

HIRD
GLASS

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OPERATOR MANUAL

WIRTH GMBH OKTOPUS GL KN 1000



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1 General Information on the OKTOPUS®

1.1 Manufacturer's information

Manufacturer's name and registered office:

WIRTH GMBH
Division Vacuum Lifting Technology
Brehnaer Straße 1
D-06188 Landsberg

Device characteristics:

Product description:	OKTOPUS® GLASS-Jack GL-KN 1000
Type:	OKTOPUS® GLASS-Jack GL-KN 1000 R M B24 P 110
Serial number:	(see type plate)
Year of manufacture:	(see type plate)
Weight:	without extensions approx. 94 kg (6 suction pads ø400 mm) with extensions approx. 120 kg (10 suction pads ø400 mm)
Working Load Limit:	600 kg (6 suction pads ø400 mm) 1000 kg (10 suction pads ø400 mm)
CE mark:	according to EC-Declaration Annex 3
Test badge as per Annex 4 on the unit.	

1.2 Service workshop

WIRTH GMBH
Brehnaer Str. 1
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1.3 Scope of application

This operating manual represents the current state of technology and the safety measures defined by the European Machinery Directive valid at the date of issue of this manual.

Diverging or amending national regulations may not be taken into account.

To comply with these amending or diverging regulations is exclusively the responsibility of the user.

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 by using one or more suction pad of the OKTOPUS® ,
- ⇒ transport and positioning of the sucked element 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) Only employ cranes with a **Working Load Limit that exceeds the live weight of the OKTOPUS® GLASS-Jack GL-KN 1000 by at least 130 kg** in all possible working positions!
- (2) **Never operate** a damaged, not fully functional or incomplete 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 the OKTOPUS® and the crane 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 construction!
- (6) **Prior to using** OKTOPUS® and crane, check the function of the **control and display elements** as well as the **warning devices!**
- (7) Make sure that the crane operator has sufficient view over the sling and assembly location!
- (8) Agree on hand signals with the installer or assembler for the necessary crane movements!
- (9) It is absolutely necessary to observe the maximum Working Load Limit of the **OKTOPUS® GLASS-Jack GL-K 1000** 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 or façade elements. Do not place the suction pads on protective foil, but remove the foil 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-KN 1000 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) Take into consideration that **low temperatures** and **high humidity may cause freezing of the vacuum system!**
- (19) Never employ the OKTOPUS® in **explosive areas or in the area of aggressive media!**
- (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 in order to prevent injuries such as crushing and cuts!
- (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 gauge, 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
	Warns of imminent threat of danger	Death or serious injury or substantial material damage as consequence.
	Warns of potential threat of danger	Death or serious injury or substantial material damages are possible.
	Warns of possibly dangerous situation	Light injury or material damages are possible.

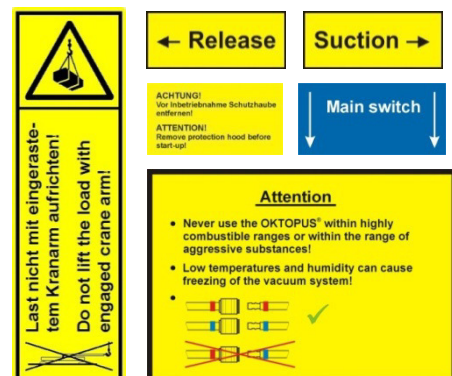
Next to the type plate the following safety-related signs and pictographs are attached to the OKTOPUS®:



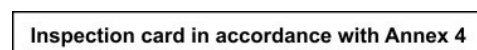
(Working Load Limit OKTOPUS®)



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



(Warning signs / General information)



(Inspection card)

2.4 Structure and use of the OKTOPUS®

The OKTOPUS® GLASS-Jack GL-KN 1000 with its modular structure is a vacuum-based load lifting attachment for large glass and façade elements with sufficient inherent stability and a (at least) partially smooth and airtight surface. It is designed for wall and ceiling installation on construction sites.

The functional main assemblies (see fig. 1 and 2):

- the crane eyes (1, 4) for coupling the OKTOPUS® to the crane,
- the red warning light (15) and the alarm buzzer (17), that indicate an emergency situation as well as the green signal light (14), which defines the working range,
- the vacuum gauges (7) indicating the available negative pressure,
- the suction frame (10) and the extension arms (20) with the suction pads attached to it (9),
- the lowering cylinder that can be purchased optionally (19) and that allows gently swiveling the load into a horizontal position,
- the charge indicator (13), that indicates the current charge level of the battery,
- the main switch (16) in order to turn the OKTOPUS® on/off and the switch “Suction/Release” (8) for operating the pneumatic functions.

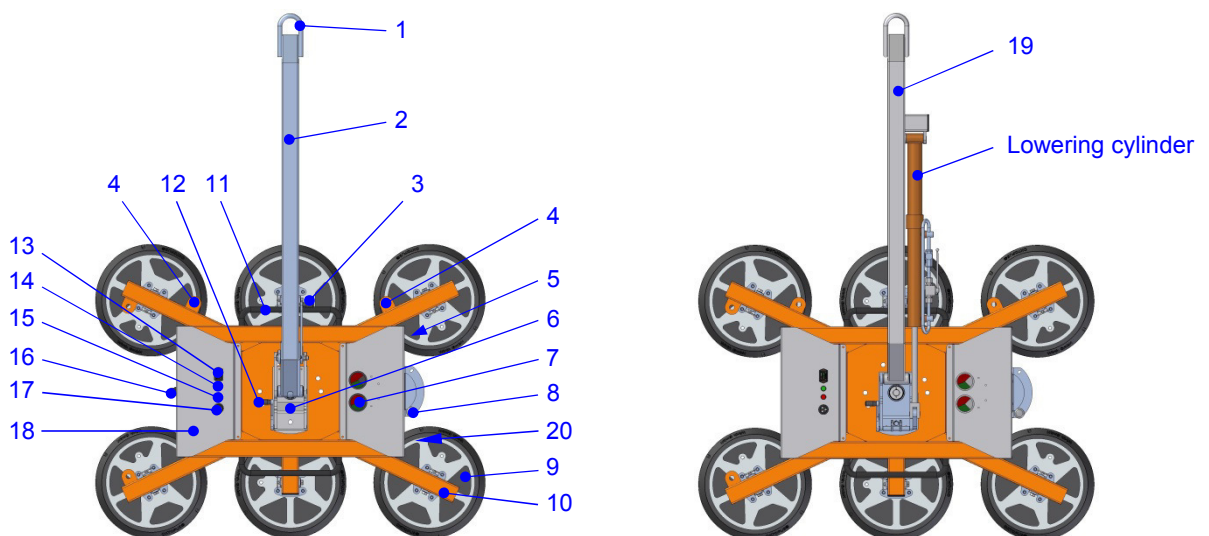


Fig. 1: OKTOPUS® GLASS-Jack GL-KN 1000 with crane arm

1	Crane eye crane arm	11	Handle
2	Crane arm (standard)	12	Unlocking „Rotate“
3	Unlocking „Swivel“	13	Charge indicator
4	Crane eye base frame	14	Signal light green
5	Socket battery charger	15	Warning light red
6	Swivel joint	16	Main switch
7	Vacuum gauge	17	Alarm buzzer
8	Switch „Suction/Release“	18	Cover bonnet
9	Suction pad	19	Crane arm with lowering cylinder (optional)
10	Suction frame	20	Button “Blow-off“ (optional)

The pictured crane arm with lowering cylinder can be purchased optionally for the OKTOPUS® GLASS-Jack GL-KN 1000. It is always possible to retrofit by replacing the entire crane arm. Please contact the Wirth Service Team, if required.

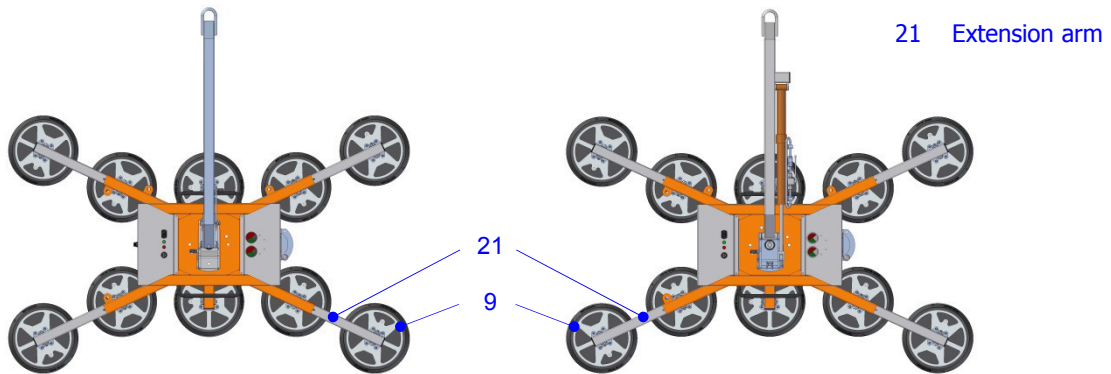


Fig. 2: OKTOPUS® GLASS-Jack GL-KN 1000 with crane arm and extensions

The load lifting attachment OKTOPUS® GLASS-Jack GL-KN 1000 is designed as an attachment and is mounted to a crane according to figure 3.

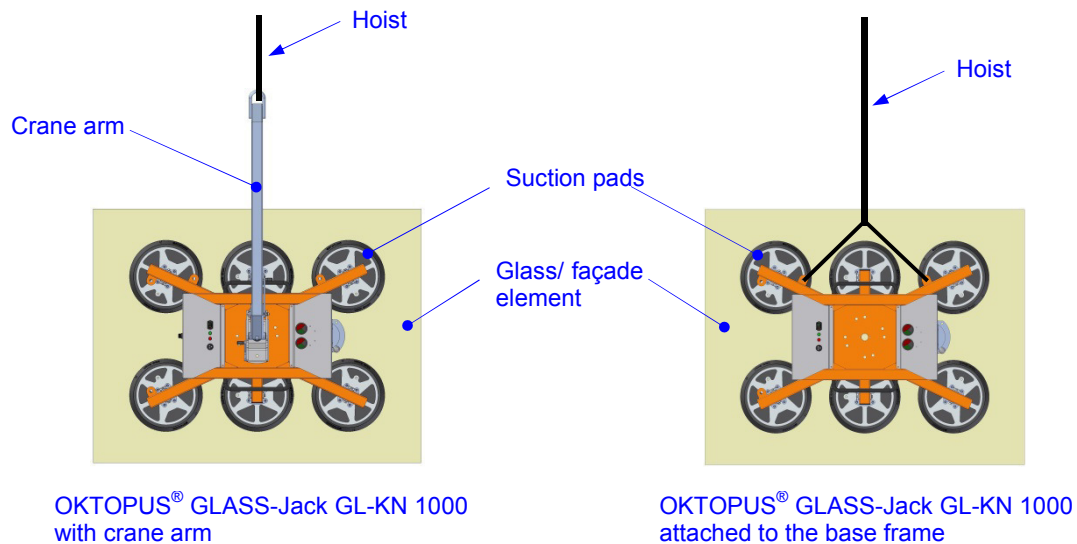


Fig. 3: Load lifting attachment OKTOPUS® GLASS-Jack GL-KN 1000

Applying the load lifting attachment system OKTOPUS® will have the following advantages in terms of installing large glass and façade elements:

- a faster, more efficient and more effective procedure,
- small assembly team,
- high process quality through careful material handling,
- less physical strain for the assembler by avoiding heavy carrying and lifting work,
- high level of occupational safety.

2.5 Operating conditions and restrictions

The suction areas of the glass and façade elements to be assembled with the OKTOPUS® GLASS-Jack GL-KN 1000:

- have to be air-impermeable,
- 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-KN 1000 amounts to < 70 dB (A), which means that special protective measures are not required.

Operating restrictions result from the limited Working Load Limit of the OKTOPUS® GLASS-Jack GL-KN 1000 (see 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 manipulated 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.



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!



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 only be moved with a suitable hoist/means of transport of appropriate Working Load Limit.



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



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



To avoid damage to the batteries by deep discharge during storage, the OKTOPUS® shall be charged at least every two (2) weeks!

2.6.1 Transport rack

The transport rack shown in figure 4 is optionally available. It allows:

- ⇒ space-saving storage of the OKTOPUS® GLASS-Jack GL-KN 1000 and
- ⇒ protecting the suction pads, particularly the rubber lip during transport and storage.

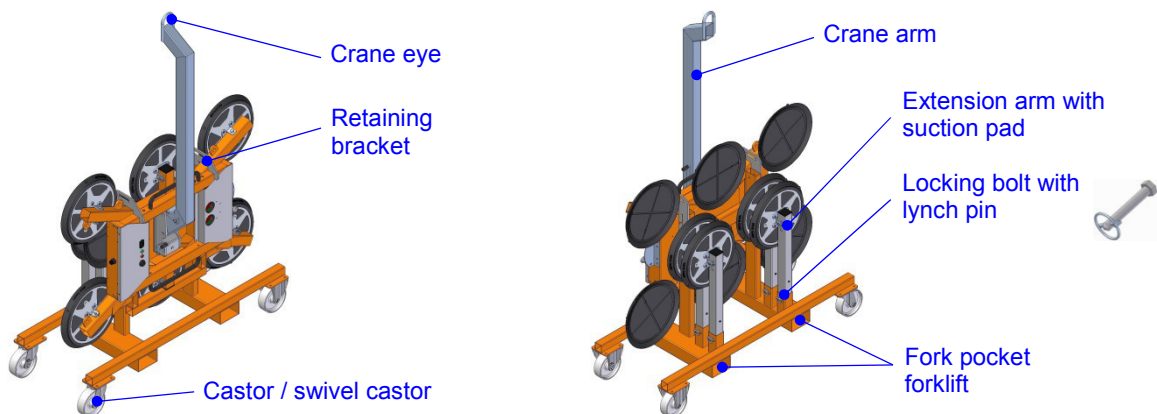


Fig. 4: Transport rack



Make sure that the transport rack is always placed on an even, firm surface! Non-compliance with this instruction may result in the transport rack turning over uncontrollably and by that causing damage to persons and to the device!

Remove the OKTOPUS® GLASS-Jack GL-KN 1000 from the transport rack as follows:

- ⇒ Make sure that the OKTOPUS® is fixed in the transport rack with the two retaining brackets (see fig. 4) and that both swivel castors are locked.
- ⇒ Position the crane arm as shown in figure 4.
- ⇒ Couple the OKTOPUS® to the crane.
- ⇒ Remove the four extension arms from the transport rack.
- ⇒ Unlock both retaining brackets one after another. Loosen the screws M10, slightly lift the retaining brackets and fold them back.

- ⇒ Lift the OKTOPUS® from the transport rack.
- ⇒ Mount the extension arms if necessary.

Stow the OKTOPUS® GLASS-Jack GL-KN 1000 in the transport rack as follows:

- ⇒ Make sure that the transport rack is placed on an even, firm surface and that both swivel castors are locked.
- ⇒ Move the OKTOPUS® with the help of the crane to the transport rack.
- ⇒ Adjust the suction frame as shown in figure 1.
- ⇒ Demount the extension arms if necessary.
- ⇒ Fold back both retaining brackets.
- ⇒ Place the OKTOPUS®, as shown in figure 4, in the transport rack and secure it with both retaining brackets.
- ⇒ Fix the retaining brackets by tightening the screws M10 (two per retaining bracket).
- ⇒ Place the extension arms as shown in figure 4 and fix them with the locking bolts and lynch pins provided in the delivery.



When stowing the OKTOPUS® in the transport rack, make sure that it is completely secured with the retaining brackets as well as the locking bolts and lynch pins provided in the delivery! Otherwise the OKTOPUS® could slide out of the transport rack during transport and cause severe crush injuries.

Moving the transport rack with the stowed OKTOPUS® is possible with the swivel castors as well as with a forklift. The suspension points intended for the forklift (fork pockets forklift) are shown in figure 4.



Exclusively use the suspension points shown in figure 4 for lifting the transport rack with a forklift. Otherwise the load could suddenly slide or turn over! Crush hazard.



Only use forklifts of appropriate Working Load Limit for moving the transport rack or the combination transport rack and OKTOPUS®!

3 Instructions for using the OKTOPUS®

3.1 Electrical power supply

Power supply is effected by a 24 V / 12 Ah battery system (2 pieces of 12 V batteries in series).

The battery's charge level is monitored through a charge indicator according to figure 5. Light-emitting diodes (LED) in the signal colors green, yellow and red indicate the current charge level after the OKTOPUS® has been turned on.

The following charge levels can be read from the charge indicator:

- ⇒ If at least one green LED is illuminated the battery is charged. You can operate the OKTOPUS®.
- ⇒ If the third LED from the left is illuminated (yellow LED), you should charge the battery.
- ⇒ If the second LED from the left (yellow LED) is flashing, or the second LED from the left (yellow LED) and the red LED are flashing alternately, the battery needs to be charged instantly in order to avoid deep discharge and by that possible damage.

The charge indicator is arranged on the device according to figure 1.

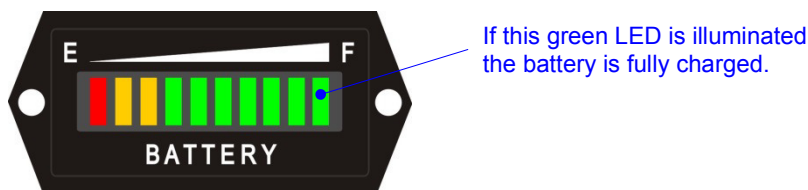


Fig. 5: Charge indicator



Do not use the OKTOPUS®, if the yellow LED is flashing, or the yellow and the red LED are flashing alternately. Possibly sucked loads shall be lowered. The OKTOPUS® has to be charged instantly in order to avoid deep discharge and by that possible damage to the battery.



The user has to ensure that the battery is properly charged when operating the OKTOPUS®.



The charge indicator only indicates the current voltage level of the battery. It does not give any reliable information regarding the battery's capacity.



The charge indicator responds rather slowly. In order to assess the voltage level realistically after the charging process (see point 4.4) you have to run the vacuum pump of the device for approximately 2 minutes, and then use the indicated charge level of the battery as a basis for assessing how to employ the device.

3.2 Vacuum supply

Vacuum supply is effected by an electrically-operated vacuum pump supplied by the battery. Starting at the vacuum pump the OKTOPUS® GLASS-Jack GL-KN 1000 is developed to be a redundant system. That means all the following vacuum modules such as non-return valve, vacuum reservoir, pressure controller, vacuum gauge, and suction pads exist twice (2 vacuum circuits).

The 2 vacuum circuits of the OKTOPUS® GLASS-Jack GL-KN 1000 are marked by different colors, one color per vacuum circuit (blue and red). You have to ensure that only vacuum hoses and couplings of the same color are interconnected.

The OKTOPUS® GLASS-Jack GL-KN 1000 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 (figure 6).

The green scale range is the

Permissible working range from -0,65 bar to -0,9 bar.

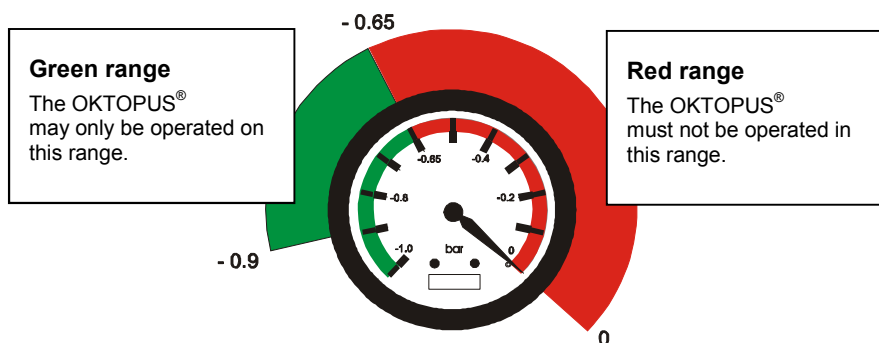


Fig. 6: Vacuum gauge

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:

- ⇒ the alarm buzzer sounds,
- ⇒ red warning light illuminates.



Only connect 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.



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!



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

3.3 Control panel / switch

The OKTOPUS® GLASS-Jack GL-KN 1000 is operated on the device according to fig. 7.

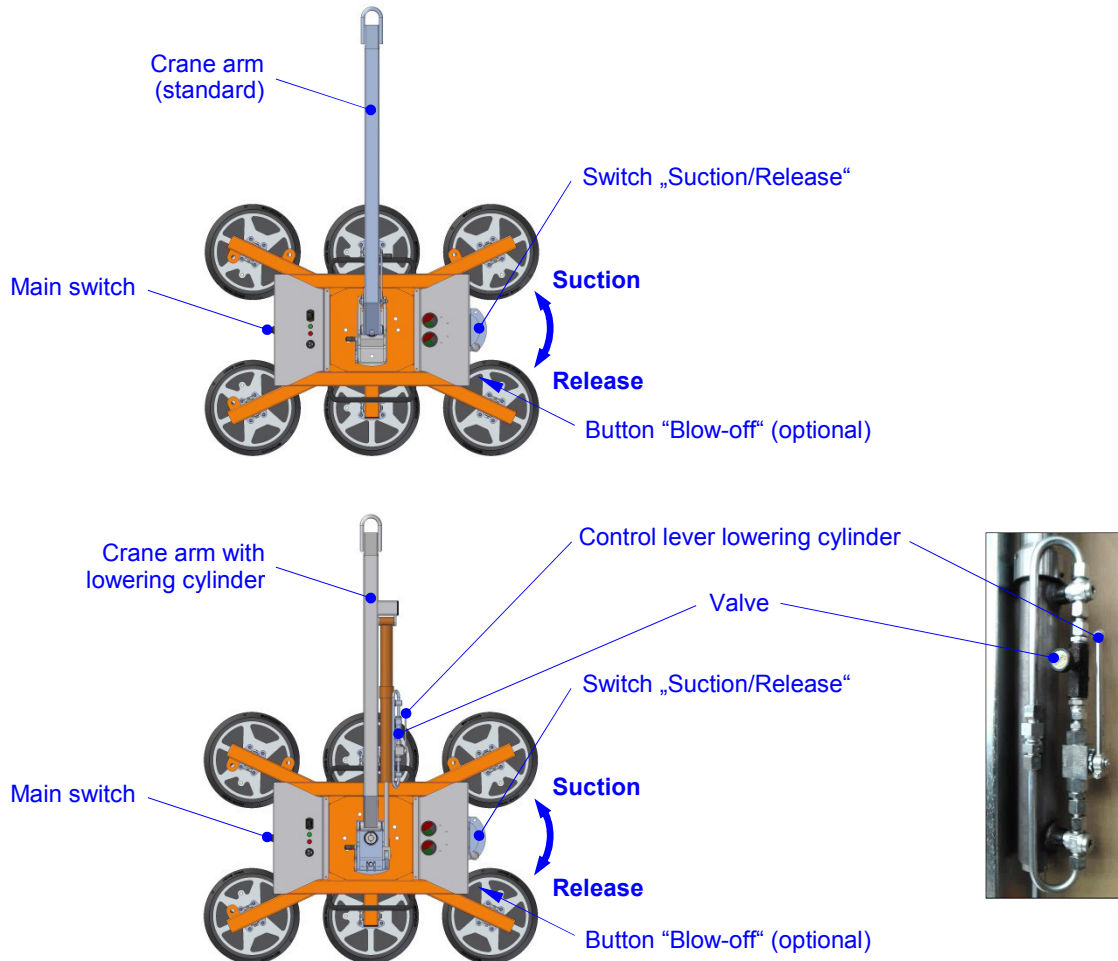


Fig. 7: Control panel

3.4 Startup

In order to startup the OKTOPUS® proceed as follows:

- Place the suction pads of the OKTOPUS® on the element to be suctioned!
- Turn the main switch to position “ON“!
- Slightly lift the switch „Suction/Release“ and shift it towards „Suction“!
- Check the battery’s charge level at the charge indicator:
 - ⇒ an illuminated green LED indicates operational readiness of the device,
 - ⇒ if the second LED from the left (yellow LED) is flashing or the second LED from the left (yellow LED) and the red LED are flashing alternately the battery needs to be charged!
- Check the vacuum level on the vacuum gauges:
 - ⇒ if the pressure indicated on both vacuum gauges is in the green range then the device is ready for use!

- ⇒ if the pressure is in the red range in one or more vacuum gauges the alarm is activated. Vacuum has to be built up.
 - Vacuum is generated up to -0,73 bar, the red warning light turns off, the green signal light turns on.

3.5 Manipulating glass and façade elements

In order to put the OKTOPUS® GLASS-Jack GL-KN 1000 into operation it has to be coupled to a crane as a load lifting attachment. The coupling has to be performed with the crane hook at standstill and the OKTOPUS® out of operation.



Make sure that the load is properly attached to the OKTOPUS®! Loads that are not balanced might overturn or rotate unexpectedly!

3.5.1 OKTOPUS® GLASS-Jack GL-KN 1000 with standard crane arm

Manipulating glass and façade elements with the OKTOPUS® GLASS-Jack GL-KN 1000 with standard crane arm or with standard crane arm and extensions (see fig. 1 and 2) is performed as follows:

- ⇒ Move the crane with the attached OKTOPUS® GLASS-Jack GL-KN 1000 to the elements. Position the suction pads parallel to the suction area of the load by rotating and swiveling the suction frame manually, by driving and lifting movements of the crane as well as manual guidance. Then, completely engage the release lever “Rotate” again.
- ⇒ Position the suction frame above the center of mass of the load (± 5 cm) and place it on the suction area. If the surface of the element to be manipulated is coated with a protective film, it has to be removed at least in the area of the suction pads before placing the OKTOPUS®.
- ⇒ Slightly lift the switch „Suction/Release“ (see fig. 7) and shift it towards “Suction” until it is completely engaged.



Never attempt to lift a horizontally lying load, if the crane arm is locked in place parallel to the suction pads!



- ⇒ You can lift the load only if the red warning light and the alarm buzzer have turned off, the vacuum gauges indicate that the working range has been reached (see figure 6), the green signal light is illuminated and you have ensured that nobody is in the danger area.
- ⇒ Do not lift the load higher than necessary!
- ⇒ Put the load into the required position by rotating and swiveling the suction frame, by driving and lifting movements of the crane as well as manual guidance.



Make sure that during the rotating and swiveling movements neither the suction frame nor the suctioned load can hit anything!



Never release the unlocking “Rotate” and “Swivel” at the same time! Releasing both may result in damaging the device and/or the load!



In order to avoid unintended rotating of the load, you have to ensure that the release lever “Rotate” (see fig. 8) is completely locked in place during the swiveling movement!



Never attempt to release unlocking “Swivel” (see fig. 8) when loaded! This would lead to uncontrolled “swivelling down” of the load!



In order to swivel the load from vertical to horizontal position at least 3 persons are required. Two persons secure and guide the load; the third one operates the unlocking!

- ⇒ Fix the element at the required place in that way that it does not pose a threat after being released!
- ⇒ Afterwards the element is released. In order to do so, slightly lift the switch “Suction/Release” and shift it towards “Release”. Lifting the switch is an additional safety measure to avoid unintentional operating errors.

If your OKTOPUS® is equipped with the optional blow-off function, subsequently press the button “Blow-off” (see fig. 1, pos. 20). Keep the button pressed until all suction pads have completely disengaged from the load. In this case the suction pads are supplied with compressed air which ensures that the suction pads are released quicker from the load.

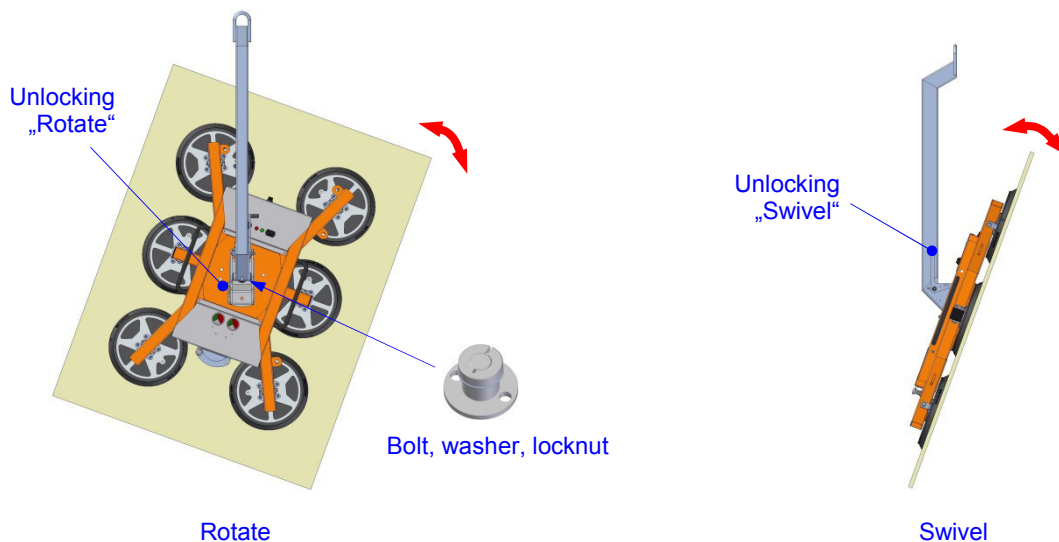


Fig. 8: Rotating and swiveling a load (standard crane arm)



Due to the own weight of the OKTOPUS® a residual vacuum is left in the vacuum system after ventilating the suction pads. Jerky lifting movements of the OKTOPUS® increase this effect. For this reason, always lift the device from the manipulated elements slowly and evenly.

3.5.2 OKTOPUS® GLASS-Jack GL-KN 1000 with crane arm with lowering cylinder

Manipulating glass and façade elements with the OKTOPUS® GLASS-Jack GL-KN 1000 in combination with crane arm and lowering cylinder or crane arm with lowering cylinder and extensions (see fig. 1 and 2) is performed as follows:

- ⇒ Move the crane with the attached OKTOPUS® GLASS-Jack GL-KN 1000 to the elements. Position the suction pads parallel to the suction area of the load by operating the control lever of the lowering cylinder, manually rotating the suction frame, driving and lifting movements of the crane as well as manual guidance. Then, completely engage the release lever “Rotate” again.
- ⇒ Position the suction frame above the center of mass of the load (± 5 cm) and place it on the suction area. If the surface of the element to be manipulated is coated with a protective film, it has to be removed at least in the area of the suction pads before placing the OKTOPUS®.
- ⇒ Slightly lift the switch „Suction/Release“ (see fig. 7) and shift it towards “Suction” until it is completely engaged.



Never attempt to lift a horizontally lying load, if the crane arm is locked in place parallel to the suction pads!



- ⇒ You can lift the load only if the red warning light and the alarm buzzer have turned off, the vacuum gauges indicate that the working range has been reached (see figure 6), the green signal light is illuminated and you have ensured that nobody is in the danger area.
- ⇒ Do not lift the load higher than necessary!
- ⇒ Put the load into the required position by operating the control lever of the lowering cylinder, manually rotating the suction frame, by driving and lifting movements of the crane as well as manual guidance.



Make sure that during rotating and swiveling movements neither the suction frame nor the suctioned load can hit anything!



In order to avoid unintended rotating of the load, you have to ensure that the release lever “Rotate” (see fig. 9) is completely locked in place during swiveling movements!

- ⇒ Fix the element at the required place in that way that it does not pose a threat after being released!
- ⇒ Afterwards the element is released. In order to do so, slightly lift the switch “Suction/Release” and shift it towards “Release”. Lifting the switch is an additional safety measure to avoid unintentional operating errors.

If your OKTOPUS® is equipped with the optional blow-off function, subsequently press the button “Blow-off” (see fig. 1, pos. 20). Keep the button pressed until all suction pads have completely disengaged from the load. In this case the suction pads are supplied with compressed air which ensures that the suction pads are released quicker from the load.



Due to the own weight of the OKTOPUS® a residual vacuum is left in the vacuum system after ventilating the suction pads. Jerky lifting movements of the OKTOPUS® increase this effect. For this reason, always lift the device from the manipulated elements slowly and evenly.

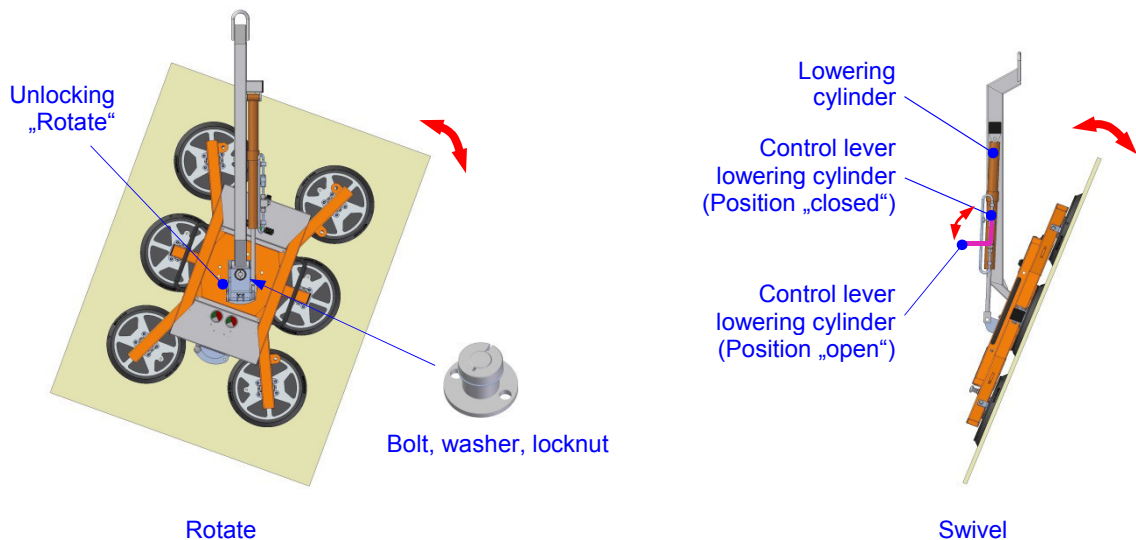


Fig. 9: Rotating and swiveling a load (crane arm with lowering cylinder)

Lowering cylinder

The lowering cylinder allows precise and effortless swiveling of heavy loads from vertical to horizontal position:

- ⇒ Suction a vertical glass or façade element as described in section 3.5.
- ⇒ Before swiveling the load, note that the swiveled load requires more horizontal room. Make sure that the load cannot hit anything when it is swiveled!
- ⇒ Put the control lever of the lowering cylinder into position “open” (see fig. 9). Guide the load until it has reached the required inclination. Turn the control lever into position „closed“. The swiveling movement stops immediately. With the help of the valve (see fig. 7) you can adjust the swiveling speed (turn right for faster, turn left for slower).

Swiveling a load from horizontal to vertical position **with control lever in position open**: The load will swivel back into horizontal position after release, if the control lever has not been closed.

Swiveling a load from horizontal to vertical position **with control lever in position closed**: After release the load stays in the position that was manually adjusted. Further swiveling up into vertical position is possible, swiveling down into horizontal position is only possible after turning the control lever into position „open“ again.

3.5.3 OKTOPUS® GLASS-Jack GL-KN 1000 attached to the suction frame

The OKTOPUS® GLASS-Jack GL-KN 1000 is designed with a low overall height. If glass and façade elements should be manipulated only vertically it is possible to further reduce the overall height. This can be done by disassembly of the crane arm. In this case, the OKTOPUS® is coupled to the hoist with the help of a rope lashing that can be purchased optionally. The two crane eyes at the suction frame serve as suspension points at the OKTOPUS® (see fig. 10).

The crane arm is disassembled as follows:

- ⇒ Place the OKTOPUS® GLASS-Jack GL-KN 1000 flat on a clean and even surface (with the suction pads facing the floor),

- ⇒ Remove the locknut and the washer (see fig. 8 and 9),
- ⇒ Remove the crane arm including the swivel joint from the suction frame,
- ⇒ Remove the bolt (see fig. 8 and 9).

Assembly of the crane arm is done in reverse order.



If the OKTOPUS® GLASS-Jack GL-KN 1000 is used without crane arm it is not possible to rotate or swivel the load!

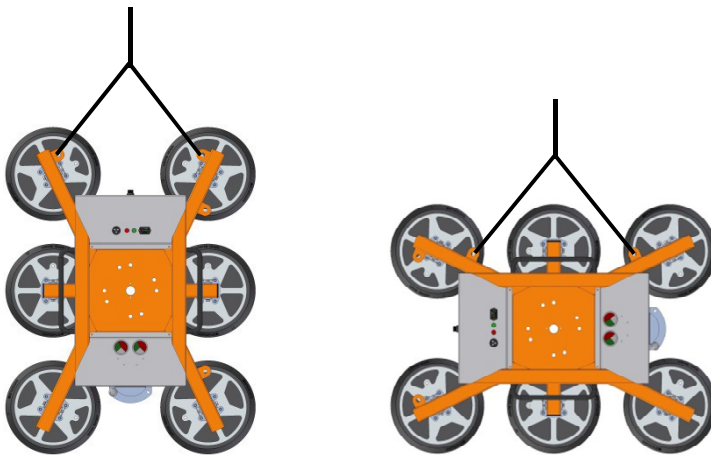


Fig. 10: OKTOPUS® GLASS-Jack GL-KN 1000 without crane arm

3.6 Assembly and disassembly of the extension arms

The extension arms are **assembled** as follows:

- ⇒ Place the OKTOPUS® GLASS-Jack GL-KN 1000 flat on a clean and even surface (suction pads facing the floor).
- ⇒ Perform the following steps one after another for each of the four extension arms:
 - Remove the lynch pin and the locking bolt (see fig. 11),
 - Slide the extension arm into the suction frame of the OKTOPUS®,
 - Now, fasten the extension arm by mounting the locking bolt that was removed beforehand and secure it with the lynch pin.
- ⇒ Couple the suction pads that are attached to the extension arms to the vacuum system of the OKTOPUS®.



Only connect vacuum hoses and couplings of the same color!

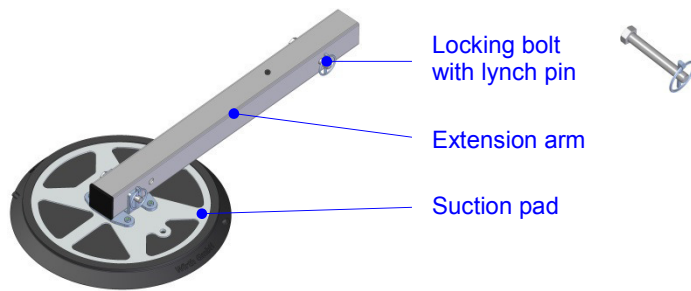


Fig. 11: Extension arm with suction pad

Disassembly of the extension arms is done in reverse order.

4 Service and Maintenance

4.1 General remarks

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

In order to maintain a high level of operational safety the OKTOPUS® GLASS-Jack GL-KN 1000 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 OKTOPUS® is taken out of operation.



Before performing any repair and maintenance work switch off the OKTOPUS® by turning 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.



Maintenance has always 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-KN 1000 for damages before startup.

The OKTOPUS® GLASS-Jack GL-KN 1000 is a load lifting attachment. Therefore, repairs on the mechanical function parts shall exclusively be carried out by the OKTOPUS® manufacturer.



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,
 - the vacuum gauges.



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 works oil free. The solid design allows maintenance-free operation.

The infiltration of dust into the vacuum pump is prevented by an inbuilt filter in each suction pad. For this reason maintenance of the vacuum system focuses on this component:

- ⇒ Slightly lift the OKTOPUS® without load. The filter is located in the through hole to the vacuum hose. If the filter is soiled, it has to be cleaned.

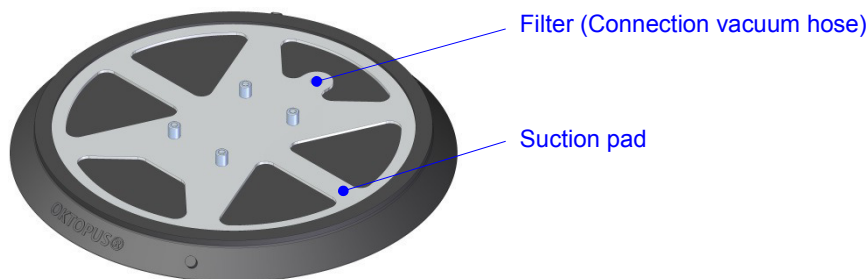


Fig. 12: Suction pad

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.



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 fluids cannot 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®.

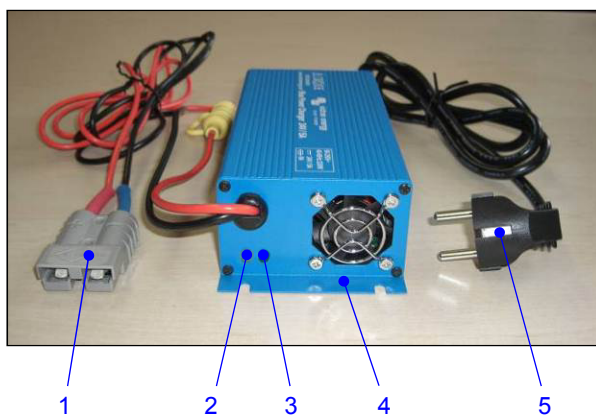
4.4 Electrical and electronic components

The OKTOPUS® GLASS-Jack GL-KN 1000 is powered by a maintenance-free lead-battery with acid gel as electrolyte. The battery case is tightly sealed.

Maintenance work focuses on:

- ⇒ **daily** visual inspection of the external electrical functional and alarming equipment:
 - red warning light,
 - green signal light,
 - alarm buzzer.
- ⇒ visual inspection of the battery's charge level shown on the charge indicator (see figure 5).
- ⇒ Charging the battery

For charging purposes a charging unit 24 V / 5 A is provided by the OKTOPUS® manufacturer (see figure 13).



- 1 Charge plug charging unit
- 2 Yellow LED
- 3 Green LED
- 4 Battery charger
- 5 Mains plug

Fig. 13: Battery charger (example illustration)



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



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!

The charging process is operated as follows:

- Turn off the OKTOPUS® by turning the main switch to position “OFF”!
- Connect the charge plug of the charging unit with the battery charger socket of the OKTOPUS®.
- Connect the mains plug of the charging unit to a socket and by that to the power grid to start the charging process.
- The charging process is completed when the yellow LED is permanently illuminated.
- In order to disconnect the charging unit from the OKTOPUS® proceed as follows:
 1. Disconnect the charging unit from the power grid,
 2. Disconnect the charging unit from the battery.

LED display

- ⇒ The green LED is illuminated 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 cycle the yellow LED is permanently illuminated.

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



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



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



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.

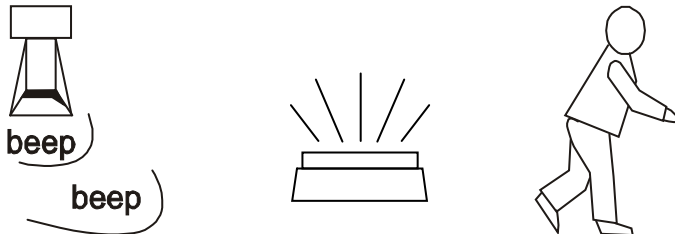


Fig. 14: Warning devices

When the alarm buzzer sounds and/or the red warning light flashes immediately leave the danger area, since the sucked element might suddenly drop. Locate and eradicate 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.



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

6 Disposal and Recycling

For the packaging of the OKTOPUS® materials such as wood, cardboard, paper and foil are used. These materials have to be recycled according to national regulations.

Assign a waste management company to dispose of the OKTOPUS®. If you have any queries, please contact Wirth GmbH.



In order to protect the environment assign a waste management company that is familiar and complies with the national regulations to dispose of the OKTOPUS®!

Abstract of operating manual OKTOPUS® GLASS-Jack GL-KN 1000

1 Installation

- (1) Adjust the OKTOPUS® depending on the application and attach it to the crane hook.

2 Startup of the OKTOPUS®

- (1) Place the OKTOPUS® on the element to be suctioned.
- (2) Turn the main switch to position ON.
- (3) Slightly lift the switch „Suction/Release“ and shift it towards „Suction“.
- (4) Check the charge level of the battery at the charge indicator:
 - Operational readiness is indicated if a green LED is illuminated,
 - If the third LED from the left (yellow LED) is illuminated the battery has to be charged,
 - If the second LED from the left (yellow LED) is flashing or the second LED from the left (yellow LED) and the red LED are flashing alternately, the battery has to be charged.
- (5) Check the pressure indicated at the vacuum gauges (permissible green range -0,65 to -0,9 bar):
 - If the pressure is in the red range in one or more vacuum gauges, the alarm is activated and the vacuum has to be restored.
 - If the pressure is in the green range in the vacuum gauges the OKTOPUS® is ready for use, the red warning light turns off, the green signal light turns on.

3 Instructions for use

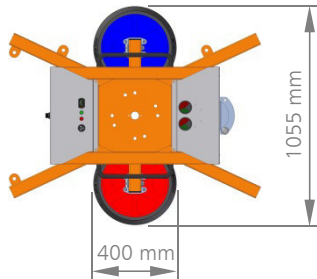
- (1) Preparation of the elements:
 - Check the element surface: The surface has to be even, airtight, clean and dry at least at the suction areas. There must be no protective film on the suction areas
- (2) Attaching an element:
 - Place the OKTOPUS® on the element.
 - Slightly lift the switch “Suction/Release” and shift it towards “Suction”.
- (3) Positioning of an element:
 - Lift the element with lifting movements of the crane,
 - Position the element with driving and lifting movements of the crane and, at the same time, manual guidance of the assembler.
 - Fasten the element at the installation site.
- (4) Releasing an element
 - Slightly lift the switch „Suction/Release“ and shift it towards „Release“.

4 Taking the device out of operation

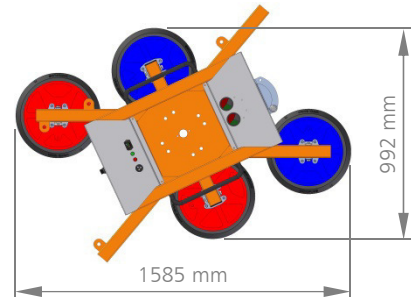
- Lower the crane.
- Disconnect the coupling OKTOPUS® / crane.
- Turn the main switch of the OKTOPUS® to position OFF.
- If the OKTOPUS® is out of operation for a longer period, then its batteries need to be charged at least every two weeks.

Functional dimensions

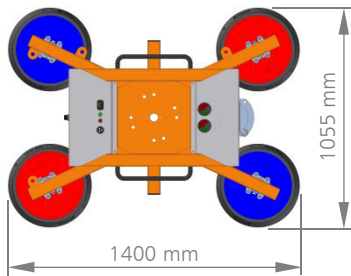
Working Load Limit 200 kg



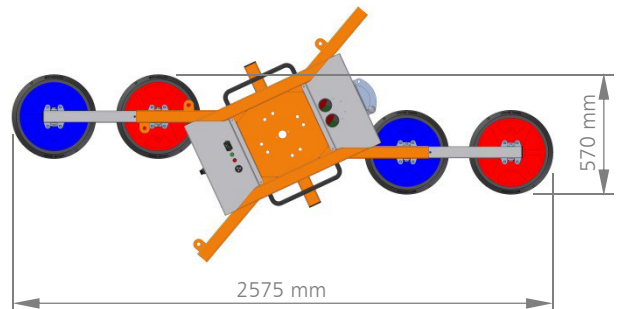
Working Load Limit 400 kg



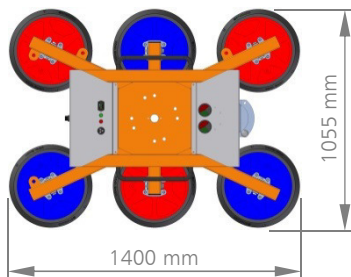
Working Load Limit 400 kg



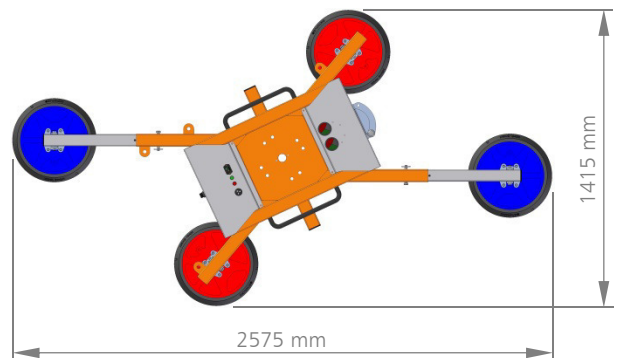
Working Load Limit 400 kg



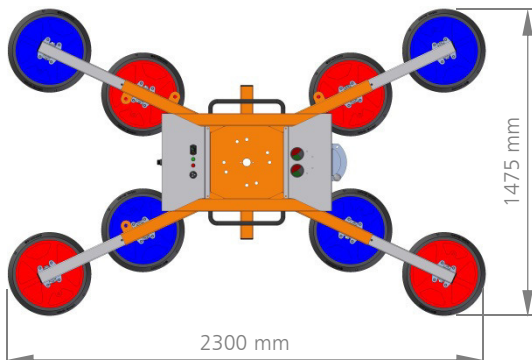
Working Load Limit 600 kg



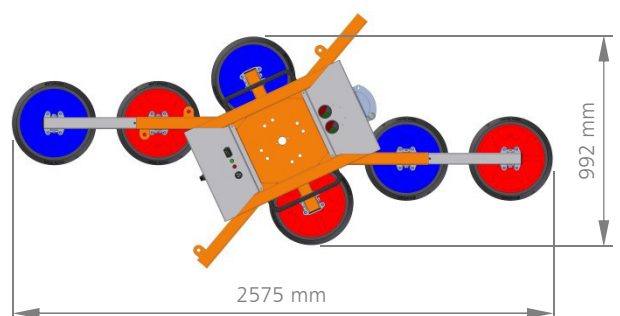
Working Load Limit 400 kg



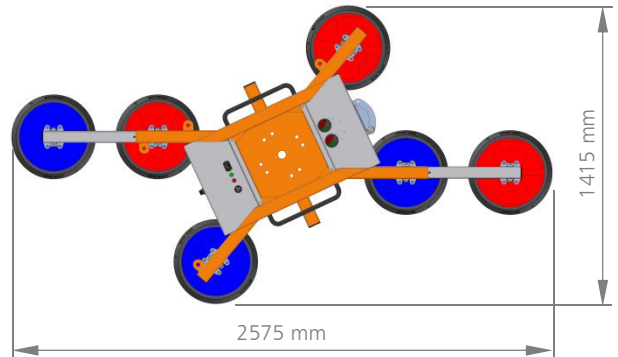
Working Load Limit 800 kg



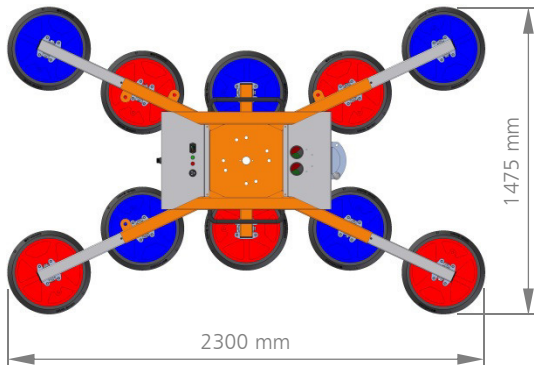
Working Load Limit 600 kg



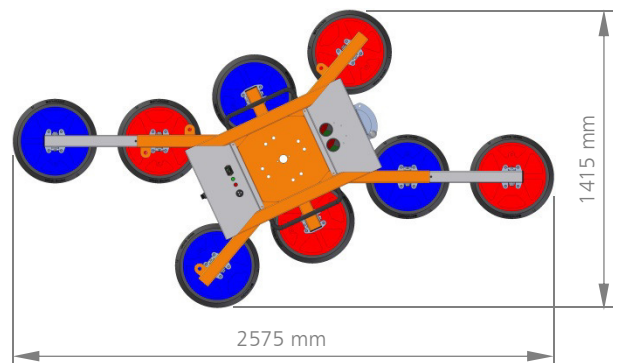
Working Load Limit 600 kg



Working Load Limit 1000 kg



Working Load Limit 800 kg



Please contact the Wirth Service Team if it is necessary to arrange the suction pads in a different order than shown in the figures.



Always arrange the suction pads evenly in both vacuum circuits!

EC-Declaration of Conformity

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

Manufacturer: WIRTH GMBH
Department Vacuum Lifting Devices
Brehnaer Straße 1
D-06188 Landsberg

Herewith we declare that the machine hereinafter described is in conformity with any provisions relevant to the EC machinery directive 2006/42/EC:

Product description: OKTOPUS® GLASS-Jack GL-KN 1000
Type: OKTOPUS® GLASS-Jack GL-KN 1000 R M B24 P 110
Serial number:
Year of manufacture:

In addition the partly completed machinery is in conformity with the **EC directive concerning the minimum safety and health requirements for the use of work equipment by workers at work 2009/104/EC**, the **EC directive on product safety 2001/95/EC** and the **EC directive on electromagnetic compatibility 2014/30/EU**.

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

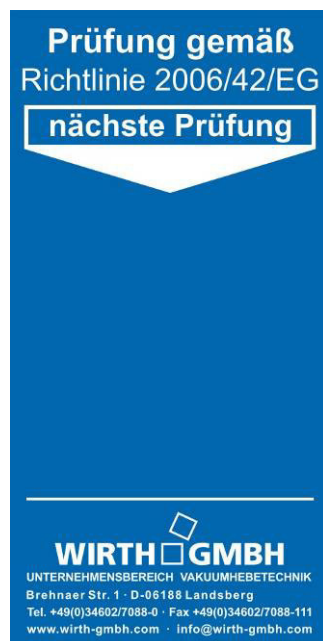
This declaration solely corresponds to the machine in the status as put on the market, any parts additionally installed and/or modifications additionally carried out by the end user shall be unconsidered. This declaration shall become invalid, in case the product should be modified without our approval.

Landsberg,

Holger Schadwinkel
(Managing Director)

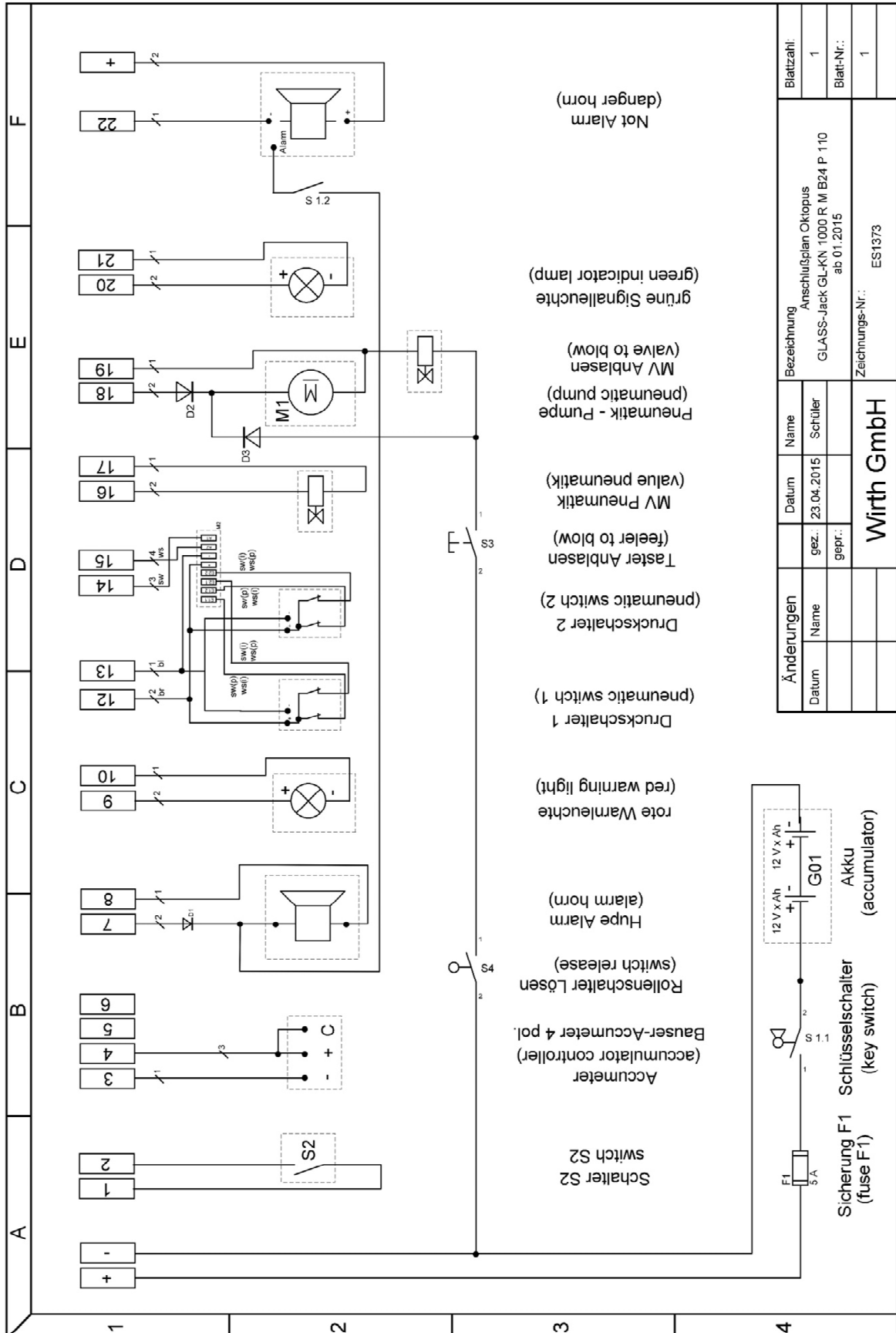
Inspection Tag of the OKTOPUS® GLASS-Jack GL-KN 1000

according Directive 2006/42/EC

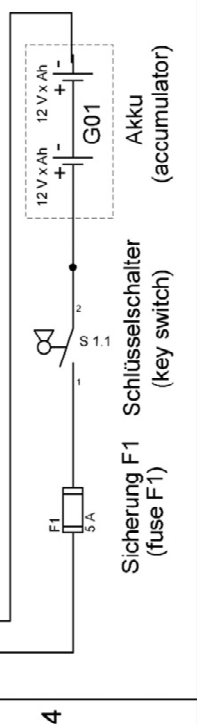


Sign size:	80 x 40 mm
Background:	blue
Foreground:	white
Type:	white on blue
Plate size:	diameter 30 mm
Background:	depending on the year
Foreground:	depending on the year

Electrical Circuit Diagram



Änderungen		Name	Datum	Bezeichnung	Blattzahl:
Datum	Name	Schüler	23.04.2015	Anschlussplan Oktopus GLASS-Jack GL-KN 1000 R M B24 P 110 ab 01.2015	1
	gez.:				Blatt-Nr.:
	gepr.:				1
Wirth GmbH				Zeichnungs-Nr.:	ES1373





Daily Pre-Use Checklist

Vacuum Lifter

Northern (Head Office) Tel: +44 (0)1482 227333

Central Tel: +44 (0)1302 341659

Western Tel: +44 (0)1384 900388

Southern Tel: +44 (0)203 174 0658

www.hird.co.uk

Machine Model: Oktopus 1000		Site Name:
Date Week Commencing:	Fleet No:	Address:
Inspected by:		

Daily Pre-use Checks

		M	T	W	T	F	S	S	COMMENTS
1	Are all operators manuals present and readable								
2	Is the Report of Thorough Examination (LOLER) in date								
3	Complete a visual walk around / Inspection for any noticeable defects								
4	Are all safety information decals present and readable								

Check the following components or areas for damage, or missing parts & unauthorised modifications:

5	Is the lifting attachment free from defects and safe to use								
6	Vacuum pads for rips, tears, quality and cleanliness								
7	Vacuum pipes and connections (in particular quick release fittings)								
8	All extension arms are present and free from defects (where applicable)								
9	Make sure all individual pad shut off valves are open (where applicable)								
10	Electrical components, wiring, connectors,								
11	Check input mains voltage corresponds with charger voltage (110v or 240v)								
12	Charger								
13	Check battery has sufficient charge								
14	Are rotation and tilting movements functional								
15	Check handles security								
16	Check remote for any damage or defects (where applicable)								
17	Check operation buttons / switches are working and free from defects								
18	Energise vacuum on non porous surface								
19	Are lights and audible alarms on during vacuum process								
20	Does the vacuum reach sufficient level, before switching off (see gauges)								
21	Does battery gauge illuminate when pump switches off If NO - DO NOT USE								
22	Check Safe Working load of vacuum - is it suitable for the proposed load								
23	Carry out full function test								

Is the machine safe to use? (please circle)	YES	YES	YES	YES	YES	YES	YES	
	NO	NO	NO	NO	NO	NO	NO	
Operator's Initials								

Result of Inspections: List defects or state "No Defects"

Signature:	Name:	Date:
------------	-------	-------