

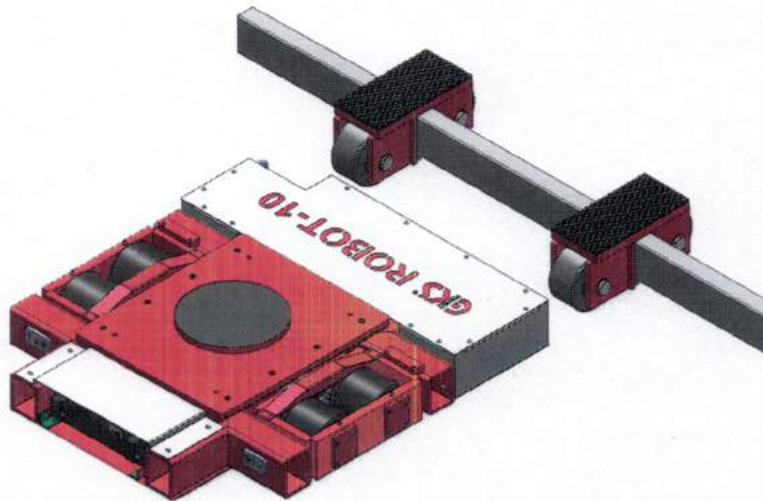


Hebe- und Transportsysteme
Lifting And Moving Systems



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**OPERATING INSTRUCTIONS NO.01/18 FOR REMOTE CONTROL BATTERY-OPERATED
TRANSPORT SYSTEM **ROBOT 10****



GENERAL INFORMATION

A powered steering gear and F-running gear form a combined unit that allows transporting a load of 10 tons per radio remote control by only one person.

The small turning circle allows you to transport your heavy freight easily and securely to any desired location.

TECHNICAL DATA

L-ROBOT (steerable, powered)		F-ROBOT (adjustable, not powered)	
Article number 14242		Article number 13806	
Load capacity	50 kN	Load capacity	50 kN
Installation height	180 mm	Installation height	180 mm
Support area	Ø 250	Support area (PUR rollers)	280 x 135 (2 times)
Net weight	190 kg	Net weight	70 kg
Outside dimensions (LxWxH)	992x842x180	Outside dimensions (LxWxH)	367x1600x180

TEST CERTIFICATE



PRODUCTION AND SALES

GKS-PERFEKT LIFTING AND TRANSPORT SYSTEMS

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Max-Planck-Str. 32
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TABLE OF CONTENTS

Page

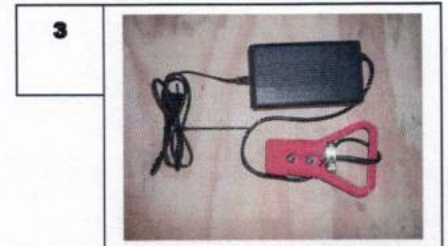
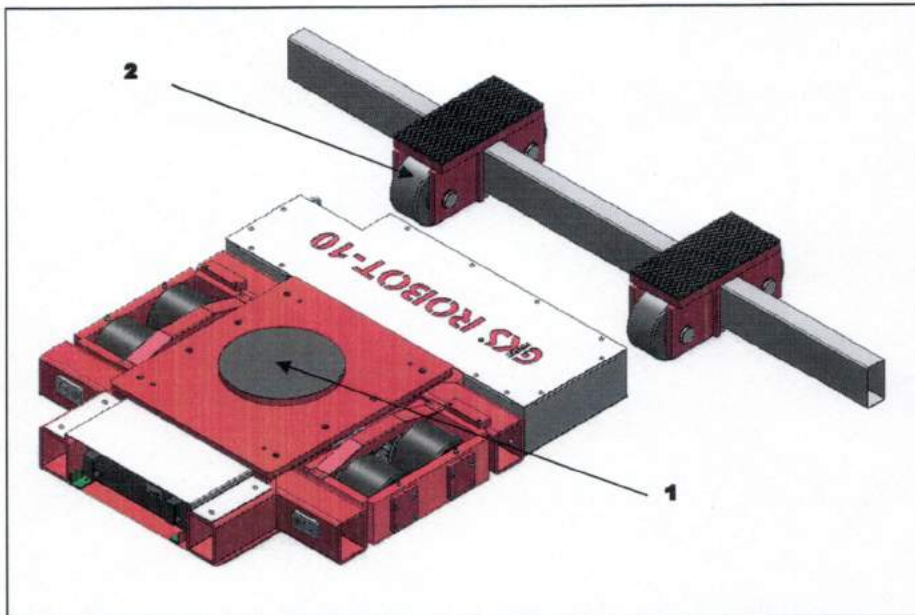
Technical data	1
Scope of supply, operating conditions	2
General and special safety notices	3.4
Operating steps	5
Commissioning	6 ... 9
Maintenance	9
Battery charger	10
Radio remote control	11.12
Battery safety notices, chargers	13 ... 15
Warranty	16.17
Service, Declaration of conformity	18
Electrical diagram	Attachments
	1.1





**OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED
TRANSPORT SYSTEM ROBOT 10**

SCOPE OF SUPPLY



1. L-ROBOT (steerable, powered)
2. F-ROBOT (adjustable, not powered)
3. Charger for travel battery
4. Radio remote control with sender battery and associated charger
5. Operating instructions

OPERATING AND STORAGE CONDITIONS

- -20 °C to +40 °C
- 90% humidity at 25 °C
- Protection class IP33 (Radio remote control sender IP65)



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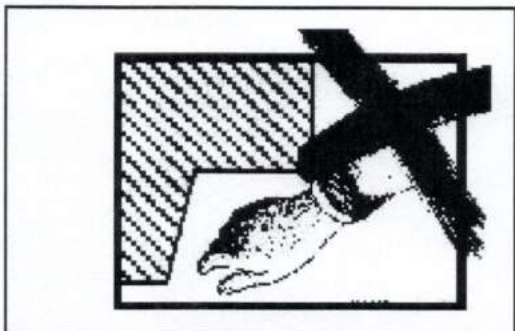
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**OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT
SYSTEM ROBOT 10**

ALWAYS KEEP THE OPERATING INSTRUCTIONS CLOSE AT HAND!

Dear customer,
please read this manual carefully before the first usage
of your new transport running gear!

GENERAL SAFETY NOTICES



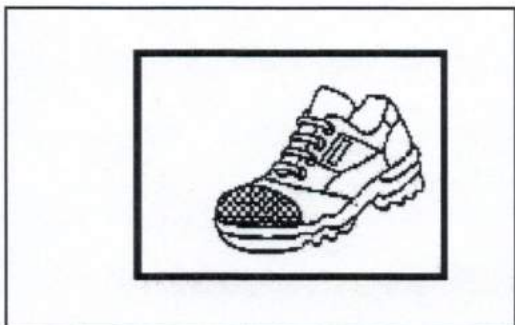
Principally, the Accident Prevention Regulations (UVV) BGV D 27 apply

Safety zone: Includes the freight, the immediate area around the freight and an adequately large additional clearance to prevent property damage or personal injury, even when heavy freight tips over. The operating personnel must ensure that no unauthorised persons are located in the safety zone!



Body parts such as hands, arms, feet or head must never be brought under the load!

Protruding and attached parts must be minded to prevent, e.g. head injuries!



The operating personnel must wear safety shoes with steel cap!

The operating personnel must receive suitable instructions.



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OPERATING INSTRUCTIONS FOR THE REMOTE-CONTROL BATTERY-DRIVEN TRANSPORT SYSTEM **ROBOT 10**

SPECIAL SAFETY NOTICES

The weight of the load and the floor conditions must be checked before using the GKS - Perfekt Transport System Type ROBOT 10. In addition, the accident prevention regulations and rules applying to the site of operation must be observed.

- To be used only for in-plant transport
- Protect the unit against wetness
- The running gear and drive modules must be inspected for visible defects before use
- Do not overload the transport running gear and steering gear, i.e. the permissible maximum load of the individual running gear must not be exceeded, even if the centre of gravity is off-centre
- Use the transport and steering gear only on firm level floors
- Running gear and load must be firmly joined in case of uneven ground conditions → Threaded holes in the support surfaces of the running gear
- The running gear units do not feature integrated braking devices; they must therefore be secured against rolling away when parked on sloped surfaces
- Do not drive on inclines or downhill slopes
- Running gear must always be positioned parallel toward each other and the load.
- Never operate F-running gear without connecting rod! The rollers may be damaged when using the device without connecting rod!
- Check whether other radio remote controlled devices are nearby
- Riding along on the transported load is principally prohibited!
- The operator must always be within visual range of the load.
- In case of obstructed situations, a second person must assist to give directions.
- The main switches on the drive module must be switched off when interrupting work.

Warranty and liability claims for personal injuries and property damages are ruled out if due to one or several of the following reasons:

- Disregard of the notices in the operating instructions as well as the accident prevention regulations
- Unauthorised structural modifications
- Inadequate monitoring of parts subject to wear
- Improperly performed repairs
- Using the drive modules or the transport and steering gear not as intended



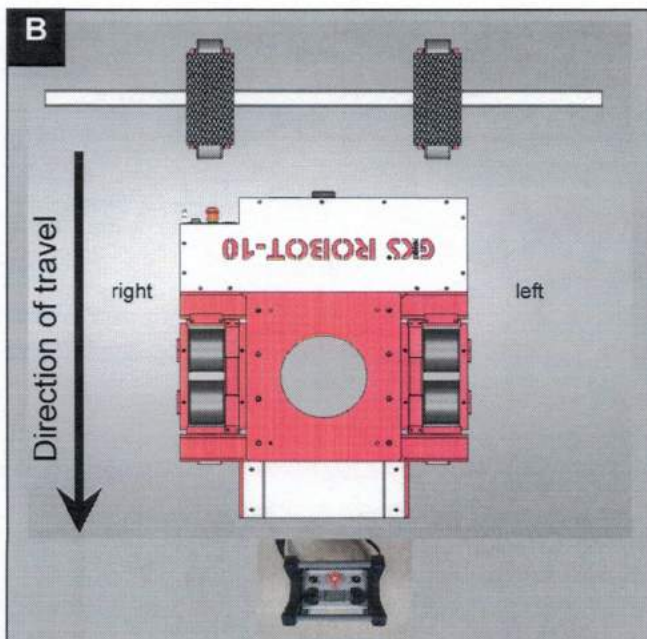
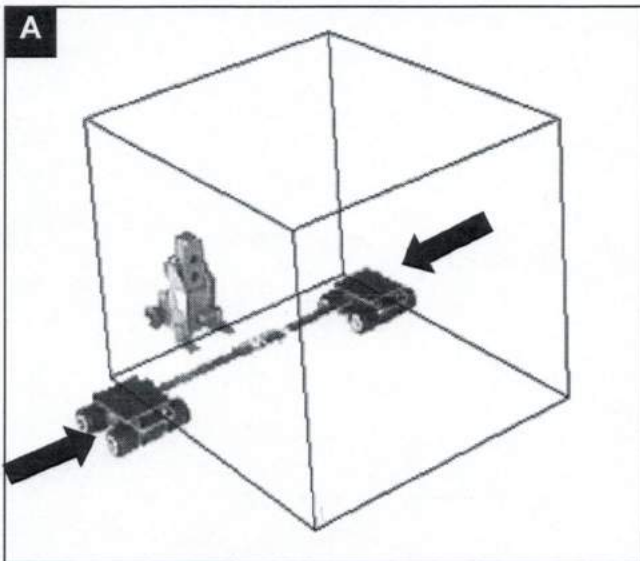
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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

SPECIAL SAFETY NOTICES



OPERATING STEPS

⚠ **Observe the Control section (Page 18)!**

LOADED (Fig. A / B)

- Determine weight of the load
 - Choose a suitable jack
- We recommend our GKS-PERFEKT hydraulic jacks**
- Adjust the stationary running gear to the required distance.
 - Lift the heavy load at the rear and prop it up
 - Move adjustable transport running gear (not powered) under the load to be lifted
 - ⚠ **Do not reach under the suspended load!**
The support plates of the running gears must not protrude beyond the edge of the heavy load.
 - Put down heavy load slowly and not jerkily
 - On uneven ground secure the running gear against rolling away before the next jack is positioned
 - Lift heavy load at the front side
 - Move the steering gear under the load
 - ⚠ **Do not reach under the suspended load!**
The rotary plate of the steering gear must be pushed centred under the load.



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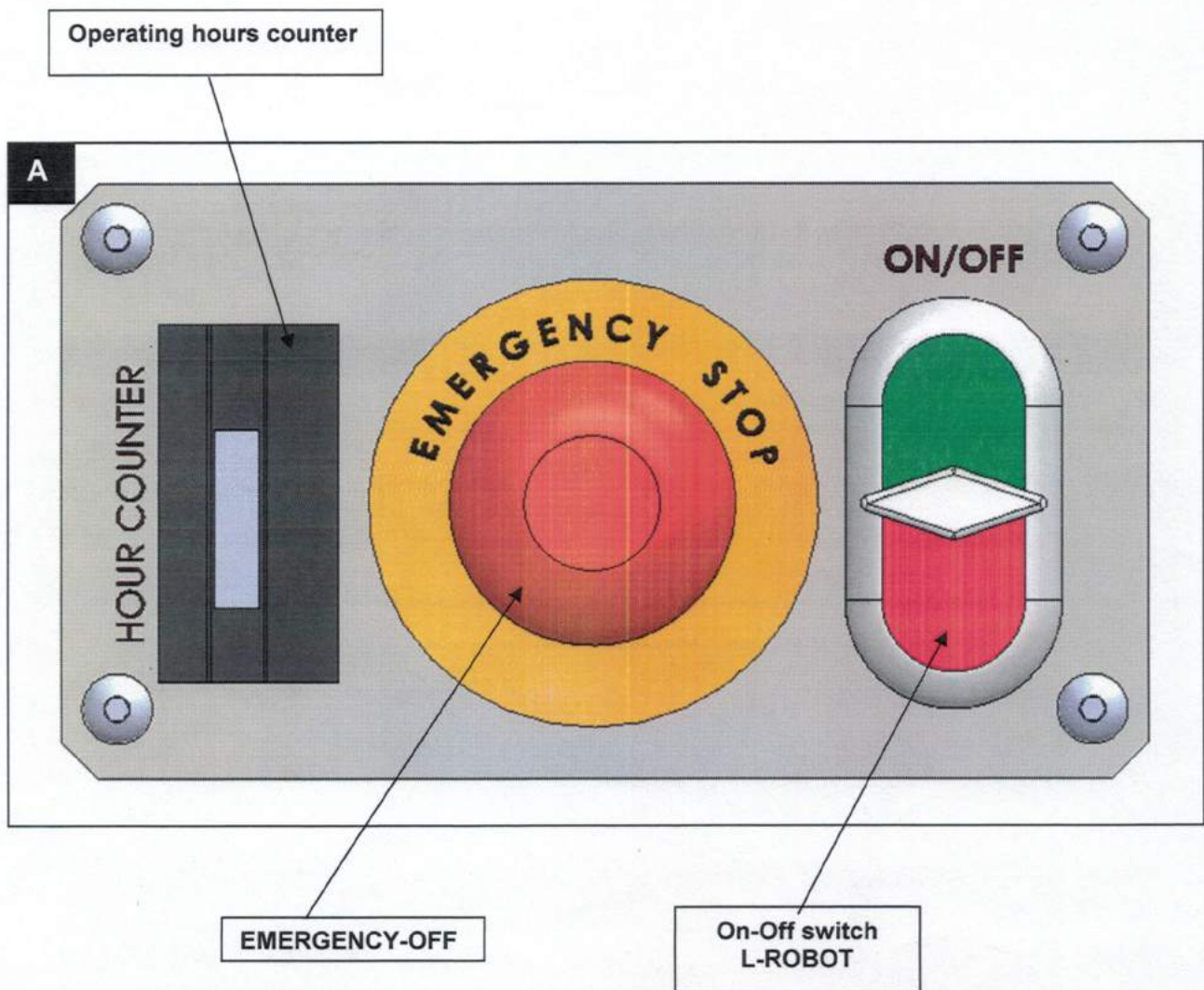
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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

COMMISSIONING A

- Unlock the EMERGENCY-OFF on the L-ROBOT
- Switch on the L-ROBOT

Make sure to observe this sequence! Continue with COMMISSIONING B





**ORIGINAL OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED
TRANSPORT SYSTEM ROBOT 10**



COMMISSIONING B-C

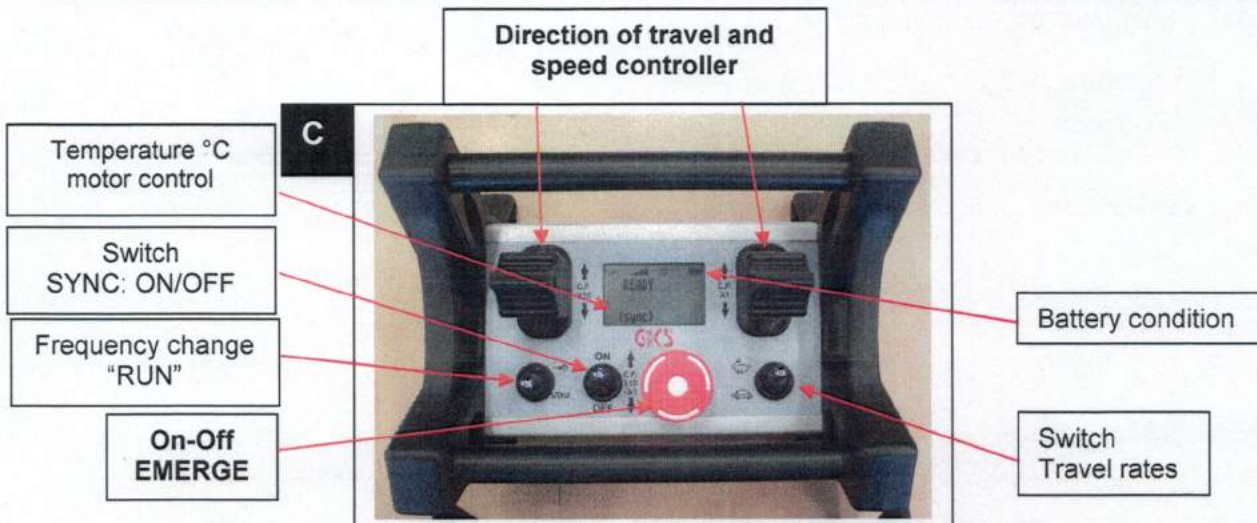
- Insert the battery
- Unlock the EMERGENCY-OFF on the transmitter
- Activate the remote control
- | / □ Operate the rocker switch
- Select the travel rate (5.5 or 11 m/min)
- Move the load using the two direction of travel and speed controllers while observing all safety notices.

Make sure to observe this sequence!

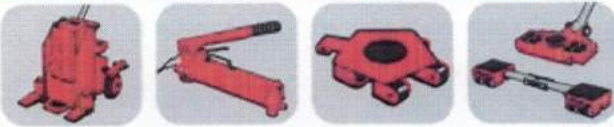
⚠ Check when operating the buttons for the first time whether any mutual influence to or from other radio remote controlled devices exists. The radio remote control sender must be switched off immediately if this is the case (stop switch). A different frequency is selected automatically by switching the unit on again.

⚠ **Never leave the sender unattended during operation** and prevent operation by unauthorised persons!

Transmitter for radio remote control C



See also additional "RADIO REMOTE CONTROL" operating instructions



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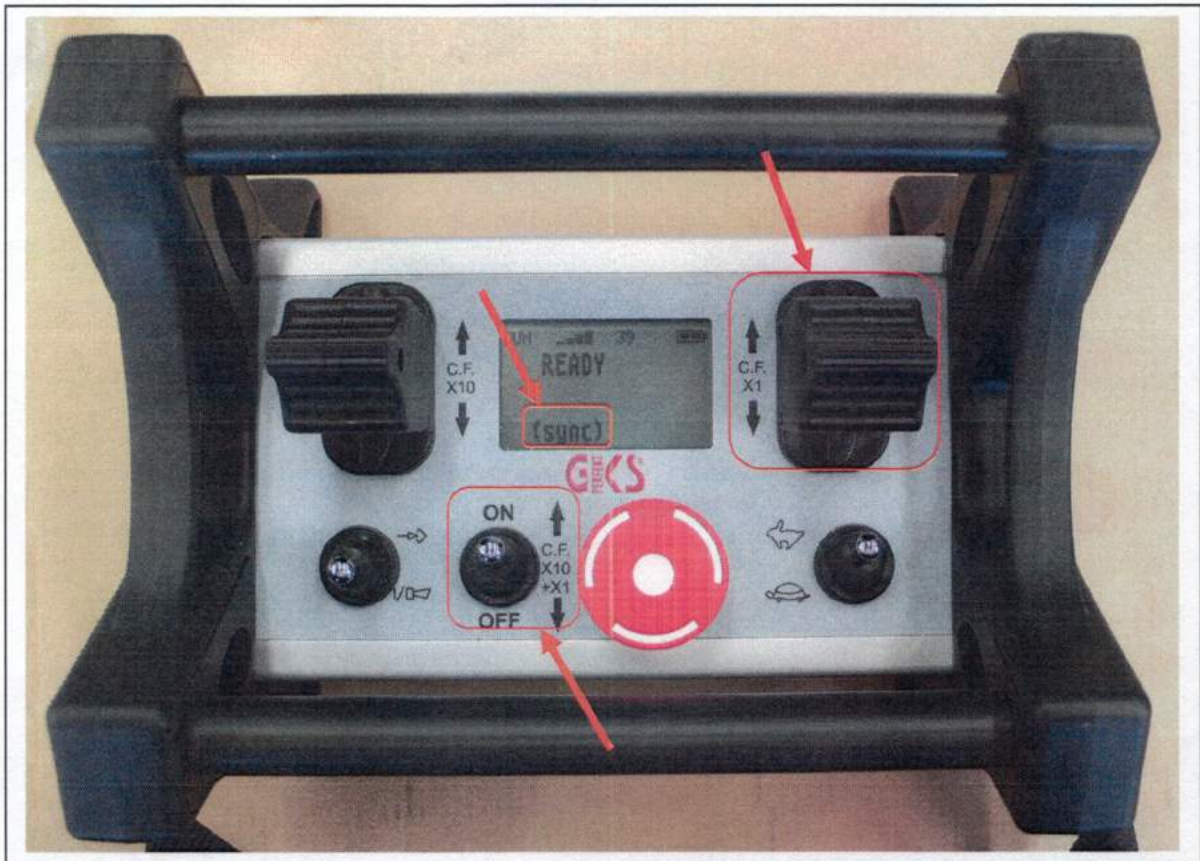
OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

TRANSMITTER FOR RADIO REMOTE CONTROL FOR STRAIGHT LINE TRAVEL D

MAIN FUNCTION

The drive energy is provided by 2 lithium-polymer batteries with 24 V each and is transferred to the two asynchronous motors with 1.5 kW each via a programmable motor control. The torque is transferred to the driving rollers via gears and pinions. The radio remote control sends the operator signals to the motor control via a CAN bus, and the current operating status is shown on the transmitter display. The complete system consists of a powered, steerable L-ROBOT and the non-powered fixed F-ROBOT. Thus a proven 3-point support. Particularly suited to the field of production lines / assembly.

D



Using the "C.F X10" rocker switch it can be toggled from manual steering (both rocker switches can be operated) to exact straight line travel:

OFF → individual driving via both rocker switches

ON → synchronous straight line travel

In the ON position driving is only possible straight forward or backwards with the **right-hand** rocker switch.

A corresponding note "(sync)" appears on the display.

⚠ Attention: when switching on the radio remote control this switch must be set to OFF



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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

Continued: COMMISSIONING

E



In case of emergency or irregularities the red **EMERGENCY-OFF** switch on the transmitter must always be pressed!

EMERGENCY-OFF



SWITCH-OFF / UNLOADING

- Switch off the ON-OFF switch on the radio remote control transmitter
- Switch off the main switch on the L-ROBOT (ON-OFF) only after approx. 5 minutes
- Secure running gear against rolling away on uneven ground
- Lift the load at the front side
- Move the steering gear out from under the load

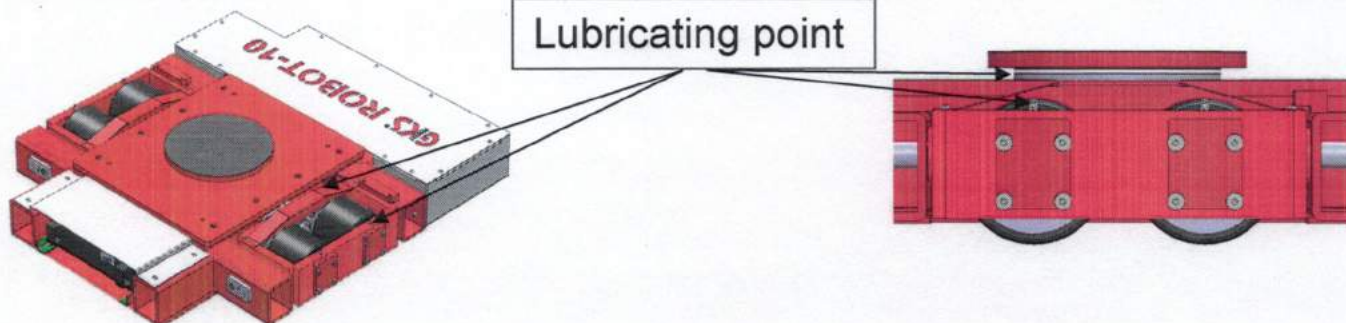


Do not reach under suspended load!

- Lift the load at the rear side and remove the F-ROBOT
- Lower the load via the machine jack

MAINTENANCE

- Check the charge state of the batteries
- Check all components for external damages
- Please contact your supplier in case of other irregularities
- Lubricate the bearings every 6 months with roller bearing grease (e.g. FAG Arcanol or grease according to DIN51825 Class KP)



- Check screws and nuts for firm seating (before each use)
- Battery, see page 10 ff

COMMISSIONING



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- Check rollers for wear (before each use)



OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM ROBOT 10

CHARGER

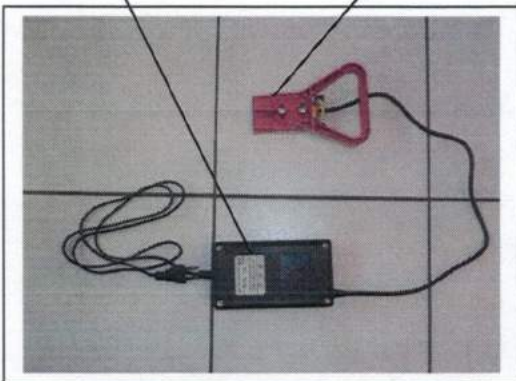


Charger for internal lithium polymer battery in the L-ROBOT



Charger for radio remote control transmitter battery

Plug protected against polarity reversal





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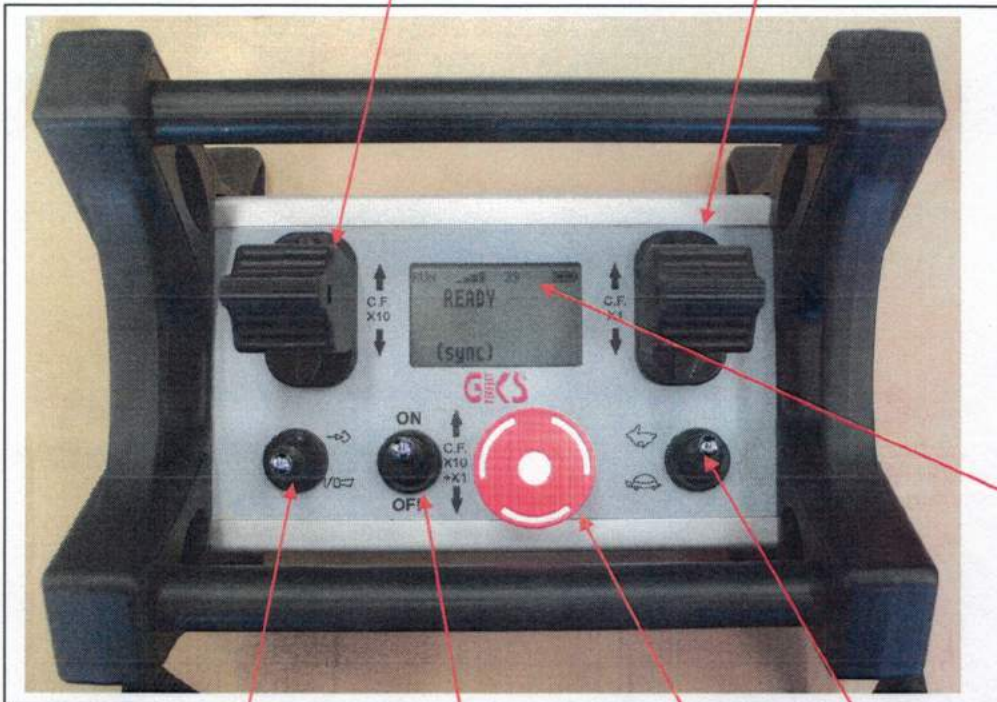
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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

RADIO REMOTE CONTROL

Left drive lever
forward / backward

Right drive lever
forward / backward
SYNC



Transmitter
battery
Charge state
+
Channel

Transmitter
ON / RUN
+
Frequency change

Switch
SYNC: ON/OFF

EMERGENCY

Travel rates switch:
"Rabbit" → 0 to 11 m/min
"Turtle" → 0 to 5.5 m/min

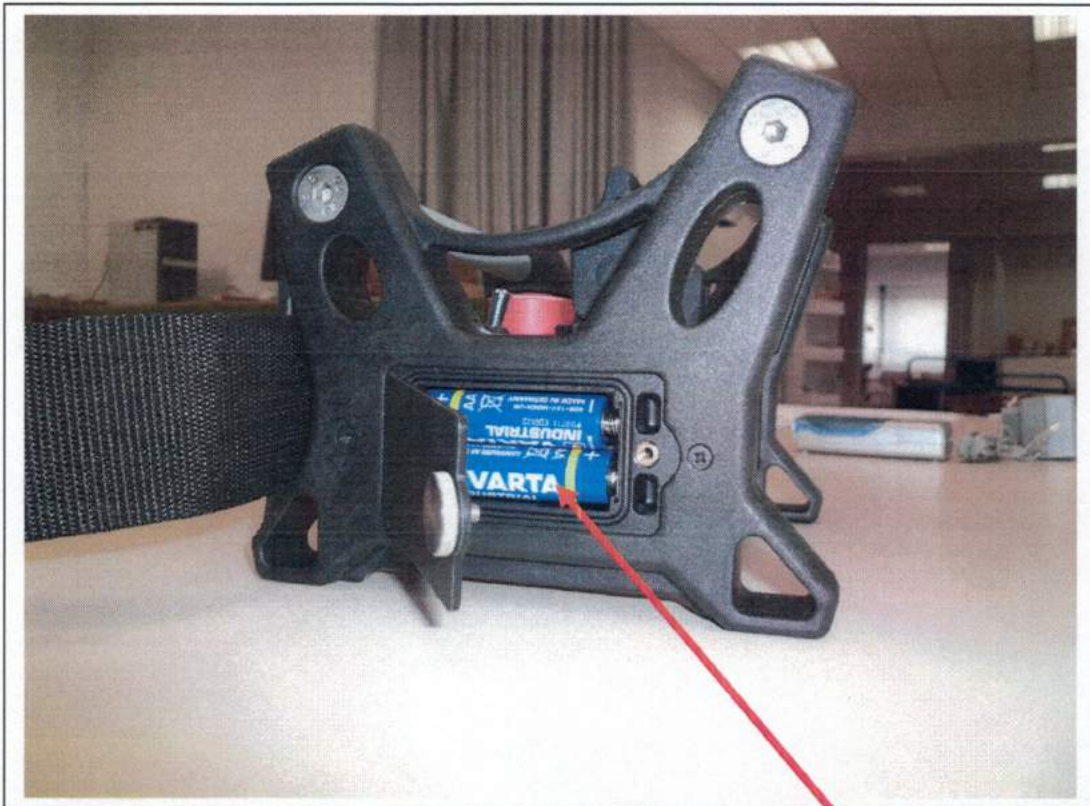


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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM ROBOT 10



Battery
compartment
Type AA



OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM ROBOT 10

Special Battery Safety Notices

- Use the battery only for the intended purpose.
- Only our charger is approved for charging (included with sets), maximum charge current 5 A, we cannot assume any liability for any other chargers.
- Use the battery only inside a housing.
- Opening and manipulating housing and battery is prohibited.
- Housing and battery must not be subjected to any deformation.
- Installation exclusively by our authorised technical personnel.
- Shorting the battery is prohibited.
- The battery must not be thrown.
- Do not allow the battery to come into contact with liquids.
- Keep battery away from heat sources (keep away from blazing sun), do not throw into fire.
- Disposal only via battery return stations.
- Product not for consumption.
- Store product inaccessible to persons under 12 years old.

Charging/discharging: Lithium polymer batteries – (LiPo batteries) represent a new technical standard. LiPo batteries are especially sensitive to insufficient or excessive charges. Our batteries are therefore equipped with an electronic LiPo Power Management System. This protective module prevents undercharging or overcharging of the LiPo cells; **never** remove this module therefore since safe operation can otherwise not be ensured.

The battery may be charged under supervision on a non-flammable, non-conductive and heat-resistant surface (!).

In case of incorrect handling (wrong charger, battery breakage, battery damage, including deformation), an explosion, fire, smoke and poisoning hazard may develop. The max. charge current is 5 A.

Balancer: A balance is integrated in the LiPo Power Management System. It ensures that after the charge process all cells are adapted to the same voltage level. This provides an excellent capacity utilization of your battery over a longer operating period.

Storage: Charge the battery up to approximately 50%. Check the charge state every 2-3 months, store cool and dry at room temperature.

Extinguishing notices:

Burning LiPo batteries must be extinguished with extinguishing powder, sand or similar extinguishing materials. Never use water, since the lithium in the LiPo cell reacts with the water. This may cause an explosion or similar.



OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM ROBOT 10

Important notice for the use of your lithium polymer charger

Disclaimer: Compliance with these notices as well as the conditions and methods of operation, use of the charger, cannot be monitored by us. We therefore do not assume any liability for losses, damages or costs resulting from faulty use and operation or are related to such in any way.

Safety notices: (The warranty becomes void if the listed safety notices are NOT complied with):

- Use the charger only to charge batteries with integrated CMS protection system.
- Use the charger only for the intended purpose.
- Opening and manipulating housing and cable is prohibited.
- Housing and connecting cable must not be subjected to any deformation.
- Shorting the charger is prohibited.
- The charger must not be thrown.
- Do not allow the charger to come into contact with liquids.
- Keep the charger away from heat sources (keep away from blazing sun), do not throw into fire.
- Product not for consumption.
- Store product inaccessible to persons under 12 years old.

Use: Only our batteries may be charged with this Lithium Polymer Charger. Please note that this charger is not suitable for model making lithium polymer cells and preassembled packages. The batteries to be charged must be equipped with in integrated protection circuit.

Connection: This charger is supplied with two terminals as standard. The terminals of the charger are identified as follows:

Red terminal: + Positive

Black terminal: - Negative

Alternative design with charge plug: the plug can only be inserted in the right position!

Indicators: The indicators indicate whether the charger is in operation.

LED is lit green: No battery connected or battery is fully charged

LED is lit red: Battery being charged

Storage: Store the charger unplugged at a cool and dry location; the battery may only be connected while being charged. Charger and battery are always stored separated without a connected battery.



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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

Important notice for the use of your lithium polymer charger

Charge process:

The charging time at a discharge to a residual capacity of 20% is as follows:

- | | |
|------------------------|--|
| • with 1.5 A – charger | 76 ... 77 hrs. |
| • with 5.0 A – charger | 22 ... 23 hrs. (standard charger, article no. 13419) |
| • with 12 A – charger | 9 ... 10 hrs. |
| • with 18 A – charger | 6 ... 7 hrs. (optionally available, article no. 13631) |

recommended charge current 5 A

Attention: use only original chargers from GKS – Kramp.



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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM **ROBOT 10**

WARRANTY

MECHANICAL / ELECTRICAL

Georg Kramp GmbH & Co KG (hereinafter referred to as GKS) grants a guarantee as manufacturer on the subject matter of the contract in accordance with the following provisions. The warranty starts on the day of delivery to the customer. The warranty period is 2 years or 900 operating hours (whichever comes first).

The warranty only extends to the buyer named in GKS's order confirmation. A prerequisite for a claim under the warranty is that GKS immediately, at the latest within 14 days after discovery of the defect by the purchaser or, as the case may be, at the latest, after the point in time at which the defect was recognisable to the purchaser during normal use of the item without further investigation, is proven to GKS in a verifiable form. The buyer must enclose the corresponding proofs (photographs, sketches, descriptions of damage, etc.) with the notification of defects.

In the event of a warranty claim, GKS is entitled to repair the delivery item a total of three times due to the same defect. Only after the manufacturer has failed to remedy the defect shall the purchaser be entitled to a replacement shipment of an equivalent delivery item. In the event of a replacement shipment, the manufacturer is entitled to supply the purchaser with a replacement item of equivalent quality and type.

Wearing parts are excluded from the warranty. A claim to a warranty does not apply if the purchaser has made alterations or modifications to the delivered products without the manufacturer's consent. If parts are installed which are not original GKS spare parts (third-party components), the claim to a warranty expires. This also applies in particular when using batteries which are not original GKS products.

Likewise, the claim of the buyer from the warranty is void in case of improper handling, natural wear, violation of operating, assembly and maintenance instructions as well as in case of use of improper and unsuitable operating materials. The costs and warranty services provided by GKS only extend to the rectification of defects or, as the case may be, to the replacement of the goods in the above sense. All other costs (transport costs, packaging costs etc.) shall be borne exclusively by the buyer. GKS does not assume any further consequential costs. The place of warranty fulfilment is Fellbach.



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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED
TRANSPORT SYSTEM **ROBOT 10**

WARRANTY

BATTERY

Wearing parts are excluded from the warranty. A claim to a warranty does not apply if the purchaser has made alterations or modifications to the delivered products without the manufacturer's consent. If parts are installed which are not original GKS spare parts (third-party components), the claim to a warranty expires. This also applies in particular when using batteries which are not original GKS products.

With the lithium polymer batteries, the warranty, with observation of the safety notices, is 1 year at a max. number of cycles of 300 and 80% DOD max. discharge (Depth of Discharge).



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OPERATING INSTRUCTIONS FOR REMOTE CONTROL BATTERY-OPERATED TRANSPORT SYSTEM ROBOT 10

OTHER INFORMATION

SERVICE, REPAIR AND SPARE PARTS ORDERING

- **Service, repair and spare parts ordering:**
For quick information or spare parts ordering, please call our

SERVICE NUMBER:	Fax: +49 711 51 09 81 - 90
Phone: +49 711 51 09 81 - 0	Email: info@gks-perfekt.com

- **Repair**
Necessary maintenance and repair tasks are carried out by us quickly and correctly according to cost estimate. Please send the device to us.

INSPECTION

The transport and steering gear must be subjected to visual inspection **before each use**:

- Inspection of welds
- check for deformation of the running gear and also the connecting rod
- check rollers for wear and soiling
- the rollers must be replaced per cassette if worn unevenly

SPECIAL CONSTRUCTIONS

Our design department realises lifting and transport systems per customer preference and offers problem solutions for any heavy load transport. Please inquire.

EC DECLARATION OF CONFORMITY

We herewith declare that the GKS-PERFEKT transport running gear of the types:

ROBOT 10

for in-plant transport of machines and heavy loads complies with the following relevant regulations:

- Directive 2006/42/EC+2009/127/EC of the European Parliament and the Council on 17 May 2006, Annex II A

Applicable international technical standards, in particular

- DIN EN ISO 12100:2011 Safety of machines

Applicable national technical standards and specifications, in particular

- BGV D27: Accident prevention regulations for industrial trucks
- Equipment Safety Act (GPSG)

Georg Kramp GmbH & Co. KG
GKS - PERFEKT Lifting And Transport Systems
Max-Planck-Str. 32
D 70736 Fellbach

Fellbach, 17/01/2018

Kramp