

# Automatic Chicken Door Flap Actuator

HK2 (standalone device)

HK2-RH

HK2-RE

HK2-RG

HK2-RB

## Description and Operating Instructions



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## General Description

JOSTechnik's electronic flap actuator **HK2** is a further development of **JT-HK**'s series of flap actuators, which have been on the market for a number of years. It is used for the automated opening and closing of sliders to poultry houses. Sliders weighing approximately 400 g - max. 2.5 kg can be moved using the **HK2**. The slider must run smoothly, it must not rub or tilt.

*The flap actuator **HK2** is available in 2 versions:*

- 1 Framework device consisting of a control unit on a fully assembled self-locking slider forming a compact unit (**HK2-R..**)
- 2 Standalone device (**HK2**) to be used with external sliders (standard or self-locking)

*Range of functions:*

- Automatic opening/closing of the slider
- Control by dimmer switch and integrated timer
- Manual operation with (▲ und ▼) keys integrated on the device
  - or with optional radio remote control
  - or optional remote keys
- The closing point is reached without external limit switches using the travel time control
- Safety function with control if animals are in the path of the slider
  - an interrupted closing process is repeated - real emergency stop or emergency opening function
- Optional remote display of the slider status by means of 2 extra bright LED lights
- Can be installed inside or outside the poultry house
- Integrated attractor light controlled by a light sensor

The **HK2** basically works in automatic mode, but can also be operated manually (see section on *Manual Operation*).

Internally, the device works with a stable DC voltage of 12 V. Standard batteries are **not** suitable for operating the **HK2**. A plug-in power supply for connection to the 230V power supply is part of the delivery package. The device has IP65 protection and can be used outdoors without additional protection. The plug-in power supply must be connected indoors in any case, since it has no suitable protection for outdoor use.

The basic function can be enhanced or adapted using optional sensors and modules (see section on *Optional Modules*).

- The JT-LDR external light sensor is definitely required
  - if the control unit is located in the poultry house or is installed in the shade
- JT-FT wired remote keys are required
  - if the control unit is in the poultry house, for example.
- The JT-FA wired remote display is required
  - if the slider status cannot be seen from a distance
- Radio remote control with 2 JT-FB keys are required
  - for operating the slider
- Radio remote control with 4 JT-FB4T keys are required

- for operating the slider and the lighting
- Attractor light (no dimmer function)
  - 1 x LED light bar up to max. 12 V / 12 W can be connected directly

You can easily retrofit optional sensors and modules yourself. All the necessary connections are available and are connected or plugged in using screws (see section on *Installation Instructions*). A flexible cable bushing is built into the housing for the additional cables so that no additional drilling is required.

The housing must be opened in any case to carry out any retrofitting. The power must be disconnected beforehand. After connecting the sensors and/or modules, close the housing and reconnect the power supply.

The slider can be controlled according to brightness and the time of day. The setting of the threshold values is menu-driven and further control options, such as **permanent** or **semi-automatic** operation, are available.

If there is no explicit reference to differences between the **HK2.0-R..** framework device and the **HK-2.0** standalone device, these instructions apply to both types of device.

## Installation Instructions

The plug-in power supply is usually already connected when you receive the product. If you have to connect the plug-in power supply yourself, make sure it is connected correctly to the 12 V terminal (red to +, black to -). If you have purchased optional modules, connect them as well (see section on *Optional Modules*). Note the polarity of the attractor light.

**Please ensure that you read all the operating instructions in order to be able to make use of all the features offered by the flap actuator.**

## HK2 - standalone device

Before the electronic flap actuator is put into use, it must be fitted according the installation instructions and be attached to the chicken door by means of a connection cord. Using the flap actuator without the connected slider will lead to malfunctions.

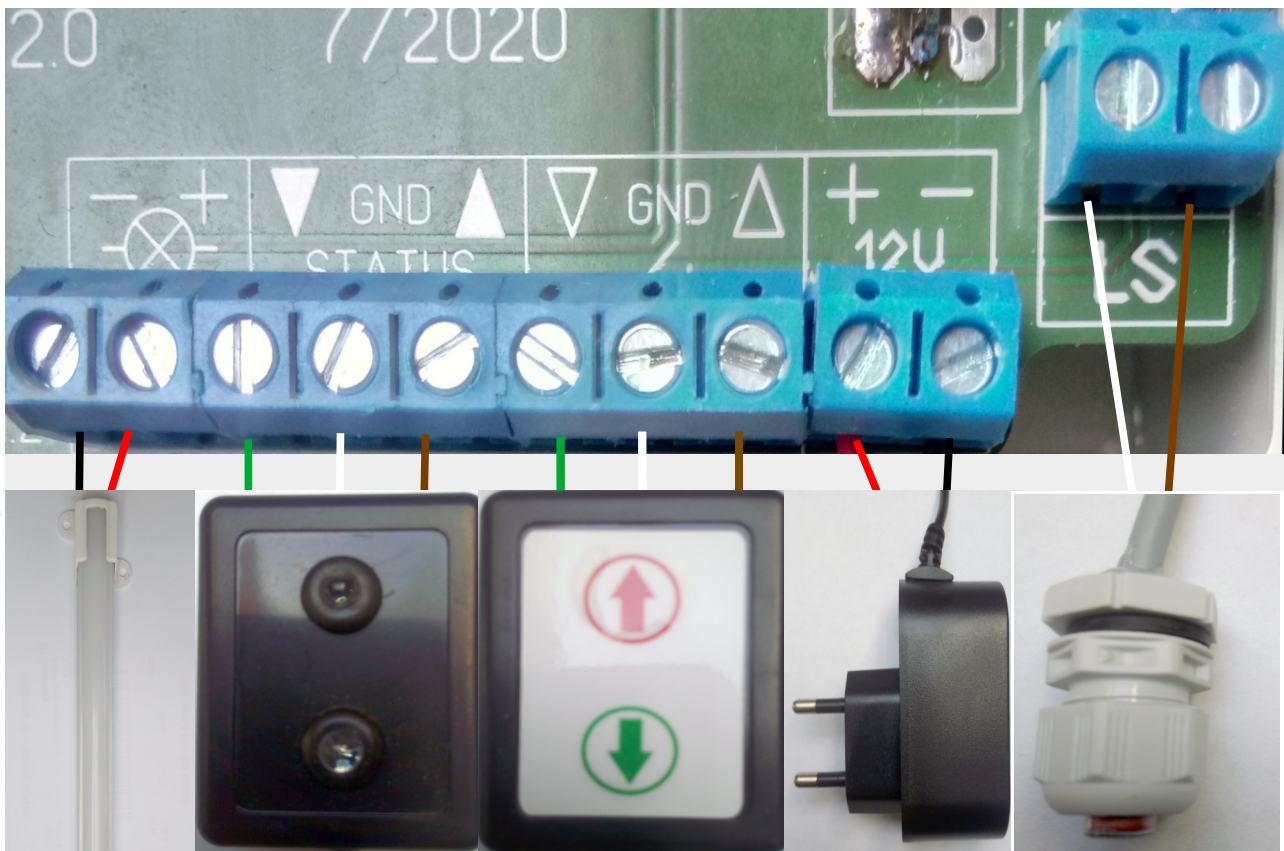
**Note the following:** (*applies only to the standalone device with separate slider*)

The aluminium nut of the flap actuator must be directly on the housing (the cord is rolled up). **Do not cut this nut off under any circumstances.** Attach a separate connecting cord here (not included in the delivery package). Push the slider into the open position and now connect the separate cord to the opened slider. The minimum distance between the upper edge of the opened slider and the lower edge of the HK2 must be at least 10 cm.

## HK2 - R..

The frame unit is pre-assembled ready for use and requires no further assembly work. Fasten it to your stable with the screws supplied. Use the existing holes in the rails, do not drill new holes.

## Optional Modules



Attractor light

Remote display

Remote key

Plug-in Power  
SupplyExternal light  
sensor

\*The pictures show the cable colours commonly used.

The optional remote display indicates the status of the slider (OPEN/CLOSED) over a distance of about 30 metres.

The extremely bright LED lights indicate the following:

Red	Green	Slider status
On	Off	Open
Off	On	Closed
Flash	Off	Open (manually)
Off	Flash	Closed (manually)

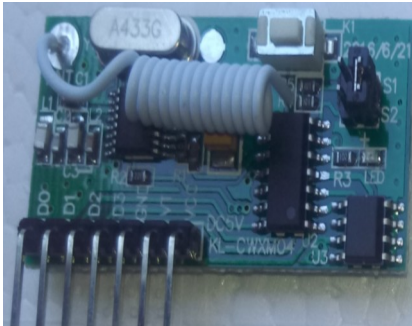
You can operate the device by hand using the optional remote keys without using a radio remote control.

The different functions are shown as follows:

- Open slider                    **Key ▲**
- Close slider                   **Key ▼**

If you have ordered a radio remote control, the receiver is pre-installed in the device and paired with the transmitter. This means that the transmitter and receiver have a common communication address. You do not have to do anything else.

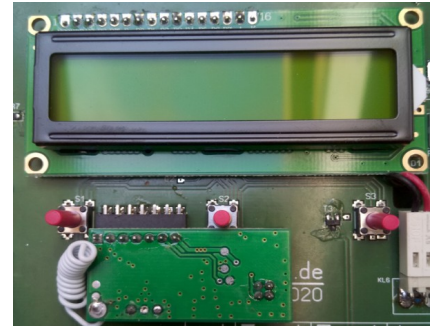
If you want to retrofit the radio remote control yourself at a later date, please refer to the pictures below.



Radio receiver



Slot for radio receiver



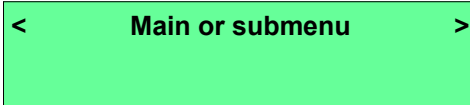
Radio receiver plugged in

## Operation and Settings

The **HK2** flap actuator is operated using the timer display. Operation is menu-driven and is described below.

### General Structure

**Key <** takes you to the previous menu item or exits the menu

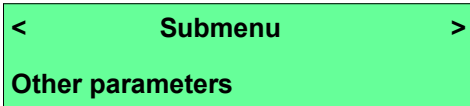


**Key >** takes you to the next menu item or exits the menu

**Key ↓** takes you to the submenu or to the parameter level

**Note:** If you hold down the **> key** or the **< key** in the main or sub-menu level, you automatically scroll forwards or backwards through the menus.

**Key <** sets parameters to 0 or factory settings



**Key >** increases parameters or scrolls through the list of setting values

**Key ↓** confirms the change and goes to the next parameter or to the submenu.

**Note:** If you keep the **> key** pressed in the parameter level, the parameter increases automatically or scrolls continuously through the list of set values.

To open the menu press **↓ key** until the display lighting is switched on.

In order to be able to display / change parameters, use the **> key** or **< key** to move through the main / submenus; it is not possible to go straight to specific parameters. For most settings, there are limits in the setting range (see section on *Factory Setting*). The changed parameters are saved immediately after exiting the menu item and are retained even in the event of a power failure.

It is imperative that you exit the menu so that the device switches back to automatic mode. No functions are possible within the menu.

The menu is structured and divided into the following main and sub-menu levels:

Flap actuator	Date / Time	Extras	Reset
Timer 1	Time	Attractor light	
Timer 2	Date	Language	
Mode			
Light sensor			
Emergency stop			
Redefine the end position			
Castor			

## Settings and Changes

### Factory Setting

Parameter / Setting value	Factory setting	Adjustment range (specified)
<b>Flap actuator</b>		
Timer 1	Open 1	7:03 am
	Close 1	7:05 pm
Timer 2	Open 2	00:00
	Close 2	00:00
Time-of-day ranges	Morning	3:00 am - 2:59 pm
	Evening	3:00 pm - 10:59 pm
	Night	11:00 pm - 2:59 am
		Automatically <u>only</u> opening
		Automatically <u>only</u> closing
		<u>No</u> automatic function 11:00 pm Forced closure
		Not adjustable
Operating mode	Open	+/+
	Close	x/x
		-/, x/- , x/x , -/x , +/+
		-/, x/- , x/x , -/x , +/+
Delay		0 minutes
		0 – 60 minutes
Brightness value	Open	18 %
	Close	5 %
		15 % - 75 %
		2 % - 12 %
Set the lower end position	No	Automatic
Emergency stop	On	On / Off
Castor	Off	On (3 seconds) / Off
<b>Time / Date</b>		
Time	Current time	
	On	On / Off
Date	Current date	
<b>Extras</b>		
Attractor light	Off	On / Off
	Switch-on value	20 %
		10% - 30%

Parameter / Setting value	Factory setting	Adjustment range (specified)
Light duration	00 min	05 – 60 min
Language	German	German, English, French, Dutch

## Main menu level “Flap actuator”

### Submenu Timer 1 / Timer 2

Setting the times for automatic opening (▲) and closing (▼) of the slider. Entering times is limited to the range between 3:00 am and 10:59 pm. No automatic function is available between 11:00 pm and 2:59 am. This does not apply to manual operation.

The logic of the times is checked when the times are entered. If there are any discrepancies and it is not possible to exit the menu item, the cursor is placed on the incorrect entry for you to correct the entry.

< Timer 1 >
▲ 7:00 am ▼ 7:05 pm

< Timer 2 >
▲ 9:00 am ▼ 6:30 pm

If only timer 1 is set, this applies to all days of the week. If timer 2 is also set, this applies to Saturday and Sunday. Timer 1 applies accordingly from Monday to Friday. Timer 2 is deactivated if both times are set to 00:00.

### Submenu Mode

The operating mode determines the way in which the slider is opened / closed. The front character stands for the timer function, and the character after the slash for the light sensor. The mode must be set separately for opening and closing.

The following modes are available:

Operating modes*		Open/Close if	Explanation
0	+/+	Switching time and light sensor value reached	
1	x/-	Switching time reached	Timer only
2**	-/x	Light sensor value reached	Light sensor only
3	x/x	Switching time and light sensor value reached	
4	-/-	Manual key or remote control operated	Manual operation only

\* The set operating modes apply to both timers and cannot be set separately.

\*\* if selected for evening, the delay submenu described below appears

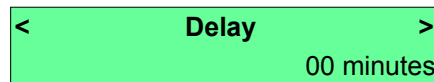
Examples of what the symbols mean:

Mode			Meaning
0	Morning	+/+	Slider opens when it is "light" but <u>not before</u> the set opening time
3	Evening	x/x	Slider closes when it is "dark" <u>or</u> at the set closing time
2	Evening	-/x	Slider closes when it is "dark" and the set delay time has expired



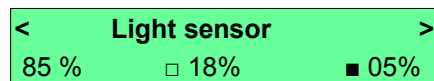
### Submenu Delay

This submenu is only displayed if mode **2 -/x** is set for the evening. The adjustable delay time only applies to the automatic closing of the slider and does not affect opening or manual operation.



### Submenu Light Sensor

Setting of the switching thresholds of the light sensor when the slider is opened (▲) or closed (▼).

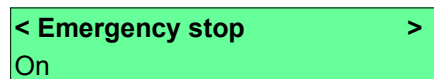


**Note:** the smaller the percentage, the darker it must / can be

### Submenu Emergency Stop

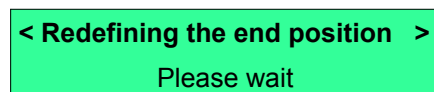
The device has a real emergency stop or emergency opening function. This means that should be an animal under the slider when it is closing, the slider will stop closing and re-open as soon as it touches the animal. The slider will then attempt to close again. After 3 unsuccessful attempts, this function is temporarily switched off and the slider finally closes.

If "false" emergency stops are triggered too often through the use of cables and guide rollers or other mechanical impairments (i.e. the slider attempts to close a number of times without being triggered by animals), the function can be permanently switched off here.



### Submenu Redefine End Position (slider CLOSED)

Structural differences between poultry houses mean that the path of the slider has to be defined. It is necessary to *redefine the end position* function so that the flap actuator knows when the slider is closed.



You only have to call up this menu item if you want to reset the lower end position, e.g. because the slider has changed or the device has been installed in a different position. No other settings are deleted.

### Submenu Castor

When using the **HK2** as a standalone device with a separate self-locking slider, the motor must continue to run after the slider has been attached until the locking lever has engaged. This is done by the castor function.

< **Castor** >  
Off

**Note:** No castor is required with the HK-ZSU-Rx. The locking mechanism is located directly in the control unit.

## Main Menu Level “Time / Date”

The device is delivered from the factory with the current time and date. If you are in a different time zone, if the clock runs incorrectly after changing the battery or if you identify a rate deviation, you can set the time and date manually.

### Submenu Time

The seconds are set to "00" after exiting the menu.

< **Time** >  
10:32      CET/summer time

The automatic normal / summer-time changeover can be switched off if required.

### Submenu Date

< **Date** >  
01.01.20

The date is set as follows

- 1 Year - Check for leap year
- 2 Month - Check for length of month
- 3 Day - Determine the day of the week

**Note:** Time and date are also current after a power failure (backup battery available)

## Main menu level “Extras”

### Submenu Attractor Light

The attractor light is used to attract animals into the poultry house before the slider closes. The light is switched on or off, and dimming is not possible.

< **Attractor light** >  
Off      20%      00 min

The attractor light is switched on when the set switching threshold is reached **and** the slider is OPEN. After the slider closes, the attractor light lights up for the set time.

### Submenu Language

After changing the language and exiting the language menu, the device restarts. All display outputs are then shown in the selected language.

< Language >  
German

## Main Menu Level “Reset”

< Reset >

The key ↵ key starts resetting all set values to the factory setting automatically. The time and date are retained. After resetting, the device runs a self-test and then automatically switches on and defines the lower end position.

**Note:** If you only want to reset the "lower end position", select the option "Redefine end position" in the "Flap actuator" menu instead of "Reset".

## Start-up and Operation

### Start-up

After the **HK2** has been properly installed, connect the plug-in power supply into the mains socket. The device will automatically switch on and run a self-test. The background lighting of the display is switched on and the following display appears.

Initialisation  
Please wait

The motor starts up, the flap is pulled up to the stop collar on the housing. The motor stops momentarily and the traction cable frees up by a few millimetres. The initialisation is complete. The device then closes and automatically determines the lower end position. Once the slider touches the bottom, it moves back into the open position.

The device now shows the standard display, indicating correct initialisation and the transition to automatic mode.

Mo	10:32 am	CEST	Mo	10:32 am	CEST	Mo	10:32 am	CEST
97%	□18%	■05%	V 6.0.XXX	▲■		T1: Monday – Sunday		

The display lighting goes out. In order to be able to check the displays, the lighting can also be switched on manually by pressing the < key and the > key at the same time. The lighting goes out automatically after approx. 30 seconds.

*Without changing the factory setting, the device will:*

Open	7:03 am daily and it must already be light	(Mode 0 +/-)
Close	7:05 pm daily or it is already dark	(Mode 3 +/-)

You can change times and modes in the menu (see section on *Settings and changes*).

## Operating Displays

Various operating data, parameters and settings are shown in the display.

*Top line:*

Weekday	Current time	Standard time / Summer-time	(but not deactivated)
---------	--------------	-----------------------------	-----------------------

*Bottom line alternately:*

Current brightness	Open brightness	Close brightness	
Software version	Operating mode Automatic / Manual	Last control command	Light sensor status (bright/dark)
Validity of the timer times			

*The yellow LED to the left of the display shows the following states:*

	Light sensor recognises
Continuous light	BRIGHT
Flashing	Initialisation in progress
Off	DARK

## Automatic Mode

The device is designed for automatic operation and opens and closes the slider in accordance with the operating mode that has been set. Interventions in the automation are required only if you wish to deviate from standard usage. This includes, for example, closing the poultry house by the hour for cleaning, or opening it manually to put a stray bird into the poultry house.

The auto mode is interrupted without "outside" intervention only if errors occur. (see heading on *Troubleshooting*)

## Manual Mode

Pressing the **▲ key** and the **▼ key**, the optional radio remote control or the optional remote keys will allow you to operate the slider manually at any time, regardless of the light sensor and timer. Each of these actions exits the automatic mode and will not cause any further automatic opening / closing to take place until you exit manual mode.

The interruption of automatic mode is shown in two ways:

- |   |                         |  |
|---|-------------------------|--|
| 1 | In the display          | Display <b>A</b> (automatic) or <b>M</b> (manual)                |
| 2 | Optional remote display | belonging to the manual function performed<br>LED status flashes |

*Example:*

Slider is	Key action	Display		Comment
		Display	Remote display	
Open	None	A	Red on	
	Key ▼			Switch to manual mode

Closed		M	Green (flashing)	
	Key ▲			Switch to automatic mode
Open		A	Red on	

**Explanation:**

If the automatically closed slider is opened again manually in the evening, it remains **OPEN** until the slider is closed again manually or the automatic forced closing is activated at 11:00 pm and the device is switched to automatic mode.

If the slider is closed manually during the day, the slider will not reopen automatically until the following morning.

**Programmable manual operating modes in the "mode" submenu (part-automatic mode):**

Manual mode	Mode setting		Comment
	Morning	Evening	
Continuous	-/-	-/-	The flap can only be operated manually, e.g. when the animals have to be penned in. The slider does <u>not function automatically</u> .
Semi-automatic	-/-	Any except -/-	The flap is <u>always</u> opened manually and closes automatically in the evening according to the mode that has been set
	Any except -/-	-/-	The flap is <u>always</u> opened manually and closes automatically in the morning according to the mode that has been set

Despite the manual key being pressed, the slider status is shown by the LED of the optional remote display that lights up continuously and **A** is still shown in the display. If you do not press the manual key in the set time range, the device remains in the current state (i.e. constantly OPEN or CLOSED).

If you have only set the -/- mode for the evening and have forgotten to close the poultry house manually, it will be closed at 11 pm by the automatic forced closing.

A 4-key radio remote control also enables you to operate the attractor light manually regardless of the light sensor, time and slider status. Again, the manual operation interrupts the automatic operation of the attractor light. Forced shutdown takes place at 11:00 pm.

## Troubleshooting and Service

### ***It's not working. What now?***

First call the service department (you can find the phone number on the invoice / delivery note). Have your invoice ready and a list of your set values. Before you call, make bullet points for the following questions:

- What device do I have?
- When and where did I buy it?
- What is not working?
- What have I already tried?

If you want to send the device to the service department for inspection / repair, please note the following:

- Send the device as a simple parcel.
- Include a copy of your invoice / delivery note.
- Include a brief description of what is not working and what you have already tried.
- Please provide a phone number. / email address \* where you can be reached for any questions.

\* no EBAY or Amazon email address

This ensures that the inspection / repair can be tackled quickly and that you get your device back quickly.

If the inspection / repair is chargeable (e.g. outside the guarantee period) you will first receive an estimate of the cost. The repair will then only be carried out after you have agreed to this (transferred the amount).

**Note! The guarantee is not valid if you are not able to provide proof of purchase.**

## Technical data

### Data

Description	HK2 and HK-ZSU-Rx flap actuators
Connection	230 V ~ 1.5 A via plug-in power supply to 12 V = internal
Power consumption	approx. 30 mA (only <b>HK-ZSU</b> ), approx. 130 mA including additional modules
Current capacity outputs	Max. 20 mA per output, max. 500 mA across all outputs
Internal cable length	ca. 1.00 m
Slider weight min. / max.	ca. 400 g / 2500 g
Size (control unit only)	120 x 120 x 60 mm (B x L x H)
Weight of standalone device (without slider)	ca. 300 g
Weight with frame	ca. 1.5 – 3.5 kg (according to frame size)
WEEE-reg.--no.	DE58973207

### Disposal

Sales packaging is packaging received by the end user (Section 3 (1) No. 2 of the Regulation on Packaging). Manufacturers or distributors of the products are required to either take back packaging waste from the customer's premises or in the immediate vicinity thereof free of charge (Section 6 (1)) or to participate in a comprehensive system that collects packaging waste from the premises of private end consumers or in their vicinity thereof (so-called dual systems).

*Disclosure requirement according to the Regulation on Batteries*

In regard to the sale of batteries or the delivery of devices containing batteries, we are required to inform you of the following:

As the end user, you are legally required to return used batteries. You can return old batteries – that we have or have had in our range as new batteries – free of charge to our dispatch warehouse (dispatch address). The symbols shown on the batteries have the following meaning:

The symbol of the crossed-out dustbin means that the battery must not be disposed of in the household waste.

Pb = battery contains more than 0.004 percent by mass of lead

Cd = battery contains more than 0.002 percent by mass of cadmium

Hg = battery contains more than 0.0005 percent by mass of mercury.

WEEE directive 2002/96 / EC

According to the European WEEE directive, electrical and electronic devices may not be disposed of with household waste. Their components must be recycled or disposed of separately, because toxic and hazardous components can cause lasting damage to the environment if not disposed of properly. As consumers, according to the Electrical and Electronic Equipment Act ("Elektrogesetz"), you must return electrical and electronic devices at the end of their service life to the manufacturer, the point of sale or to public collection points set up for this purpose. The relevant state law regulates the details of such return. The symbol on the product, the operating instructions and / or the packaging refer to these provisions.



WEEE-Reg.—no.: DE58973207

## Declaration of Conformity

EC declaration of conformity according to the EC Machinery Directive 2006/42 / EC of 17 May 2006, Appendix II A.

We hereby declare that the machine described below, in terms of its design and construction, as well as the version that we have put into circulation, complies with the basic safety and health requirements of EC Directive 2006/42 / EC.

In the event of any change to the machine that has not been agreed with us, this declaration loses its validity.

Manufacturer/Authorised representative:

JOSTechnik owner Ilka Jost

Martha-Brauttsch-Str. 26a, 04838 Doberschütz Germany Tel.: +49 (0) 34244/59566

Description of the machine

- |                           |                              |
|---------------------------|------------------------------|
| • Function: Flap actuator | • Type/Model: HK2.0          |
| • Serial number: 6.0      | • Year of construction: 2020 |

Compliance with other directives / regulations also applying to the product is declared:

- EC - EMC Directive (2004/108 / EC) of 15 December 2004
- EC - Low Voltage Directive (2006/95 / EC) of 27 December 2006

Authorised representative for the compilation of the technical documentation:

Gerd Jost

Martha-Brauttsch-Str. 26a D-04838 Doberschütz

Doberschütz 26.05.2016 Ilka Jost JOSTechnik

## Changes, Additions and Extensions