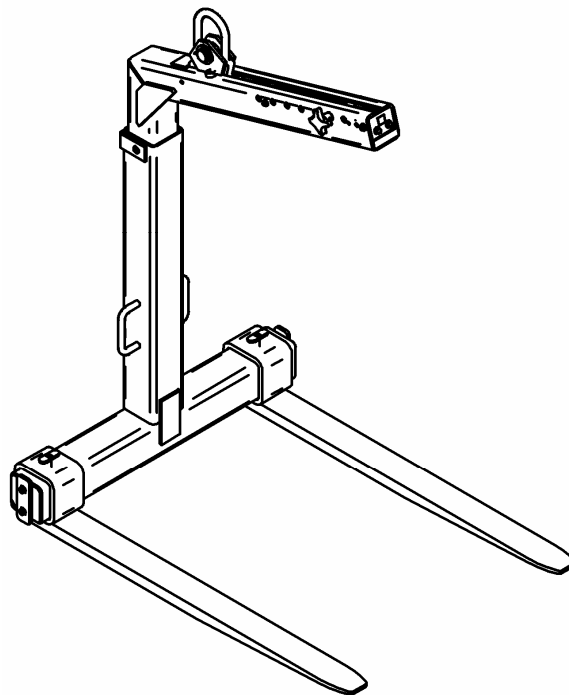


KINSHOFER

Bedienungsanleitung / Operating instructions / Mode d'emploi

für / for / pour

**Krangabel / Crane fork / Fourche pour grue
KM 420**



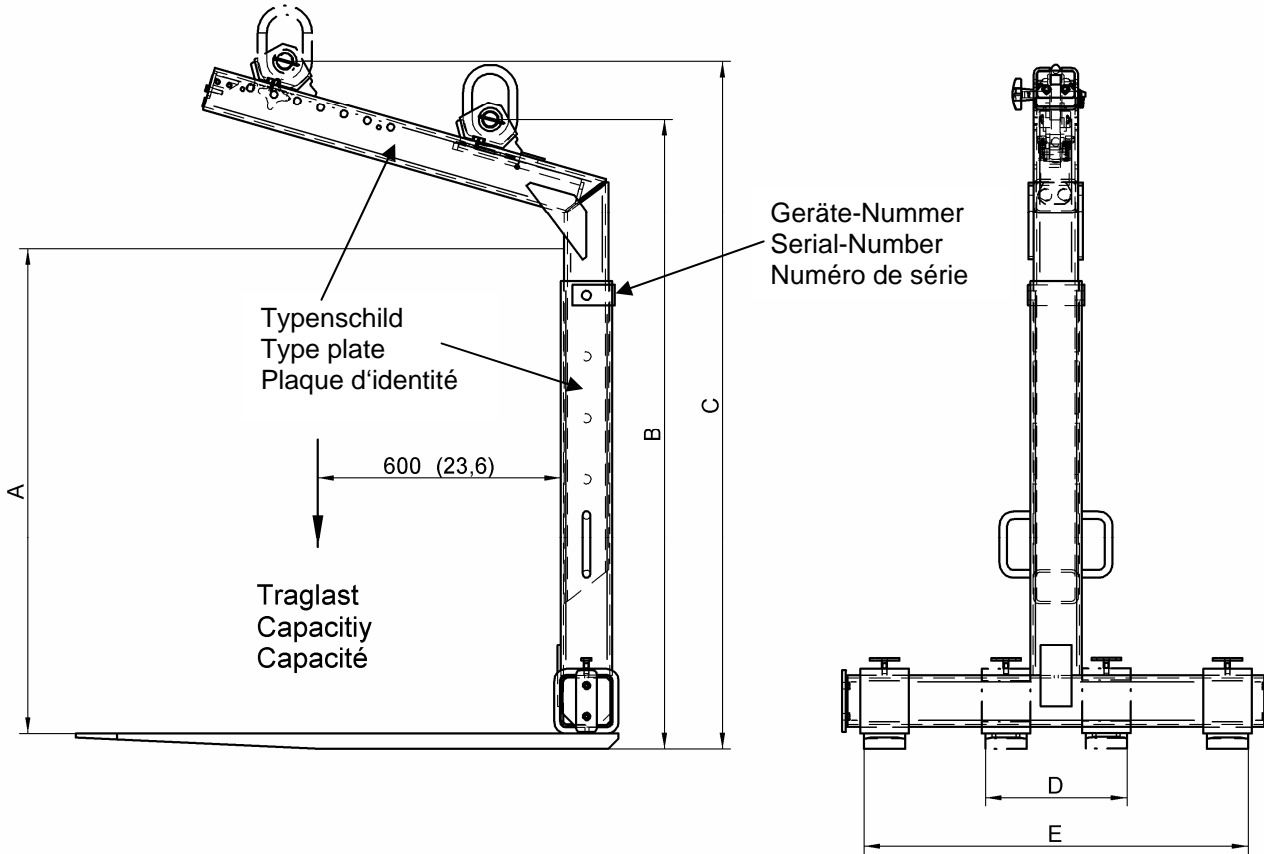
Hersteller / Manufacturer / Constructeur

KINSHOFER GMBH

11 / 07

**Brought to you by
Robert's Diesel Works Inc.
906 West Gore St.
Orlando, Fl. 32805
407 246-1597
800 341-1370**

Maßblatt / Dimensions / Dimensions



Artikel-Nr. / Order No. / Article N°

Typ KM420	Traglast Capacity Capacité	Schwerpunkt-abstand Centre of gravity Centre de granté	Zinkenquerschnitt Prong dimensions Sections des fourchons	Gewicht (o. Drehm.) Weight (w/o rotator) Poids (sans rotator)
	lbs	inch / mm	mm	kg
K20A60AANA	6000	23,6 / 600	4"x1"-1/2" Standard	
K20A45BANA	4500	23,6 / 600	4"x1"-1/4" Roofers	
K20A60CANA	6000	23,6 / 600	4"x1"-1/2" 6" Offset	
K20A60DANA	6000	23,6 / 600	6 Tines 2"x1-1/2" 6" Offset	
K20A60EANA	6000	23,6 / 600	6 Tines 2"x1-1/2" Block	
K20A60AANG	6000	23,6 / 600	4"x1"-1/2" Standard	
K20A45BANG	4500	23,6 / 600	4"x1"-1/4" Roofers	
K20A60CANG	6000	23,6 / 600	4"x1"-1/2" 6" Offset	
K20A60DANG	6000	23,6 / 600	6 Tines 2"x1-1/2" 6" Offset	
K20A60EANG	6000	23,6 / 600	6 Tines 2"x1-1/2" Block	

Typ KM420	Maß A Measure A Cote A inch / mm	Maß B Measure B Cote B inch / mm	Maß c Measure C Cote C inch / mm
K20A60AANA	48 – 66 / 1220 - 1676	62 – 80 / 1575 - 2030	68 – 86 / 1720 - 2175
K20A45BANA	48 – 66 / 1220 - 1676	62 – 80 / 1575 – 2030	68 – 86 / 1720 – 2175
K20A60CANA	48 – 66 / 1220 - 1676	62 – 80 / 1575 – 2030	68 – 86 / 1720 – 2175
K20A60DANA	48 – 66 / 1220 - 1676	62 – 80 / 1575 – 2030	68 – 86 / 1720 – 2175
K20A60EANA	48 – 66 / 1220 - 1676	62 – 80 / 1575 - 2030	68 – 86 / 1720 - 2175
K20A60AANG	60 – 90 / 1524 - 2286	74 – 104 / 1880 - 2640	80 – 110 / 2025 - 2785
K20A45BANG	60 – 90 / 1524 – 2286	74 – 104 / 1880 – 2640	80 – 110 / 2025 - 2785
K20A60CANG	60 – 90 / 1524 – 2286	74 – 104 / 1880 – 2640	80 – 110 / 2025 – 2785
K20A60DANG	60 – 90 / 1524 – 2286	74 – 104 / 1880 – 2640	80 – 110 / 2025 – 2785
K20A60EANG	60 – 90 / 1524 - 2286	74 – 104 / 1880 - 2640	80 – 110 / 2025 - 2785

Typenschild / Type plate / Plaque d'identité

Das Typenschild ist auf allen Kinshofer Erzeugnissen befestigt.
Der Erzeugnistyp und seine Daten sind dann auf dem Typenschild eingetragen.

The type plate is attached to all Kinshofer products.
The product type and data are entered in the type plate.

La plaque d'identité est apposée sur tous les produits Kinshofer.
Le modèle du produits et ses données sont spécifiés sur la plaque d'identité.

z. B. / for example / par exemple

KINSHOFER				CE	
North America					
Year	<input type="text"/>	Model	<input type="text"/>	Psi min/max	<input type="text"/> <input type="text"/>
Serial no.	<input type="text"/>	Weight	<input type="text"/>	Capacity	<input type="text"/> <input type="text"/>
Made in Germany					

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Fitting	Warranty	
2. Operative conditions		7
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Transport		
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1. General information

These instructions apply to load bearing devices in lifting areas and affects products by KINSHOFER GMBH:

The statutory safety and accident prevention regulations apply to load bearing devices.

Special mounting information, bearing capacities, permitted operating pressure and maintenance information along lists are provided in the operating instructions.

1.1 Use in accordance with regulations:



Warning!

Designates a possibly dangerous situation.

Instructions must be observed and followed.

Disregarding this information may result in serious injury.

Disregarding the operating instructions may result in accidents, downtimes and the warranty becoming void.

- All the equipment is generally designed for use near the ground (up to a lifting height of 1.8 m).
- It is not allowed to control the equipment by hand (except the crane forks).
It is not allowed to conduct the equipment above people if no additional protection has been provided. See also UVV VBG [Accident Prevention Regulations, Regulations of the Trade Associations], 9a § 31!
- Using the crane fork without securing the load is generally prohibited.
- The transport of persons is prohibited!
- **Observe the operating instructions!**

General information:

Users must refer to the operating instructions to familiarize themselves with the machine before operating it.

The operating instructions are meant for the users. Please refer to the corresponding documents for descriptions, maintenance and so on for other machine components and the base machine.

1.2 Safety provisions:

The following ordinances and regulations apply:

EG directives

EG Directive Machines 98/37/EC

EN 13155 Cranes – Non-fixed load lifting attachments

Accident prevention regulations - VBG

VBG 1 General regulations

VBG 9A Load bearing devices operated with lifting gear

ZH of publications

ZH 1/74 Safety regulations for hydraulic hose lines

ZH 1/215 Safety regulations for hydraulic fluids

ZH 1/283 Safely using cranes on trucks

Ordinances

Old oil ordinance
Highway code
Road traffic ordinance

1.3 Machine assembly

An upper suspension that permits suspension by gimbals is used to mount the corresponding hydraulic rotator or the add-on unit to the base machine's extension arm (exception: sorting grippers and manipulators may be mounted without suspension by gimbals).

- The machine may only be mounted by authorized personnel.
- Do not exceed the vehicle's total permitted weight when mounting the machine.
- The machine may only be fitted to suitable base machines.

Attaching the hydraulic rotator:

Rotators are mounted either with a reducer (motors with shaft) or directly to the bottom flange on the add-on unit.

The add-on unit may only be attached to suitable hydraulic rotators.

The hydraulic hoses should be kept as short as possible.

When assembly has been completed, check that the machine functions properly and that the hydraulic hoses don't leak.

1.4 Warranty

On exclusion of further claims and rights of the customer, irrespective of the legal reason, we will be liable for material and processing defects for only 12 months from the day the product leaves our premises.

A liability period of 12 months applies for rotary motors.

There is a warranty period of 24 months from the day the product leaves our premises for HPXdrive and HPXdrive Heavy Duty gripper drives only.

Complaints about defects must be made immediately in writing within a time limit of two weeks after the delivery was received at its destination.

The two week time limit also applies to defects that are not apparent even to careful inspection on receipt. In such events the time limit commences with the day the defect is discovered.

Warranty claims can only be made if the customer has fulfilled his duties and has followed the operating instructions.

No liability will be assumed for incorrect or negligent treatment or excessive loads.

Liability will also not be assumed when defects have been caused by preliminary or other work that has not been carried out on our premises.

If a complaint is founded and made within the specified time limit, we are entitled at our discretion to repair existing defects or to replace the original delivery free of charge or to issue a credit note to the calculated value or partial value.

Where products delivered or processed by third parties are concerned, we will only be liable to the extent that our sub-contractor fulfils warranty claims.

Once a complaint has been made, we must be given unrestricted access to the defective item so that we can both check the complaint and correct it.

If a defect can only be repaired on our premises, the defective item must be put at our disposal.

If the complaint concerns a disattachable component, then it must be sent to us on request.

If the customer demands the correction of a defect which we do not recognize as a warranty defect we are entitled to make the repair dependent on the advance payment of the foreseeable costs.

2. Operative conditions

The crane fork is intended for use on truck-mounted cranes or building-site cranes.



Use at the building site or not near the ground is only allowed if the individual load has been sufficiently secured (a chain with bundled and palletted loads or a protective cage with loose materials).

Near the ground is a lifting height of 1.8 m from the crane fork's lowest point.

Using the crane fork at building sites without securing the load is generally prohibited.

Automatic compensation of centre of gravity functions with a min. pack weight of approx. 500 kg (1100 lbs).

See applicable regulations pertaining to country in which the equipment is operated.

Ambient temperature range: - 15°C to + 40°C



Warning!

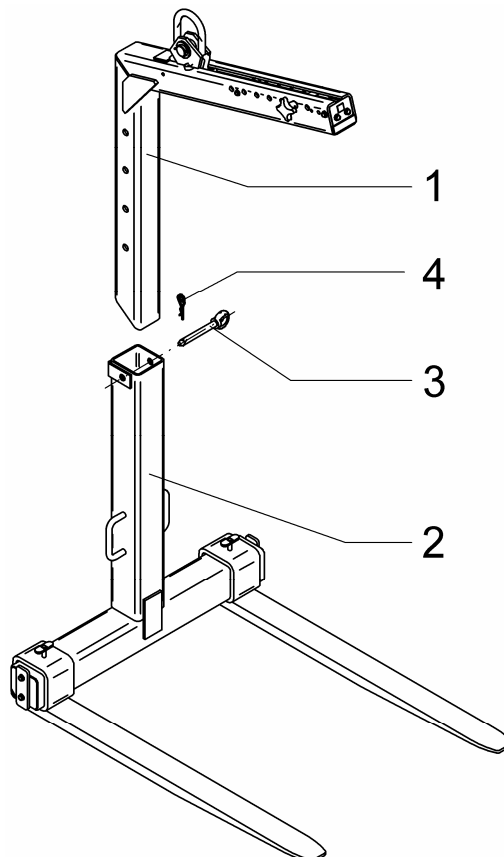
Using it in any other way is not suitable.

Operating authority is liable for any danger and damages resulting in the misuse of this equipment.

3. Assembly instructions

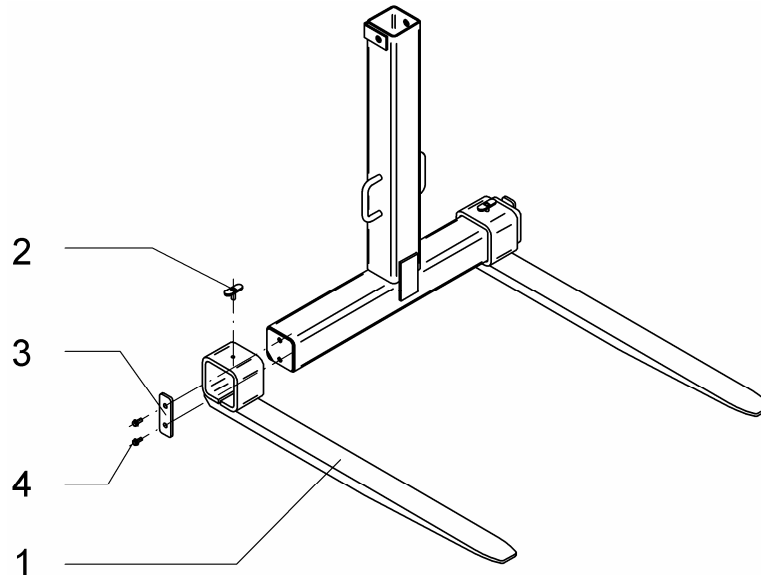
3.1 Connecting upper and lower parts

Push upper part (1) into cage of lower part (2) and locate in the desired position with handle pin (3). Secure the locating pin (3) with retaining pin (4).



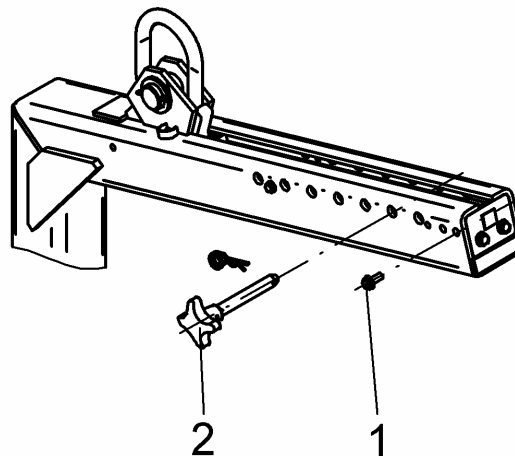
3.2 Lower section - changing fork prongs

Remove socket head cap screws (4) and plate (3), detach the prong fixing (2) and take off the prong (1).



3.3 Upper part - Changing springs, spring guide, slide, cover plate and sliding rails

Remove four hexagon screws (1) and pin (2).



Pull complete spring guide (4) forwards out of upper part (3) .

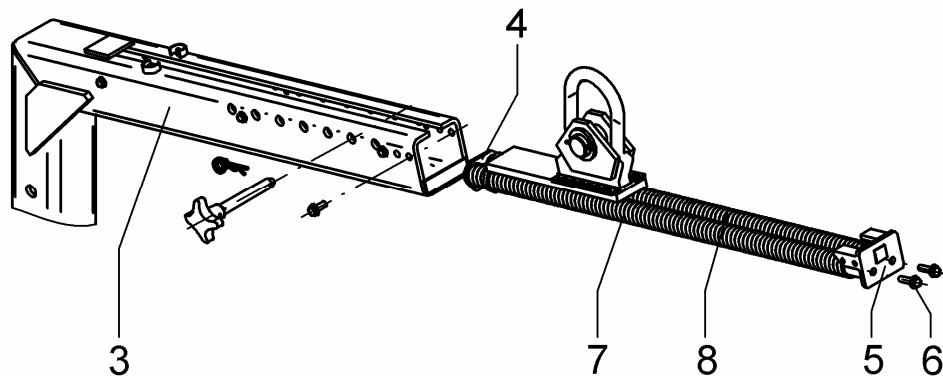
Slacken off the two hexagon screws (6) on the cover plate (5) .

Squeeze together the first spring (7) on the cover plate (5) (maintain preload).

Remove corresponding hexagon screw (6) .

Swing cover plate (5) to one side. Relieve pressure on spring.

Remove second spring (8) in the same way.



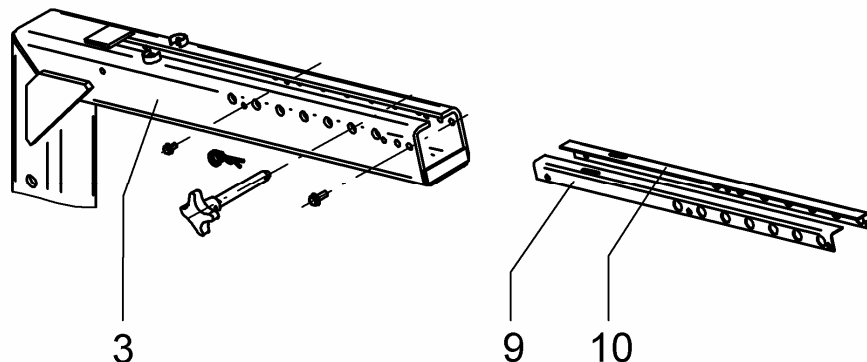
WARNING !!

Always relieve pressure on springs slowly and one at a time to avoid risk of injury !!

Remove sliding rails (9 and 10) .

Install in the reverse order.

For load capacities above 2000 kg / 4400 lbs, a second person is needed to relieve the load on the spring slowly.



3.4 Installations for installation

3.4.1 Fitting to crane

The crane fork can be connected to the crane by means of a suitable suspending element via the crane hook or rotator .

The connection to the crane must always be of a universal joint type.

If the rotator or unit are prevented from hanging freely, impermissibly high forces could.

3.4.2 Safety notes for operation

To ensure that the load is raised safely, the point of suspension must be above or ahead of the load's centre of gravity.

When the load is raised, the fork arms must be horizontal or pointing slightly upwards.

The position of the point of the lifting ring (to find the CofG) depends on the load and is altered by horizontal adjustment of the crane arm.

The maximum stated load capacities may not be exceeded

The maximum load capacities apply when the centre of gravity is at a distance **600mm / 23,6"**.

Outside the area near the ground (lifting height of 1.8 m), the crane fork may only be used with the load-securing equipment available.

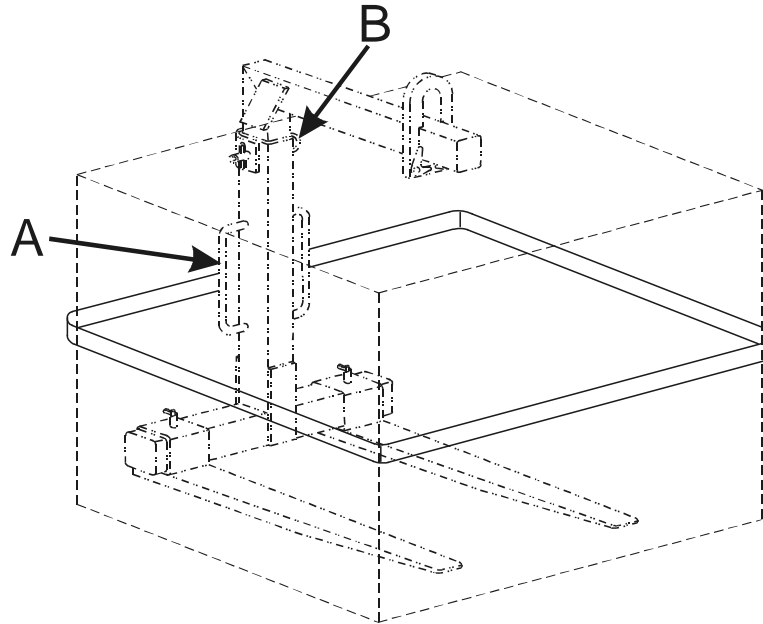


For individual loads (bundled or palleted loads), a securing strap or chain is absolutely mandatory, and for loose goods a form-fitting holding device (cage or net).

See EN 13155, sections 5.2.2.3 and 5.2.5.5!

Any use at building sites without securing the load is not in compliance with the intended use.

As points of attachment the handle (A) or the ring bolt (B) may be used depending on the height of the load.



3.5 Transporting the crane fork

When the vehicle is in transit, the crane fork must be set down on the vehicle in such a way that it cannot swing out in an uncontrolled manner.

Prevent the crane boom from causing any extreme centrifugal or compression forces.

4. Maintenance, repair

4.1 General notes

Thorough regular maintenance is essential if the „down“ time of the Crane fork is to be kept as low as possible, and to prolong its life.

Strict cleanliness must be observed in all maintenance operations.

4.2 Oil and Grease

Grease

Esso Cazar K2

Any multi-purpose high-melting-point lithium-based grease of consistency category 2 in accordance with DIN 51818.

4.3 Maintenance intervals

Maintenance operation	50 operating hours	yearly
Check screw connections, tighten if necessary	X	
Lubricate grease nipples	X	
Lubricate the threaded spindles for prong adjustment	X	
Check for cracks, wear, corrosion and functional safety (to be carried out by approved specialist)		X

5. Troubleshooting chart

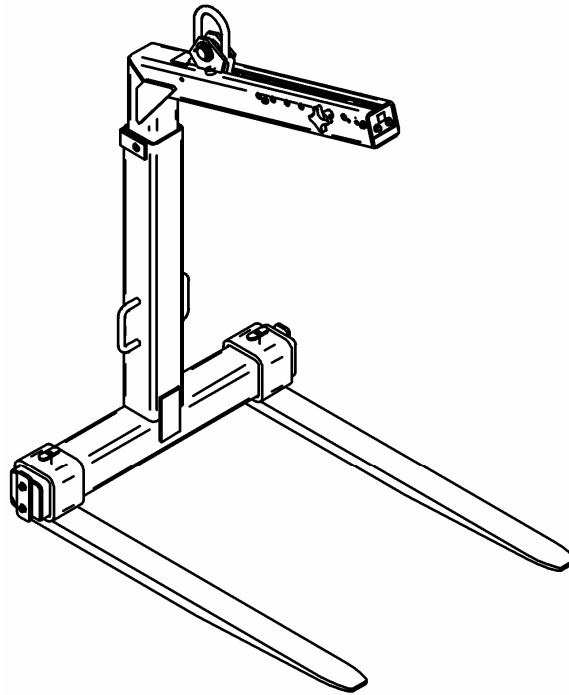
Malfunction	Cause	Remedy
Crane fork doesn't hang horizontal after heaving the load	Wrong position of suspension (eye)	Adjust position accordingly
Automatic load balnce does not move forward after load has been raised	Sliding strip worn or not greased Carriage jams as a result of deformation of upper part or carriage Minimum load of approx. 500 kg (1100 lbs) not achieved	Change sliding strip or lubricate Repair or fit new parts Use another type of crane fork

KINSHOFER

**Spare parts list
Liste des pièces de rechange
Ersatzteil-Katalog**

for / pour / für

**Krangabel / Crane fork / Fourche pour grue
KM 420**



Manufacturer / Constructeur / Hersteller

KINSHOFER GMBH

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6. Spare parts list and drawing

General

This spare part list has been prepared as a guide for exact ordering of spare parts for Kinshofer loaders

The Kinshofer parts manual includes all „on-stock“ - available spare parts.

The list pages (corresponding to the picture charts) include all information necessary for ordering description and storing.

Structure

Pos. Item Repère	Stück Qty. Nbre.	Bezeichnung	Description	Désignation		Bestell-Nr. Order-no. Pièce N°
1	2	3	4	5	6	7

- In column 1 appears the position number of the listed parts
- In column 2 quantity of the listed parts
- In column 3 description of the parts (German)
- In column 4 description of the parts (English)
- In column 5 description of the parts (French)
- In column 6 dimensions of the parts
- In column 7 order number of the parts


Order-conditions

When ordering spare parts please quote order number, quantity and serial number (see type plate)of the attachment.

Kinshofer attachments can be indentified by stamped serial number in body.

Information about position of serial number please find on page 2 (see dimensions, operating instructions).

Type plate

KINSHOFER						
North America						
Year	<input type="text"/>	Model	<input type="text"/>	Psi min/max	<input type="text"/>	<input type="text"/>
Serial no.	<input type="text"/>	Weight	<input type="text"/>	Capacity	<input type="text"/>	<input type="text"/>
<small>Made in Germany</small>						

Note

For further information and assembly notes please refer to the operating manual supplied with each unit.