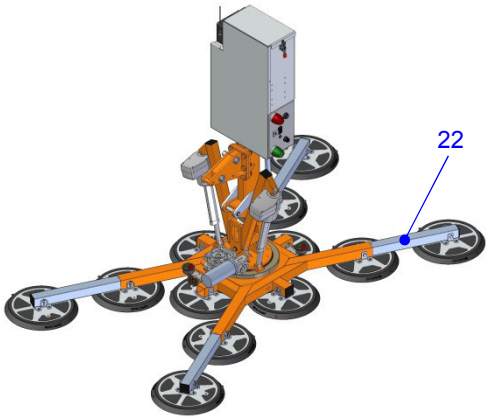


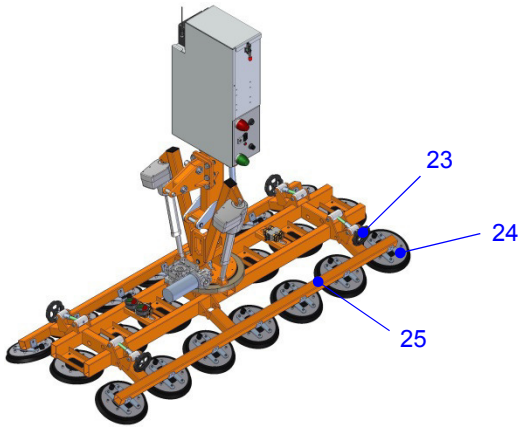
Fig. 1: OKTOPUS® GLASS-Jack GL-CC 1200 with suction frame for flat glass panes

1	Cover battery casing
2	Vacuum unit
3	Electric control box
4	Cylinder “Tilt”
5	Suction pad (ø400 mm)
6	Suction frame for flat glass panes
7	Ring gear
8	Rotate, tilt, swivel joint
9	Antenna
10	Receiver
11	Cover vacuum unit
12	Adapter crane boom (example)
13	Cylinder “Swivel”
14	Drive “Rotate”
15	Vacuum gauge
16	Warning light red
17	Alarm buzzer
18	Charge indicator
19	Button “Accu Test/Reset”
20	Main switch
21	Signal light green



22 Extension arm with suction pad ø400 mm

Fig. 2: OKTOPUS® GLASS-Jack GL-CC 1200 with suction frame for flat glass panes incl. extensions



23 Hand wheel
24 Suction pad (ø280 mm)
25 Suction frame for curved glass panes

Fig. 3: OKTOPUS® GLASS-Jack GL-CC 1200 with suction frame for curved glass panes

The load lifting attachment OKTOPUS® GLASS-Jack GL-CC 1200 is designed as an attachment and is mounted to a crane according to fig. 4.

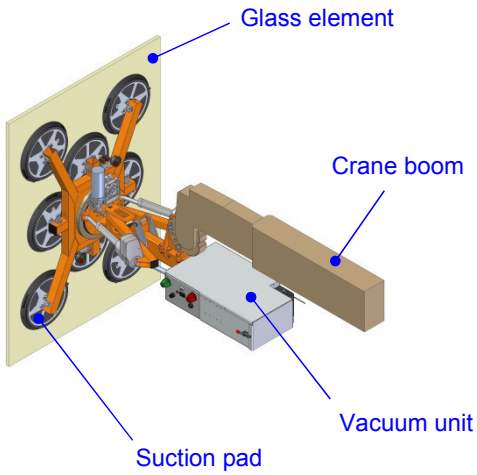


Fig. 4: Load lifting attachment OKTOPUS® GLASS-Jack GL-CC 1200

2.4.1 Arrangement of suction pads

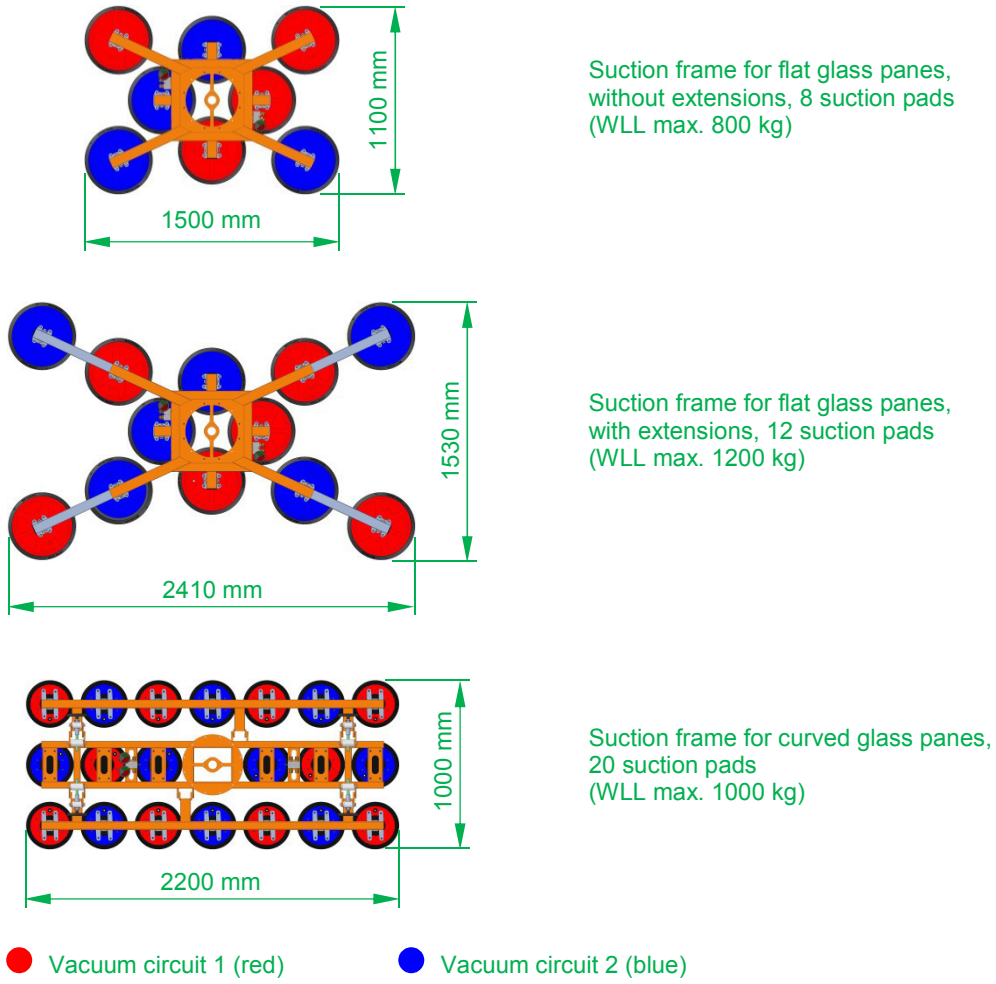


Fig. 5: Arrangement of suction pads

Please contact the Wirth service team, if an arrangement of suction pads differing from figure 5 is required.

WARNING

Always distribute the suction pads evenly on both vacuum circles! Non-compliance with these instructions could, in case of a breakdown of a vacuum circuit, lead to the load suddenly dropping due to an uneven load distribution.

2.5 Operating conditions and restrictions

The suction areas of the glass elements to be handled with the OKTOPUS® GLASS-Jack GL-CC 1200:

- have to be airtight,
- have to have an even, dry, oil-free and clean surface and
- must not be covered with protective film!

The OKTOPUS® ® is delivered with suction pads for even glass and façade elements.

Generally, no statements can be made regarding the length and the width of the elements to be installed with the OKTOPUS®, ®, as this depends – upon observing the safe work load criteria – almost exclusively on the inherent rigidity and the correlating deformation behavior of the construction elements.

Avoid suction of oil, water, vapors or aggressive gases. Ambient temperature has to be at least 0 °C and must not exceed 40 °C (applies only to 1013 mbar and sea level). At low temperatures the capacity of the used batteries is decreased. The airborne sound emitted by the OKTOPUS® GLASS-Jack GL-CC 1200 amounts to < 70 dB(A), vibrations are at < 2,5 m/s^2, so that no special protective measures are required.

Operating restrictions result from the limited Working Load Limit of the OKTOPUS® GLASS-Jack GL-CC 1200 (s. section 2.3 Symbols and markings), as well as the performance data, the operating conditions of the used crane and the building site conditions. Furthermore, you have to regard the fact that the handled elements have to have sufficient inherent stability and are suitable to be installed with a vacuum lifting attachment (if necessary consult with the manufacturer of the elements).

Due to the broad variety of elements with many different surface coatings offered on the market we cannot assume liability in case of possible material incompatibilities between suction rubber and surface coating.

The maximum Working Load Limit stipulated on the OKTOPUS® only applies to the use of the original suction pads and a working height of maximum 400 m above sea level. Employing the OKTOPUS® in heights above 400 m leads to a decreased Working Load Limit of the OKTOPUS®, on the one hand, on the other hand the OKTOPUS® control system needs to be adjusted. If you want to employ the OKTOPUS® in heights above 400 m, please contact the Wirth Service Team beforehand..

WARNING

Employing the OKTOPUS® at heights above 400 m leads to a decreased Working Load Limit! The Working Load Limits stipulated on the OKTOPUS® and in this operating manual do not apply in this case!

WARNING

Never carry out unauthorized adjustments at the control system of the OKTOPUS® as it may lead to serious malfunctions of the device! It means danger to life and limb! Consult with the OKTOPUS® manufacturer if it is necessary to adjust the control system of the OKTOPUS®, e.g. for height adjustment.

2.6 Transport and storage

The OKTOPUS® may be moved only by a suitable hoisting device/means of transport of appropriate Working Load Limit.

ATTENTION

For transport purposes put the OKTOPUS® out of operation! Turn the main switch to position OFF!

ATTENTION

Protect the rubber lip of the suction pads with protective cowls from dirt and damage!

ATTENTION **In order to avoid damage due to deep discharge of the batteries during storage, the OKTOPUS® has to be charged at least every two weeks.**

2.6.1 Transport by airplane

The transmitter of the radio remote control is equipped with a rechargeable lithium ion battery. Due to applicable international aviation safety regulations, this kind of battery may not remain in the transmitter during a flight.

WARNING **Remove the battery from the transmitter, if the transmitter is transported by airplane!**

3 Instructions for using the OKTOPUS®

3.1 Electrical power supply

Electrical power is supplied by a battery pack 24 V / 24 Ah (2 pcs. 12 V batteries in series connection). In order to increase operating time with the OKTOPUS®, it is delivered with two battery packs. While one battery pack is built in the OKTOPUS® and supplies it with energy, the second battery pack can be charged (see also section 4.4).

The charge level of the built-in battery pack is monitored and secured by a charge indicator. It is indicated by light-emitting diodes (LED) with the signal colors yellow and red (fig. 6). A chain of seven yellow LEDs indicates the residual charge of the battery when reaching certain charge levels. With progressing discharge the LEDs will turn off one after another.

In order to monitor the charge level you can read the following information on the charge indicator:

⇒ At a level of approx. 70% discharge the LED on the very left starts flashing (advance warning).

⇒ At a level of approx. 80% discharge the last yellow LED turns off and the red LED lights up. The alarm turns on. The alarm can only be deactivated by stopping the work and turning off the device. The battery has to be charged, the charge indicator has possibly to be reset (activated).

The charge indicator is arranged to the device according to fig. 1.

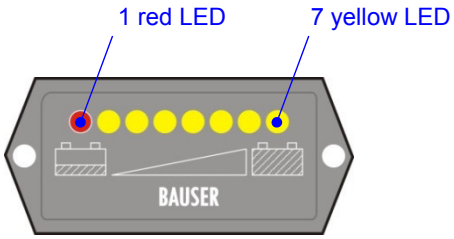


Fig. 6: Charge indicator

The button “Accu Test/Reset” (see fig. 1) that is located close to the charge indicator allows checking the function of the charge indicator, determining the current charge level of the battery and resetting the charge indicator. If the button Accu Test/Reset is pressed permanently when the device is turned off, the following program runs automatically:

1. all LEDs are illuminated for approx. 2 sec., if the charge indicator works properly,
2. after approx. 2 sec. the LEDs indicate the current charge level of the battery,
3. after approx. 5 sec. the charge indicator is reset, provided that it is locked (red LED illuminates) or not all 7 yellow LEDs are illuminated despite the battery is fully charged. If the charge indicator is not reset, i.e. it does not indicate a full charge after approx. 5 sec. (red LED turned off, 7 yellow LED turned on) the battery voltage was not sufficient. Either the battery system or the charging unit is defective.

WARNING

If the red LED lights up instantly stop or discontinue working. Immediately evacuate the hazard zone and lower the load, as the suctioned element could suddenly disengage. Never stand or walk under the OKTOPUS® or the suctioned element!

3.1.1 Changing the battery pack

In order to change the battery pack, perform the following steps one after another:

⇒ Unlock and then open the cover of the battery casing.

⇒ Pull the battery pack out of the battery casing using the handle.

⇒ Put the battery pack on an even surface, as shown in fig. 7.

⇒ Push the charged battery pack, the socket of the battery charger facing upwards, into the battery casing as far as possible. The electrical contact is established automatically to the electric system of the OKTOPUS®.

⇒ Close the cover of the battery casing and lock it.

WARNING **Make sure that the cover of the battery casing is correctly locked before you start working with the OKTOPUS® GLASS-Jack GL-CC 1200!**

ATTENTION **Never place the battery pack on its side as this may lead to damages of the battery charger socket**

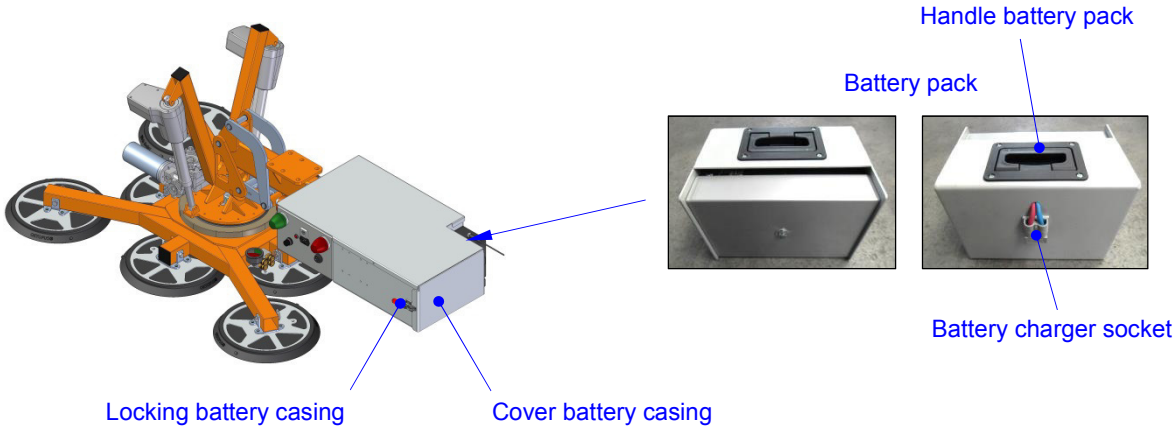


Fig. 7: Battery pack

3.2 Vacuum supply

The vacuum supply is effected by a battery operated vacuum pump. Starting at the vacuum pump the OKTOPUS® GLASS-Jack GL-CC 1200 is designed redundant, i.e. all following components such as non-return valve, vacuum reservoir, pressure controller, vacuum gauge and suction pads exist twice (2 Vacuum circuits).

The 2 vacuum circuits OKTOPUS® GLASS-Jack GL-CC 1200 are marked by different colors, one color per vacuum circuit (blue and red). Make sure that only vacuum hoses and couplings of the same color are interconnected.

The OKTOPUS® GLASS-Jack GL-CC 1200 mounted to the crane is ready for use, when a sufficient vacuum level is reached in both vacuum tanks. The current vacuum level is constantly indicated on the vacuum gauges (fig. 8).

The green scale range is the

permissible working range from -0.65 bar to -0.9 bar.

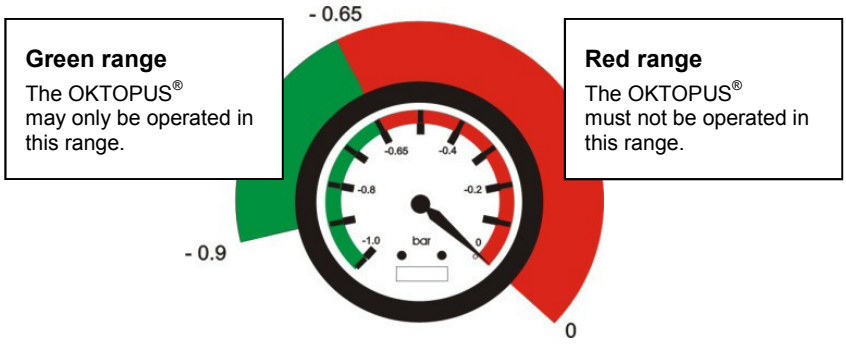


Fig. 8: Vacuum gauge

During operation the vacuum is monitored by two pressure controllers. If the vacuum is in the working range in both vacuum circuits, the green signal light is illuminated. The OKTOPUS® is ready for use.

If the vacuum decreases impermissibly in one or both vacuum circuits or the pressure rises above -0.65 bar (red scale range), a warning is triggered automatically:

⇒ alarm buzzer sounds,

⇒ red warning light is illuminated.

WARNING

Only interconnect vacuum hoses and couplings of the same color! Non-compliance with these instructions could, in case of a breakdown of a vacuum circuit, lead to the load suddenly dropping due to uneven load distribution.

WARNING

If the alarm is activated, stop working instantly and evacuate the hazard zone, as the sucked element could disengage suddenly. Never stand or walk under the OKTOPUS® or the suctioned element!

ATTENTION

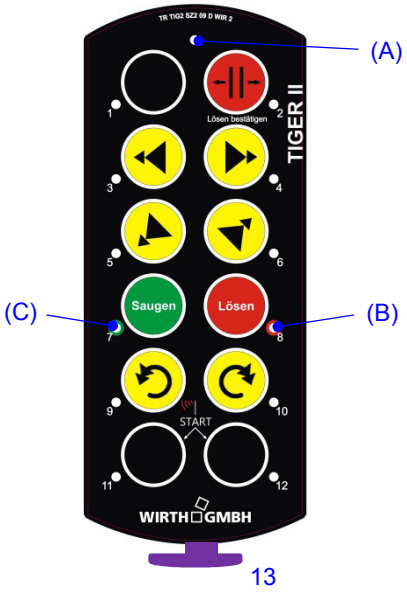
The alarm remains active until the vacuum pressure is restored within its permitted limits.

3.3 Radio remote control

The OKTOPUS® GLASS-Jack GL-CC 1200 is operated with a radio remote control. The transmitter of the radio remote control is shown in fig. 9.

WARNING

Radio remote controls are subject to national standards. For this reason, check if it is permitted to employ the radio unit at the operation site prior to turning it on. In case of doubt contact the OKTOPUS® manufacturer.



Functions of the transmitter

Button 1 None
Button 2 Release return key
Button 3 Swivel to the left
Button 4 Swivel to the right
Button 5 Tilt down
Button 6 Tilt up
Button 7 Suction (corresponding LED (C) lights up)
Button 8 Release (LED (B) lights up; confirm release with button 2)
Button 9 Rotate to the left
Button 10 Rotate to the right
Button 11 Start
Button 12 Start
Button 13 Stop button / Emergency stop button

Stop button / Emergency stop button

Pressing the stop button / Emergency stop button immediately stops the movements of the suction frame. Simultaneously the OKTOPUS® switches to “suction” due to safety reasons.

Fig. 9: Transmitter radio remote control

Starting the transmitter

1. Pull the stop button (13) out.
   ⇒ The light-emitting diode (A) is illuminated green or red (green = Battery capacity is good, red = Battery of the transmitter has to be charged).
2. Push both start buttons (11 and 12) at the same time.
   ⇒ The built-in buzzer beeps.
3. Release start buttons (11 and 12).
   ⇒ The buzzer stops beeping. The light-emitting diode (A) flashes green or red (green = Battery capacity is good, red = Battery of the transmitter has to be charged).
4. If the radio communication has been established, the light-emitting diode (A) is illuminated green or red (green = Battery capacity is good, red = Battery of the transmitter has to be charged). If the radio communication has not been established within 25 seconds the transmitter turns off.

Turning the transmitter off

The transmitter is turned off by pressing the stop button (13). By turning the transmitter off the receiver is also put in standby.

Charging the transmitter

The light-emitting diode (A) is illuminated green (charged) or red (discharged) depending on the charge level. The operating time of the transmitter with continuous usage is approximately 24 hours. If the light-emitting diode (A) is illuminated red and the built-in buzzer beeps 3 times at the same time, the rechargeable battery needs to be charged. In this case the remaining capacity of the battery is approx. 10%.

In order to charge the battery, remove it from the transmitter and charge it using the charger. During charging you can insert the other battery that was included in the delivery into the transmitter and continue working with your OKTOPUS®. Alternatively, you can connect the plug of the battery charger with the socket on the back of the transmitter. The socket is located under a cover. While charging, the light-emitting diode (A) flashes red. When fully charged, the light-emitting diode (A) lights up green.

The used lithium-ion battery is unsusceptible to charging cycles that are too long. The lithium-ion battery also does not have to be fully discharged before being recharged. In order to prevent deep discharge of the battery it should at least be charged once every two month.

3.4 Coupling the OKTOPUS® to the crane boom

In order to be able to couple the OKTOPUS® GLASS-Jack GL-CC 1200 to the crane boom, you need an “Adapter crane boom”. The Wirth Service team will be happy to advise you.

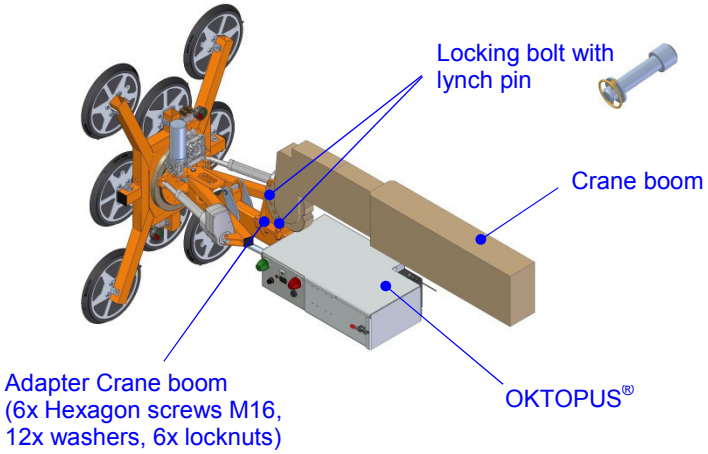


Fig. 10: Coupling the OKTOPUS® to the head of the crane boom

Couple the OKTOPUS® to the crane hook as follows:

- Mount the “Adapter crane boom” using the screws M16, washers and locknuts included in the delivery.
- Attach the OKTOPUS® to the head of the crane boom using the two locking bolts with lynch pin included in the delivery (s. fig. 10).

WARNING

Make sure that after performing adjustment works all screws M16 are firmly tightened and that the locking bolt is secured with the lynch pin provided by the manufacturer!

WARNING

When coupling crane/OKTOPUS®, make sure that both, crane and OKTOPUS®, are shut down!

3.5 Startup

In order to start-up the OKTOPUS® proceed as follows:

- Turn the main switch of the OKTOPUS® to position “ON” and activate the transmitter of the radio remote control according to point 3.3 of this operating manual.
- First press the button “Release” (8) and “Release return key” (2) of the transmitter of the radio remote control.
- Check the battery’s charge level on the charge indicator,
  - ⇒ if the yellow LED lights up, the device is ready for operation,
  - ⇒ in case the yellow LED flashes and/or the red LED lights up (alarm is triggered at the same time), the battery has to be recharged (see also section 3.1 Electrical power supply)!

3.6 Handling of glass and façade elements

Prior to the uptake of construction elements:

⇒ the suction frame suitable for the load to be handled has to be mounted, if not done yet (see section 3.7).

⇒ the OKTOPUS® has to be coupled to the crane as described in section 3.4.

⇒ when using the suction frame for flat glass panes, the extension arms have to be assembled or disassembled, if necessary (see section 3.8).

⇒ when using the suction frame for curved glass panes, the outer suction pad beams have to be adjusted to the bending radius of the glass/façade element, if necessary (see section 3.9).

⇒ the OKTOPUS® has to be put into operation according to 3.5.

The installation of construction elements is carried out as follows:

⇒ Move the crane with the attached OKTOPUS® GLASS-Jack GL-CC 1200 to the construction elements. Position the suction pads parallel to the suction area of the load by pressing the buttons “Swivel to the left” (3), “Swivel to the right” (4), “Tilt down” (5), “Tilt up” (6) as well as “Rotate to the left” (9) and “Rotate to the right” (10) of the radio remote control as well as by the driving and lifting movements of the crane.

⇒ Position the suction pads of the OKTOPUS® above the center of mass of the load (±5 cm]) and place them on the suction area. If the surface of the construction element is covered with protective film, remove the protective film at least area of the suction pads before placing the OKTOPUS®.

⇒ Press the button “Suction” (7). The glass or façade element is suctioned.

⇒ Only lift the load after the red warning light and the alarm buzzer have turned off, the vacuum gauges indicate that the working area has been reached (see fig. 8), the green signal light is illuminated and you have ensured that nobody is in the hazardous area.

⇒ Do not lift the load higher than necessary!

⇒ Bring the suction pads including the load into the required position by pressing the buttons (3) to (6) as well as (9) and (10) of the radio remote control and as well as by the driving and lifting movements of the crane.

⇒ Fix the construction element to the installation site in such a way that it doesn't constitute a danger after being released!

⇒ Afterwards the construction element is released. First press the button "Release" (8) and then the "Release return key". The confirmation is an additional safety measure against unintentional operating errors.

WARNING

Make sure that the load is properly attached to the OKTOPUS®! Unbalanced loads can cause damage to the device!

WARNING

As a result of the own weight of the OKTOPUS® there is still a residual vacuum after venting the suction pads through the vacuum system. Jerkily lifting the OKTOPUS® increases this effect. Therefore, always remove the device slowly and steadily from the installed elements.

DANGER

With certain combinations of pane sizes, type and radius of curvature, such elements may hit the crane boom during handling. This can cause the elements to be damaged or fall down!

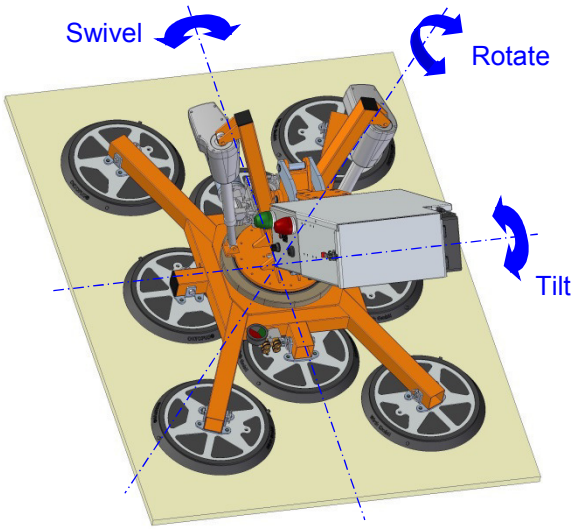


Fig. 11: Handling glass and façade elements

3.7 Changing the suction frame

For changing the suction frame for flat glass panes to the suction frame for curved glass panes, we recommend to proceed as follows:

⇒ Couple the OKTOPUS® to a crane using a lifting strap and slightly lift it.

⇒ Remove all 8 suction pads from the suction frame and bring the suction frame into position as shown in figure 12. Leave the crane rigged during the entire dis-/assembly time. Make sure that the crane ropes are always stretched.

⇒ Disassemble the vacuum manifold (s. Abb. 12) as follows:

- Loosen all 6 quick couplings of the Vacuum manifold.

- Remove the hexagon screws M8x20 that attach the Vacuum manifold to the suction frame.
- Carefully pull the Vacuum manifold off the axle.

⇒ Remove the 12 hexagon screws M8x30 that secure the suction frame to the ring gear.

⇒ Carefully lift the OKTOPUS®, move it towards the suction frame for curved glass sitting on two additional support trestles and put it down there. Make sure that the axle with the O-rings does not strike against anything.

⇒ Assemble the Vacuum manifold as follows:

- Push the Vacuum manifold on to the axle with the O-rings.
- Align the quick couplings of the Vacuum manifold so that the vacuum hoses of the suction frame can be connected to the same colors.
- Secure the Vacuum manifold using the two previously removed hexagon screws M8x20, washers and spring washers. Initially tighten the hexagon screws only a few thread turns into the suction frame.

⇒ Secure the suction frame to the ring gear. Therefore mount 12 hexagon screws (8 pcs. M8x30 and 4 pcs. M8x110), washer and spring washers. Use 4 hexagon crews M8x110 where the screws M8x30 are too short due to the rectangular profile of the suction frame. Firmly tighten the screws.

⇒ Firmly tighten the hexagon screws M8x20 of the Vacuum manifold and couple the just mounted suction frame to the vacuum system of OKTOPUS® by plugging in all four quick couplings (Make sure they are of the same color!).

WARNING **The above mentioned steps shall be carried out by at least two persons. One person assembles, the other one guides and secures the OKTOPUS®!**

WARNING **Leave the crane rigged during the entire dis-/assembly time. Make sure that the crane ropes are always stretched!**

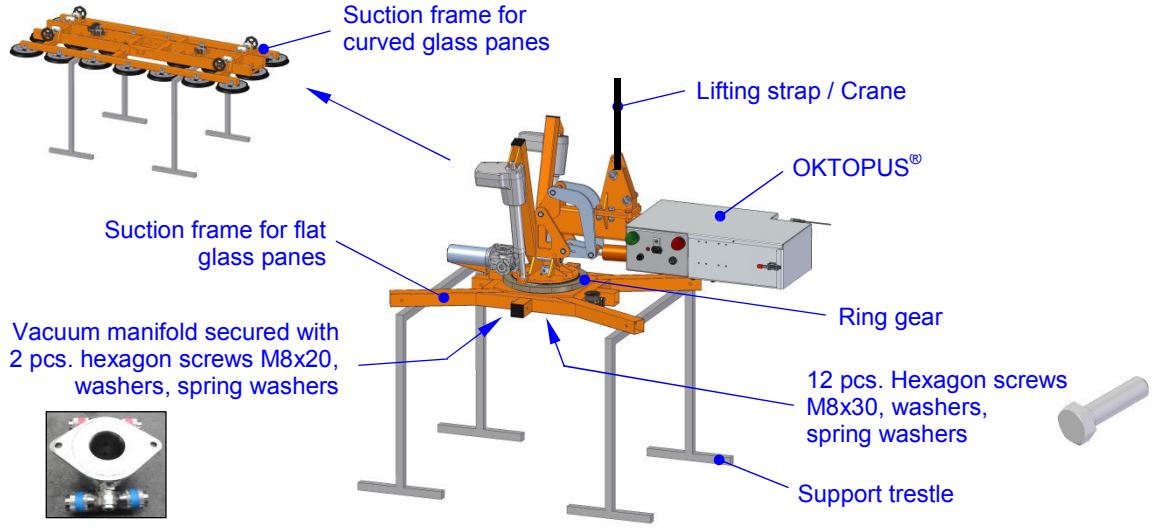


Fig. 12: Changing the suction frame

When changing the suction frame for curved glass follow the same procedure as described above but make particularly sure that:

- all six quick couplings are plugged into the vacuum manifold when coupling the suction frame to the vacuum system of the OKTOPUS®. Two suction pads are connected directly to the vacuum manifold (1x red vacuum circuit, 1x blue vacuum circuit).
- the suction frame is secured to the ring gear using 12 hexagon screws M8x30.
- all 8 suction pads are mounted to the suction frame and coupled to the OKTOPUS® according to figure 5.

3.8 Assembly of the extension arms

The extension arms are mounted to the suction frame for flat glass panes as follows:

⇒ Couple the OKTOPUS® GLASS-Jack GL-CC 1200 to a crane and position the suction panes so that they are facing the floor.

⇒ Perform the following steps one after another for each of the four extension arms:

- Remove the lynch pin as well as the corresponding locking bolt.
- Push one extension arm with suction pad into the basic frame.
- Lock the extension arm with the previously removed locking bolt and the lynch pin.
- Couple the suction pad that is attached to the extension arm to the vacuum system.

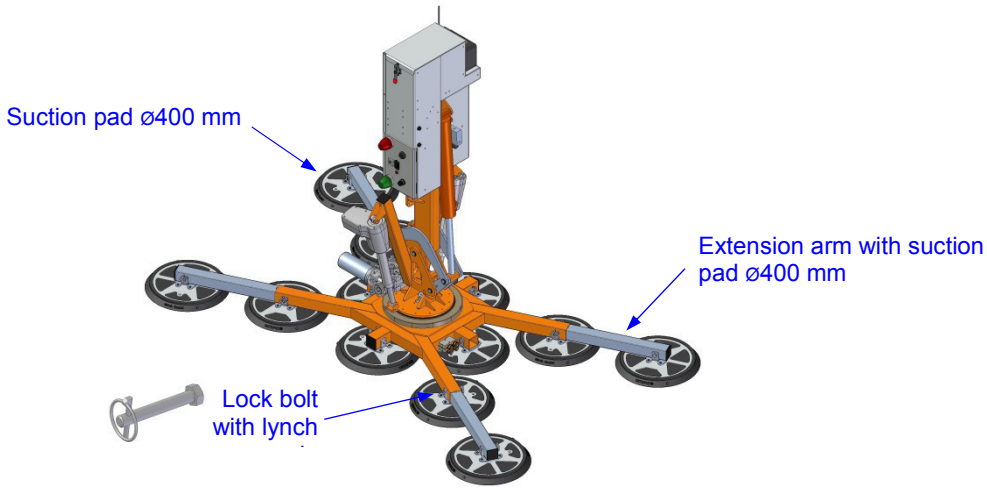


Fig. 13: Assembly of the extension arms

WARNING **Only connect vacuum hoses and couplings of the same color (also see fig. 5)!**

WARNING **Make sure that after performing adjustment works all locking bolts are completely secured by lynch pins provided by the manufacturer!**

Disassembly of the extension arms is performed in reverse order.

3.9 Adjusting the suction frame to curved glass and façade panes

The OKTOPUS® GLASS-Jack GL-CC 1200 is designed so that also convex and concave curved glass and façade panes can be handled if the suction frame for curved glass panes is mounted. The glass and façade elements have to have a radius of at 2 m.

The suction pads are adjusted to the radius of the glass and façade elements as follows:

- Move the OKTOPUS® to the curved glass / façade element.
- Adjust the outer suction pad beams to the bending radius of the glass and façade elements. Therefore adjust the inclination of the swivel arms with the help of the hand wheels.

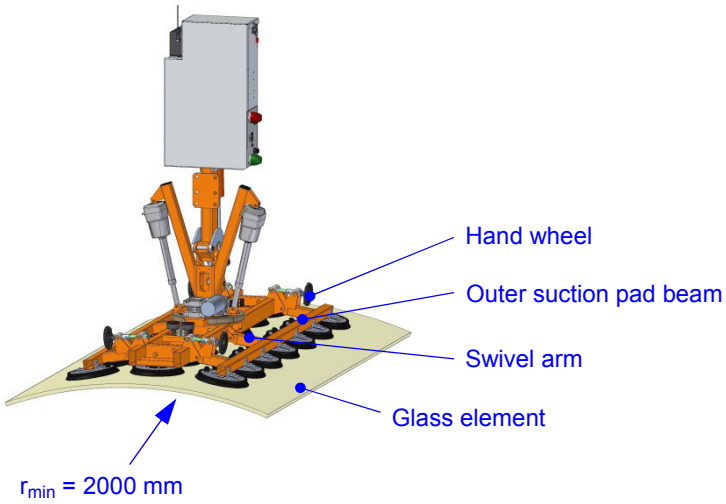


Fig. 14: Adjusting the suction frame to curved glass und façade elements

WARNING

Never operate the hand wheels when a glass pane is suctioned! Otherwise the glass pane could drop off and thus cause serious injuries.

DANGER

With certain combinations of pane sizes, type and radius of curvature, such elements may hit the crane boom during handling. This can cause the elements to be damaged or fall down!

4 Service and maintenance

4.1 General remarks

Since the OKTOPUS® system is a load lifting attachment both the manufacturer and the operator bear a high responsibility to guarantee the relevant safety standard throughout the entire operating time. Thus, service and maintenance are of great importance.

For maintaining a high level of operational safety the OKTOPUS® GLASS-Jack GL-CC 1200 has to be inspected by the service workshop of Wirth GmbH or by an especially qualified person

⇒ at least every 12 months or in shorter intervals, if required by national standards or regulations or

⇒ after special incidents.

Additional operative and scheduled maintenance and service work may only be performed by a skilled expert. Maintenance and service work may only be performed when the device is taken out of operation.

WARNING **Before performing any repair or maintenance work turn off the OKTOPUS®; turn the main switch to position "OFF".**

Defective parts may only be replaced with original spare parts. They will be provided on request after consulting with the service team of the OKTOPUS® manufacturer. Using not original spare parts leads to exemption from liability by the manufacturer.

In order to perform maintenance and service work an appropriate tool kit has to be used.

WARNING **Maintenance always has to be followed by a functional check.**

If damages cannot be repaired by the operator's staff the Wirth GmbH service workshop needs to be informed.

4.2 Mechanical system

The mechanical system is sturdy and provided with a surface protection. Maintenance works on your side comprise

⇒ **daily visual inspection of the mechanical components of the** OKTOPUS® GLASS-Jack GL-CC 1200 for damages before startup.

The OKTOPUS® GLASS-Jack GL-CC 1200 is a load lifting attachment. Therefore, repairs on the mechanical function parts shall exclusively be carried out by the OKTOPUS® manufacturer.

WARNING **Do not perform any repairs at mechanical functioning parts!**

4.3 Vacuum system

Vacuum components, subjected to wear and being relevant to safety have to undergo inspections on a regular basis. You have to:

⇒ **daily** check the components in terms of their correct position and mechanical damages, especially:

- the suction pads (replace suction pads, if necessary),
- the hoses (replace hoses, if necessary),
- the vacuum gauges.

WARNING

Replace the suction pads and the hoses immediately if these have mechanical damages (cracks, cuts, etc.)! These damages could lead to a reduced Working Load Limit of the OKTOPUS®.

The vacuum pump runs without oil. The robust design allows a maintenance-free operation. Two dust filters (1 dust filter per vacuum circuit) prevent dust to enter the vacuum pump and in case of the suction frame, a filter is integral to each suction pad. Therefore, maintenance of the vacuum system is focused on these parts:

⇒ Cleaning if dust can be seen in the filter (see figure 15). Therefore, remove the cover of the vacuum unit when there is no vacuum (see fig. 1; pos. 11), unscrew the plastic cap of the dust filter, take the foam insert out and clean it, reassemble the dust filter.

⇒ The filter is located in the through-hole to the connector of the vacuum hose. If the filter is polluted, you should clean it.

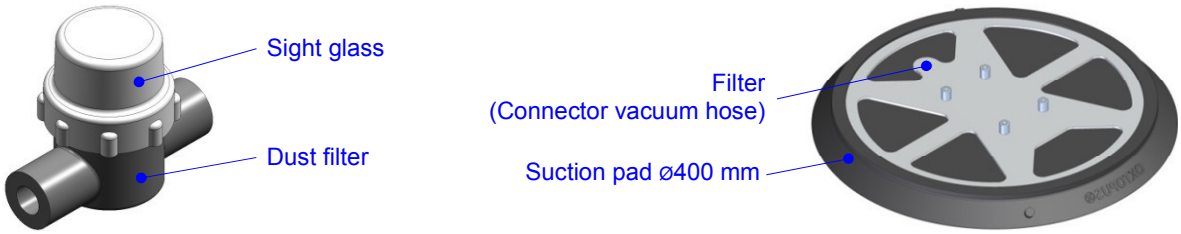


Fig. 15: Dust filter and suction pad

4.3.1 Cleaning the suction pads

Always clean the suction pads prior to every operation of the OKTOPUS®, if the suction areas are soiled (dirt, dust, oil, etc.). Dirt could cause leakages and leave marks on the manipulated elements.

For cleaning the suction pads we recommend to use water, if necessary add some detergent. Do not use chemical solvents, petrol, diesel oil or similar in any case.

WARNING

Never use solvents, petrol or aggressive chemicals for cleaning the suction pads! Otherwise this may result in damaging the suction pads, which could endanger the operator as well as others.

Ensure that no fluids enter the vacuum system during the cleaning process by positioning the suction pads or by covering the suction opening. Give the suction pads a sufficient amount of time to completely dry before operating the OKTOPUS®.

4.4 Electrical and electronic components

The OKTOPUS® GL-CC 1200 is powered by maintenance free lead-batteries with acid-gel as electrolyte. The battery casings are sealed hermetically.

Maintenance work focusses on:

⇒ **daily** visual inspection of the external electrical functional and alarming equipment:

- warning light,
- signal light,
- alarm buzzer,
- cables.

⇒ visual inspection of the battery's charge level shown on the charge indicator (see fig. 6).

⇒ charging the battery packs.

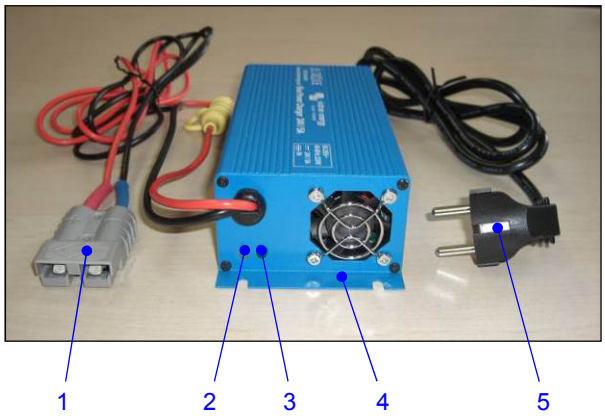
For charging the battery packs a 24 V / 5 A battery charger is provided by the OKTOPUS® manufacturer (see fig. 16).

WARNING

Before connecting the battery charger check if it is compatible to your power grid! The performance data are stipulated on the battery charger.

ATTENTION

If you want to use a battery charger other than the one provided with the OKTOPUS®, it is absolutely necessary to contact the Wirth Service Team beforehand!



1 Charging plug charger
2 Yellow LED
3 Green LED
4 Battery charger
5 Power plug

Fig. 16: Battery charger (sample)

Charging is carried out as follows:

- Pull the battery pack out of the battery casing of the OKTOPUS® and place it on an even surface (see also section 3.1.1).
- Connect the charge plug of the battery charger with the battery charger socket of the battery pack.
- Connect the mains plug of the battery charger with a power outlet and thus with the power grid in order to start the charging process.
- The charging process is completed when the yellow LED is constantly illuminated.
- In order to disconnect the battery charger from the battery pack proceed as follows:

1. disconnect the battery charger from the power grid,
2. disconnect the battery charger from the battery pack.

LED Display

⇒ The green LED lights up if the battery charger is connected to the power grid.

⇒ The yellow LED flashes quickly during the first charging phase and slower during the second. At the end of the charging process the yellow LED is permanently illuminated.

For maintenance and in case of breakdown of the charging unit please contact our Service Team.

ATTENTION **The sealed lead-gel battery requires strict adherence to the charging instructions!**

ATTENTION **In order to avoid damage due to deep discharge the batteries of the OKTOPUS® have to be charged at least every two weeks.**

WARNING **The battery charger has to be protected from spray water and has to be set up in a way that the air vents and the fan are unobstructed and cannot be pierced through by pointed objects.**

5 Handling incidents

Incidents are indicated by the red warning light and the sound of the alarm buzzer. A fading sound of the alarm buzzer signals total breakdown of electrical power supply.

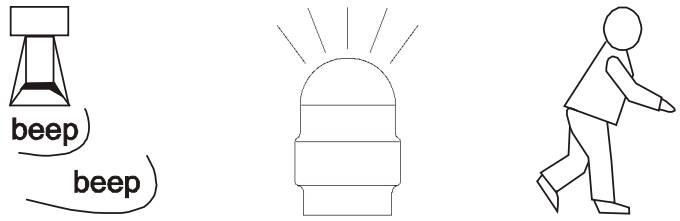


Fig. 17: Warning devices

When the alarm buzzer sounds and/or the red warning light flashes immediately leave the hazard zone, since the suctioned element might suddenly drop Locate and rectify the cause for the alarm. If you cannot remedy the fault, stop operating the OKTOPUS® immediately. After releasing a possibly sucked element the OKTOPUS® has to be secured against further use.

WARNING

In case of faults that cannot be remedied, working with the OKTOPUS® shall be stopped immediately. The OKTOPUS® has to be secured against further use.

If the red LED on the charge indicator is illuminated when turning the OKTOPUS® on, the timer for shutoff is activated. This avoids inducing impermissible short working cycles by turning the device on and off. The built-in battery pack has to be charged.

If the display of the charge indicator is not illuminated when turning the OKTOPUS® on please contact the Wirth GmbH Service Team immediately.

6 Disposal and recycling

For packaging the OKTOPUS® materials like wood, cardboard, paper and film are used. These materials shall be recycled according to national regulations.

To dispose the OKTOPUS® hand it over to a waste management company. If you have any question, please do not hesitate to contact Wirth GmbH.

ATTENTION

For environmental reasons, hand over the OKTOPUS® for disposal to a waste management company being fully aware and observing the respective national regulations!

Brief instructions OKTOPUS® GLASS-Jack GL-CC 1200

1 Preparations

(1) Mount suitable suction frame.
(2) Couple the OKTOPUS® to the crane.
(3) If necessary, assemble / disassemble extensions or adjust the outer suction pad beams to the bending radius of the glass / façade element.

2 Startup of the OKTOPUS®

(1) Turn main switch to position “ON” and switch on the transmitter of the radio remote control.
(2) First press the button “Release” (8) and then the “Release return key” of the radio remote control (2).
(3) Check the batteries charge level on the charge indicator:
- if the outermost yellow LEDs flash or the red LED already lights up load the battery.
- if the yellow LEDs signalize a sufficient charge level the OKTOPUS® is ready for operation.

3 Instructions for use

(1) Preparing the construction element:
- Check the surface of the construction element: The surface has to be even, airtight, clean and dry at least on the suction area. There must be no protective film on the suction areas.

(2) Attaching the construction element:
- Place the suction pads of the OKTOPUS® in the center of the construction element.
- Press the button “Suction” (7).
- Only lift the load after the red warning light and the alarm buzzer have turned off, the vacuum gauges indicate that the working area has been reached, the green signal light is illuminated and you have ensured that nobody is in the hazardous area.

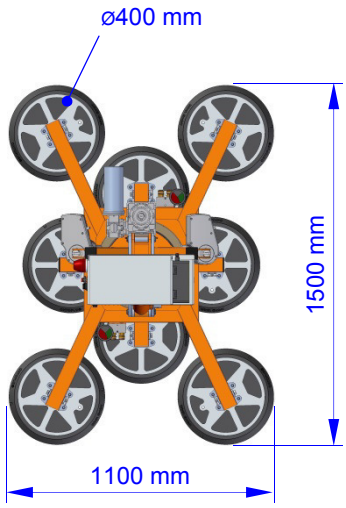
(3) Position the construction element:
- Lifting and positioning the construction element by:
  - driving and lifting movements of the crane,
  - rotating, swiveling and tilting of the suction frame.
- Mount the construction element on the installation site.

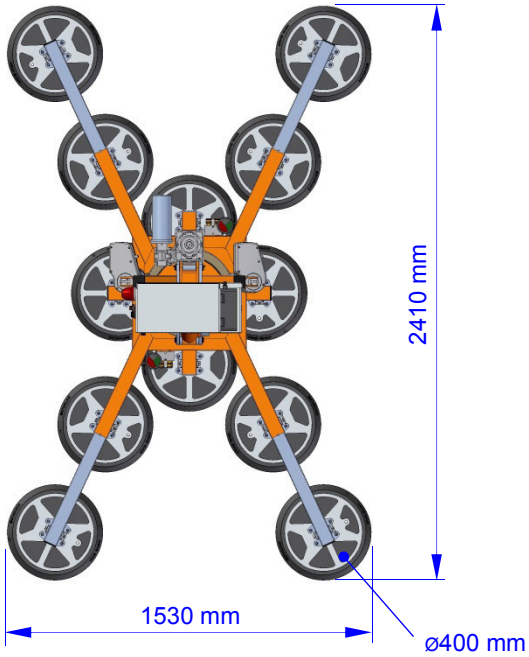
(4) Releasing the construction element
- For releasing the construction element first press the button “Release” (8) and then the “Release return key” (2).

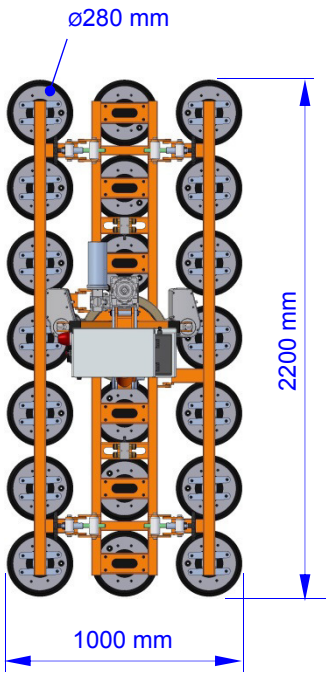
4 Taking the device out of operation

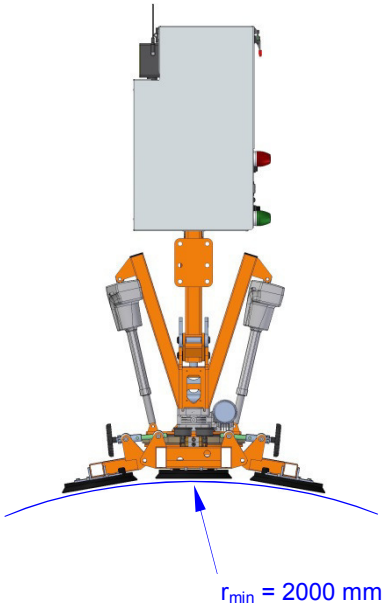
- Lower the crane.
- Turn the main switch of the OKTOPUS® to position “OFF” and deactivate the transmitter of the radio remote control.
- Disconnect OKTOPUS® / crane.
- If the OKTOPUS® is taken out of operation for a longer period the battery packs have to be charged at least every two weeks.

Functional dimensions









EC Declaration of Conformity

According to Annex II A of the EC Machinery Directive 2006/42/EC

Manufacturer: WIRTH GMBH
Installation Systems Division
Brehnaer Straße 1
D-06188 Landsberg

We hereby confirm that the machine hereinafter described is in conformity with any provision relevant to the EC Machinery directive 2006/42/EC:

Product description:	OKTOPUS® GLASS-Jack GL-CC
Type:	OKTOPUS® GLASS-Jack GL-CC 1200
Serial number:	A 810 930
Year of manufacture:	07 / 2018

Furthermore the machine corresponds with the requirements of **EC Directive 2009/104 EC concerning the minimum safety and health requirements for the use of work equipment by workers at work,** of **EC Directive 2001/95 EC on general product safety** and of **EC directive 2014/30/EU on electromagnetic compatibility.**

Applied harmonized standards:

DIN EN ISO 12100 (03/11)
Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction

DIN EN ISO 13857 (06/08)
Safety of Machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs

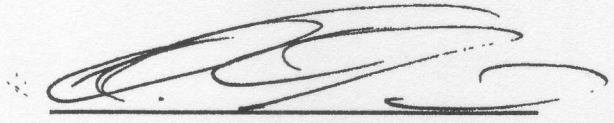
DIN EN 60204 Part 1 (06/07)
Electrical equipment of machines – Part 1: General Requirements

DIN EN 13155 (08/09)
Cranes - Safety - Non-fixed Load Lifting Attachments

Authorized representative for compiling the relevant technical documents:
Sven Röthe, Brehnaer Straße 1, D-06188 Landsberg

This declaration solely corresponds to the machine in the status as put on the market, any parts additionally installed and/or modifications additionally carried out by the end user shall be unconsidered. This declaration shall become invalid, in case the product is modified without approval.

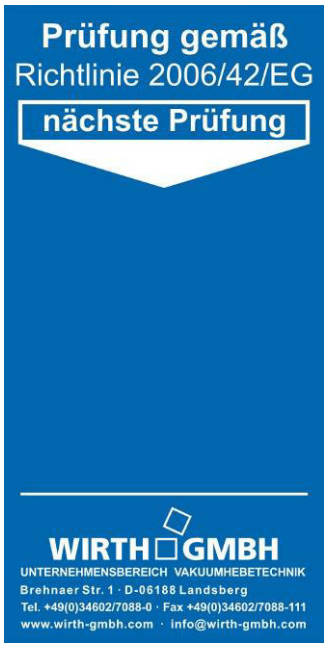
Landsberg, 03.07.2018



Holger Schadwinkel
(Managing Director)

Inspection Tag of the OKTOPUS® GLASS-Jack GL-CC 1200

According to Directive 2006/42/EC



Sign size:	80 x 40 mm
Background:	blue
Foreground:	white
Font:	white on blue
Plate size:	diameter 30 mm
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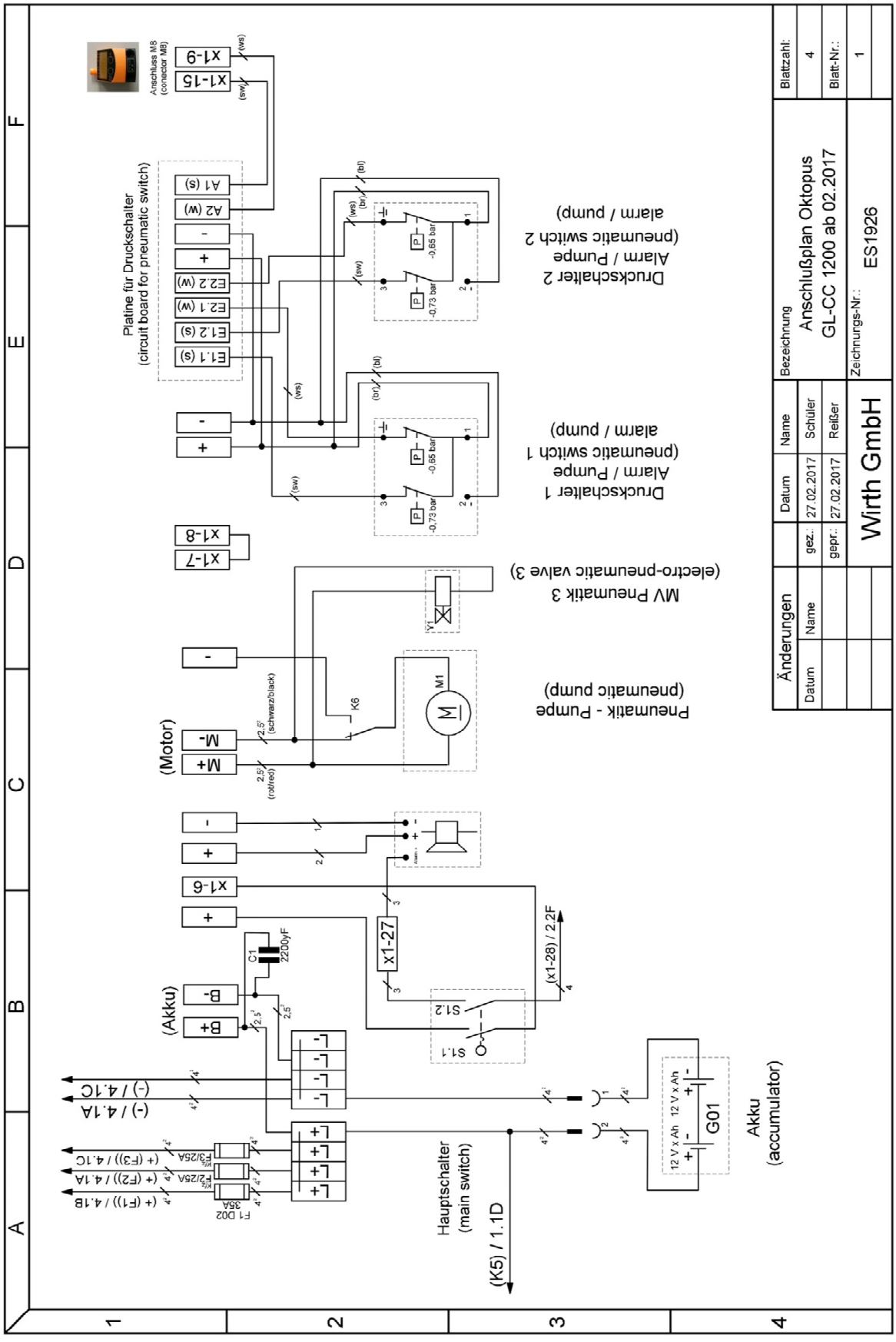
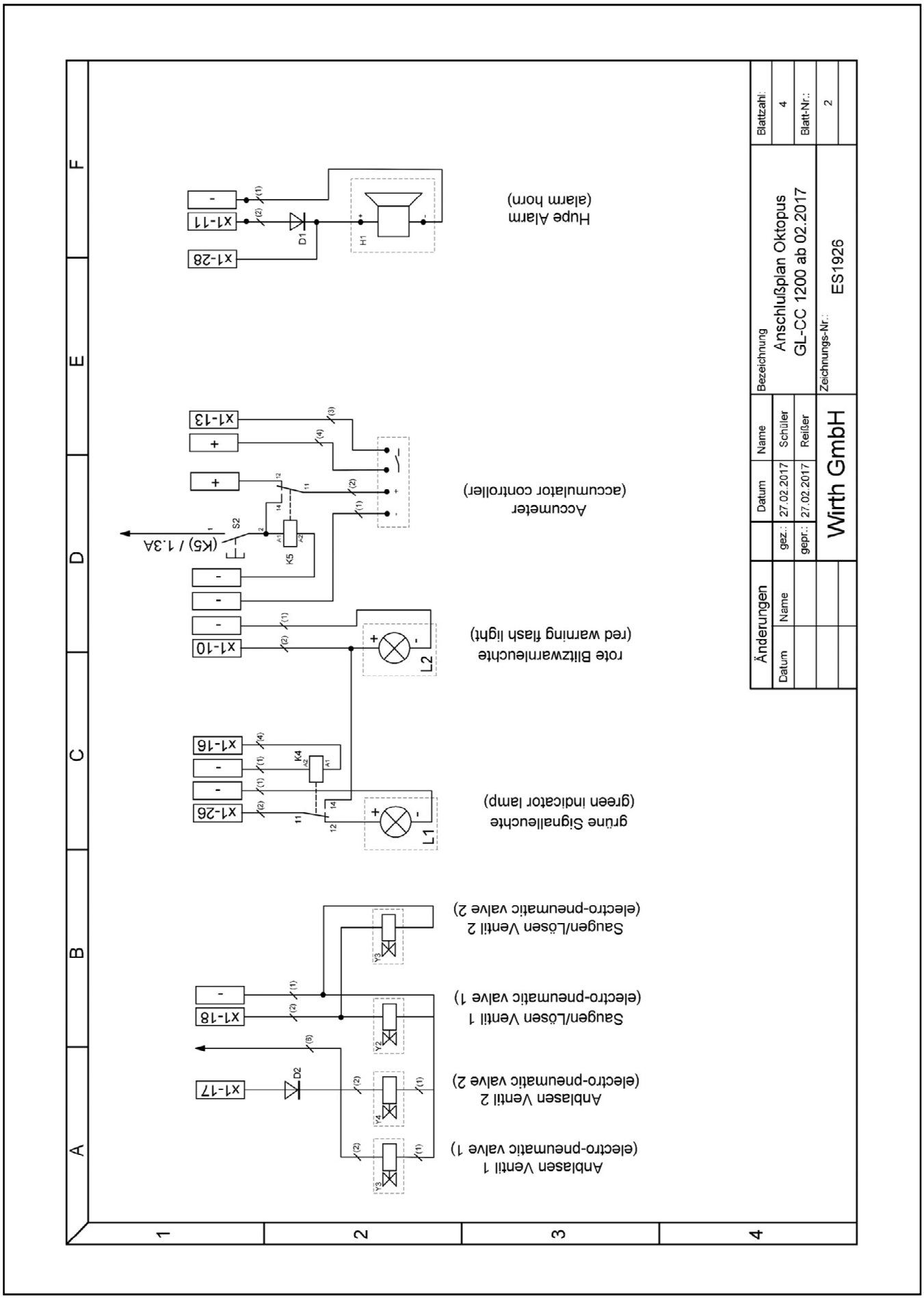
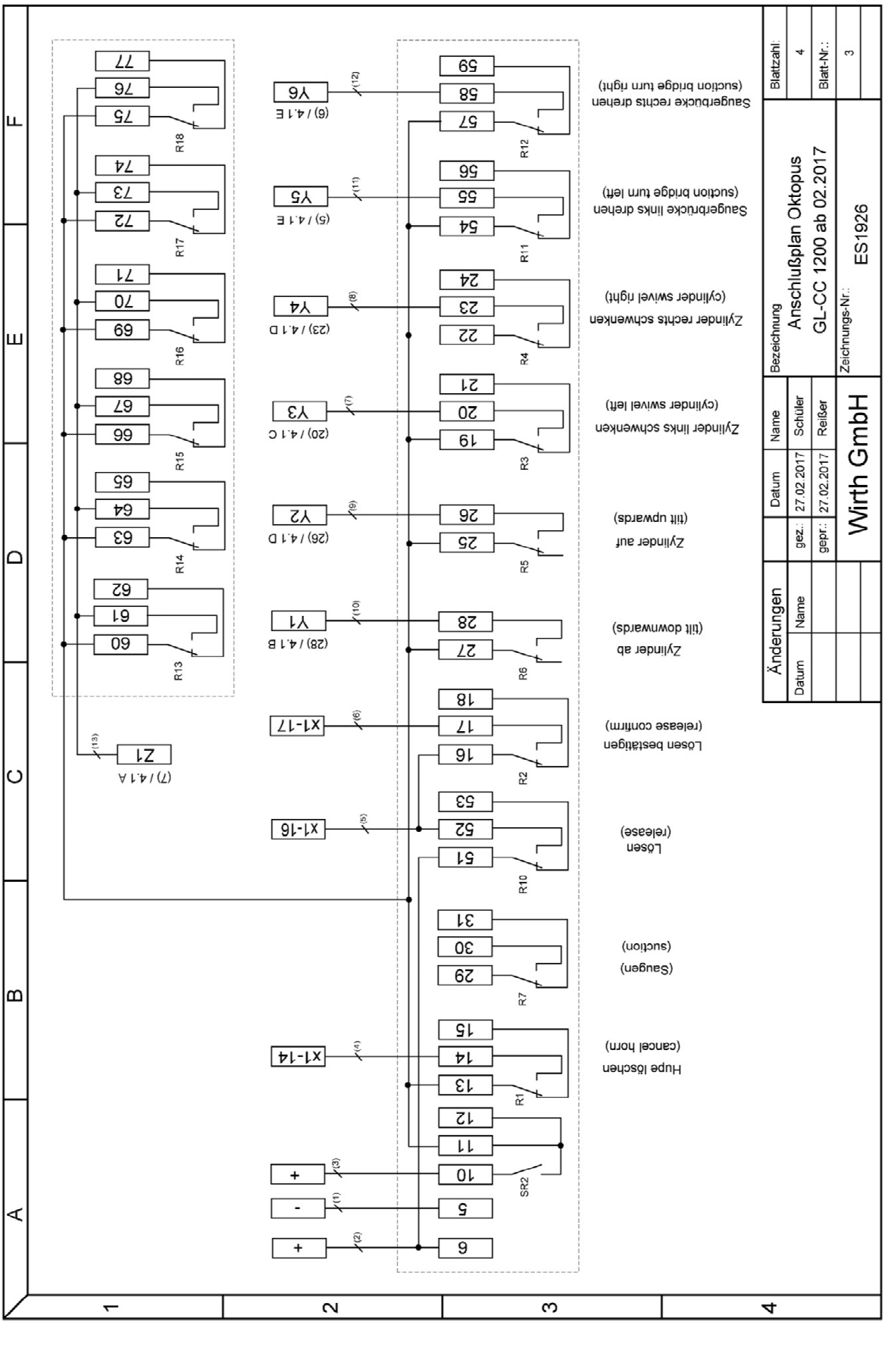
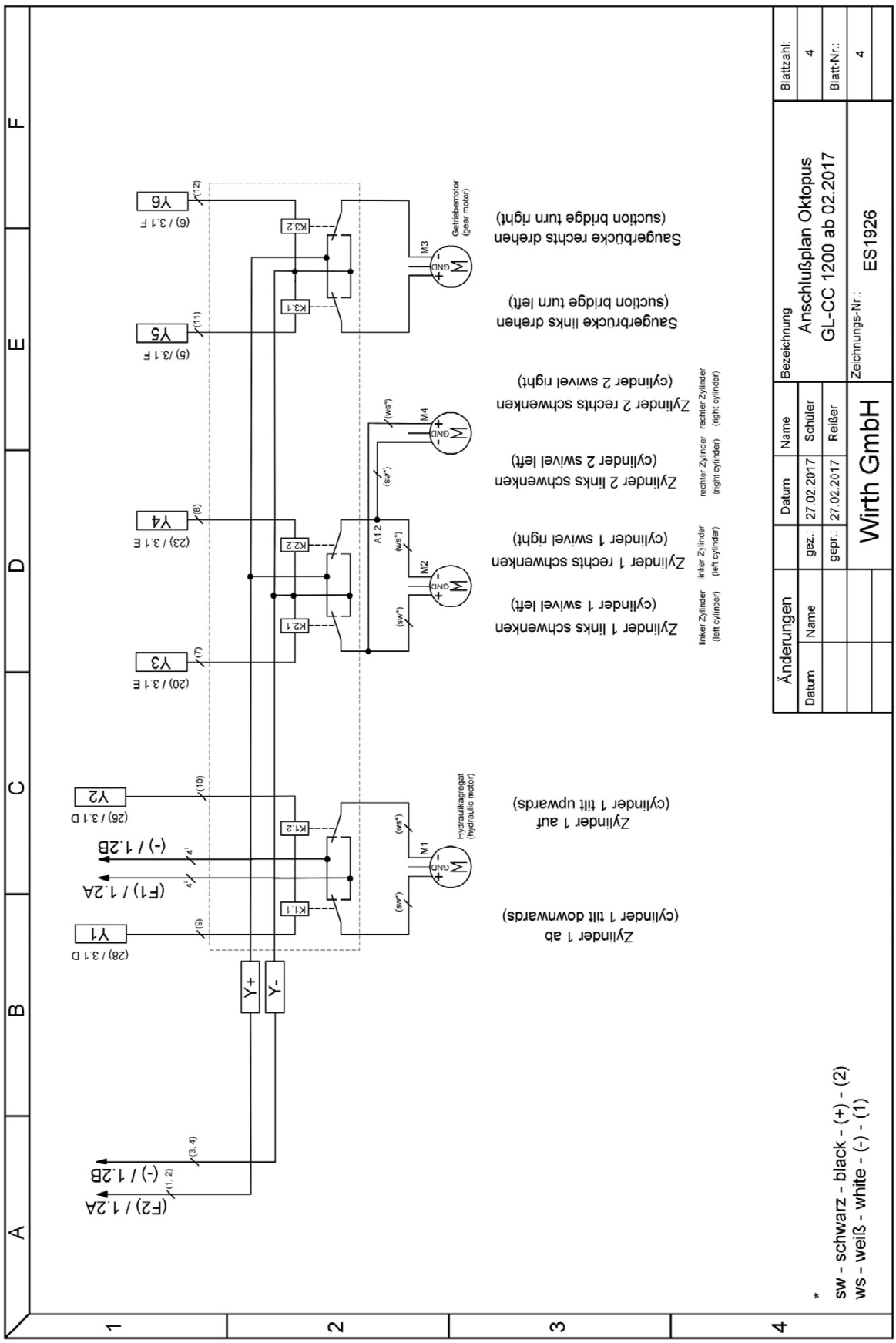
Electrical Circuit Diagram




Hupe Alarm
(alarm horn)
Accumeter
(accumulator controller)
rote Blitzwarnleuchte
(red warning flash light)
grüne Signalleuchte
(green indicator lamp)
Anblasen Ventil 1
(electro-pneumatic valve 1)
Anblasen Ventil 2
(electro-pneumatic valve 2)
Saugen/Lösen Ventil 1
(electro-pneumatic valve 1)
Saugen/Lösen Ventil 2
(electro-pneumatic valve 2)
Änderungen
Datum
Name
gez.: 27.02.2017 Schüler
gepr.: 27.02.2017 Reißer
Wirth GmbH
Bezeichnung
Anschlußplan Oktopus
GL-CC 1200 ab 02.2017
Zeichnungs-Nr.: ES1926
Blattzahl: 4
Blatt-Nr.: 2


Hupe löschen (cancel horn)
Saugen (suction)
Lösen (release)
Lösen bestätigen (release confirm)
Zylinder ab (tilt downwards)
Zylinder auf (tilt upwards)
Zylinder links schwenken (cylinder swivel left)
Zylinder rechts schwenken (cylinder swivel right)
Saugerbrücke links drehen (suction bridge turn left)
Saugerbrücke rechts drehen (suction bridge turn right)
Bezeichnung
Anschlußplan Oktopus GL-CC 1200 ab 02.2017
Zeichnungs-Nr.: ES1926
Blattzahl: 4
Blatt-Nr.: 3
Wirth GmbH
Änderungen
Datum
Name
gez.. 27.02.2017 Schüler
gepr.: 27.02.2017 Reißer


Zylinder 1 ab
(cylinder 1 tilt downwards)
Zylinder 1 auf
(cylinder 1 tilt upwards)
Zylinder 1 links schwenken
(cylinder 1 swivel left)
Zylinder 1 rechts schwenken
(cylinder 1 swivel right)
Zylinder 2 links schwenken
(cylinder 2 swivel left)
Zylinder 2 rechts schwenken
(cylinder 2 swivel right)
Saugerbrücke links drehen
(suction bridge turn left)
Saugerbrücke rechts drehen
(suction bridge turn right)
(-) / 1.2B
(F2) / 1.2A
(F1) / 1.2A
(-) / 1.2B
Y+
Y-
Y1
Y2
Y3
Y4
Y5
Y6
K1.1
K1.2
K2.1
K2.2
K3.1
K3.2
M1
M2
M3
M4
Hydraulikaggregat
(hydraulic motor)
linker Zylinder
(left cylinder)
rechter Zylinder
(right cylinder)
Getriebemotor
(gear motor)
sw - schwarz - black - (+) - (2)
ws - weiß - white - (-) - (1)
Änderungen
Datum
Name
gez.: 27.02.2017 Schuler
gepr.: 27.02.2017 Reißer
Wirth GmbH
Bezeichnung
Anschlußplan Oktopus
GL-CC 1200 ab 02.2017
Zeichnungs-Nr.: ES1926
Blattzahl: 4
Blatt-Nr.: 4