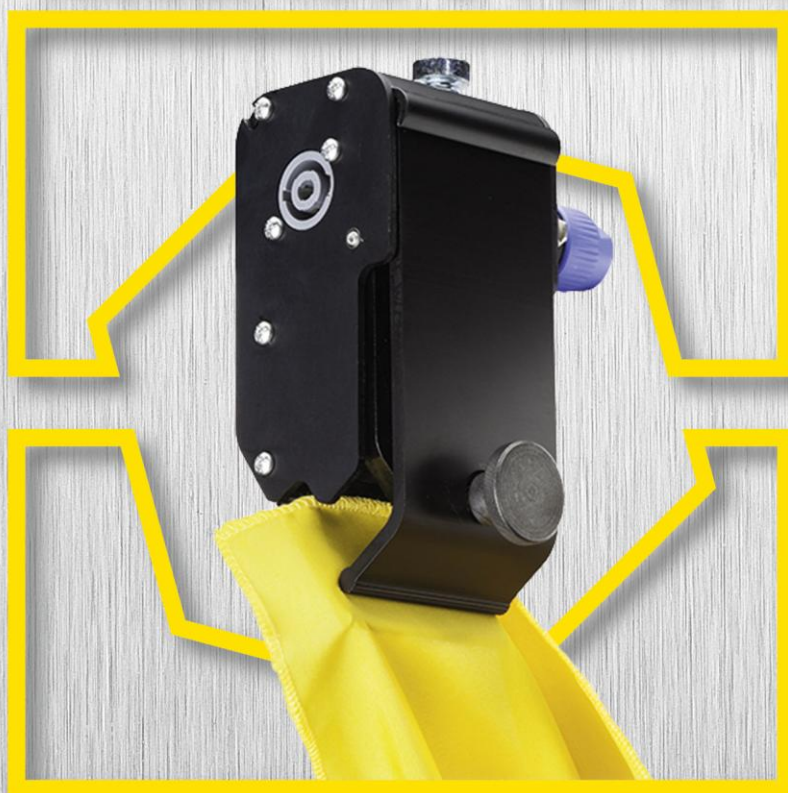


RELEASE SYSTEM



KABUKLIP

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1. General

This Operating Manual (OM) is part of the product scope of supply and must be read before first use.

Follow the instructions in this OM.

Keep the OM near the system.

No liability is accepted for damage or interruptions to business arising from failure to observe this OM.

Tüchler Bühnen- & Textiltechnik GmbH reserves the right to modify individual components or assemblies as part of continued product development and improvement while retaining the essential characteristics of the product.

Please pay particular attention to warnings enclosed in boxes.
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The system has 5 phases of operation:

1. Transport
2. Assembly and electrical connection
3. First use
4. Use, maintenance, troubleshooting
5. Cessation of use, disassembly and disposal

2. Important safety and operating information

Always observe the following 12 points.

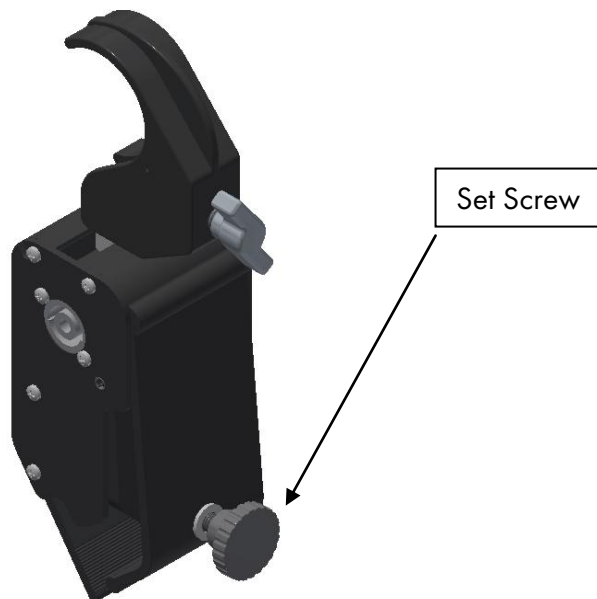
These are only an initial introduction and are not a substitute for reading and following the operating manual or the manufacturer's instructions.

1. Remember that dropped loads can cause injuries and damage property.
2. The drop zone must always be cordoned off when the system is loaded, especially during assembly and when attaching the load.
3. Make sure the release unit is secured against unauthorised operation.
4. Make sure the release unit is secured against a power loss:
install an emergency power supply of some kind (e.g. UPS).
Take appropriate technical and organisational measures to secure the system so that the connecting and power cables cannot be unplugged.
The KabuKlip units will open and drop their load in the event of a power loss.
5. TÜCHLER hereby reject all liability for damage caused by falling objects regardless of whether this was intentional, unintentional or the result of a malfunction.
6. The system may only be used when within view and by trained specialist personnel over 18 years of age (subject to physical and mental suitability).
7. If operation of the KabuKlip system within the operator's line of sight is not possible for architectural reasons, the equipment should only be used with the aid of an additional observer who has an unobstructed view of the system.
8. Modifications or changes to the design or the electronics require consent in writing from TÜCHLER Bühnen- & Textiltechnik GmbH, Vienna 22. Failure to obtain this shall render the guarantee void.
9. Note that the load capacity of the mounting for the system may be less than the load capacity of the KabuKlip in individual cases, in which case the latter must be reduced accordingly by the user. Trouble-free operation is only assured if cables 4 x 1.5 mm² in good condition are used - cables with a smaller cross-section can overheat and reduce the load capacity.
10. Observance of the maintenance intervals is essential. The guarantee period will be terminated if these are exceeded.
11. Disconnect the power on all poles for any maintenance or repair work. Remove all loads from the KabuKlip release units before disconnecting the power, as the KabuKlip units open and drop their loads if no voltage is applied.
12. The power supply must be disconnected if other kinds of work are being carried out at the ceiling or piping.

3. Warnings

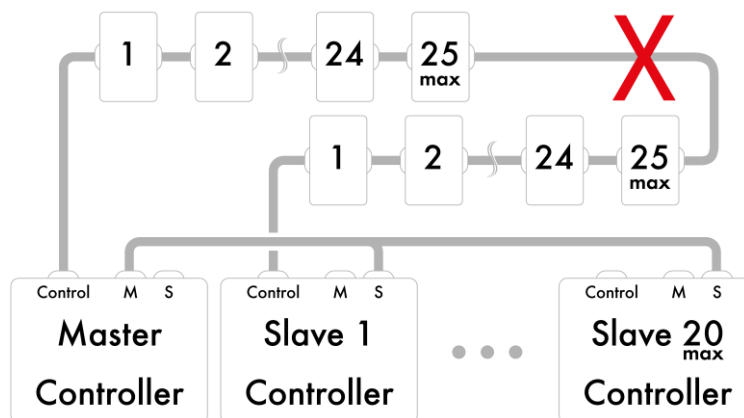
3.1. Set Screw

The set screw must not be tightened in the open state.
Doing so may damage the magnetic disk.



3.2. Connecting in a Ring

The individual release chains may not be joined together to form a ring as this may lead to a defect in the control unit.



4. Technical data

4.1. KabuKlip Release Unit

Properties	Data
Material	Aluminium alloy
Dimensions	160 mm x 65 mm x 70 mm
Connections	2 SpeakOn 4-pole connectors
Weight	Approx. 1.5 kg with pipe hook
Power consumption	6.5 W, 24 V
Duty cycle	100 % (permanent operation)
Protection class	
Type KabuKlip	IP 23
Type KabuKlip OA	IP 54

Table 1: Technical Data KabuKlip Release Unit

4.2. KabuKlip Control System

Properties	Data
Power consumption	160 W / 230 V
Connection	DMX - IN/OUT connection CEE 7/4 earthed plug SpeakOn 4-pole connector
Dimensions	260 mm x 160 mm x 95 mm
Weight	3.1 kg
Protection class	IP 32
Duty cycle	100 % (permanent operation)
Maximum permissible number of Kabuklip release units per KabuKlip control system	25

Table 2: Technical Data KabuKlip Control System

4.1. KabuKlip – DMX Slave

Properties	Data
Power consumption	160W / 230V
Connection	DMX – IN/OUT connection CEE 7/4 earthed plug 6x SpeakOn 4-pole connector
Dimensions	260mm x 160mm x 205mm
Weight	4,22kg
Protection class	IP 32
Duty cycle	100 % (permanent operation)
Maximum permissible number of Kabuklip release units per release line	10
Maximum permissible number of Kabuklip release units per KabuKlip - DMX Slave	25

Table 3: Technical Data KabuKlip – DMX Slave

4.2. KabuKlip – Akkupack

Properties	Data
Power consumption	750W / 230V
Connection	4x CEE 7/4 „Master“ 4x CEE 7/4 „EcoControl“ 1x IEC-60320
Dimensions	305mm x 81mm x 312mm
Weight	6,7kg
Duty cycle	100 % (permanent operation)
Backup time with 25 KabuKlip release units	0,5h
lifetime	max. 4 years

Table 4: Technical Data KabuKlip – Akkupack

4.3. KabuKlip – Power Failure Detector

Properties	Data
Power consumption	10W / 230V
Connection	2x CEE 7/4
Dimensions	160mm x 120mm x 90mm
Weight	0,8kg
Duty cycle	100 % (permanent operation)

Table 5: Technical Data KabuKlip Power Failure Detector

4.4. Load capacities

The values in the following table are guideline values for various materials.

The values stated for "clamping only" can differ in individual applications due to varying material properties. They should therefore be checked before using the material to be dropped.

The maximum permissible load capacity with positive engagement (e.g. when using edge beading or release eyelets) must not exceed 25 kg.

Designation	Grip slip force with clamping only	Max. recommended load capacity with clamping only	Load capacity with positive engagement
Molton	20 kg (196 Nm)	15 kg (147 Nm)	25 kg (245 Nm)
SunBlock	20 kg (196 Nm)	15 kg (147 Nm)	25 kg (245 Nm)
Velvet	20 kg (196 Nm)	16 kg (156 Nm)	25 kg (245 Nm)
Silk	11 kg (107 Nm)	8 kg (78 Nm)	25 kg (245 Nm)
PVC foil	11 kg (107 Nm)	8 kg (78 Nm)	25 kg (245 Nm)

Table 6: Guide values for grip slip force and load capacity

All the values refer to 1 KabuKlip release unit.

4.5. Maximum cable lengths

The load capacities in Table 3 refer to the system configuration in Table 4.

Example:

- Use of 19 KabuKlip release units each with 2 m connecting cable and 50 m control cable (from the control unit to the first KabuKlip release unit) → permissible.
- Use of 25 KabuKlip release units each with 2 m connecting cable and 50 m control cable → not permissible
- Use of 25 KabuKlip release units each with 2 m connecting cable and 30 m control cable → permissible

number of KabuKlip's	30	40	50	60	70	80	90	100	110	120	130	140	150
25													
24													
23													
22													
21													
20													
19													
18													
17													
16													
15													
14													
13													
12													
11													
10													
9													
8													
7													
6													
5													
4													
3													
2													
1													

Table 7: Overview of the maximum cable lengths

5. Areas of use of the KabuKlip system

A KabuKlip system consists of at least one KabuKlip controller, one KabuKlip release unit and one 4-pole 1.5 mm² connecting cable.

The system is used:

- to drop curtains, fabrics, foils or other backdrops without eyelets or any other prepared edges. This is done either by clamping only or by some kind of positive engagement.
- to drop decorations using the release eyelet.

Lifting persons or animals is prohibited.
The warnings (Section 2) must be obeyed absolutely.

6. Mechanical mounting of the system

The KabuKlip release unit must be securely fastened to a permissible mounting point (pipe hook or clip) with the M12 x 20 hexagonal socket screws provided. Use the M12 T-nuts provided for this.

After fastening, the KabuKlip release units must be properly secured using the integrated steel safety clip.

The control line from the control unit to the first KabuKlip release unit in particular must be free of any tension. Faulty or damaged plug connections can lead to a power loss and therefore premature release of the load.

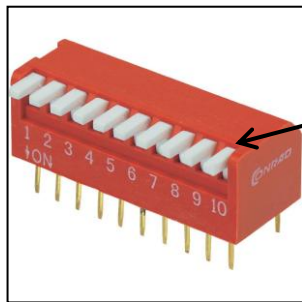
7. Configuration of the KabuKlip controller

The following settings must be set on the KabuKlip controller before use:

7.1. Operating mode selection:

Use the DIP switch to select between modes:

- Master (identical with "Stand-alone")
- Slave (identical with "DMX-controlled")



Master/Slave:
To change between master and slave, change the position of the switch at position 10 (ON = Master)

The DMX address is set using binary coding.

Switch 1	001
Switch 2	002
Switch 3	004
Switch 4	008
Switch 5	016
Switch 6	032
Switch 7	064
Switch 8	128
Switch 9	256
Switch 10	Master/Slave

For example, to set the address 007, change switches 1 - 3. (001 + 002 + 004 → 007)

7.2. "Stand-alone" system

"Stand-alone" system means that only one controller (without DMX) is used to control the release units.

Set the following settings:
Master/Slave = ON

The highest possible DMX address is 32.

Up to 25 KabuKlip release units can be controlled with one stand-alone system. The KabuKlip release units are all opened simultaneously.

7.3. "Multi" system

"Multi" system means that several controllers (connected via DMX where one serves as Master) are used.

This system is used to control more than 25 release units simultaneously.

Set the following settings:
Master/Slave = ON (to be set on the master controller only)

Set all master and slave controller addresses to the same address, e.g. 001 (max. address 032).

If the connecting cable between the master and slave controller is longer than 5 m, a termination must be connected on the Master and on the last Slave.

7.4. "DMX" system

"DMX" system means that an existing DMX control unit is used to control the release units – the KabuKlip controller serves as Slave.

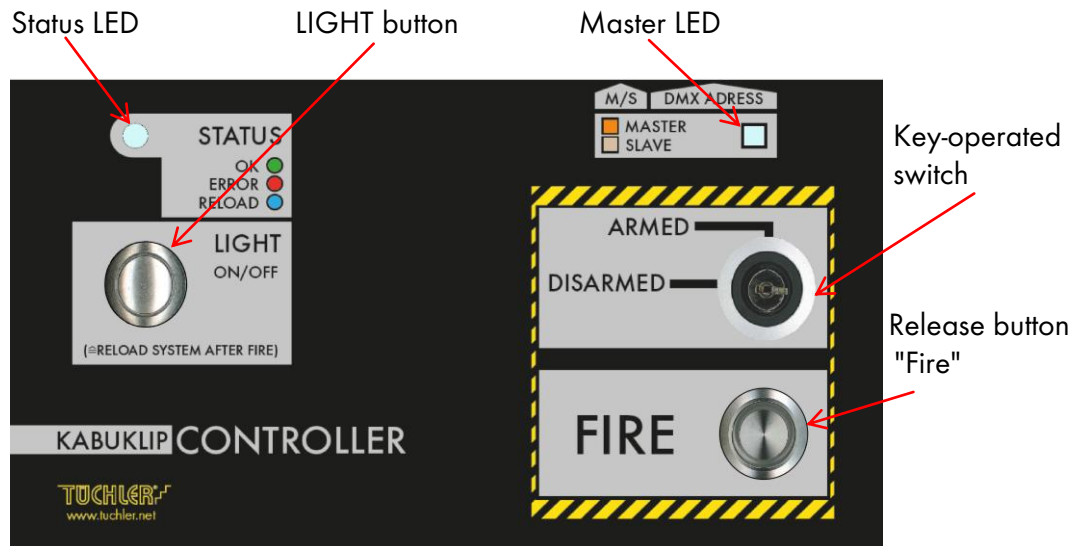
Set the following settings:
Master/Slave = OFF (DMX controller is the master)

If the controller address for releasing (solenoids) is 001, for example, the address for activating the LED clamp lights is 002.

The solenoids and the LED's are always activated by the next consecutive address.

8. Control of the KabuKlip controller

The following control and display elements are provided on the KabuKlip controller:



8.1. Control sequence:

- After the DMX addresses and the master/slave relationship have been set, the controller is ready for use. "Master" operating mode is indicated by the orange LED lighting up.
- After the power supply is connected, the status LED flashes red if the key-operated switch is set to "Armed".
If this is the case, set the key-operated switch to "Disarmed" and press the LIGHT button. The LED will switch from red to green.
- If the status LED lights up blue, set the key-operated switch to "Disarmed" and press the LIGHT button. The LED will switch from blue to green. This procedure must be repeated after every drop.
- Pressing the LIGHT button switches the integrated LED clamp lights in the KabuKlip release units on and off respectively.
- If the status LED lights up green, the solenoids are active and the material to be dropped (fabric/foil) can now be clamped.
 - a. Press the armature plate on the solenoids to do this.
 - b. Set the required distance with the adjusting screw, or
 - c. Use the adjusting screw to clamp the item to be dropped.

Always check to ensure that the item to be dropped is firmly gripped.
Make sure that the maximum clamping force of the adjusting screw is obtained.
Take care not to overtighten the adjusting screw, as this will pull the armature plate away from the solenoid and reduce the gripping force. You can detect this overtightening by feeling a significant reduction in force when turning the adjusting screw. If this happens, turn the adjusting screw about $\frac{1}{4}$ of a turn backwards. This will give the maximum gripping force.

- Once the item to be dropped is correctly clamped, turn the key-operated switch to the "Armed" position (the LED clamp lights - pilot lamps on the KabuKlip release units - will go out).
The ring-shaped LED around the "FIRE" release button will indicate the unit is ready for firing.
The KabuKlip release units will all open simultaneously when the "FIRE" release button is pressed, and the load will drop.

9. Maintenance

- Check the system for the following points before use:
 - Loose bolts and connections
 - Power supply and control cables (check the cable for any kinks and cracks)
- Clean the KabuKlip release units after use in dusty environments
- Apply commercially-available lubricants (MoS, WD40) to the adjusting screw if required.
- Do not apply any lubricant to the hinge, as this will increase dirt contamination.
- After using KabuKlip OA units under damp conditions, leave them in a dry environment switched on with the armature plate opened and the solenoid activated until completely dry.
- Permissible cleaning methods are wiping with a damp cloth, blowing with compressed air, and brushing.

10. Troubleshooting

<i>Fault</i>	<i>Possible cause</i>	<i>Remedy</i>
Fabric cannot be released	Key-operated switch setting incorrect	Set key-operated switch to "Armed"
Red LED lights up	Master/slave not configured	Switch master/slave to "On"
	Connecting cable not connected	Connect connecting cable as per OM
	Controller configured as master but DMX controller connected	Switch master/slave to "Off"
Red flashing LED	Key-operated switch setting incorrect	Set key-operated switch to "Disarmed"
Release unit does not open correctly	Adjusting screw incorrectly set	Set the adjusting screw correctly (see 7.1, Control sequence)

11. KabuKlip DMX Slave

The KabuKlip DMX Slave can be used with multiple release chains. It is possible to release different objects at different times. This makes special effects such as diagonal releases and the like possible.

The KabuKlip DMX Slave always functions in DMX- mode and therefore requires a DMX control unit.

11.1. Configuration KabuKlip DMX Slave

Set the correct DMX base address (1 ... 503 are permissible) with the 3-digit BCD switch.

Next, connect the KabuKlip release chain, the DMX-connection and the power supply.

11.2. Operation of the Kabuklip DMX Slave

Assignment of DMX Addresses to the Release Chains:

DMX data	Chain 1	Chain 2	Chain 3	Chain 4	Chain 5	Chain 6	LED light
	Base address	Base address +1	Base address +2	Base address +3	Base address +4	Base address +5	Base address +6
<9	Inactive/Reset	Inactive/Reset	Inactive/Reset	Inactive/Reset	Inactive/Reset	Inactive/Reset	
9 ... 247	Clamp	Clamp	Clamp	Clamp	Clamp	Clamp	
>247	Release	Release	Release	Release	Release	Release	
<128							Light off
>127							Light on

After the release, the chain can be reset by sending the DMX address <9 to the respective chain.

STATUS LED:

- Green → System OK
- Red → DMX base address outside the permissible range or no DMX signal

12. Cessation of use, disassembly and disposal

When ceasing to use the system, disconnect it from the power supply at all poles and secure it against being switched back on.

When disposing of the system, separate

- metals
- plastic parts
- electrical parts
- lubricants

from each other.

13. Declaration of Conformity

The manufacturer hereby confirms that the KabuKlip system complies with the following directives and standards: Machinery Directive 2006/42/EC, ÖVE/ÖNORM E8001, 89/336/EEC, 2004/108/EC, 2006/95/EC, EN 60204-1, EN 60439-1, EN 60950-1.

The product complies with the requirements contained therein if installed correctly.

For the manufacturer:
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