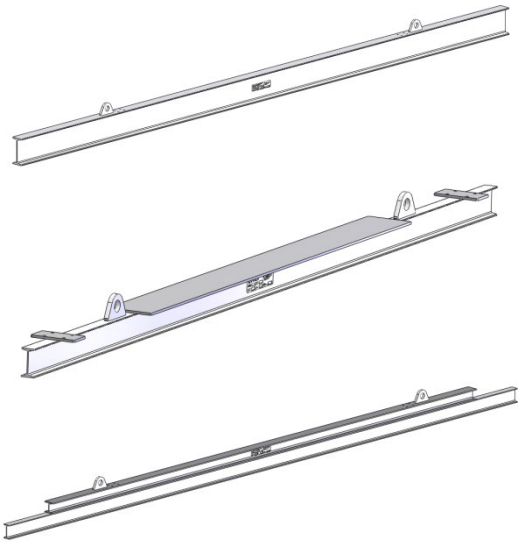
Operating Instructions

Load Carrier System

Program 0300



Contents

1.1 General Information

1.2 Information about these Operating Instructions

These operating instructions facilitate the safe and efficient handling and use of the equipment.

This document is a component of the equipment and must be kept accessible to personnel and in close proximity to the equipment at all times. Personnel must read these instructions carefully and understand them before starting any work. Compliance with all safety and handling instructions provided in this document is a basic requirement for safe work.

Local accident protection regulations and general safety guidelines for the area of use of the equipment also apply.

Illustrations in these operating instructions are provided for basic understanding and may deviate from the actual implementation of the equipment.

In addition to these operating instructions, the instructions located in the appendices for the individual assembled components also apply.

1.3 Limitation of Liability

All applicable standards and regulations, the latest technological standards and our many years of experience have been taken into account when formulating the information and notices in this manual.

The manufacturer accepts no liability for damage resulting from:

- Failure to comply with operator instructions
- Improper use
- Use by untrained personnel
- Unauthorized modifications
- Technical changes
- Use of unauthorized replacement parts or accessories

The actual scope of delivery may differ from the explanations and descriptions provided here if the model in question is a special one if additional equipment has been ordered or due to recent technical changes.

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 modifications within the context of improvement of function and further development.

1.4 Copyright

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 (see the last page of these operating instructions for contact details).

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

2 Safety Instructions

2.1 Explanation of Symbols

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

DANGER!

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

DANGER!

... indicates an immediately hazardous situation due to electricity, 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.

WARNING!

... indicates a potentially hazardous situation due to electricity, 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 must only be performed by qualified personnel!

The following levels of qualification for the various levels of activities are indicated in these operating instructions:

- **Trained persons/operator**
  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.
- **Specialist personnel**
  Consists of persons capable of performing assigned tasks and independently identifying and avoiding potential hazards based on their specialist training, knowledge and experience as well as their understanding of the applicable regulations.
  Only persons who can be expected to perform their work reliably are acceptable personnel. People whose reactions are impaired by drugs, alcohol or medications, for example, are not authorized.
  When selecting personnel, all age- and occupation-specific regulations applicable at the place of operation must be observed.

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 working area.

→ Keep unauthorized persons away from the working area.

→ In case of doubt, address the person and direct them away from the working area.

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

2.2.3 Personal Protective Equipment for Assembly Personnel

- Safety harness
- Protective headgear
- Protective footwear
- Protective gloves

Whenever assembly personnel are to be on an elevated work surface, they must secure themselves against falling with a safety harness.

2.3 Protective Measures by the Operator / User

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

- The operator must inform him/herself of applicable workplace safety guidelines and identify any additional hazards that may arise under the specific working conditions at the place of operation of the equipment. This knowledge must be expressed in the form of operating instructions for the operation of the equipment.
- During the entire time the equipment 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 manage and define responsibilities for installation, operation, troubleshooting and maintenance.
- The operator must ensure that all personnel involved with the equipment have read and understood these operating instructions. In addition, the operator must also train the personnel at regular intervals and inform them of hazards.
- The operator must provide personnel with the necessary protective equipment.

The operator is furthermore responsible for ensuring that the equipment is always in perfect working order. The following therefore applies:

- 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.

3 Technical Data

3.1 Intended Use

The equipment is exclusively designed and built for the intended use described herein.

- Transport and lifting of festoon systems from assembly to installation in customer systems.

WARNING!

Hazard due to improper use!

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

→ The equipment may only be used as intended.

→ Strictly follow all information in these operating instructions.

→ Refrain from improper use of the equipment!

Non-intended use particularly includes the following:

- Using the equipment with unapproved accessories not authorized by the manufacturer.
- Operation of the equipment by untrained personnel.
- Operation of the equipment when installed on an improper foundation/base.
- Operation when the wind is too strong.
- Transport of persons.

The permissible load capacity of the load carrier and the associated transport frame must never be exceeded!
We do not accept any liability for damage arising from improper use.
The operator bears sole liability for all damage that results from improper use.

3.2 Type Plate

Each transport carrier is provided with a type plate that contains the following data:

3.3 Permissible Environmental Conditions

3.3.1 Load carrier

Climate:
Temperature: -20°C to +50°C
Air humidity: max. 95%
- Seawater climate
- High sea water load
- Strong UV radiation
- The maximum wind speed is based on the specifications of the crane manufacturer

Installation site:
- Dust
- Environmental pollution from exhaust gases

3.3.2 Transport Frame

Climate:
- Temperature: -20°C to +50°C
- Air humidity: max. 95%
- Seawater climate
- High sea water load
- Strong UV radiation
- The maximum wind speed is based on the specifications of the crane manufacturer

Installation site:
- Dust
- Environmental pollution from exhaust gases

3.4 Technical Information

3.4.1 Load Carrier

The use of load carriers is possible in the following combinations:

- Compact beams without reinforcement (individual traverse beam)
- Compact beams with reinforcement (individual traverse beam and reinforcement plate)
- Combination of HEA and traverse beam

Traverse beam
- Maximum load: 250-600 kg/m, depending on the carrier system
- Length (also length of the entire system): 4-12 m
- Profile size: INP / IPE / IPB 80-260
  IPBL 140

HEA carrier:
- Maximum load: 250-600 kg/m depending on the carrier system
- Length: 4-11 m
- Profile size: HEA 100 and 220

Compact beam without reinforcement:
- Maximum load: 250-600 kg/m depending on the carrier system
- Length: 4-6 m
- Profile size: INP/IPE 200-240

Compact beam with reinforcement:
- Maximum load: 250-600 kg/m depending on the carrier system
- Length: 4-6 m
- Profile size: INP / IPE 80-120 with a length of 4m

INP / IPE 140-180 with a length of 4-6m

Special compact beam with variant data
- Maximum load: According to the type plate

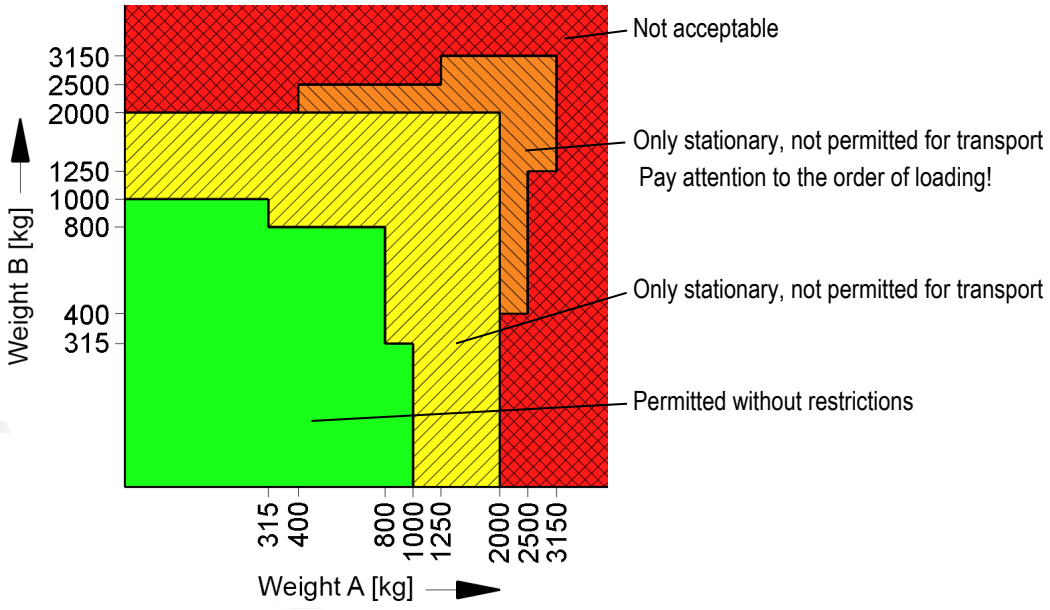
3.4.2 Transport Frame

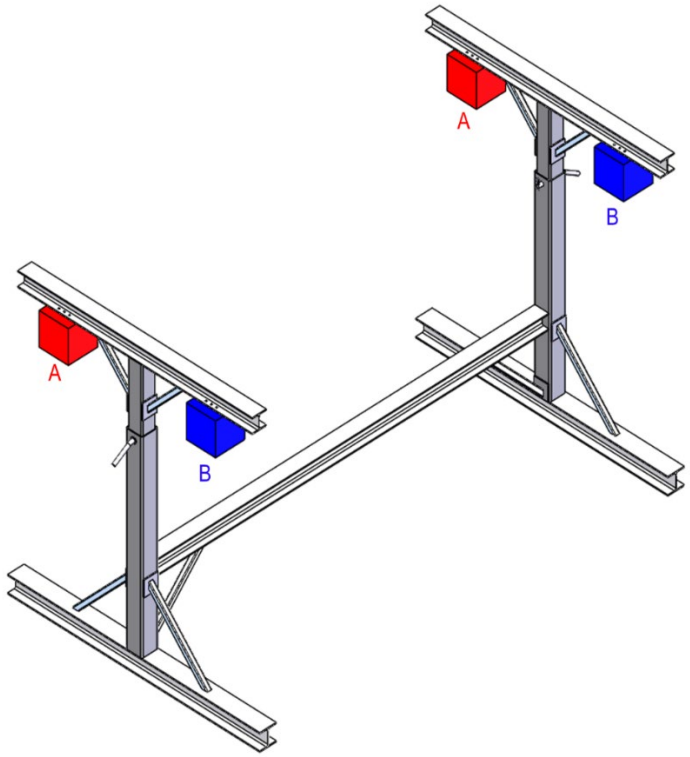
Name	Length [mm]	Width [mm]	Height [mm]	Weight [kg]	Max. Load capacity [kg]
03-M130-0153	3,620	2,150	3,200	449	6,300

ATTENTION!

The height provided in the table reflects the maximum height. This must be reduced to a minimum for transport!

Load diagram:





Example 1:
A carrier system with a length of 12 m is to be preassembled on two transport frames and transported.
Self-weight of the carrier = 600 kg
Weight of all festoon components = 300 kg
Weight of the cables = 2500 kg

Example 2:
Two equally loaded compact beams with a length of 6 m each are to be preassembled on a transport frame and transported.
Self-weight of the carrier = 300 kg
Weight of all festoon components = 150 kg
Weight of the cables = 1250 kg

Example 3
A carrier system with a length of 12 m is to be preassembled on two transport frames.
Self-weight of the carrier = 800 kg
Weight of all festoon components = 2400 kg
Weight of the cables = 8000 kg

Example 4
Example 3 is provided with counterweights totaling 4800 kg.

Example 5
Two equally loaded compact beams with a length of 6 m each are to be preassembled on a transport frame and transported. The installed cable train has a large loop depth, so that the lower third of the cable loops rests on the floor of the means of transport when it is retracted.
Self-weight of the carrier = 300 kg
Weight of all festoon components = 200 kg
Weight of the cables = 1500 kg
Effective weight of the cables during transport = 1000 kg

Example	1	2	3	4	5
Number of transport frames	2	1	2	2	1
Total weight of carrier on Side A [kg]	3400	1700	11200	11200	2000/1500
Weight A	850	850	2800	2800	1000/750
Total weight of carrier on Side B [kg]	0	1700	0	4800	2000/1500
Weight B	0	850	0	1200	1000/750
Permitted for stationary use?	Yes	Yes	No	Yes	Yes / Yes
Permitted to transport?	Yes	No	No	No	No/Yes
Pay attention to the order of loading?	No	No	-	Yes*	No

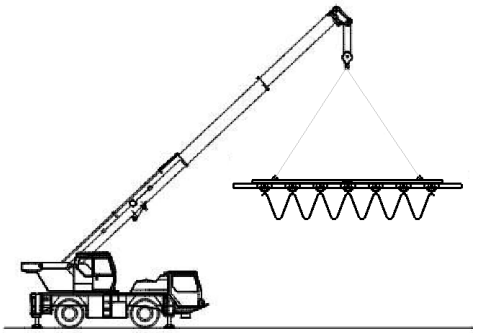
*Counterweights first

4 Functional Principles

4.1 General Function

4.1.1 Load Carrier

The load carrier together with the preassembled festoons is lifted onto the rail of the customer system by a crane. The load carrier is attached to the rail by a fitter. The festoons are then hauled onto the rail of the customer system.



DANGER!

Risk of death from uncontrolled movement of the load!

Since no safety distance is possible for the fitter, there is a risk of being caught or struck by the load carrier.

→ The fitter must constantly keep an eye on the movements of the load carrier.

→ The fitter must wear the specified personal protective equipment.

→ No assembly in strong winds that affect the controllability of the load carrier.

→ Unauthorized persons must stay outside the danger area!

WARNING!

Risk of injury from crushing/shearing!

Since no safety distance is possible for the fitter, there is a risk of crushing and shearing when transferring the festoons to the customer system.

→ The fitter must constantly keep an eye on the movements of the load carrier.

→ No assembly in strong winds that affect the controllability of the load carrier.

DANGER!

Risk of death due to suspended load!

Since no safety distance is possible for the fitter, there is a risk of being struck by the load carrier. There is also a risk to third parties who are below the load carrier.

→ The fitter must constantly keep an eye on the movements of the load carrier.

→ No assembly in strong winds that affect the controllability of the load carrier.

→ Unauthorized persons must stay outside the danger area!

4.1.2 Transport Frame

The transport frame is used to hold one or two load carriers during pre-assembly, loading and transport. It is not lifted to the customer system!

DANGER!

Risk of death from uncontrolled movement of the load!

Since no safety distance is possible for the fitter, there is a risk of being caught or struck by the transport frame.

→ The fitter must constantly keep an eye on the movements of the transport frame.

→ The fitter must wear the specified personal protective equipment.

→ No assembly in strong winds that affect the controllability of the transport frame.

→ Unauthorized persons must stay outside the danger area!

WARNING!

Risk of injury from crushing/shearing!

Since no safety distance is possible for the fitter, there is a risk of crushing and shearing when loading the transport frame onto or into the means of transport.

→ The fitter must constantly keep an eye on the movements of the transport frame.

→ No assembly in strong winds that affect the controllability of the transport frame.

DANGER!

Risk of death due to suspended load!

Since no safety distance is possible for the fitter, there is a risk of being struck by the transport frame. There is also a risk to third parties who are below the load carrier.

→ The fitter must constantly keep an eye on the movements of the transport frame.

→ No assembly in strong winds that affect the controllability of the transport frame.

→ Unauthorized persons must stay outside the danger area!

4.2 Correct Attachment to the Crane

WARNING!

Risk of injury due to incorrect attachment!

→ Comply with the health and safety guidelines applicable at the place of operation, particularly the BGR 500 that is applicable in Germany!

ATTENTION!

Tips and recommendations:

The crane hook must have a functional safety latch. The lifting eye must be hooked into the crane hook and secured.

All lashing components that are used must be complete and functional and comply with the regulations of BGR 500 2.8.

The center of gravity of the load must be exactly under the crane hook. If the center of gravity is not clearly established, it must be determined by trial lifting until the load is absorbed in the center of gravity.

The load must be attached symmetrically over all existing lifting eyes since otherwise, there is a risk of the load hanging askew and the lashing components used may be unevenly loaded.

It must be ensured that all lashing components are loaded evenly (same length, use a shortener if necessary).

The operator must use suitable lashing components that correspond to the intended use.

Damaged lashing components must not be used.

An angle of inclination of a lashing component greater than 60° is not permitted.

Furthermore, the specifications of BGI 556 and other applicable standards and guidelines must be observed.

DANGER!

Risk of death through incorrect attachment!

Incorrect attachment increases the risk of the load falling.

→ Check all attachment points before lifting the load.

→ No assembly or loading in strong winds that affect the controllability of the load.

→ Unauthorized persons must stay outside the danger area!

ATTENTION!

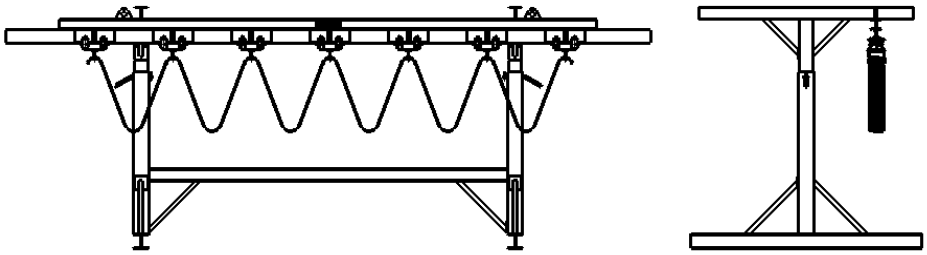
Risk of injury from crushing/shearing when attaching

Since there is no safety distance for the slinger, there is a risk of crushing and shearing when attaching the load.

5 Transport and Storage

5.1 Fastening to the Transport Frame/Fastening of the Load Carrier

The transport and storage of the load carriers is conducted using transport frames.
The load carrier is fastened to the transport frame using screw connections. Load carriers can be fastened on one side as well as on both sides. The screws must be tightened firmly so that the load carrier cannot fall into uncontrolled movements. Load carriers with 4 connection points must be fastened to two transport frames.



DANGER!

Risk of death from incorrectly fastening the load carriers!

Incorrect fastening increases the risk of the load falling.

→ Check all connection points

ATTENTION!

Danger from one-sided loading!

With attachment, one-sided loading must be particularly taken into account.

ATTENTION!

Danger from lack of stability!

The transport frame can tip over due to a lack of stability.

→ Only park on level surfaces

→ Note any one-sided loading

The transport carrier is responsible for properly securing the load during transport.

5.2 Loading the Transport Frame

Since the transport frame is higher than the loading space of the truck, the frame must be retracted. In order to be able to adjust the height of the transport frame, a worker must pull out the safety bolt. The transport frame can then be adjusted to the specified height and then secured again with the safety bolt. The transport frame must be completely retracted during transport.

DANGER!

Risk of death due to suspended load!

Since no safety distance is possible for the fitter, there is a risk of being struck by the attached load.

→ The crane operator must carefully and slowly lower the load.

→ No assembly or loading in strong winds that affect the controllability of the load.

→ Unauthorized persons must stay outside the danger area!

→ Attention must be paid to correct attachment.

DANGER!

Risk of injury from crushing/shearing!

There must be access to the safety bolt, which means there is a risk of crushing and shearing.

→ The crane operator must carefully and slowly lower the load.

→ No assembly in strong winds that affect the controllability of the load.

→ Unauthorized persons must stay outside the danger area!

6 Service, Maintenance and Inspection

6.1 Check before each use

Before each use, load carriers must be inspected by the user for external damage such as deformations and cracks. If signs of damage can be seen, proceed as described Section 6.2.

WARNING!

Risk of injury if the load carrier is damaged!
→ Under no circumstances may damaged lifting devices be used!

6.2 Inspection of the Load Carrier

A visual inspection by an expert must be conducted and documented at least once a year. Pay special attention to the weld seams. If there are signs of damage to weld seams, their faultless condition must be ensured through a crack test.

Damaged load carriers may only be repaired by the manufacturer or according to their instructions!

7 Additional Product Documents

ID No.	Document No.	Name of document
01		Risk assessment load carrier
02		Risk assessment transport frame
03		Static verification
04		Technical drawing

8 Applicable Regulations and Standards

- DIN EN ISO 12100 (2011-03) Safety of machinery - General principles for design - Risk assessment and risk reduction
- DIN EN ISO 14121 (2007-12) Safety of machinery - Risk assessment
- DIN 15428 (1978-08) Lifting appliances; load suspending devices, technical specifications
- DIN EN ISO 13857 (2008-06) Safety of Machinery – Safety distances to prevent hazardous zones from being reached by the upper and lower limbs
- DIN EN 13155 (2009-08) Cranes - Safety – Non-fixed load lifting attachments
- DIN 15429 (1978-07) Lifting appliances, load suspending devices, inspection in service
- DIN EN 349 (2008-09) Safety of machinery - Minimum gaps to avoid crushing parts of the human body
- BGR 500 (2004-01) Betreiben von Lastaufnahmeeinrichtungen im Hebezeugbetrieb
  (Operation of load-bearing equipment in lifting operations)
- BGI 556 (2012-09) Anschläger (Slinger)

In addition, further regulations of the competent local authorities may apply. The operator is responsible here.

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