

User Information

Crane forks 1000 – 3000 kg

Store for future reference



Fixed crane forks.
Height and side-adjustable crane forks.
With dual stirrup and spring load-balance.



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Type	Year of manufacture	Version (s/h&s)	Stirrup (D/F)	Effective height	Centre of gravity spacing
KG 1000					Series centre of gravity spacing is 550 mm (for loads 1 m deep)
KG 1500					
KG 1800					
KG 3000					
Special fork					Centre of gravity spacing mm

INVOICE NUMBER:

KG - No.

Trademark, logo



is the company logo of
Diem-Werke G.m.b.H.

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1 Important information

Documentation

This user information is intended for persons employed in the operation and maintenance of DIEM-WERKE G.m.b.H crane forks.

Measures on receipt of the goods

- ↳ Undertake a visual inspection on delivery of the crane fork.

If there are any signs of transportation damage, take the necessary steps as described in the supply contract. Any repair costs must be borne by the forwarding agent insuring the risk.

Storage

Store crane forks where they are protected from weather and outside influences.

Models

If the documentation describes various models, only the information for the supplied model will apply. If the stated information does not explicitly differentiate between models, it will apply in a logical manner to all models. We reserve the right to make any changes prior to delivery which serve to improve the supplied product.

Accident prevention

Ensure compliance with the notes on accident prevention given in the documentation.



Any relevant country-specific accident prevention regulations for a given application must also be observed.

The company DIEM-WERKE G.m.b.H. manufactures its products according to current international safety standards. Any specific local regulations must be notified by the customer prior to the start of manufacture. Any additional costs must be borne by the customer.

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Guarantee

Guarantees are given within the scope of the contractual agreement. It is a pre-requisite that only original spare parts are used. Damages through improper use, non-compliance with our regulations or incorrect operation by unauthorised personnel will void any guarantee claim.

Legend

- ⇒ Action required:
This symbol is shown whenever an action has to be carried out once the information has been read.
- ⓘ Information:
This symbol appears every where, where you will find important information relating to working with the crane fork.

List of abbreviations

The following abbreviations are used in this user information guide:

- ↵ For side-adjustable crane fork: /s
- ↵ For height and side-adjustable: /h&s
- ↵ For crane forks with dual-stirrup: /D
- ↵ For crane forks with spring load-balance: /F
- ↵ The effective height of the crane fork is designated by: /NH

For example: a KG 1800 / NH 1.2 / h&s / F is a height and side-adjustable crane fork with a payload of 1,800 kg and an effective height of 1.2 m (1200 mm). The crane fork is equipped with a spring load-balance.

Definitions

Operation: refers to the loading, unloading, attaching and detaching of lifting tackle.

Load: Always refers to a pallet load

Loading point: position at which the crane fork is hooked on to the lifting tackle.

Centre of gravity: heaviest point of the load.

Lifting tackle: e.g. chain, cable, hooks.

Centre of gravity spacing: distance from the centre of gravity to the rear limit stop point of the fork (see page 14)

Structure of this user information document

This manual is intended to enable you to quickly and easily operate the crane fork described and to subsequently serve as a work of reference. This user information document is intended for trained personnel and serves to provide assistance during startup, operation, service or repair work.

The table of contents at the start of this document allows the required section to be quickly located.

Read the user information and familiarize yourself with the corresponding crane fork.

Observe all safety instructions. They should help prevent accidents and damages.

2 Fundamental safety instructions

2.1 Observe the instructions given in the user information document

The basic requirement for safe handling and fault-free operation of the crane fork described is knowledge of the basic safety information and the safety regulations.

This user information, and especially the safety instructions, are to be observed by all persons working with the crane fork.

In addition, the accident prevention rules and regulations applicable to the area of application are also to be observed.

2.2 Dangers relating to handling crane forks

The crane forks are built according to the state-of-the-art and recognized safety-technical regulations. However, their usage can lead to risks to the health and life of the operators or third-parties, or damage to the crane fork or other property. Crane forks are only to be used:

- ↳ for its intended application (see chapter 2.6)
- ↳ when it is in a perfectly safe state.

2.3 Warranty and liability

In principle our "General Sales and Delivery Conditions" apply.

These are provided to the operator no later than the point at which the contract is finalised. Warranty and liability claims for personal or material damage are not covered if caused by one of the following:

- ↳ Improper use of the crane fork.
- ↳ Improper installation, commissioning, operation or maintenance of the crane fork.
- ↳ Usage of damaged crane forks
- ↳ Failure to observe the notes in the operating information relating to the transportation, storage, installation, commissioning, operation or maintenance of the crane fork.
- ↳ Unauthorized structural changes to the crane fork.
- ↳ Inadequate monitoring of components which are subject to wear.
- ↳ Improper repair work.
- ↳ catastrophes due to effects/influences from extraneous elements and force majeure

2.4 Safety instructions, signs and symbols

The hazard symbols always appear together with a signal word. The signal words indicate the extent of the hazard.

Carefully read the safety instructions. They form an essential component in ensuring the safe handling of the crane fork and help to prevent possible serious consequences for persons and equipment.

2.4.1 Significance of the signal words

Hazard!

Hazard which threatens immediate danger
Non-observance of this instruction can result in serious, life-threatening or even fatal injuries.

Warning!

Potential threat of danger
Non-observance of these instructions can result in serious, life-threatening or fatal injuries as well as material damage.

Attention !

Potential threat of danger
Non-observance of these instructions can result in injuries or material damage.

2.4.2 Significance of hazard symbols



This symbol means that there is possible danger caused by uncontrolled movement of the load. The causes for this may include:

- ⚠ Centre of gravity not under the loading point of the crane fork.
- ⚠ Fingers of the crane fork not positioned centrally.
- ⚠ Crane fork damaged.



This symbol means there is general impending danger



This symbol means there is an impending danger for or due to the operation of the crane fork by untrained or inexperienced personnel.




This symbol indicates that safety shoes must be worn when undertaking the tasks described.



This symbol indicates that a protective helmet must be worn when undertaking the tasks described.

2.5 Intended use

- ↳ Crane forks **KG 1000, KG 1500, KG 1800 and KG 3000** serve exclusively for lifting pallet loads.
- ↳ The centre of gravity for the load and distance of centre of gravity from the reference line must match (see page 14).
- ↳ The permissible load of the corresponding type may not be exceeded.

 Note that not every crane fork version is suitable for operation with every type of crane!

- ↳ Crane forks with both **dual** and **spring-load balance** are suitable for **construction cranes**.
- ↳ **Only dual-stirrup** cranes are suitable for operation on **hydraulic cranes**, such as those used on vehicles.

In the event of usage change, crane forks can be modified from dual stirrup to spring load-balance stirrup (or vice versa S => D).

The exception to this are types **KG 1000** and **KG 3000**.

Modification work may only be undertaken by DIEM-WERKE or by persons contracted by them to do so.

The definition of intended use also includes:

- ↳ Observance of accident prevention regulations
- ↳ Observance of all instructions in the user information document
- ↳ Performing all the required inspection and maintenance tasks

2.6 Improper usage

Crane forks may not be used for the transportation of persons under any circumstances.

All other usages that are not listed under point 1.5 are not permissible.

DIEM-WERKE G.m.b.H will not accept liability for any consequential damages.

Improper usage may result in hazards which are not fully covered by the safety measures.

2.7 Staff training

Only trained, skilled and experienced personnel may operate the crane fork.

Trainee personnel may only operate the crane under the supervision of an experienced person.


2.8 Service and maintenance, trouble-shooting

- ↳ Perform the specified adjustment, maintenance and inspection tasks at the required intervals.
- ↳ Ensure that the crane fork is set down on a firm surface and unhook it from the crane before undertaking maintenance, inspection and repair work on the crane fork.
- ↳ Verify that any previously loosened screw fittings are tight.
- ↳ Check the function of safety devices after the maintenance work has been completed.


2.9 Structural changes to the crane fork


- ↳ Modifications to the crane fork may only be undertaken by the manufacturer.
- ↳ Immediately replace any parts which are not in an acceptable condition.
- ↳ Only use original spare parts and wearing parts.
- ↳ Third-party components do not necessarily fulfil the structural and safety requirements in terms of design and manufacture.
- ↳ The manufacturer is only liable for subsequently retrofitted additional equipment when the modification work was carried out by the manufacturer.
- ↳ The equipment must be restored to its original state when any additional fittings are removed.

2.10 Transport

 Suitable means must be used to avoid slipping and tilting during transportation.

2.11 Scrapping

 Worn-out crane forks must be immediately made unusable and labelled as such!

 Observe the corresponding regulations in the country of operation when scrapping the crane fork.

3 Product description

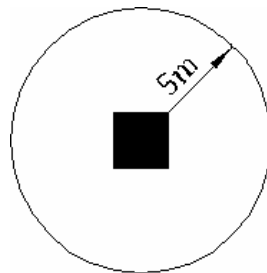
Crane forks serve exclusively for the purpose of lifting pallets. Where the word “load” is used in the following text, it always refers to a pallet. Crane forks of types **KG 1000, KG 1500, KG1800 and KG 3000** are complete steel-welded structures with solid steel fingers.

The dual stirrup crane fork is equipped with a twin stirrup via 2 loading points. This enables an almost level* hang for the crane fork when it is unloaded (rear loading point) as well as when it is loaded (front loading point).

The spring load-balance crane fork with its spring loaded stirrup enables the crane fork to be loaded with various loads, without unhooking. The spring load-balance serves exclusively for the purpose of keeping the crane fork level when it is unloaded. Only when the rated load is applied, does the loading point correspond to the centre of gravity distance at the specified point, thereby bringing the crane fork into a level position.

3.1 Hazard areas

The operator must ensure that no other persons are located in the vicinity of the crane fork when loading, unloading, and raising and lowering the crane fork! He is also responsible for any third parties that may be present.



PROTECTION ZONE: 5 metres.

3.2 Conformity

Regulations for load lifting attachments
EN-13155:2003

3.3 Designation

The crane forks are labelled with the rated load.

3.4 Area of application

All crane forks are only suitable for the transportation of pallets. The loads on the pallets must be secured.

Crane forks of type F may not be used on vehicle cranes. A crane fork with a dual-stirrup must be used on these crane types.

3.5 Technical data

Classification	Hoisting class	Stress group
ÖNORM 4604	H1	E3
DIN 15018	H1	B3

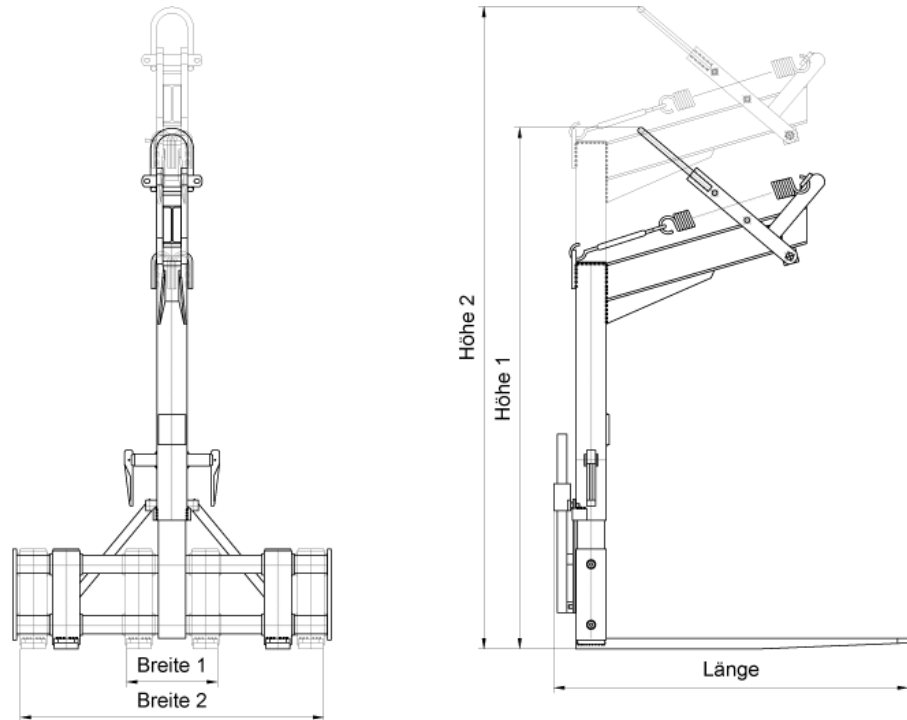
Tab. 1

Technical data

Type	Load kg	Version stirrup	Effective height m	Overall height m	Finger spacing mm	Finger length mm	Centre of gravity spacing mm	Tare weight kg
KG 1000 D	1000	D	1,2	1,78	680	950	550	64
KG 1000 F	1000	F	1,2	2,12	680	950	550	71
KG 1500 D h&s	1500	D	0,84-1,33	1,42-1,91	300-1000	1000	550	127
KG 1500 F h&s	1500	F	0,84-1,33	1,76-2,21	300-1000	1000	550	134
KG 1500 D Europal. Long.	1500	D	1,4	2	580	1192	600	80
KG 1500 F Europal. Long.	1500	F	1,4	2,33	580	1192	600	83
KG 1500 D h&s Europal. Long.	1500	D	1,17-1,67	1,76-2,26	340-940	1150	650	145
KG 1500 F h&s Europal. Long.	1500	F	1,17-1,67	1,76-2,26	340-940	1150	650	145
KG 1800 D 1,2	1800	D	1,2	1,78	680	930	550	75
KG 1800 D 1,4	1800	D	1,4	1,98	680	930	550	80
KG 1800 D s	1800	D	1,2	1,78	340-940	970	550	114
KG 1800 D h&s	1800	D	1,2-1,7	1,78-2,28	340-940	970	550	138
KG 1800 F 1,2	1800	F	1,2	2,12	680	930	550	78
KG 1800 F 1,4	1800	F	1,4	2,32	680	930	550	83
KG 1800 F s	1800	F	1,2	2,12	340-940	970	550	117
KG 1800 F h&s	1800	F	1,2-1,7	2,12-2,62	340-940	970	550	144
KG 3000 D 1,4	3000	D	1,4	1,98	680	940	550	96
KG 3000 D h&s	3000	D	1,2-1,7	1,78-2,28	410-940	960	550	154
KG 3000 F 1,4	3000	F	1,4	2,32	680	940	550	100
KG 3000 F h&s	3000	F	1,2-1,7	2,12-2,62	410-940	960	550	160
Special fork								

Tab. 2 Technical data

3.5.1 Adjustment dimensions



Type	Load kg	Version stirrup	Effective height m	Length mm	Width 1 mm	Width 2 mm	Height 1 mm	Height 2 mm
KG 1000 D	1000	D	1,2	1100	680	-	1780	-
KG 1000 F	1000	F	1,2	1100	680	-	2120	-
KG 1500 D h&s	1500	D	0,84-1,33	1173	300	1000	1420	1905
KG 1500 F h&s	1500	F	0,84-1,33	1173	300	1000	1760	2245
KG 1500 D Europal. Long.	1500	D	1,4	2	580	1192	600	80
KG 1500 F Europal. Long.	1500	F	1,4	2,33	580	1192	600	83
KG 1500 D h&s Europal. Long.	1500	D	1,17-1,67	1,76-2,26	340-940	1150	650	145
KG 1500 F h&s Europal. Long.	1500	F	1,17-1,67	1,76-2,26	340-940	1150	650	145
KG 1800 D 1,2	1800	D	1,2	1100	680	-	1780	-
KG 1800 D 1,4	1800	D	1,4	1100	680	-	1980	-
KG 1800 D s	1800	D	1,2	1100	340	1000	1780	-
KG 1800 D h&s	1800	D	1,2-1,7	1100	340	1000	1780	2280
KG 1800 F 1,2	1800	F	1,2	1100	680	-	2210	-
KG 1800 F 1,4	1800	F	1,4	1100	680	-	2320	-
KG 1800 F s	1800	F	1,2	1100	340	1000	2120	-
KG 1800 F h&s	1800	F	1,2-1,7	1100	340	1000	2120	2620
KG 3000 D 1,4	3000	D	1,4	1100	680	-	1980	-
KG 3000 D h&s	3000	D	1,2-1,7	1100	410	1000	1780	2280
KG 3000 F 1,4	3000	F	1,4	1100	680	-	2320	-
KG 3000 F h&s	3000	F	1,2-1,7	1100	410	1000	2120	2620
Special fork								

Tab. 3 Adjustment dimensions

4 Operation

4.1 Safety instructions

**Warning!**

Risk of injury!

Uncontrolled movement of the load can lead to serious injury, life-threatening injury, or death.

- ⇒ Never walk under suspended loads.
 - ⇒ Leave the hazard area of the crane fork when lifting or lowering loads.
 - ⇒ Position the centre of gravity underneath the loading point.
-

**Warning!**

Risk of injury!

Overloading the crane fork can lead to serious injury, life-threatening injury, or death.

- ⇒ Do not load in excess of the crane fork's specified load capacity.
-

**Warning!**

Risk of injury!

Operation of the crane fork by insufficiently trained or inexperienced personnel can lead to serious injuries, life-threatening injuries or death.

- ⇒ Only trained, skilled and experienced personnel may operate the crane fork.
 - ⇒ Insufficiently trained or inexperienced personnel may only operate the crane bucket under supervision from experienced, trained personnel.
-



Always wear safety shoes.



Always wear a safety helmet.

4.2 Load characteristics

- ⚠ The load must be stored on a pallet.
- ⚠ The load on the pallet must be secured.
- ⚠ The weight of the load may not exceed the load capacity of the crane fork.
- ⚠ For crane forks without load balance, the weight of the load should roughly equal the payload. If the load is lighter than the payload, the fingers will swing upwards at the front.

4.3 Loading the crane fork



Warning!

Risk of injury!

Failure to observe the following safety instructions can lead to serious injury, life-threatening injury, or death.

- ⚠ Do not load in excess of the crane fork's specified load capacity.
- ⚠ The weight of the load should correspond to the load capacity of the crane fork, as far as possible.
- ⚠ Ensure the correct position of the load, see Tab. 4 and Tab. 5. Even probable homogenous, symmetrical loads may not always have their centre of gravity in the geometrical centre.
- ⚠ Always de-ice ice from fingers before loading.

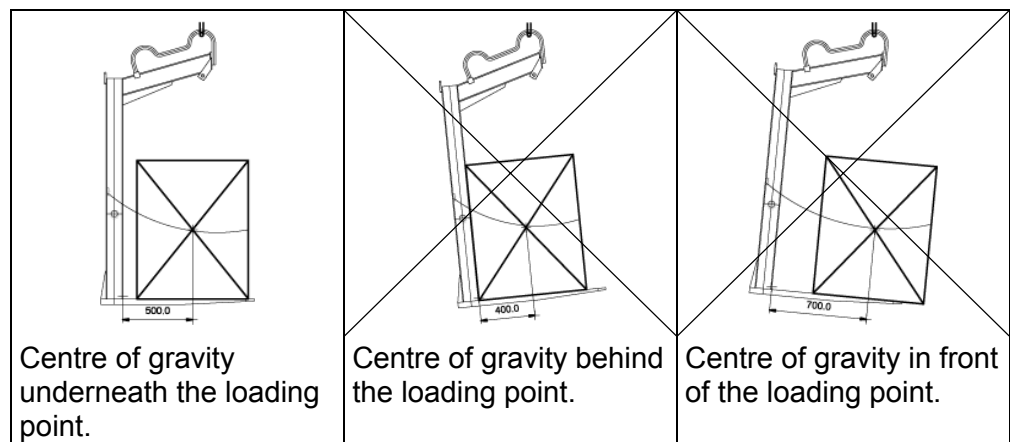


The finger width must match the width of the pallet. The pallet must be positioned on the centre of the fork and should overhang as little as possible at the sides. The finger width must be adjusted to the pallet on crane forks with adjustable fingers.

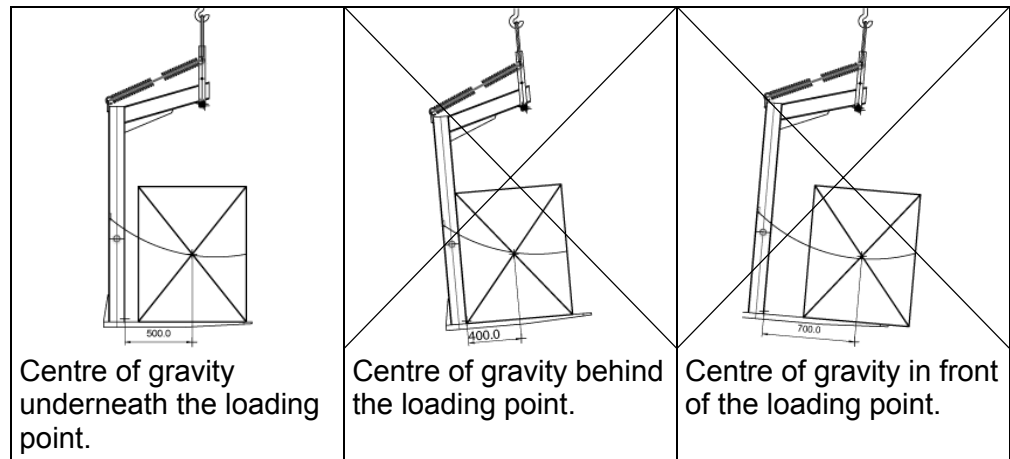


A crane fork with 500 mm centre of gravity and a load suspension point of 550 mm is suitable for lifting loads with a depth of 1000 mm.

- ⇒ Position the centre of gravity underneath the loading point.
- ⇒ Secure the load on the crane fork against sliding with load safety chains.



Tab. 4 Dual-stirrup crane fork correctly loaded.



Tab. 5 Spring load-balance stirrup crane fork correctly loaded.

4.4 Attaching the crane fork to the crane

Dual-stirrup crane fork:

- ⇒ Hook the unloaded crane fork onto the rear loading points.
- ⇒ Hook the loaded crane fork onto the front loading points.
- ⇒ Lift the crane fork approximately $\frac{1}{2}$ meter from the ground and check that the position is level.

Spring load-balance crane fork:

- ⇒ Hook the crane fork onto the loading point.
- ⇒ Lift the crane fork approximately $\frac{1}{2}$ meter from the ground and check that the position is level.

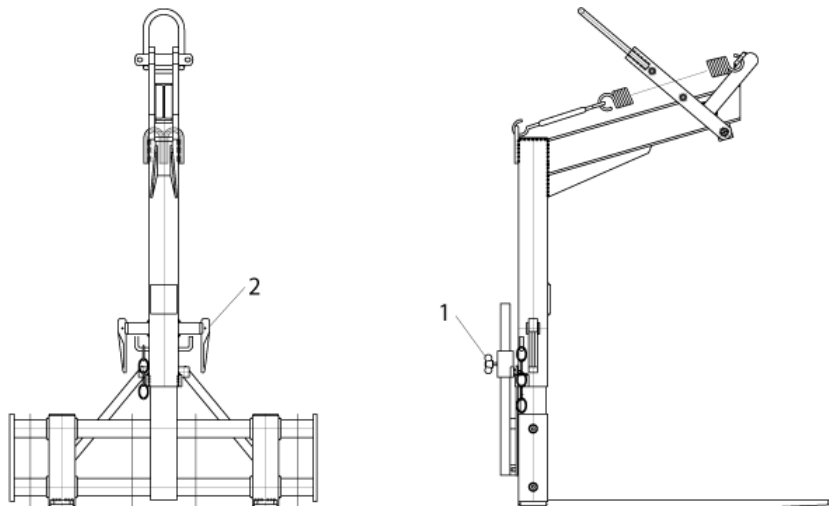
4.5 Adjusting KG 1500 / h&s

Adjusting finger width

- ⇒ Lift the crane fork with the crane.
- ⇒ Loosen butterfly nut (1).
- ⇒ Pull fingers apart or push them together.
 - ⓘ Both fingers move synchronously apart or together, as they are mechanically connected by means of a tension rod.
- ⇒ Tighten the butterfly nut.

Adjusting effective height

- ⇒ Put the crane fork down on a level surface.
 - ⓘ Do not detach the crane fork from the hook.
- ⚠ The upper part of the crane fork can slide down when the catch is released.
Do not position your feet underneath the crane fork and keep hands out of the hazard area.
- ⇒ Unlock the catch (2) outwards
- ⇒ Adjust the fork to the desired height.
- ⇒ Lock the catch (2) inwards until it engages.



4.6 Adjusting KG 1800 / s, KG 1800 / h&s, KG 3000 / h&s

Adjusting finger width



Warning!

Risk of injury!

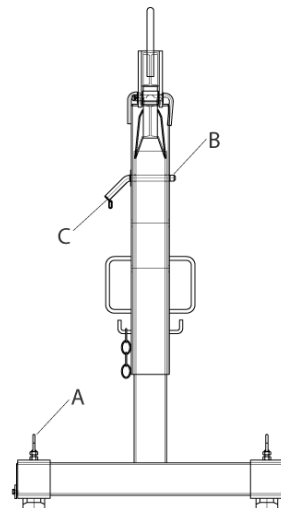
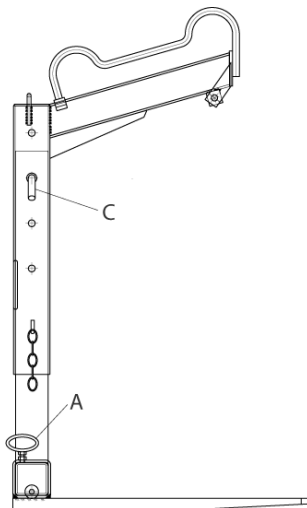
Uncontrolled movement of the crane fork can lead to serious injury, life-threatening injury, or death.

⇒ The fingers must always be spaced evenly from the centre of the fork.

- ⇒ Lift the crane fork with the crane.
- ⇒ Loosen lifting eyebolt (A).
- ⇒ Lift the fingers slightly at the front and slide them to the desired position.
⚠ Both fingers must have the same distance from the centre.
- ⇒ Tighten lifting eyebolt (A).

Adjusting effective height

- ⇒ Put the crane fork down on a level surface.
ⓘ Do not detach the crane fork from the hook.
- ⇒ Pull pin (B).
- ⚠ The upper part of the crane fork can slide down when the catch is released.
Do not position your feet underneath the crane fork and keep hands out of the hazard area.
- ⇒ Pull locking bolt (C).
- ⇒ Adjust the fork to the desired height.
- ⇒ Insert the locking bolt (C) in the suitable hole.
- ⇒ Place pin (B) in the locking bolt.



4.7 Adjusting spring load-balance stirrup

The spring prestress can be adjusted by means of tensioners between the crane fork and the spring. Adjust the prestress in such a way that the crane fork hangs level when it is unloaded.

5 Faults, troubleshooting

5.1 Safety regulations



- ⚠ Fault maintenance tasks may only be undertaken by experienced personnel.
- ⚠ Repairs requiring specialist knowledge may only be undertaken by specialist firms.
- ⚠ If the crane fork exhibits pitting corrosion or cracks it is of no use and may not be operated.



Always wear safety shoes.

5.2 Troubleshooting

Fault	Possible cause	Rectification
The crane fork does not hang level when unloaded.	Crane form deformed	Consultation with DIEM-WERKE. Do not use crane fork.
	Spring load-balance prestress too low.	Adjust prestress (see chapter 6.3)
	Crane form deformed	Consultation with DIEM-WERKE. Do not use crane fork.
The crane fork does not hang level when loaded.	Crane fork wrongly loaded.	Load crane fork as described in chap. 4.3.
	Application of the crane fork wrong.	Use a crane fork designed for the application (SPECIAL FORK). Consultation with DIEM-WERKE.

6 Maintenance / repairs

6.1 Safety regulations



- ↳ Only carry out maintenance work when the crane fork is positioned on the ground and is statically stable.
- ↳ Carry out prescribed maintenance work punctually.
- ↳ Re-tighten loosened screwed connections and check for tightness.
- ↳ Work may only be undertaken by experienced personnel.



Always wear safety shoes.

Our service personnel are happy to answer any questions.

6.2 Maintenance work

- ↳ Lubricate the moving parts monthly.
- ↳ Inspect for visual damage on a daily basis.

6.3 Repair work

Adjust spring:


The spring prestress can be adjusted by means of tensioners between the crane fork and the spring. Adjust the prestress in such a way that the crane fork hangs level when it is unloaded.

7 Decommissioning and storage

7.1 Storage conditions

- ↳ Do not store the crane fork outdoors.
- ↳ Store the crane fork in a safe place, where it is not accessible to unauthorised persons.
- ↳ Store the crane fork so that it is statically stable.
- ↳ Grease all moving parts.
- ↳ Cover the entire crane fork with a thin film of grease in the event that it is to be out of service for a prolonged period (winter).

7.2 Re-commissioning

 The full functional capability of the crane fork must be tested before each commissioning.
Non-operational crane forks may not be used.

Check the following:

- ↳ Crane bucket hangs level.
- ↳ No pinholing.
- ↳ All pins and bolts are attached properly.

8 Customer service

If you require assistance:

- ↳ Copy this page.
- ↳ Please fill in the tables.
The more information we receive, the greater the chance of providing a correct diagnosis and rapid service.
- ↳ Fax this copy to:

DIEM - Werke G.m.b.H. , +43 / 5574 / 46418

or your nearest customer service centre (see next page).

Crane fork:

Type	Version (s/h&s)	Stirrup (D/F)	Effective height
KG 1000			
KG 1500			
KG 1800			
KG 3000			
Special fork			

Year of construction:

Invoice – No.:

Purchase date:

Problem description:

Sent by:

Company:

Contact person:

Department:

Address:















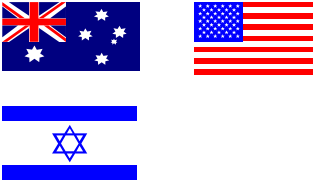
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Telephone:

Fax:

E-mail:

8.1 Service centres

	<p>At the time of print, service centres are available in the countries below. Please call us on telephone number +43 / 5574 / 42874 and we will inform you of your nearest service centre.</p>
	<p>HEADQUARTERS</p> <p>DIEM - Werke G.m.b.H. Lindauer Straße 60 A - 6911 Lochau</p> <p>Tel: +43 / 5574 / 42874 Fax: +43 / 5574 / 46418 Email: diem@diemwerke.com</p>
	Belgium
	Germany
	Finland
	France
	Great Britain
	Ireland
	Norway
	Austria
	Sweden
	Switzerland
	Spain
	Hungary
	<p>OTHER COUNTRIES Australia, Israel, the Far East, USA</p>