Operating Instructions

Balancer
040833-...X2.0

Order Number:
040833-...X2.0

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Contents

1 General Information

1.1 About this document

These operating instructions apply to balancers within the 040833 model series and are designed for specific load ranges and a specific rope extension length.
These operating instructions describe the installation and use of the balancers.

This document must be kept in the immediate vicinity of the balancer and accessible to personnel at all times. Personnel must read this document carefully and understand it before starting any work. Compliance with all safety and handling instructions provided in this document is a basic prerequisite for safe working.

Furthermore, local accident protection regulations and general safety regulations for the area of use of the balancer also apply.

The illustrations in this document are provided for basic understanding and may deviate from the actual implementation of the device.

The German-language original of these operating instructions is exclusively considered as the binding version, since errors in translation cannot be entirely ruled out.

1.2 Limitation of liability

All data and information in these operating instructions have been compiled while taking the valid standards and regulations as well as the state-of-the art and our long years of experience and knowledge into consideration.

The manufacturer accepts no liability for damages resulting from:

- Failure to observe these operating instructions
- Improper use
- Use by untrained personnel
- Unauthorized modifications
- Technical changes
- Use of unauthorized spare parts or accessories

The actual scope of delivery may differ from the explanations and illustrations provided here if the model in question is a special design, if additional equipment has been ordered or if recent technical changes have been implemented.

The obligations agreed upon in the Delivery Agreement and our General Terms and Conditions of business apply, as do the delivery conditions of the manufacturer and the legal regulations applicable at the time the contract was concluded.

All products are subject to technical changes within the context of improvement of function and further development.

1.3 Copyright

1.4 Spare parts

WARNING!

Incorrect spare parts are a safety hazard!

Incorrect or faulty spare parts can impair safety and result in damage, malfunctions or complete failure.

→ Always use original spare parts from the manufacturer!

Order spare parts from your contracted dealer or directly from the manufacturer.
Contact information: See the last page of this document.

1.5 Material defects

The terms governing material defects can be found in the General Terms and Conditions of Business.

1.6 Technical support

Our Customer Support staff is available for technical support.

We are also always interested in new information, experiences and feedback from the field that can be valuable in helping us improve our products.

2 Safety Information

2.1 Explanation of symbols

Safety and hazard information is identified in these operating instructions using symbols. The safety information is introduced using signal words that indicate the degree of the hazard. Always observe safety information and work carefully to avoid accidents, bodily injury and material damage!

DANGER!

... indicates an immediately hazardous situation, which if not avoided, may result in death or serious injury.

WARNING!

... indicates a potentially hazardous situation, which if not avoided, may result in death or serious injury.

CAUTION!

... indicates a potentially hazardous situation, which if not avoided, may result in moderate or minor injury.

Tips and recommendations:
... refers to useful tips and recommendations as well as information for efficient and trouble-free operation.

ATTENTION!

... indicates actions that will help you prevent material damage.

2.2 Personnel requirements

2.2.1 Qualifications

WARNING!

Inadequately trained persons are at risk of injury!

Improper use can result in serious injury to persons and property.

→ All activities may only be carried out by qualified personnel.

- Only persons who can be expected to perform their work reliably are acceptable personnel. Persons whose reactions are impaired by, e.g. drugs, alcohol or medications are not authorized.
- When selecting personnel, all age- and occupation-specific regulations applicable at the location of use must be observed.

The following qualifications are specified in the operating instructions for certain fields of activity.

- Specialist personnel

  Consists of persons capable of performing assigned tasks and independently identifying dangers and avoiding potential hazards based on their specialist training, knowledge and experience as well as their understanding of the applicable standards and regulations.

  Are persons deemed to be technically qualified if they have successfully completed training. Personnel who are also considered qualified are those who have been employed correspondingly for several years, have been educated in theory and practice during that time and whose knowledge and skills in the trade required have been tested.

  The machine or system operator must document that the appropriate certifications or other proofs of qualification have been or are being provided.

  The installation, maintenance and commissioning of electrical equipment may only be carried out by qualified personnel in accordance with local regulations. Work with higher installation positions typically requires additional qualifications and certificates for the use of lifting devices and protective equipment. The manufacturer requires that the components be handled properly and used for the intended purpose. It is recommended that the installation personnel be trained by the manufacturer or that accompaniment of the installation by specialist fitters/supervisors be scheduled.
- Users

  Have been instructed in a training session by the operator with respect to the tasks assigned to them and the potential dangers arising from improper actions.

  The machine or system operator must document that the appropriate certifications or other proofs of qualification have been or are being provided.
- Transport personnel

  Are trained persons who transport the material indoors and outdoors in accordance with safety regulations.

2.2.2 Unauthorized persons

WARNING!

Danger due to unauthorized persons!

Unauthorized persons who do not meet the requirements described here are not acquainted with the dangers in the work area.

→ Keep unauthorized persons away from the work area.

→ In case of doubt, address the persons and direct them away from the work area.

→ Stop working as long as unauthorized persons are in the work area.

2.2.3 Training

Before commissioning the equipment, personnel must be trained by the operator. Log the implementation of the training for better traceability.
Example of instruction log:

Date	Name	Type of Training	Training Provided By	Signature
05.11.2009	John Doe	First safety training for personnel	Horst Müller	

2.3 Personal protective equipment

Always wear: For all tasks:

Protective headgear
For protection against falling or flying parts and materials.

Protective gloves
For the protection of hands against friction, scrapes, puncture or deeper wounds, as well as against contact with hot surfaces.

Protective clothing
Primarily for protection against ensnarement by moving machine parts. Work clothing must be close fitting with a low resistance to tearing; it must have close-fitting sleeves and no protruding parts.

Protective footwear
For protection against heavy falling parts and slipping on slippery floors.

2.4 Intended use

The device is exclusively designed and built for the use described here (its intended use).

WARNING!

Danger due to improper use!

Any use that deviates from or goes beyond the intended use of the device can result in hazardous situations.

→ Strictly observe all information in these operating instructions.

→ Refrain from improper use of the system.

→ Observe information on improper use in Section 2.5.

Claims of any kind due to damage from improper use are excluded.
The operator bears sole liability for all damage that results from improper use.

Intended use

The balancer is exclusively intended for weight relief when working with hand-held tools (e.g. drills, screwdrivers, welding pliers, saws, etc.) and for relieving the load on supply lines (cables, hoses, etc.).

The balancer may only be operated within the load range specified on the type plate.

The balancer may only be operated by trained personnel. Only trained and qualified personnel may carry out installation, maintenance and repairs.

The balancer is intended for use in commercial and industrial settings.

Written consent of the manufacturer must be obtained before the balancer is used outside the area of application described above; otherwise the warranty will be invalidated.

2.5 Improper use

Claims of any kind due to damage incurred during use that deviates from the intended use described above ("improper use") are excluded. The operator bears sole liability for all damage that results from improper use.

Improper use particularly includes the following types of use:

- Use as a crane or lifting gear is not permitted.
- Use in environments with special requirements (e.g. clean room, potentially explosive atmospheres).
- Operation at excessively high or low temperatures.
- Use of unsuitable cleaning agents (e.g. silicone oils or aromatic compounds).
- Use of the system with accessories that are not approved and not authorized by the manufacturer.
- Use of the system by untrained personnel.

2.6 Protective measures by the operator/user

The device is designed for use in an industrial setting. The operator of the device is therefore subject to compliance with the legal obligations concerning workplace safety. In addition to the safety information in these operating instructions, all safety, accident protection and environmental regulations valid in the place of operation of the device must also be observed. This particularly applies to the following:

- The operator must inform theirself of applicable workplace safety guidelines and identify any additional hazards that may arise under the specific working conditions at the location of use of the device. This knowledge must be expressed in the form of operating instructions for the operation of the device.
- During the entire time the device is in use, the operator must check that these operating instructions still correspond to the current state of regulations and adapt them as necessary.
- The operator must clearly regulate and define responsibilities for installation, operation, troubleshooting and maintenance.
- The operator must ensure that all personnel involved with the device have read and understood these operating instructions. In addition, the operator must also train the personnel at regular intervals and inform them of dangers.
- The operator must provide personnel with all required protective equipment (protective work clothing, protective shoes, hearing protection, protective gloves, protective headgear, protective eyewear, protective masks).

The operator is furthermore responsible for ensuring that the device is always in perfect working order.

- The operator must ensure that the service intervals described in these operating instructions are observed.
- The operator must have all safety systems regularly inspected for functionality and completeness. If possible, this inspection should be carried out once a year, but at least as often as required under the applicable national regulations.
- If the device or system has been modified, the safety systems must be inspected again and adapted to the changed conditions in such a way that the device or system is safe again.

2.7 Conduct in the event of accidents and faults

Measures to be taken in the event of accidents:

- Secure the danger zone.
- Remove persons from the danger zone.
- Initiate first aid measures.
- Alert the rescue services.
- Inform responsible parties at the operating site.
- Make access available to rescue vehicles.

Measures in the event of faults:

- Secure the work area against entry.
- Consult qualified personnel when analyzing the fault.
- Remove the device and replace it with a new device.
- Determine the cause of fault and repair the device.

3 Technical Data

3.1 General information

The permissible loads, possible rope extension lengths and the dimensions of the balancer depend on the type.
The exact balancer type can be found on the type plate.

Load range:
Defines the load range of the balancer. The balancer may only be used for loads that are within the specified load range.

Rope extension length:
Defines the rope extension length of the balancer. The suspended loads can be moved freely through the extent of the specified rope extension length.

Weight:
Defines the intrinsic weight of the balancer. The intrinsic weight must be taken into account, particularly during the installation and transport of the balancer.

Max. pretension:
Defines the maximum permissible pretension of the balancer. The balancer is already preset to the specified table value when delivered; this corresponds to the highest load capacity. The table values correspond to full turns of the spring detent.

Torque:
Defines the minimum torque required for retightening the screws for the rope clamp.

Material No. 2	Load Range [kg]	Rope Extension Length [mm]	Weight [kg]	Max. Pretension	Torque [Nm]
040833-020X2.0	10 - 20	2000	15.4	5	> 7.5
040833-030X2.0	20 - 30		15.9	6	
040833-045X2.0	30 - 45		17.0	5.5	
040833-060X2.0	45 - 60		17.6	5.5	
040833-075X2.0	60 - 75		19.2	5	
040833-090X2.0	75 - 90		19.8	4.5	

The ambient temperature for using the balancer is -20° C to +70° C.

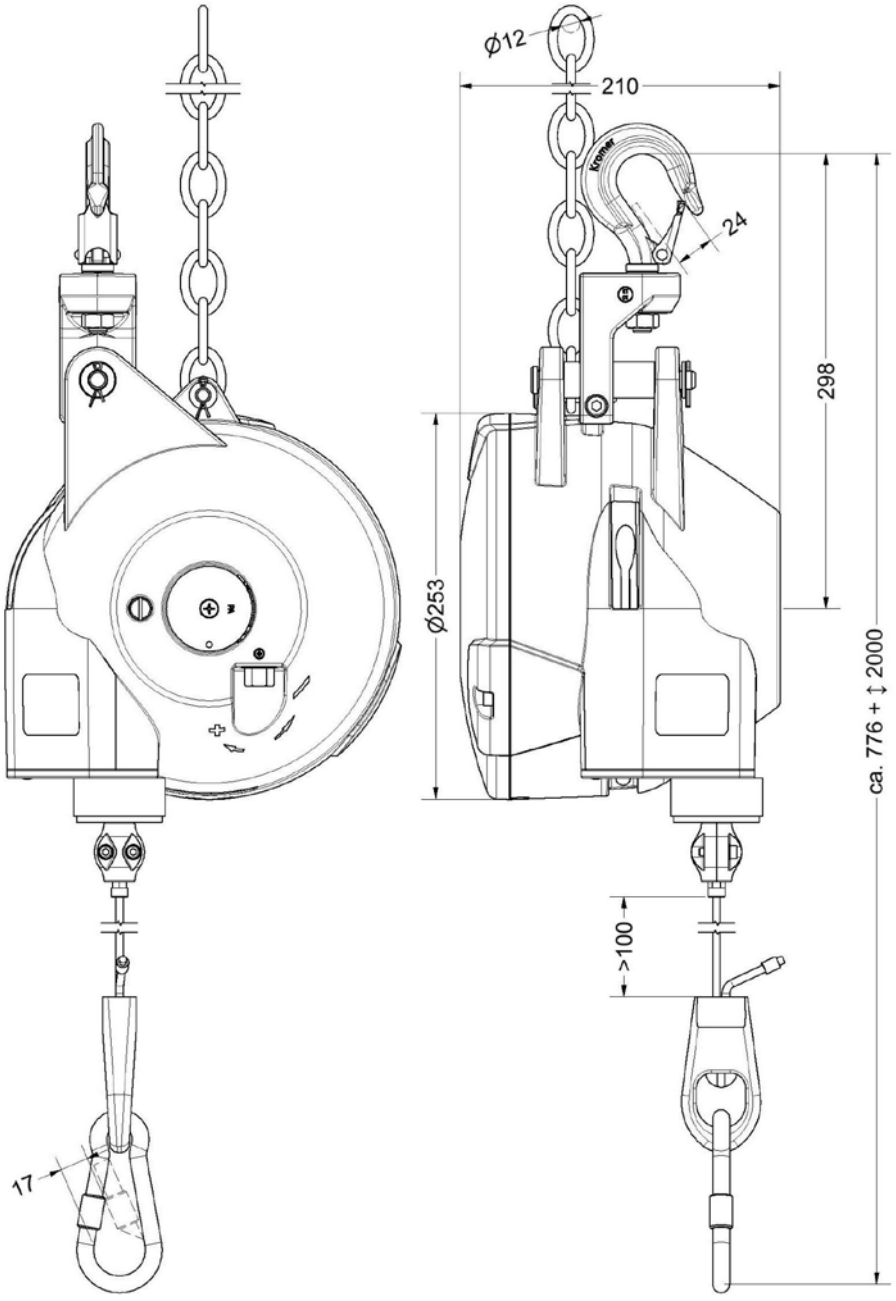


Fig. 1: Dimensions

3.2 Type plate

The type plate is located on the side of the machine and is attached to the rope outlet.
There is information about type, load capacity and rope extension length, as well as the manufacturer and year of manufacture.

4 Product Description

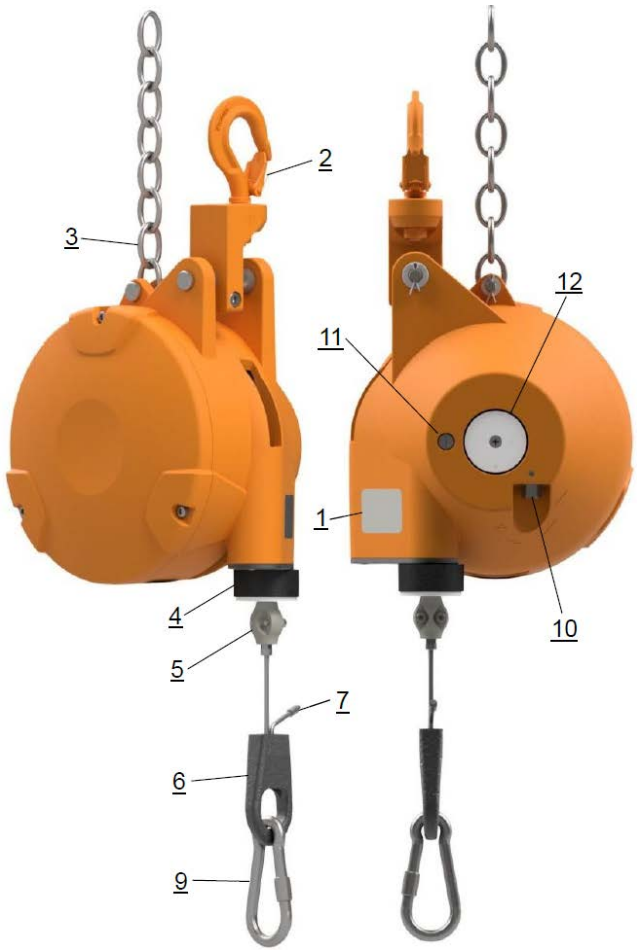


Fig. 2: Overview

Item	Name
1	Type plate
2	Safety suspension
3	Fall arrester
4	Rope retraction limiter
5	Rope clamp
6	Rope lock
7	Pressure clamp
8	Spring detent
9	Load hook
10	Adjustment screw (worm)
11	Locking device
12	Cover plate

5 Transport, Packaging and Storage

ATTENTION!

When handling heavy loads (>25 kg), suitable auxiliary devices must be used for ergonomic reasons. This also applies to the handling and transport of the balancer itself.

The intrinsic weight of the balancer must be taken into account during storage and transport. Observe the table values from Section 3. This particularly applies when handling several devices.

5.1 Packaging

The individual packaged components are packed appropriately for the expected transport conditions.
The packaging is intended to protect the individual components against transport damage, corrosion and other damage until they are installed. Therefore, do not destroy the packaging and only remove it shortly before installation.

Handling packaging materials:
Dispose of packaging material according to applicable legal regulations and local guidelines.

WARNING!

Environmental damage due to improper disposal!

Packaging materials are valuable resources and can be reused or usefully processed and recycled in many cases.

→ Dispose of packaging materials in an environmentally appropriate manner.

→ Observe locally applicable disposal guidelines; if necessary, engage a specialist to handle the disposal.

5.2 Storage of packaged components

Store packaged components under the following conditions:

- Do not store outdoors
- Store in a dry, dust-free area
- Do not expose to aggressive media
- Protect from direct sunlight
- Avoid mechanical vibrations
- Storage temperature: -20° C to +55° C
- Relative air humidity: Maximum 60% without condensation
- When storing for more than 3 months, check the general condition of all components and their packaging at regular intervals. If necessary, refresh or replace the preservative.

ATTENTION!

In some cases, there may be instructions for storage on the packaged components that go beyond the requirements listed here!
→ Follow the instructions accordingly.

6 Installation and Commissioning

6.1 Safety

ATTENTION!

Read the operating instructions before using the balancer.

Safe work with the machine is only possible if the operating instructions and safety instructions are read in their entirety, the instructions contained therein are understood and these are strictly followed.

- Changes to the balancer and its accessories may only be carried out with the express written consent of the manufacturer.
- The balancer may only be operated by trained personnel. The personnel must be instructed with regard to the possible hazards involved in these tasks.
- The machine and its components, particularly the rope, suspension and fall arrester, must be checked daily (before starting work) (see Section 10). If damage or wear becomes apparent, the components or the balancer must be immediately replaced.
- The balancer may only be installed, maintained and repaired by trained and qualified personnel.
- The device to which the balancer and the fall arrester are attached must be sufficiently stable (see Section 6.2)!
- Operating the balancer without installing the supplied safety components (e.g. fall arrester (3)) is strictly prohibited.
- Disassembling the balancer is extremely dangerous and therefore strictly prohibited.
- The balancer rope must be checked for damage at least once a year by qualified personnel (ISO 4309). A damaged rope must not continue to be used.
- Except when changing the rope, the spring must be fully released before starting any service tasks (see service instructions).

DANGER!

Injuries or even death possible!

Never walk, work or stand under suspended loads.

WARNING!

Serious injuries and death possible!

Always attach or detach loads with the rope fully retracted. Never suspend loads with the rope extended. Unburdened ropes (without load) can spring back with extremely high energy.

- A quick recoiling of the rope (in an unloaded state) can cause it to no longer be properly anchored (the rope may have broken away from the inner rope attachment). Immediately stop working with the balancer, mark the balancer as defective and inform the responsible supervisor.
- The balancer may only be operated from the load. Operation from the rope retraction limiter (4) or from the rope clamp (5) is strictly prohibited due to the risk of crushing.
- If tools are extended out beyond the permissible diagonal pull of 5°, they could then swing after being released and injure persons in their swing path.

CAUTION!

Injury possible!

Before working with the balancer, the operator must instruct their personnel in accordance with the information in these operating instructions.

- Never remove safety devices (e.g. safety suspension (2), fall arrester (3) or load hook (9)) or disable their operation through modification.
- In the event of a fault or defect, immediately stop using the balancer and inform the responsible supervisor. Such an event includes, for example, when a balancer falls into the fall arrester. Continued use must be assessed by trained and qualified personnel and damaged components must be replaced.
- Repairs, as well as disassembly and reassembly work, on the balancer may only be carried out by trained and qualified personnel. Always use the manufacturer's original parts. Only original parts meet the required safety criteria.
- When handling heavy loads (>25 kg), suitable auxiliary devices must be used for ergonomic reasons. This also applies to the handling and transport of the balancer itself.

6.2 Installation of mechanical components

The balancer must be installed by trained and qualified personnel.

ATTENTION!

During installation, ensure that the structure to which the balancer is attached is sufficiently stable. Five times the permissible load capacity and intrinsic weight is recommended.

This applies to the safety suspension (2) and the fall arrester (3). When operating the balancer with welding tongs, they must be suspended in an insulated manner due to discharge currents.

1. Attach the safety suspension (2) of the balancer to a device with sufficient load-bearing capacity (see note above).
2. Lock the safety suspension (2). Lock the hook safety catch.
3. Attach the fall arrester (3) to a device that is independent of the safety suspension (2):
   a. The freedom of movement of the balancer must not be impaired.
   b. The fall distance in the event of the balancer falling must not exceed 100 mm.
4. Ensure that the suspension of the balancer can be positioned in all foreseeable directions of movement.

6.3 Adjustments

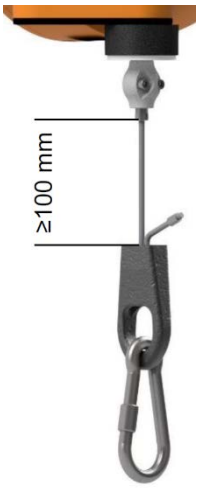
Adjustments on the balancer must be carried out by trained and qualified personnel.

6.3.1 Rope

ATTENTION!

When setting up, maintain a minimum distance of 100 mm between the rope lock (6) and the rope clamp (5). Otherwise, increased wear and premature failure are possible.

The balancer rope is fitted with a rope lock (6). The rope length can be adjusted using the rope lock. This depends on the total length of the rope.



1. Pull the rope through the rope lock (6).
   a. Maintain a minimum distance of 100 mm between the rope lock (6) and the rope clamp (5).
2. Press the supplied pressure clamp (7) onto the protruding, non-load-bearing section of rope near the rope lock.
3. Cut off the protruding end of the rope behind the pressure clamp (7).

The rope extension length of the balancer is not affected here. Alternative ropes with a thimble can also be installed at the customer's request. Ropes with a thimble are always installed as standard in the corrosion-resistant versions. Ropes with a thimble cannot be adjusted in length.

6.3.2 Load capacity

ATTENTION!

Always attach or remove loads when the rope is fully retracted.

On delivery, the balancers are already adjusted by the manufacturer to the maximum load capacity according to the type plate.

Damage to the internal spring possible.

In addition to the specified load capacity on the type plate and the tables in the previous section of the operating instructions, also observe the maximum permissible pretension specified in the tables.

Changes to the load capacity and pretension are to be documented in writing in order to ensure that the specified limit values are neither exceeded nor fall short.

Rotation of the adjustment device in the "-" (minus) direction reduces the load capacity.
Rotation of the adjustment device in the "+" (plus) direction increases the load capacity.
The balancer is correctly adjusted if the suspended load can be easily pulled into the required position and remain in that position.

A socket wrench is required.

1. Place the socket wrench on the adjustment screw (worm) (10).
2. Adjust the required load capacity by rotating the socket wrench.
   a. The permissible device limits must not be exceeded.
   b. The pretensioning of the spring can be seen by the rotation of the spring detent (8) or the movement of the cover plate (12).
3. Remove the socket wrench.

6.3.3 Rope extension length

ATTENTION!

The maximum permissible rope extension length must not be exceeded.

The information on the type plate (1) must be observed.

A functional error will occur if more rope is retracted than functionally possible. Injuries may occur during further handling and repair.

1. With the load attached, extend the rope to the required length.
2. Loosen the rope clamp (5) screws.
3. Move the rope clamp to the required position.
   a. The maximum permissible rope extension length must not be exceeded. In addition to the information on the type plate (1) and the tables in the previous section of the operating instructions, the maximum permissible rope extension length is also marked by a pressure connection on the rope.
4. Retighten the rope clamp screws.
   a. Observe the tables in the previous section of the operating instructions.

7 Operation

All intended users of the balancer must be instructed before use.
Inform users of the possible dangers.

DANGER!

The balancer may only be operated from the load. Operation from the rope retraction limiter (4) or from the rope clamp (5) is strictly prohibited due to the risk of crushing.

It must be ensured that the previous steps from Section 6 have been carried out correctly and completely.

The suspended load can be moved in the area of the rope extension by manually pulling or pushing.
In the absence of any other external influences, the load will remain in the required position.

Carry out a visual inspection daily before use (see Section 10).
Inform the responsible supervisor in the event of damage, wear or corrosion.

If the balancer's behavior is restricted or incorrect, inform the responsible supervisor.
Restricted or incorrect behavior is present if:

a. The suspended load cannot be pulled out or the working range of the balancer cannot be fully utilized.
b. The balancer does not equalize the attached load.

8 Load Change

Load changes and readjustments may only be carried out by trained and qualified personnel.

WARNING!

Always attach or detach loads with the rope fully retracted.

Never suspend loads with the rope extended. Unburdened ropes (without load) can spring back with extremely high energy.

A quick recoiling of the rope (in an unloaded state) can cause it to no longer be properly anchored (the rope may have broken away from the inner rope attachment). Immediately stop working with the balancer, mark the balancer as defective and inform the responsible supervisor.

1. Move the suspended load upward until the rope retraction limiter (4) touches the housing.
2. Remove old load.
3. Adjust the balancer to the maximum permissible load capacity.
   a. Observe the information on the type plate (1) and in the tables in the previous section of the operating instructions.
4. Attach new load.
5. Adjust the load capacity if necessary.
   a. Observe Section 6.3.
6. Check the function of the balancer.

9 Cleaning

A corrosion-resistant device must be used in the food industry or in food-related applications. These devices have the number sequence 82XX 01XX XX in the middle section of the ID.
Before the initial use in the food industry or in food-related applications, the device is to undergo the usual in-house cleaning process.

10 Inspection and Testing

The balancer and its components must be checked daily (before starting work) for damage, wear and corrosion.
A visual inspection of the following components is sufficient.

a. Wire rope(s)
b. Safety suspension (2)
c. Fall arrester (3)
d. Load hook (9)
e. If the safety suspension (2) is designed as a crane hook, whether the safety catch closes automatically after actuation must be checked.

The balancer rope must be checked for damage by qualified personnel at least once a year (ISO 4309). A damaged rope on the balancer must not continue to be used.
The safety suspension hook (2) must be monitored during use in accordance with DIN 15405.
If damage, wear or corrosion is detected, the balancer must be taken out of operation.
The defective components must be replaced before the balancer can be used again.
Observe Section 11.

11 Maintenance and Repair

Maintenance and repair work may only be carried out by trained and qualified personnel.

DANGER!

Risk of serious injury!

Fully release the balancer before opening it.

In the normal state (delivery and operation), mechanical stresses act on the internal components. These potential energies can be released with force if the components are improperly removed.

ATTENTION!

Only use original parts from the manufacturer when replacing damaged components.

It is only with these that can safety and function be ensured.

On request, the manufacturer will provide special service instructions for maintenance and repair.
A calcium sulphonate-based grease is used to lubricate moving parts and friction points. For applications in the food industry or food-related applications, the lubricant used must additionally be NSF H1 approved.

12 Disassembly and Disposal

Disassembly work may only be carried out by trained and qualified personnel.

DANGER!

Danger due to stored mechanical energy.

Even when the balancer is completely released, the internal spring is still under mechanical tension.

If the device is damaged or improperly handled, opening the enclosure can result in serious injury.

When disposing of the product, observe all applicable country-specific legal requirements for metals, plastics, lubricants, etc.

1. Remove attached load
2. Uninstall the balancer
3. Fully release the balancer so that the rope lies loosely in the device.

Packaging materials can be recycled as valuable materials.

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