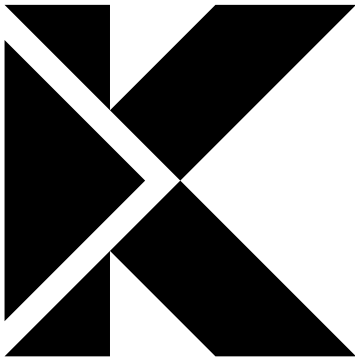




# Attachments for Loader Cranes

General Construction  
Landscaping  
Forestry  
Utilities, Oil and Gas  
Waste Management



**KINSHOFER**  
GROUP COMPANY



**23 companies, 11 brands, more than 4,000 products**

The Kinshofer Group is one of the world's leading designers and manufacturers of attachments for construction machinery, such as excavator, backhoe loader, skidsteer loaders, knuckle boom cranes and forklift trucks. The Kinshofer Group is a One-Stop-Attachment-Shop to our customers around the globe.

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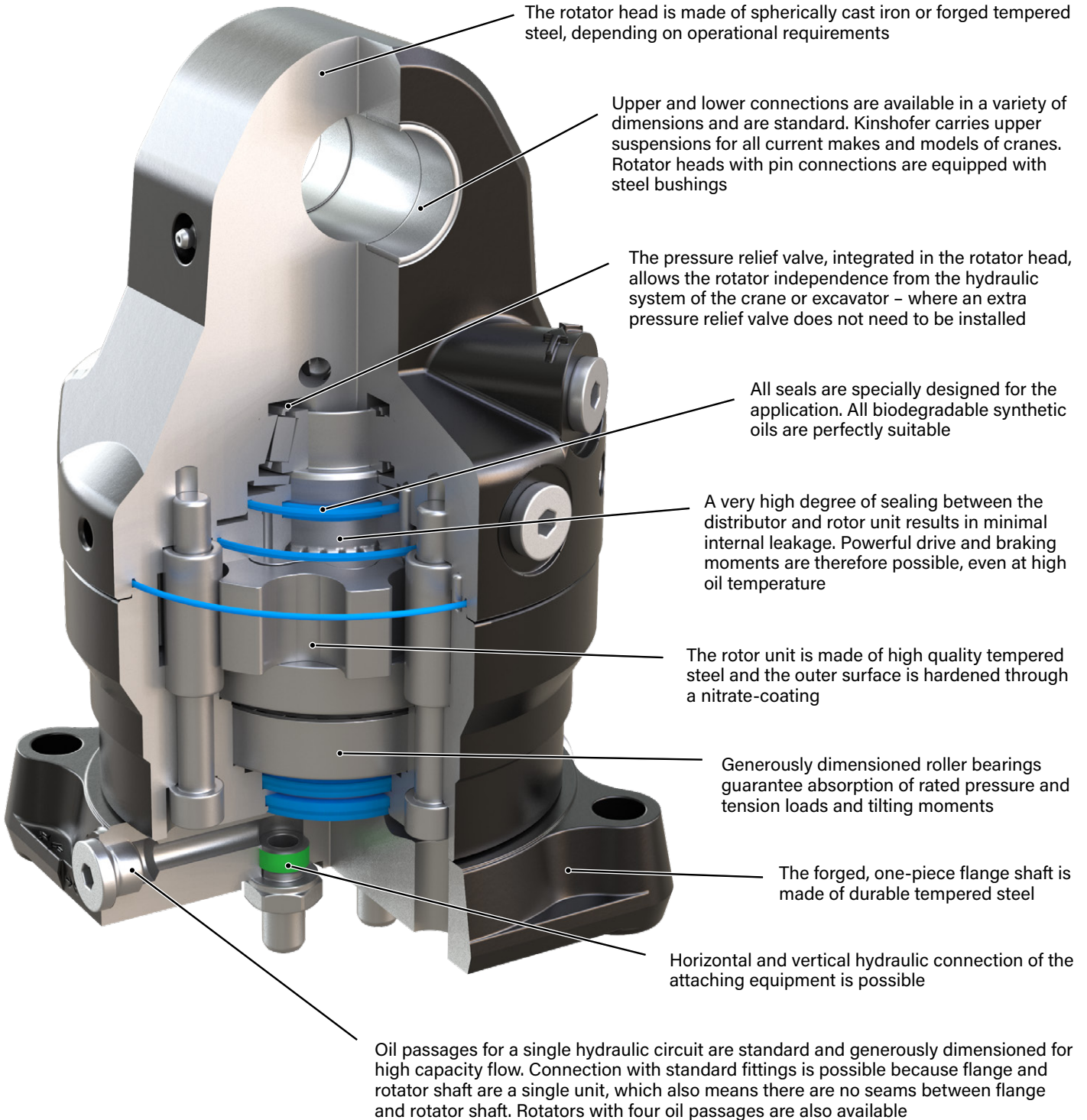
# KINSHOFER Rotator Line

**KINSHOFER** manufactures rotators for truck loaders, excavators and logging operations. Years of experience in designing rotators and hydraulic load handling equipment guarantee high efficiency, long lasting rotators, specially tailored to meet your requirements. The gear-type design ensures a very compact and powerful rotator. The precision control and braking ability is especially appreciated by operators. A grapple does not rotate unexpectedly when digging, even under maximum load and there is no need for stability compensation when handling longer lengths of timber... these are only some of the many working situations where operators appreciate the advantages of using **KINSHOFER** rotators.

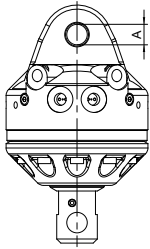
**KINSHOFER**-Rotators are the solution.



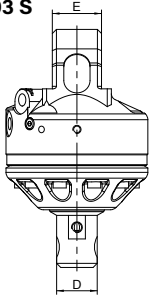
## Features of the **KINSHOFER**-Rotators



## Gear type rotator with shaft up to 6,600 lbs load capacity (incl. fittings)



KM 03 S



**Type**

**KM 03 S\***

Load capacity (lbs)	Shaft Ø D (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
6,600	1.95	2.36 x 0.98	332	1,290	53

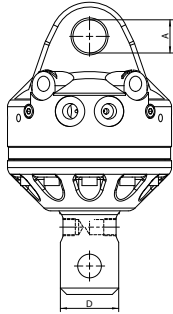
\* only for pallet forks

**Operating pressure rotate:** max. 5,350 psi  
**Oil flow rotate:** max. 10.5 GPM  
**Oil flow feedthrough:** 20.0 GPM  
**Hydraulic coupling in:** G 3/8"  
**Hydraulic coupling out:** G 1/4"

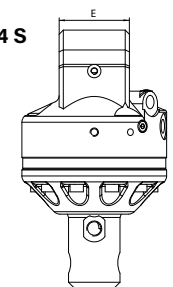


KM 03 S

## Gear type rotator with shaft up to 9,900 lbs load capacity (incl. fittings)



KM 04 S



**Type**

**KM 04 S59-30**  
**KM 04 S**  
**KM 04 S63-30**  
**KM 04 S68-30**  
**KM 04 S68-30US\***  
**KM 04 S69-30**

Load capacity (lbs)	Shaft Ø D (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
9,900	2.32	3.3 x 1.2	627	2,213	57
9,900	2.44	3.3 x 1.2	627	2,213	57
9,900	2.48	3.3 x 1.2	627	2,213	57
9,900	2.68	3.3 x 1.2	627	2,213	57
9,900	2.68	3.3 x 1.2	738	3,318	59
9,900	2.72	3.3 x 1.2	627	2,213	57

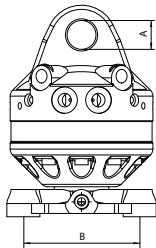
\* steel motor-head

**Operating pressure rotate:** max. 5,350 psi  
**Oil flow rotate:** max. 10.5 GPM  
**Oil flow feedthrough:** 20.0 GPM  
**Hydraulic coupling:** M18 x 1.5

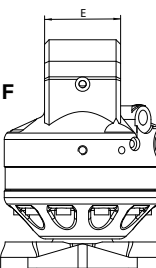


KM 04 S69-30

## Gear type rotator with flange up to 9,900 lbs load capacity (incl. fittings)



KM 04 F



**Type**

**KM 04 F**  
**KM 04 F140-30US\***  
**KM 04 F140-30V\*\***

Load capacity (lbs)	Hole pattern of flange B (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
9,900	□ 5.5	3.3 x 1.2	627	2,213	57
9,900	□ 5.5	3.3 x 1.2	738	6,269	68
9,900	□ 5.5	3.3 x 1.2	627	2,213	57

\* steel motor-head  
 \*\* additional vertical connection

**Operating pressure rotate:** max. 5,350 psi  
**Oil flow rotate:** max. 10.5 GPM  
**Oil flow feedthrough:** 20.0 GPM  
**Hydraulic coupling:** M18 x 1.5



KM 04 F



KM 04 F140-30US

## Gear type rotator with shaft up to 13,200 lbs load capacity (incl. fittings)

Type	Load capacity (lbs)	Shaft Ø D (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
KM 06 S68-40	13,200	2.68	3.3 x 1.6	738	3,318	71



**Operating pressure rotate:** max. 4,640 psi  
**Oil flow rotate:** max. 10.5 GPM  
**Oil flow feedthrough:** max. 20.0 GPM  
**Hydraulic coupling in:** G 1/2"  
**Hydraulic coupling out:** M18 x 1.5

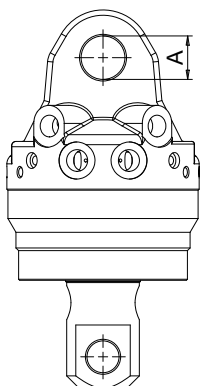
## Gear type rotator with flange up to 13,200 lbs load capacity (incl. fittings)

Type	Load capacity (lbs)	Hole pattern of flange B (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
KM 06 F140-40	13,200	□ 5.5	3.3 x 1.6	738	6,269	75

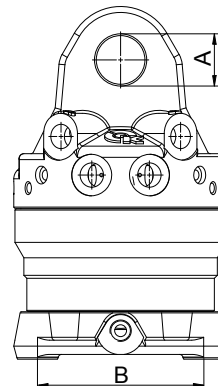
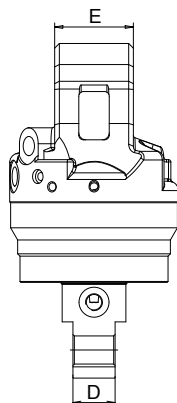


**Operating pressure rotate:** max. 4,640 psi  
**Oil flow rotate:** max. 10.5 GPM  
**Oil flow feedthrough:** max. 20.0 GPM  
**Hydraulic coupling in:** G 1/2"  
**Hydraulic coupling out:** M18 x 1.5

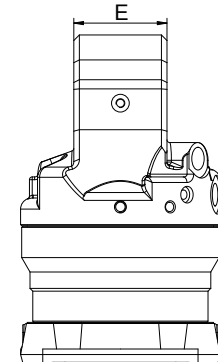
## Technical drawings



KM 06 S68-40



KM 06 F140-40



## Gear type rotator with flange and 4 oil ducts to operate 2 different functions (incl. fittings)

Type	Load capacity (lbs)	Hole pattern of flange B (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Hydraulic couplings	Moment of deflection max. (ft.lbs)	Self weight (lbs)
KM 04 F140-30-4	9,900	□ 5.5	3.3 x 1.2	629	M 18 x 1.5	2,213	88
KM 06 F173-35-4	13,200	Ø 6.8	3.2 x 1.4	738	G 1/2"	6,269	99
KM 10 F173-35/2-4	22,000	Ø 6.8	3.2 x 1.4	1475	G 1/2" & G 3/4"	8,850	159

<b>Operating pressure rotate:</b>	<b>KM 04 F</b> max. 5,350 psi	<b>KM 06 F</b> max. 4,640 psi	<b>KM 10 F</b> max. 4,640 psi
<b>Oil flow rotate:</b>	max. 10.5 GPM	max. 10.5 GPM	max. 20.0 GPM
<b>Oil flow feedthrough:</b>	max. 20.0 GPM	max. 20.0 GPM	max. 20.0 GPM



KM 06 F173-35-4

## Gear type rotator with flange for logging (incl. hose guard and fittings)

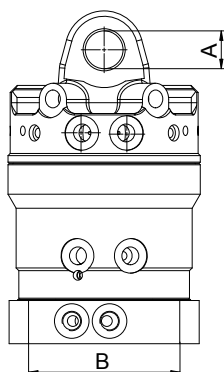
Type	Load capacity (lbs)	Hole pattern of flange B (in)	Upper connection (width E x pin-Ø A) (in)	Torque (ft.lbs)	Moment of deflection max. (ft.lbs)	Self weight (lbs)
KM 06 F173-35	13,200	Ø 6.8	3.2 x 1.4	738	6,269	75
KM 10 F173-35/1	22,000	Ø 6.8	3.2 x 1.4	1,475	8,850	136
KM 10 F173-35/2	22,000	Ø 6.8	3.2 x 1.4	1,475	8,850	143
KM 10 F173-45	22,000	Ø 6.8	3.9 x 1.8	1,475	8,850	150

<b>Operating pressure rotate:</b>	<b>KM 06 F</b> max. 4,640 psi	<b>KM 10 F</b> max. 4,640 psi
<b>Oil flow rotate:</b>	max. 10.5 GPM	max. 20.0 GPM
<b>Oil flow feedthrough:</b>	max. 20.0 GPM	max. 20.0 GPM
<b>Hydraulic coupling:</b>	G 1/2"	G 1/2"

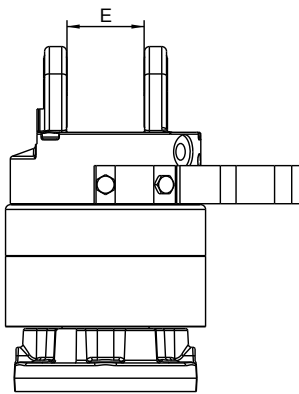
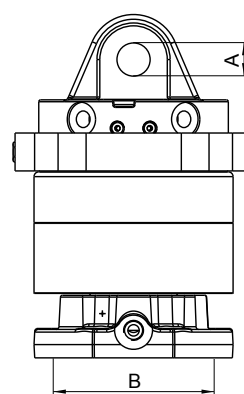
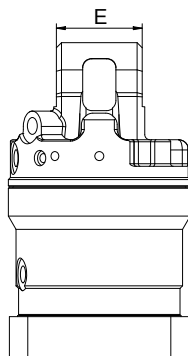


KM 10 F173-45

## Technical drawings



KM 04 F140-30-4



KM 10 F173-35/1

## KM 501 - Upper suspension between rotator and crane



An upper suspension is a cardan link between rotator and crane. It is available for all current makes and models of cranes. Please specify dimensions when ordering.

Type	Load capacity (lbs)	Self weight (approx. lbs)
KM 501 3000	up to 6,600	11
KM 501 4500	up to 9,900	22
KM 501 6000	up to 13,200	33
KM 501 10000	up to 22,000	55

## KM 511 - Upper suspension with pendulum damper between rotator and crane



A pendulum damper reduces the horizontal swing of the attachment. It can also be retrofitted to an existing upper suspension.

Type	Load capacity (lbs)	Self weight (approx. lbs)
KM 511 4500	up to 9,900	33
KM 511 6000	up to 13,200	44
KM 511 10000	up to 22,000	66

## KM 206 - Hose guard



The hose guard is a metal bow to be attached onto the rotator. It is designed to protect the hoses of the rotator from damage i.e. from protruding branches

Type	Self weight (approx. lbs)
KM 206 hose guard for the rotator	7

## KM 502 - Reduction link between rotator and grapple



A reduction link adapts a shaft type rotator to an attachment with a standard hole pattern for a flange.

Type	Load capacity (lbs)	Self weight (approx. lbs)
KM 502 3000	up to 6,600	4
KM 502 4500	up to 9,900	7
KM 502 6000	up to 13,200	9

## Accessories for attaching pallet forks etc.



KM 460 03

Type	Description	Type of rotator	Weight (approx. lbs)
KM 460 03 KM 03 S	rigid suspension link with pin for all	KM 03	18
KM 460 03 KM 04 S	KINSHOFER shaft-type rotators	KM 04	22
KM 460 08 KM 03 S	rigid hook for all	KM 03	18
KM 460 08 KM 04 S	KINSHOFER shaft rotators	KM 04	20
KM 460 04 KM 04 S	non-rotating swinging hook for all	KM 04	26
KM 460 04 KM 06 S	KINSHOFER shaft rotators	KM 06	33
KM 460 10	non-rotating swinging hook for all KINSHOFER flange rotators	KM 10 F173 (KM 04 to KM 10)	55



KM 460 04



## KM 505 - Quick change system for shaft-type rotators up to 8,800 lbs load capacity

The quick change system enables an easy exchange between different attachments. The mechanical coupling and locking is achieved by the turning motion of the rotator. You simply disconnect the quick couplings and disengage the locking device manually. The upper element of the quick change system is available for all KM 04 - shaft rotators. The KM 505 system allows the easy exchange between pallet fork and brick stack grapple for example. Not suitable for heavy duty work.



KM 505 01



KM 505 02



KM 505 03



### KM 505

Type	Description	Hole pattern of flange (in)	Self weight (lbs)
<b>KM 505</b>	complete, incl. hydraulic couplings (KM 204 03)	4 x Ø0.71 / □5.5	27
<b>KM 505 01</b>	upper element fitted to rotator incl. mobile and fixed parts		11
<b>KM 204 01</b>	mobile part of hydraulic quick coupling (2 pieces) for KM 505 01		
<b>KM 505 02</b>	lower element mounted to the attachment	4 x Ø0.71 / □5.5	15
<b>KM 505 03</b>	rigid suspension link with non-rotating hook to connect to the KM 505 01 (e.g. for pallet forks)		15
<b>KM 505 05</b>	distance ring between KM 505 and KM 461 universal fork		11

## KM 505 HD - Heavy duty quick change system for shaft-type rotators

The quick change system enables an easy exchange between different attachments. The mechanical coupling and locking is achieved by the turning motion of the rotator. You simply disconnect the quick couplings and disengage the locking device manually. The upper element of the heavy duty quick change system is available for the KINSHOFER shaft rotators KM 04 S68-30US or KM 06 S68-40. The KM 505 system allows the easy exchange between pallet fork and clamshell bucket for example. Especially developed for the heavy duty task with clamshell buckets.



KM 505 01 HD



KM 505 02 HD



KM 505 03 HD



### KM 505 HD

Type	Description	Hole pattern of flange (in)	Self weight (lbs)
<b>KM 505 HD</b>	complete, incl. hydraulic couplings (KM 204 03)	4 x Ø0.71 / □5.5	40
<b>KM 505 01 HD</b>	upper element HD fitted to rotator incl. mobile and fixed parts		15
<b>KM 204 01</b>	mobile part of hydraulic quick coupling (2 pieces) for KM 505 01 HD		
<b>KM 505 02 HD</b>	lower element HD mounted onto attachment	4 x Ø0.71 / □5.5	24
<b>KM 505 03 HD</b>	rigid suspension link with non-rotating hook to connect to the KM 505 01 HD (e.g. for pallet forks)		31
<b>KM 505 05</b>	distance ring between KM 505 HD and KM 461 universal fork		11

## KM 507 HD - Heavy duty quick change system for Z-cranes and flange-type rotators

The KM 507HD has been developed especially for heavy duty tasks with Z-cranes in combination with timber grabs, orange peel grabs and clamshell buckets.

The quick change device provides for an economic exchange between different attachments. The mechanical coupling and locking is achieved by the crane movement. As soon as the quick change device upper part has been positioned in the lower part, the system is closed automatically.

To unlock, the operator only has to open the locking device of the quick change system with the opening lever and then lift the crane to leave the lower part.

The upper part of the quick change device KM 507 HD has been designed for flange rotators with hole patterns 4 x 5.5 in or 6 x 6.8 in and can be mounted easily.

The exchange between a timber grab and a clamshell bucket, for example, can be realized fast and easy.

- ▷ Axial load capacity max. 22,000 lbs - also suitable for 10t-rotators.
- ▷ Extremely light and flat construction.
- ▷ Additional protection against unintended unlocking thanks to automatic safety locking.
- ▷ Easily retrofittable system to existing components because it is purely mechanical.
- ▷ No preparation required on the crane.



### KM 507 HD

Type	Description	Hole pattern of flange (in)	Self weight (lbs)
KM 507 HD	complete incl. HD upper and lower part with hydraulic couplings (KM 204 03)	4 x Ø0.71 / □5.5 6 x Ø0.71 / Ø6.8	59
KM 507 01 HD	upper element fitted to flange rotator incl. mobile and fixed parts	4 x M16 / □5.5 6 x M16 / Ø6.8	31
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)		
KM 507 02 HD	lower part HD to be mounted on attachment	4 x Ø0.71 / □5.5 6 x Ø0.71 / Ø6.8	29
KM 507 03 HD	lower part with load hook (load capacity 13,200 lbs )		29



KM 507 01 HD



KM 507 02 HD



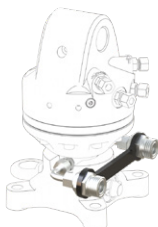
KM 507 03 HD

### KM 203 - connecting hoses & KM 204 - hydraulic quick change kit for hoses



KM 203 01

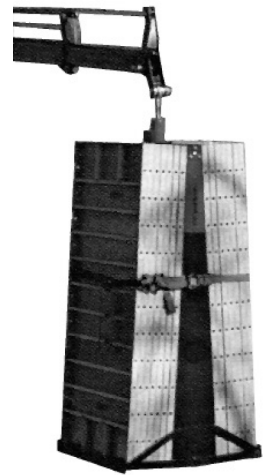
Type	Description
KM 203 01	short connecting hoses between rotator and attachment with standard fittings M 18 x 1.5 (2 pieces)
KM 203 03	long connecting hoses between rotator and crane - please specify dimensions (4 pieces)



KM 204 03

KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)
KM 204 03	hydraulic quick change kit incl. mobile and fixed parts (2 pieces each) mounted with adapters to rotator

A simple, innovative and dependable system for changing lift connections. Consisting of two pieces - the Kwikbel™, which is welded onto a "target" (form basket, skid steer or gas bottle rack) and the Striker, which hangs from a hook.



- ▷ **Fast** - exchange attachments quickly as the self aligning Kwikbel™/Striker system needs no mechanical or hydraulical adjustments.
- ▷ **Economical** - the Kwikbel™/Striker system can be handled by the operator alone and no rotator hydraulics are necessary.
- ▷ **Safe** - direct contact with loads is eliminated which reduces finger pinch points; color coding allows operator to see work when fully extended.
- ▷ **Reliable** - sealed roller thrust bearing for free turning action.
- ▷ The Kwikbel™/Striker is suitable for loads up to 6,500 lbs.

### Form crane tool KM 507

Type	Description	Load capacity (lbs)	Self weight (lbs)
KM 507 01	Kwikbel™ - welded onto a 'target' (form basket, skid steer or gas bottle rack)	6,500	12
KM 507 02	Striker - hangs from a non rotating hook	6,500	7

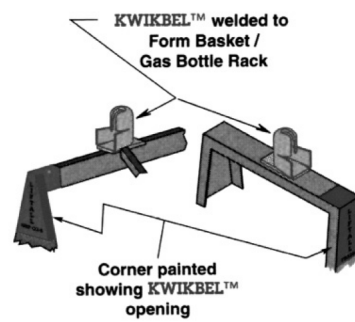
### Technical details



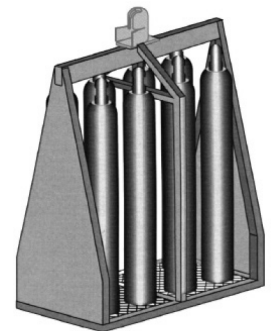
Kwikbel™



Striker



Painted corner showing Kwikbel™ opening

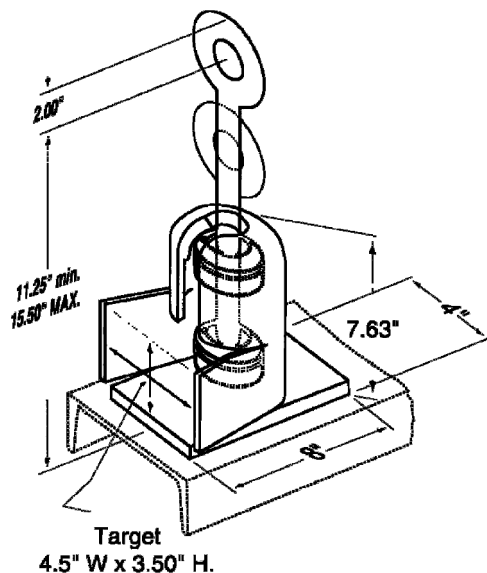


Kwikbel™ application at gas bottle rack

### Accessories

Type	Description	Self weight (lbs)
KM 460 04 KM 04 S	non rotating hook	26

### Technical drawings



The technically unique KM 332 brick stack grapple is a versatile tool for palletized and non-palletized materials.

- ▷ **Rigid or adjustable plunge depth** of parallel opening and closing clamping arms, hydraulically operated.
- ▷ **Versatile tool** with opening range of 16 to 55in i.e. for handling of single concrete products like curbstones, or handling of brick packs.
- ▷ **Handling of heavy loads** with reinforced version **KM 333**.
- ▷ **Adjustable plunge depth** of **KM 332V** and **KM 333V** can match the size of the stack-easy adaption with a mechanical latch.
- ▷ **Precise synchronisation of the arms** as a result of two in series double acting hydraulic cylinders.
- ▷ **Safety** through internal pressure relief valve (independent from crane pressure) and non-return valve (safe clamping force at pressure drop).
- ▷ **Long life** due to large bearings, integrated grease reservoir, automatic wear compensation of main bearing, spherical central bearing for the cylinders.
- ▷ **Easy to use** with durable and replaceable rubber inserts - easy to operate between the stacks.



**KM 332V**

Package brick stack grapple KM 332V-1100 c					
Type	Plunge depth	Load capacity at min./max. plunge depth	Gripping A min./max.	Height	Self weight
	(in)	(lbs)	(in)	(in)	(lbs)
<b>KM 332V-1100 c</b>	43 - 65	4,180 / 2,970	16 - 55	60 - 81	781

**Package consists of:** brick stack grapple, rotator KM 04 F, short connecting hoses KM 203 01 (rotator to grapple), upper suspension KM 501 4500, compression rails KM 381 29 1000 (length 39.4 in), pressure relief valve, non-return valve

**Please note:** - the load capacity listed in the table depends on the load (the surface conditions, the size of individual stones, stack size and kind of bundling) - the capacity listed does not apply to stacks of low-profile and unbundled items.

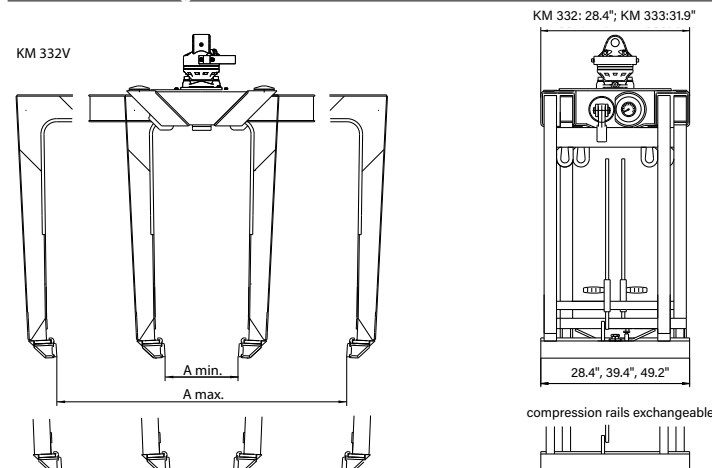
Brick stack grapple KM 332/333						
Type	Plunge depth	Load capacity at min./max. plunge depth	Gripping A min./max.	Height (w/o rotator)	Self weight (w/o compression rails)	
	(in)	(lbs)	(in)	(in)	(lbs)	(lbs)
<b>KM 332-850</b>	34	4,840	16 - 55	42	539	
<b>KM 332-1000</b>	39	4,400	16 - 55	48	561	
<b>KM 332-1300</b>	51	3,520	16 - 55	60	583	
<b>KM 332V-850</b>	34 - 55	4,840 / 3,520	16 - 55	42 - 64	638	
<b>KM 332V-1100</b>	43 - 65	4,180 / 2,970	16 - 55	52 - 73	726	
<b>KM 333-850</b>	34	6,600	16 - 55	43	880	
<b>KM 333-1000</b>	39	5,500	16 - 55	49	913	
<b>KM 333V-1100</b>	43 - 65	5,060 / 3,520	16 - 55	53 - 74	1,078	

**Please note:** - the load capacity listed in the table depends on the load (the surface conditions, the size of individual stones, stack size and kind of bundling). The capacity listed does not apply to stacks of low-profile and unbundled items.  
 - the price does not include the compression rails  
 - wider opening ranges 16 - 71 in are available for - KM 332 - KM 333



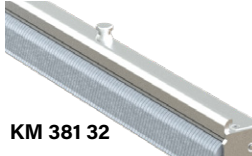

Accessories	
Type	Description
<b>KM 04 F</b>	recommended KINSHOFER rotator for KM 332/333

**Requirements of truck crane**  
**Operating pressure at oil flow:**  
 2,900 - 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings

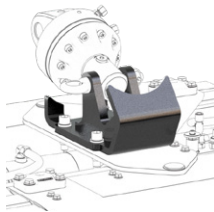
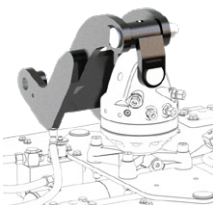



## Compression rails

Type	Description	Length (in)	Weight (lbs)
 KM 381 29	KM 381 29 720	28	37
	KM 381 29 1000	39	53
	KM 381 29 1250	49	62
 KM 381 39	KM 381 39 720	28	53
	KM 381 39 900	35	62
	KM 381 39 1000	39	73
	KM 381 39 1100	43	84
	KM 381 39 1200	47	88
	KM 381 39 1250	49	92
 KM 381 32	KM 381 32 1000	39	136
	KM 381 32 1250	49	167
 KM 381 09	KM 381 09 720	28	37
	KM 381 09 1000	39	51
	KM 381 09 1250	49	62
KM 381 38	adapter for clamping arms to take compression rails KM 381 09		88

**Please note:** additional lengths of compression rails are available on request

## Others

Type	Description	Weight (lbs)
<b>Non-Standard Opening Range:</b> all grapples are available with opening ranges not listed. Call for details		
<b>Non-Standard Plunge Depth:</b> all grapples are available with plunge depth not listed. Call for details		
 KM 381 08	KM 381 08 <b>tilting Device</b> to reduce overall height of the equipment in transport	26
	for shaft rotators for flange rotators	40
 KM 381 18	KM 381 18 <b>height Reduction Link</b> to reduce the overall height of the equipment in transport - for flange rotators	33
 KM 381 31	KM 381 05 <b>height Stop</b> for quick adjustment of plunge depth	18
	KM 381 06 <b>spring Loaded Guide Rails</b> for stabilizing the top layer of the stack	
	KM 381 07 <b>spring Loaded Guide Plates</b> for lateral stabilizing of the stack	
	KM 381 31 <b>adapter for Concrete Pipes</b> with diameters from 31.5 to 53.2 in	132

The robust brick stack grapple KM 331 handles loads up to 4,400 lbs.

- ▷ **Fixed plunge depth** with pivot clamping arms - hydraulically operated.
- ▷ **Versatile tool** with opening range of 1.6 to 59.1 in i.e. for handling of single concrete products like curbstones, or handling of brick packs.
- ▷ **Synchronised function of clamping arms** due to sturdy gear-toothed quadrants.
- ▷ **Safety** through internal pressure relief valve (independent from crane pressure) and non-return valve (safe clamping force at pressure drop).
- ▷ **Reduced overall height** in comparison to the plunge depth due to lower rotator position.
- ▷ **Compression rails** with durable and replaceable rubber inserts.



### Package brick stack grapple KM 331 c

Type	Plunge depth A (in)	Load capacity (lbs)	Gripping min./max. D (in)	Height C (in)	Self weight (lbs)
KM 331-1000 c	39	4,400	8.7 - 55.9	62	693
KM 331-1100 c	43	4,400	6.3 - 57.1	66	704
KM 331-1200 c	47	3,960	3.9 - 58.1	70	715
KM 331-1300 c	51	3,520	1.6 - 59.1	73	726

**Package consists of:** brick stack grapple, KINSHOFER rotator KM 04 F, short connecting hoses KM 203 01 (rotator to grapple), upper suspension KM 501, compression rails KM 381 40 (length 39.4 in), pressure relief valve, non-return valve, KM 685 06 hook set 4

**Please note:**

- the load capacity listed in the table depends on the load (the surface conditions, the size of individual stones, stack size and type of bundling). The capacity listed does not apply to stacks of low-profile and unbundled items.
- full plunge depth is only suitable up to opening range of 43 in (see technical drawings)

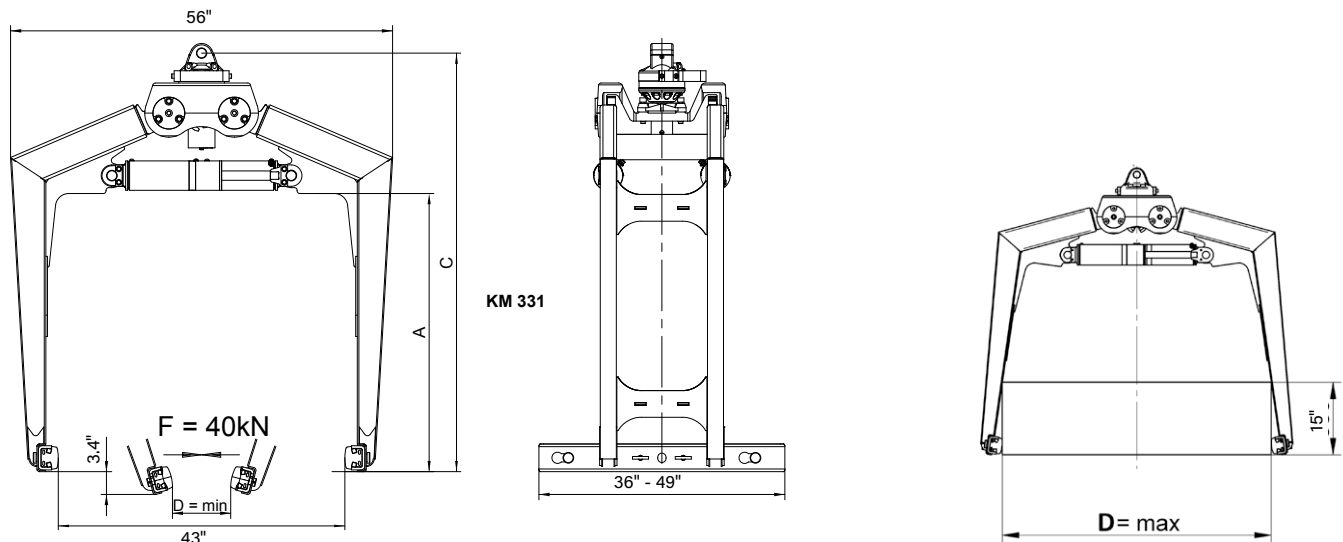
### Accessories

Type	Description	Self weight (lbs)
KM 511 4500	upper suspension with pendulum damper	33
KM 381 40 720	compression rails - 28 in (2 pieces)	64
KM 381 40 920	compression rails - 36 in (2 pieces)	81
KM 381 40 1000	compression rails - 39 in (2 pieces)	88
KM 381 40 1120	compression rails - 43 in (2 pieces)	99
KM 381 40 1250	compression rails - 49 in (2 pieces)	114
KM 381 40 1400	compression rails - 55 in (2 pieces)	128
KM 685 06 hook set 4	lifting hooks with safety latches (4 pieces)	

### Requirements of truck crane

**Operating pressure at oil flow:**  
 2,900 - 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings



A sturdy pallet fork with mechanical center of gravity compensation, the KM 416 can be used on loader cranes for loads up to 6,000 lbs.

- ▷ For **handling palletised and unpalletised loads** of building material or stacked loads of concrete blocks, the KM 416 has a **manually shifting collar** that allows the crane operator to center the pickup trolley over the centre of the load.
- ▷ The **optional adjustable throat** (KM 416 ADJ), available for irregular loads, adjusts from 48 in to 68 in by using a lock pin.
- ▷ The tines **can be spread up to 40 in** and have **lock pins** to secure their positions.
- ▷ **Easy tine adjustment** allows for optimum load distribution.



### Pallet fork KM 416

Type	Load capacity (lbs)	Throat height A (in)	Tine length (in)	Tine spread Z (in)	Tine dimensions (width x height) (in)	Number of tines	Centre of gravity (in)	Self weight (lbs)
KM 416 - style A	6,000	48 - 68	46	40	4 x 1.5	2	24	490
KM 416 - style B	6,000	48 - 68	47	40	2 x 1.5	6	24	530
KM 416 - style C	6,000	48 - 68	46	40	4 x 1.5	2	24	515
KM 416 - style D	4,500	48 - 68	46	40	4 x 1.25	2	24	475

**Please note:**

- additional tine spreads, throats, load capacities on request
- different styles of tines see p.19 „Different Styles of Manually Adjustable Tines“
- for safer handling of loads in higher elevation a protection trellis or protection chain should be used

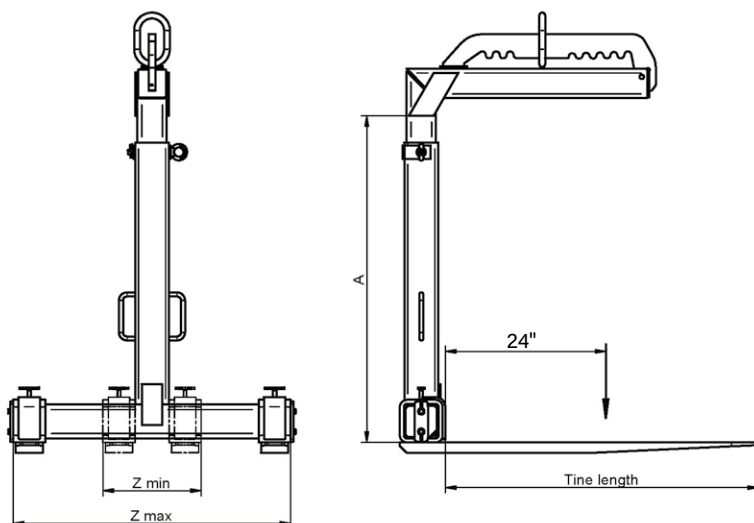
### Tine styles

Type	Description	Number of tines	Tine width (in)	Tine height (in)	Tine length (in)	Load capacity (lbs)
A	Standard	2	4	1.50	46	6,000
B	Block	6	2	1.50	47	6,000
C	Offset	2	4	1.50	46	6,000
D	Roofers	2	4	1.25	46	4,500

### Accessories

Type	Description
KM 460 01	protection chain for loads up to 4,400 lbs for securing loads like shrink wrapped stone stacks to be lifted high above ground
KM 460 02	backstop for supporting unbalanced loads
KM 04 S	shaft rotator for controlling the rotation and placement of load
KM 460 03	rigid suspension link with pin - for rotators up to 9900 lbs capacity
KM 460 04	non rotating hook - for rotators up to 9,900 lbs capacity

### Technical drawings



The newest in our pallet fork line, the KM 420 incorporates the spring loaded centre of gravity style top arm with the versatility of various lower sections to accommodate your needs.

Handling loads up to 6,000 lbs, the pallet fork is for use with loader cranes.

- ▷ For **handling palletized and unpalletized loads** of building material or stacked loads of concrete blocks.
- ▷ **Efficient handling of different loads** saves time and money due to self shifting slide in the top arm.
- ▷ **Travel can be preset** depending on centre of gravity of load to be picked up.
- ▷ **Compression springs** return slide to its original position after load is removed.
- ▷ **Throat height is easily adjusted** from 48 in to 90 in by lock pin.
- ▷ Tine spread can also be adapted **up to 40 in by lock pins**.
- ▷ **Easy tine adjustment** allows optimum load distribution.



**Pallet fork KM 420**

Type	Load capacity (lbs)	Throat height A (in)	Tine length (in)	Tine spread Z max (in)	Tine dimensions (width x height) (in)	Number of tines	Center of gravity (in)	Self weight (lbs)
KM 420-4840-6000 - style A	6,000	48 - 68	46	40	4 x 1.5	2	24	445
KM 420-6040-6000 - style A	6,000	60 - 90	46	40	4 x 1.5	2	24	480
KM 420-4840-6000 - style B	6,000	48 - 68	47	40	2 x 1.5	6	24	540
KM 420-6040-6000 - style B	6,000	60 - 90	47	40	2 x 1.5	6	24	570
KM 420-4840-6000 - style C	6,000	48 - 68	46	40	4 x 1.5	2	24	470
KM 420-6040-6000 - style C	6,000	60 - 90	46	40	4 x 1.5	2	24	505
KM 420-4840-4500 - style D	4,500	48 - 68	46	40	4 x 1.25	2	24	420
KM 420-6040-4500 - style D	4,500	60 - 90	46	40	4 x 1.25	2	24	460

**Please note:**

- automatic compensation of center of gravity functions with a **minimum pack weight of about 1100 lbs.**
- additional tine spreads, throats, load capacities on request
- different styles of tines see p.18 'Different Styles of manually adjustable Tines'
- for safer handling of loads in higher elevation a protection trellis or protection chain should be used

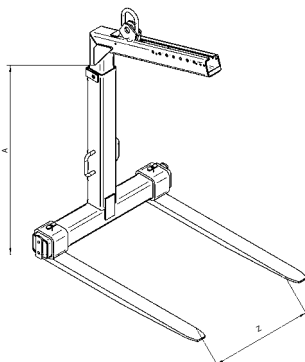
**Tine styles**

Type	Description	Number of tines	Dimensions width (in)	Height (in)	Length (in)	Load capacity (lbs)
A	Standard	2	4	1.50	46	6,000
B	Block	6	2	1.50	47	6,000
C	Offset	2	4	1.50	46	6,000
D	Roofers	2	4	1.25	46	4,500

**Accessories**

Type	Description
KM 460 01	protection chain for loads up to 4,400 lbs for securing loads like shrink wrapped stone stacks to be lifted high above ground
KM 460 02	backstop for supporting unbalanced loads
KM 04 S	shaft rotator for controlling the rotation and placement of load
KM 460 03	rigid suspension link with pin – for rotators up to 9,900 lbs capacity
KM 460 04	non rotating hook – for rotators up to 9,900 lbs capacity
KM 04 F	flange rotator for controlling the rotation and placement of the load
	flange adapter for KM 04 F

**Technical drawings**





# Accessories for Pallet Forks

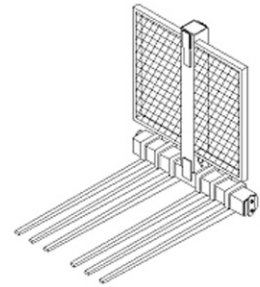
## KM 460 01 - Protection chain

For safer handling of loads as stone stacks (shrink wrapped) in higher elevation - max. capacity of 4,400 lbs. Hooks on the crane fork are necessary for the use of protection chain.

Type	Length (in)	Self weight (lbs)
KM 460 01	20	9

## Backstop

Type	Description
KM 460 02	A backstop can be welded to the throat of a pallet fork as support for unbalanced loads



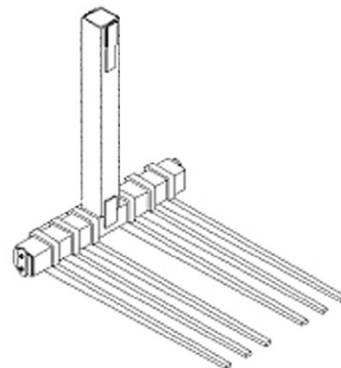
# Different Styles of Manually Adjustable Tines

Depending on the requirements of the pallet fork there are different styles of manually adjustable tines.

Type	Description	Number of tines	Dimensions width (in)	Height (in)
A	Standard	2	4	1.50
B	Block	6	2	1.50
C	Offset	2	4	1.50
D	Roofers	2	4	1.25



**Type C:**  
offset tines make it easier to slide out of the pallet especially on rough terrain



**Type B:**  
block tines for wrapped blocks without pallet

**Note: "Stub tines" with an active length of 39 in are available on request**

## Wallboard fork for loader cranes - load capacity up to 6,000 lbs.

- ▷ The universal fork is a **safe and efficient** method for delivering sheets of building materials.
- ▷ The tilt cylinder and KINSHOFER rotator ensure **accurate positioning**.
- ▷ Using a hinged lower section, **sheets of wallboard can be lifted and folded into a vertical position and clamped between the tines and frame**, preventing the boards from sliding during handling.
- ▷ **Security is assured** even in case of a drop in pressure due to the SUN™ counterbalance valve that prevents the fork from opening unintentionally.
- ▷ **Semi-tapered forged tines**, equipped with rollers to protect sheets and pads prevent damage during unloading can be adjusted easily and a standard centre slide gives an additional support point for your loads.



### Universal Fork KM 461c

Type	Load capacity (lbs)	Flat lift height	Tine spread	Throat height	Self weight (lbs)
		A (in)	min - max (in)	B (in)	
KM 461-48/63/18 c	6,000	48	25 - 63	18	890
KM 461-48/72/18 c	6,000	48	25 - 72	18	915
KM 461-48/84/18 c	6,000	48	25 - 84	18	925
KM 461-48/63/22 c	6,000	48	25 - 63	22	900
KM 461-48/72/22 c	6,000	48	25 - 72	22	925
KM 461-48/84/22 c	6,000	48	25 - 84	22	935
KM 461-54/63/18 c	6,000	54	25 - 63	18	915
KM 461-54/72/18 c	6,000	54	25 - 72	18	970
KM 461-54/84/18 c	6,000	54	25 - 84	18	980
KM 461-54/63/22 c	6,000	54	25 - 63	22	925
KM 461-54/72/22 c	6,000	54	25 - 72	22	980
KM 461-54/84/22 c	6,000	54	25 - 84	22	990

**Package consists of:** wallboard fork, KINSHOFER rotator KM 04 F140-30US, hoses (rotator to fork), upper suspension KM 501 4500, counterbalance valve

**Please note:** - individual wallboard fork is also available

### Accessories

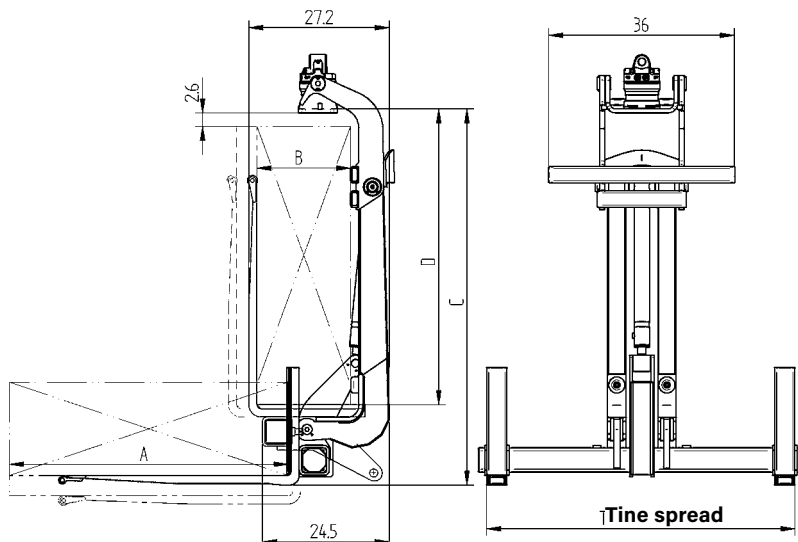
Type	Description
KM 04 S68-30US	shaft rotator
KM 505 HD + KM 505 05	quick change system for shaft rotator KM 04 S68-30US with distance ring
KM 461 08	adjustable backstop

### Requirements of loader crane

**Operating pressure at oil flow:**  
max. 2,350 psi at 6.6 - 20 GPM

**Mind the pressure!**

### Technical drawings



A low-profile universal fork for loader cranes, the KM 461LS handles up to 6,000 lbs.

- ▷ Especially designed for "over-the-cab-storage" where limited space requires a very narrow fork frame and overall width.
- ▷ The **tilt cylinder and KINSHOFER rotator** ensure accurate positioning.
- ▷ Using a hinged lower section, **sheets of wallboard can be lifted and folded into a vertical position** and clamped between the tines and frame, preventing the boards from sliding during handling.
- ▷ **Security is assured** even in case of a drop in pressure due to the SUN™ counterbalance valve that prevents the fork from opening unintentionally.
- ▷ **Semi-tapered forged tines**, equipped with rollers to protect sheets and pads prevent damage during unloading can be adjusted easily and a standard centre slide gives an additional support point for your loads.



## Universal fork KM 461Lc

Type	Load capacity (lbs)	Flat lift height (in)	Tine spread A (in)	Throat height (in)	Self weight (lbs)
KM 461LS-54/63/22 c	6,000	54	25-63	22	835

**Package consists of:** universal fork, KINSHOFER rotator KM 04 S68-30US, hoses (rotator to fork), upper suspension KM 501 4500, counterbalance valve

**Please note:**

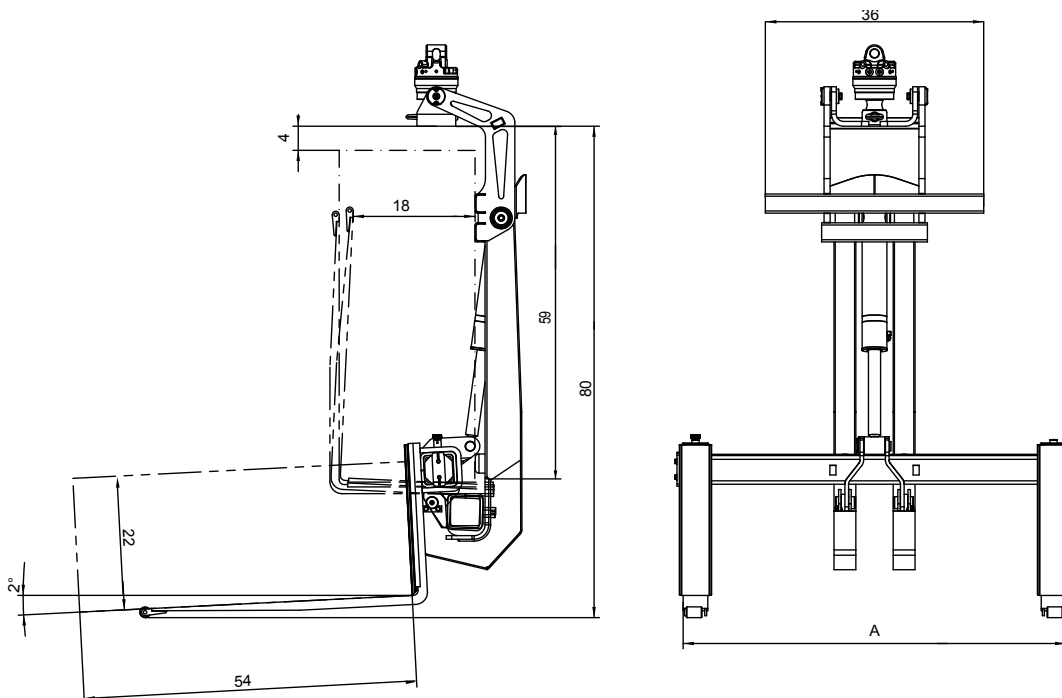
- individual universal fork is also available
- additional dimensions on request
- other bottom bar lengths on request

## Requirements of truck crane

### Operating pressure at oil flow:

max. 2,900 - 3,750 psi at max. 20 GPM  
 max. 2,900 - 5,350 psi at max. 10.5 GPM

## Technical drawings





The hydraulic drive unit **HPXdrive**, characterized by its constant closing force, is optimally suited for daily operations in general construction, civil engineering and landscaping.

In contrast to conventional hydraulic grabs, with the **HPXdrive** the torque is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. The force is delivered to two shafts, on which the shells are mounted.

These advantages of the **HPXdrive** - technology provide an extended service life and higher efficiency.

The compact design of the **HPXdrive** without open greasing points allows for operations in water protection areas, as no lubricant can be washed out.

# HPXdrive

## Setting *THE* Standard for Innovative Grab Technology for more than 15 years!

**VAST LIFESPAN EXTENSION  
COMPARED TO CONVENTIONAL  
CYLINDER GRABS AT EXTREMELY LOW  
COST OF OWNERSHIP**

**CONSTANT CLOSING FORCE  
DURING THE COMPLETE  
CLOSING CYCLE**

**NO PROTRUDING  
COMPONENTS**

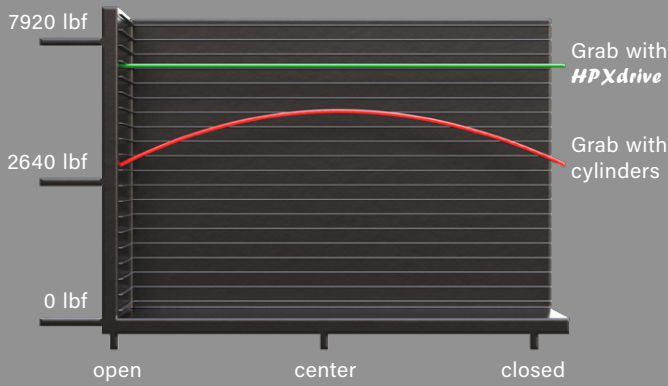
**LOW MAINTENANCE**

**ABSOLUTE SHELL  
SYNCHRONISATION WITHOUT  
COMPENSATION RODS!**

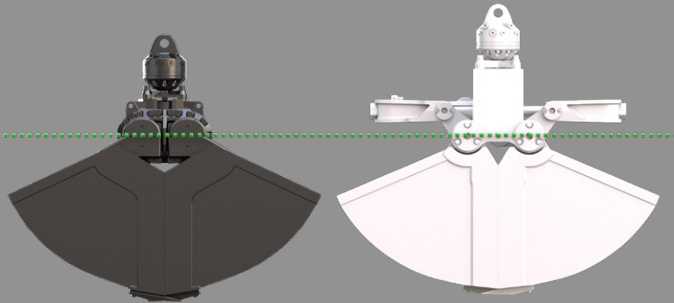
**PRESSURE RELIEF VALVE &  
NON-RETURN VALVE FOR  
SECURE WORKING**



## COMPARISON OF CLOSING FORCES IN kN



## COMPACT DESIGN



HOMEMADE BY KINSHOFER!  
WE DEVELOP AND PRODUCE EVERYTHING  
IN-HOUSE – FROM ROTATOR TO DRIVE UNIT  
AND GRAB!

**NO GREASE POINTS!  
IDEAL FOR WORKS IN WATER  
PROTECTION AREAS AND  
UNDER WATER!**

ROTATOR WITH DIRECT  
CONNECTION TO  
THE **HPXdrive**

OPTIMAL WEIGHT &  
COMPACT DESIGN

The bucket shells are bolted to the shafts and therefore easy to replace by another set. Different types of shells for diverse applications can be refitted onto the driving unit, e.g. clamshell bucket with or without open shells, multi purpose grab and rock and timber grab.

## EASY SHELL EXCHANGE IN LESS THAN 10 MINUTES!



Shells mounted



Loosen 4 bolts  
on each side



Remove connecting pieces one after  
another



**HPXdrive** loosened



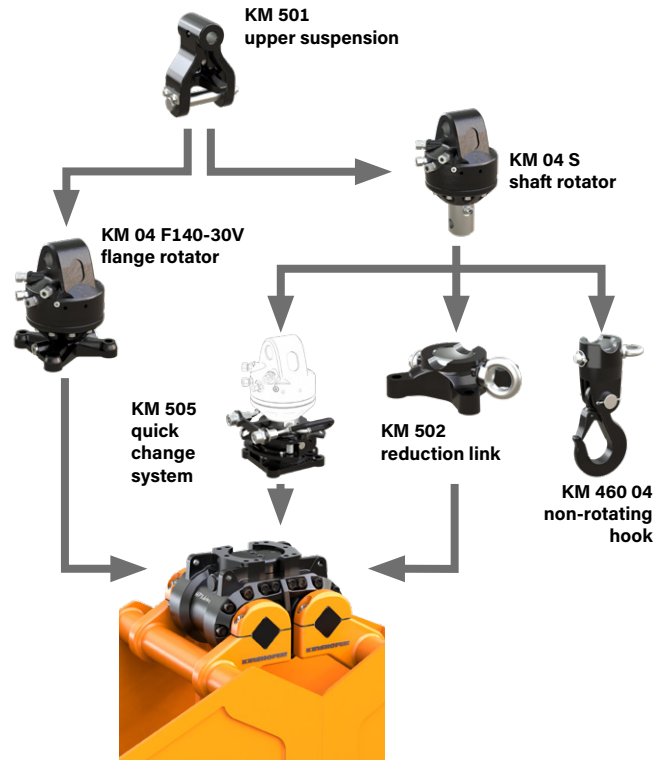
Lift **HPXdrive** for  
exchange of shells

# HPXdrive Standard

# Drive Unit for daily routine jobs

The **HPXdrive Standard** as an allround unit is perfect for the daily routine jobs. The advantages of the **HPXdrive**-technology like the constant high closing force and the compact design, guarantee a long life and reliability.

The standard rotator of the **HPXdrive Standard** is the **KINSHOFER** rotator with flange KM 04 F140-30V. In case a quick change to a non-rotating hook is necessary, the **HPXdrive** can be delivered with the **KINSHOFER** shaft rotator KM 04 S in combination with either the quick change system KM 505 or the reduction link KM 502.



### Technical information **HPXdrive Standard**:

**Torque (at 3770 psi):** 8,850 ft.lbs

**Operating pressure at oil flow:** 3,750 psi at 20 GPM  
2,900 - 5,350 psi at max. 10.5 GPM



### **HPXdrive Standard with flange rotator HPX-SD-04F-30V**

**Package consists of:** upper suspension KM 501 4500, rotator KM 04 F140-30V, drive unit **HPXdrive Standard** with pressure relief valve and non-return valve

**Self weight:** 352 lbs

**Height:** 19 in



### **HPXdrive Standard/502 with shaft rotator and reduction link HPX-SD-502**

**Package consists of:** upper suspension KM 501 4500, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, drive unit **HPXdrive Standard** with pressure relief valve and non-return valve

**Self weight:** 363 lbs

**Height:** 21 in



### **HPXdrive Standard/505 with shaft rotator and quick change system HPX-SD-505**

**Package consists of:** upper suspension KM 501 4500, rotator KM 04 S, quick exchange system KM 505, connecting hoses KM 203 01, drive unit **HPXdrive Standard** with pressure relief valve and non-return valve

**Self weight:** 374 lbs

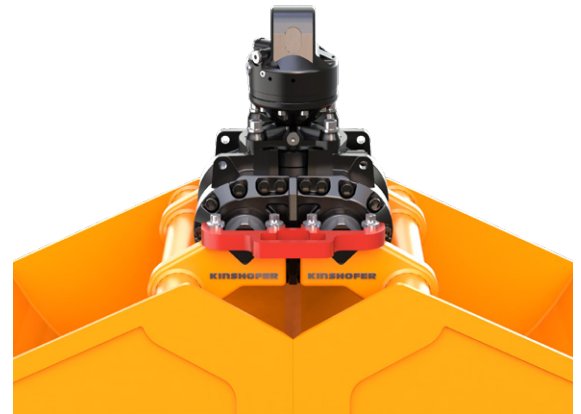
**Height:** 23 in

**Note:** for heavy duty tasks we recommend the quick change system KM 505 HD in combination with KM 04 S68-30US

The drive unit **HPXdrive Standard** can only be used in combination with **KINSHOFER** rotator and shells.

The bucket shells of the *HPXdrive Standard* are bolted to the shafts, and therefore it is very easy to replace them with another set of shells. Different types of shells for different applications can be refitted onto the driving unit, e.g. clamshell bucket, rock grapple, timber grapple, hay and forestry grapple and multi purpose clamshell. Other types of shells are available on request.

The interchangeable shells are delivered with an exchange aid that guarantees the *HPXdrive Standard* can be positioned with ease.



**Package consists of:** exchangeable shells, bolt-on teeth (for KM 604HPX, KM 626HPX), exchange aid kit

Type	Volume (c.y.)	Width (in)	Opening max. (in)	Number of teeth/tines	Self weight (lbs)
<b>Shells for clamshell bucket - KM 604HPX</b>					
KM 604HPX-200S	0.26	16	55	4	286
KM 604HPX-250S	0.33	20	55	4	319
KM 604HPX-325S	0.43	24	55	6	352
KM 604HPX-350S	0.46	26	55	6	363
KM 604HPX-450S	0.59	32	55	6	396



<b>Shells for small clamshell bucket - KM 626HPX</b>					
KM 626HPX-95S	0.12	16	35	4	198
KM 626HPX-100S	0.13	18	35	4	209
KM 626HPX-150S	0.20	24	35	6	264



<b>Shells for clamshell bucket with open shells - KM 604U HPX</b>					
KM 604U HPX-250S	0.33	22	63	-	473
KM 604U HPX-300S	0.39	26	63	-	517
KM 604U HPX-400S	0.52	32	63	-	561
KM 604U HPX-500S	0.65	40	63	-	627



<b>Tines for rock grapple - KM 613HPX</b>					
KM 613HPX-0,16S	0.11 cords	16	48	-	165



<b>Tines for timber grapple - KM 632HPX</b>					
KM 632HPX-0,16S	0.11 cords	16	48	-	165



<b>Tines for hay and forestry grapple - KM 641HPX</b>					
KM 641HPX-0,2S	0.13 cords	26	47	7	209
KM 641HPX-0,4S	0.27 cords	37	67	7	352



The drive unit *HPXdrive Standard* can only be used in combination with **KINSHOFER** rotator and shells.

An allround clamshell bucket using the *HPXdrive Standard* for digging and handling, the KM 604HPX is ideal for the daily routine work. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinder!
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the drive unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (4,180 lbf at 3,750 psi operating pressure) for the entire opening and closing process.



Package clamshell bucket KM 604HPX with <b>KINSHOFER</b> flange rotator								
Type	Volume	Width A	Height	Opening max.	Number of teeth	Self weight	Closing force	Load capacity
	(c.y.)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 604HPX-200 c	0.26	16	40	55	4	638	4,180	6,600
KM 604HPX-250 c	0.33	20	40	55	4	671	4,180	6,600
KM 604HPX-325 c	0.43	24	40	55	6	704	4,180	6,600
KM 604HPX-350 c	0.46	26	40	55	6	715	4,180	6,600
KM 604HPX-450 c	0.59	32	40	55	6	748	4,180	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 F140-30V, upper suspension KM 501 4500, pressure relief valve, non-return valve

**Please note:** – the KM 604HPX is also available with a shaft rotator and quick change system KM 505  
– for heavy duty tasks we recommend to use quick change KM 505 HD with rotator KM 04 S68-30US

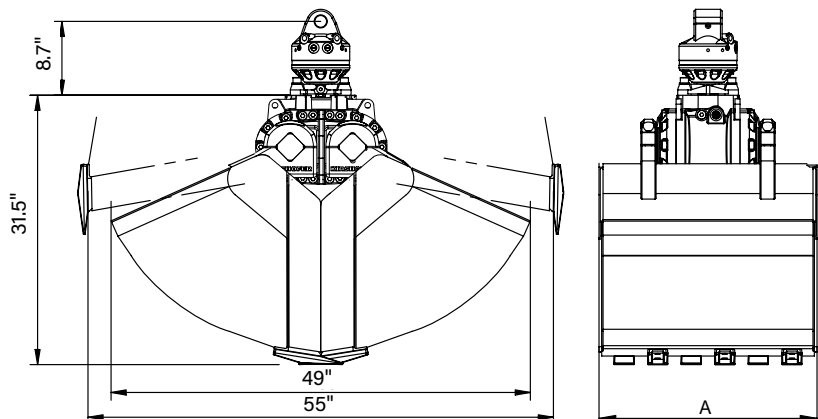
Package clamshell bucket KM 604HPX/502 with <b>KINSHOFER</b> rotator with shaft and reduction link								
Type	Volume	Width A	Height	Opening max.	Number of teeth	Self weight	Closing force	Load capacity
	(c.y.)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 604HPX-200/502 c	0.26	16	42	55	4	649	4,180	6,600
KM 604HPX-250/502 c	0.33	20	42	55	4	682	4,180	6,600
KM 604HPX-325/502 c	0.43	24	42	55	6	715	4,180	6,600
KM 604HPX-350/502 c	0.46	26	42	55	6	726	4,180	6,600
KM 604HPX-450/502 c	0.59	32	42	55	6	759	4,180	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, upper suspension KM 501 4500, pressure relief valve, non-return valve

Accessories	
Type	Description
KM 680 01	scraper
KM 685 05	adapters for compression rails
KM 685 06 HPX SD	central lifting device
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)
KM 685 08	extension for excavating e.g. trenches (for canal and civil engineering) – 18 in (66 lbs)
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane Technical drawings

**Operating pressure at oil flow:**  
3,750 psi at max. 20 GPM  
2,900 - 5,350 psi at max. 10.5 GPM





The KM 626HPX with the *HPXdrive Standard* for digging and handling, is due to its size ideal for small cranes. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinder.
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator** with shaft is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (6,820 lbf at 3,750 psi operating pressure) for the entire opening and closing process.



Package clamshell bucket KM 626HPX with <b>KINSHOFER</b> flange rotator								
Type	Volume	Width A	Height	Opening max.	Number of teeth	Self weight	Closing force	Load capacity
	(c.y.)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 626HPX-95 c	0.12	16	30	35	4	550	6,820	4,400
KM 626HPX-100 c	0.13	18	30	35	4	561	6,820	4,400
KM 626HPX-150 c	0.20	24	30	35	6	616	6,820	4,400

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 F140-30V, upper suspension KM 501 4500, pressure relief valve, non-return valve

**Please note:**  
 – the KM 626HPX is also available with a shaft rotator and quick change system KM 505  
 – for heavy duty tasks we recommend to use quick change KM 505 HD with rotator KM 04 S68-30US

Package clamshell bucket KM 626HPX/502 with <b>KINSHOFER</b> rotator with shaft and reduction link								
Type	Volume	Width A	Height	Opening max.	Number of teeth	Self weight	Closing force	Load capacity
	(c.y.)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 626HPX-95/502 c	0.12	16	32.5	35	4	561	6,820	4,400
KM 626HPX-100/502 c	0.13	18	32.5	35	4	572	6,820	4,400
KM 626HPX-150/502 c	0.20	24	32.5	35	6	627	6,820	4,400

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, upper suspension KM 501 4500, pressure relief valve, non-return valve

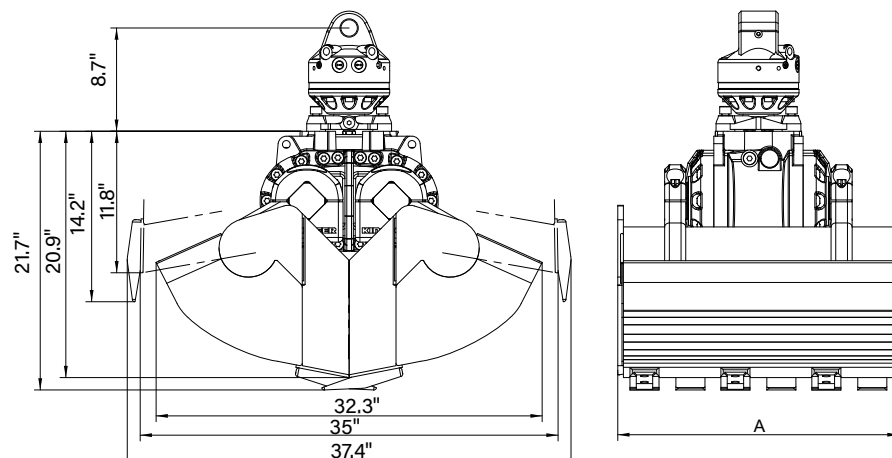
### Accessories

Type	Description
KM 680 02	scraper
KM 685 05	adapters for compression rails
KM 685 06 HPX SD	central lifting device
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings



The KM 613HPX with *HPXdrive Standard* for positioning and handling natural stones, curbstones etc. is an ideal tool for landscaping architecture. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinders.
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the drive unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (3,960 lbf at 3,750 psi operating pressure) for the entire opening and closing process.



Package rock grapple KM 613HPX with <b>KINSHOFER</b> flange rotator							
Type	Capacity (cords)	Width B (in)	Height (in)	max. Opening (in)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 613HPX-0,16 c	0.11	32	39	47	517	3,960	2,200

**Package consists of:** rock grapple, rotator KM 04 F140-30V, upper suspension KM 501 4500, pressure relief valve, non-return valve

**Please note:**  
 - KM 613HPX is also available with a shaft rotator and quick change system KM 505  
 - for heavy duty tasks we recommend to use quick change KM 505 HD with rotator KM 04 S68-30US

Package rock grapple KM 613HPX/502 with <b>KINSHOFER</b> rotator with shaft and reduction link							
Type	Capacity (cords)	Width B (in)	Height (in)	max. Opening (in)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 613HPX-0,16/502 c	0.11	16	41.5	47	528	3,960	2,200

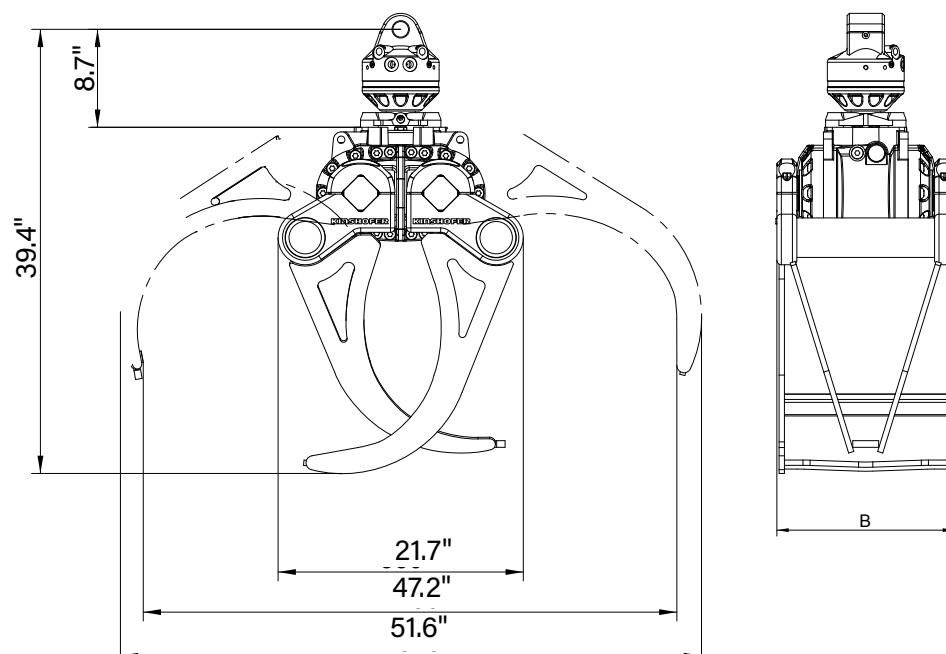
**Package consists of:** rock grapple, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, upper suspension KM 501 4500, pressure relief valve, non-return valve

Accessories	
Type	Description
KM 685 06 HPX SD	central lifting device
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings



The KM 632HPX with *HPXdrive Standard* for loading short logs, shrubbery, branches etc. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinder.
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the drive unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (3,960 lbf at 3,750 psi operating pressure) for the entire opening and closing process.



Package timber grapple KM 632HPX with <b>KINSHOFER</b> flange rotator								
Type	Capacity	Width B	Height	Log-Ø min.	Opening max.	Self weight	Closing force	Load capacity
	(cords)	(in)	(in)	(in)	(in)	(lbs)	(lbf)	(lbs)
KM 632HPX-0,16 c	0.11	32	39	6.7	48	517	3,960	2,200

**Package consists of:** timber grapple, rotator KM 04 F140-30V, upper suspension KM 501 4500, pressure relief valve, non-return valve

**Please note:**  
 – KM 632HPX is also available with a shaft rotator and quick change system KM 505  
 – for heavy duty tasks we recommend to use quick change KM 505 HD with rotator KM 04 S68-30US

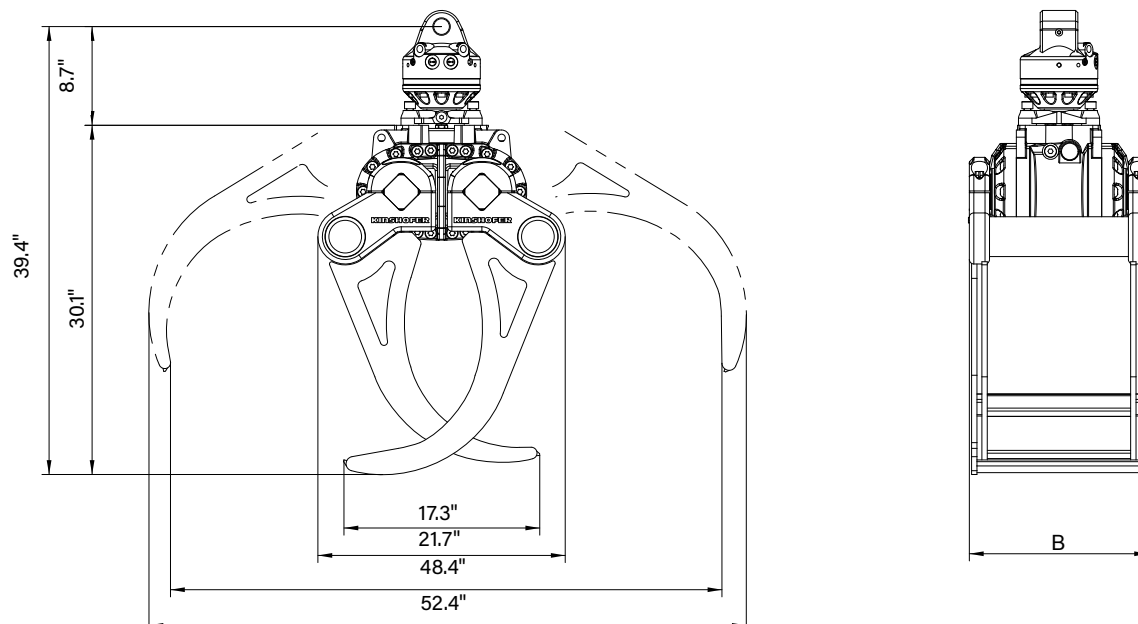
Package timber grapple KM 632HPX/502 with <b>KINSHOFER</b> rotator with shaft and reduction link								
Type	Capacity	Width B	Height	Log-Ø min.	Opening max.	Self weight	Closing force	Load capacity
	(cords)	(in)	(in)	(in)	(in)	(lbs)	(lbf)	(lbs)
KM 632HPX-0,16/502 c	0.11	16	41.5	6.7	48	528	3,960	2,200

**Package consists of:** timber grapple, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, upper suspension KM 501 4500, pressure relief valve, non-return valve

Accessories	
Type	Description
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

**Requirements of truck crane**  
**Operating pressure at oil flow:**  
 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings



The hay and forestry grapple KM641 HPX using the *HPXdrive Standard* is ideal for handling hay, brushwood, compost or manure – often used for municipal operations and road work. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.



- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinder.
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured
- ▷ **Constant closing force** (3,960 lbf / 3,080 lbf at 3,750 psi operating pressure) for the entire opening and closing process.

### Package hay and forestry grapple KM 641HPX with **KINSHOFER** flange rotator

Type	Capacity	Width B	Height C + rotator	Opening A max.	Number of tines	Self weight	Closing force	Load capacity
	(cords)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 641HPX-0,2 c	0.13	26	37	47	7	561	3,960	2,200
KM 641HPX-0,4 c	0.27	37	47	67	7	704	3,080	4,400

**Package consists of:** hay and forestry grapple, rotator KM 04 F140-30V, upper suspension KM 501 4500, pressure relief valve, non-return valve

**Please note:**  
 – KM 641HPX is also available with a shaft rotator and quick change system KM 505  
 – for heavy duty tasks we recommend to use quick change KM 505 HD with rotator KM 04 S68-30US

### Package hay and forestry grapple KM 641HPX/502 with **KINSHOFER** rotator with shaft and reduction link

Type	Capacity	Width B	Height C + rotator	Opening A max.	Number of tines	Self weight	Closing force	Load capacity
	(cords)	(in)	(in)	(in)		(lbs)	(lbf)	(lbs)
KM 641HPX-0,2/502 c	0.13	26	40	47	7	572	3,960	2,200
KM 641HPX-0,4/502 c	0.27	37	49	67	7	715	3,080	4,400

**Package consists of:** hay and forestry grapple, rotator KM 04 S, reduction link KM 502 4500, short connecting hoses KM 203 01, upper suspension KM 501 4500, pressure relief valve, non-return valve

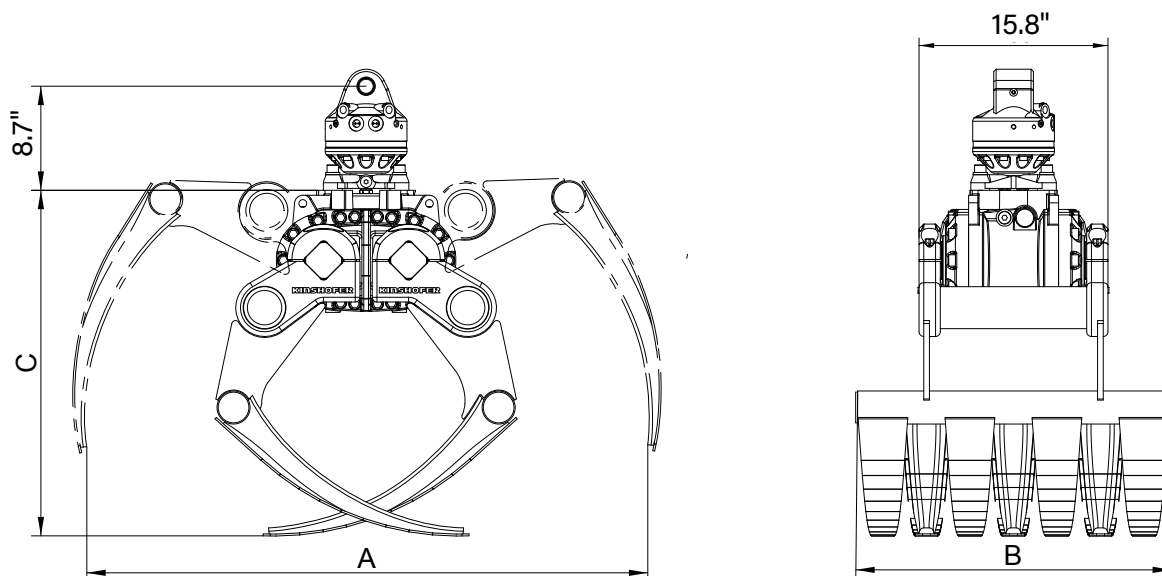
### Accessories

Type	Description
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
 3,750 psi at max. 20 GPM  
 2,900 - 5,350 psi at max. 10.5 GPM

### Technical drawings



The **HPXdrive Heavy Duty** is a powerful version for difficult tasks. The advantages of the **HPXdrive**-technology - the constant high closing force and the compact design - guarantee a long life and reliability.

The standard rotator of the **HPXdrive Heavy Duty** is the **KINSHOFER** rotator with flange KM 06 F140-40.

The bucket shells of the **HPXdrive Heavy Duty** are bolted to the shafts, and therefore it is very easy to replace them with another set of shells. Different types of shells for different applications can be refitted onto the driving unit, e.g. clamshell bucket, rock grapple, timber grapple, hay and forestry grapple. Other types of shells are available on request.

The interchangeable shells are delivered with an exchange aid that guarantees the **HPXdrive Heavy Duty** can be positioned with ease.



**Package consists of:** exchangeable shells, bolt-on teeth (for KM 605HPX), exchange aid kit

Type	Volume (c.y.)	Width (in)	Opening max. (in)	Number of teeth / tines	Self weight (lbs)
<b>Shells for heavy duty clamshell bucket - KM 605HPX</b>					
KM 605HPX-200S	0.26	16	56	4	308
KM 605HPX-250S	0.33	20	56	4	374
KM 605HPX-350S	0.46	26	56	6	440
KM 605HPX-450S	0.59	32	56	6	495
KM 605HPX-550S	0.72	39	56	8	583



<b>Shells for heavy duty clamshell bucket for Z-cranes - KM 605HPX-Z</b>					
KM 605HPX-Z-240S	0.31	20	56	-	396
KM 605HPX-Z-300S	0.39	25	56	-	462
KM 605HPX-Z-370S	0.48	31	56	-	517
KM 605HPX-Z-460S	0.60	39	56	-	605



<b>Shells for heavy duty clamshell bucket with open shells - KM 605U HPX</b>					
KM 605U HPX-300S	0.39	26	61	-	528
KM 605U HPX-400S	0.52	32	61	-	572
KM 605U HPX-450S	0.59	36	61	-	605
KM 605U HPX-500S	0.65	40	61	-	649



<b>Shells for heavy duty clamshell bucket with open shells for Z-cranes - KM 605U HPX-Z</b>					
KM 605U HPX-Z-400S	0.52	32	61	-	605
KM 605U HPX-Z-450S	0.59	36	61	-	627
KM 605U HPX-Z-500S	0.65	40	61	-	660
KM 605U HPX-Z-600S	0.78	48	61	-	737



<b>Tines for heavy duty rock grapple - KM 613HPX-HD</b>					
KM 613HPX-HD-0,35S	0.23 cords	16	67	-	297



<b>Tines for heavy duty timber grapple - KM 632HPX-HD</b>					
KM 632HPX-HD-0,16S	0.11 cords	16	51	-	198



<b>Tines for heavy duty hay and forestry grapple - KM 641HPX-HD</b>					
KM 641HPX-HD-0,4S	0.27 cords	37	68	7	429



The drive unit **HPXdrive Standard** can only be used in combination with **KINSHOFER** rotator and shells.

A powerful clamshell bucket with the *HPXdrive Heavy duty* manages even difficult tasks thanks to its high closing force, ideal for digging and handling. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinders!**
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (7,480 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package clamshell bucket KM 605HPX with **KINSHOFER** flange rotator

Type	Volume (c.y.)	Width A (in)	Height (in)	Opening max. (in)	Number of teeth	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
KM 605HPX-200 c	0.26	16	41	56	4	737	7,480	6,600
KM 605HPX-250 c	0.33	20	41	56	4	792	7,480	6,600
KM 605HPX-350 c	0.46	26	41	56	6	858	7,480	6,600
KM 605HPX-450 c	0.59	32	41	56	6	924	7,480	6,600
KM 605HPX-550 c	0.72	39	41	56	8	1,001	7,480	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

### Accessories

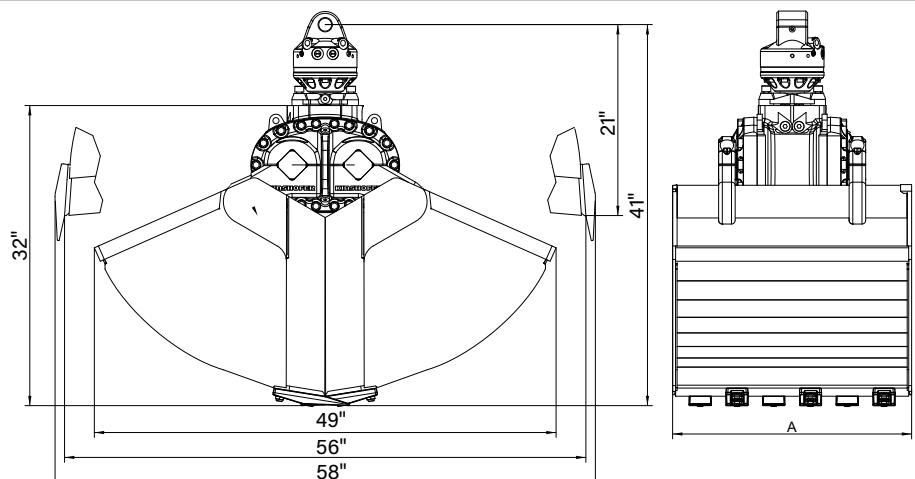
Type	Description
KM 680 01	scraper
KM 685 05	adapters for compression rails
KM 685 06 HPX HD	central lifting device
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)
KM 685 08	extension for excavating e.g. trenches (for canal and civil engineering) – 18 in (66 lbs)
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
max. 4,600 psi at 10.5 - max. 24 GPM

**Mind the pressure!**

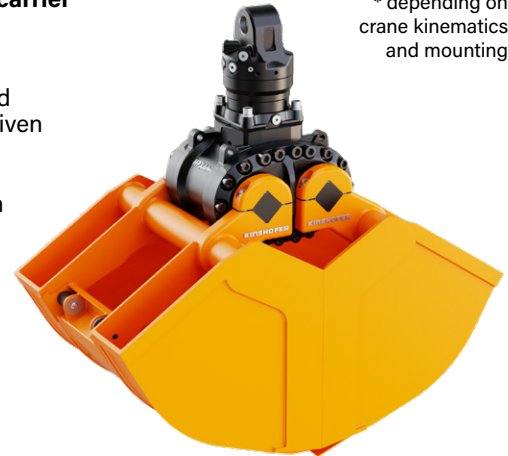
### Technical drawings (here with 4t-rotator)



The KM 605 HPX-Z universal grapple with integrated flap rests flat and safe against the crane arm in its transport position. The special flap at the shell carrier allows to transport a large universal grapple, whereat the grapple does not protrude the carrier machine's width (100.4 in)\* - without any loss in loading volume. The flap is secured automatically by a robust pressure piece with rubber bump.

\* depending on crane kinematics and mounting

- ▷ **Reliability** of the HPXdrive. The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinders!**
- ▷ **Longer life cycle** up to 50%!
- ▷ **Self-lubrication:** The drive unit runs in a permanent oil bath. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts of the HPXdrive.
- ▷ **Constant closing force** (7,480 lbf at 4,600 psi operating pressure) over the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package clamshell bucket KM 605HPX-Z with **KINSHOFER** flange rotator

Type	Volume (c.y.)	Width E (in)	Height (in)	Opening A max. (in)	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
<b>KM 605HPX-Z-240 c</b>	0.31	19.7	39.8	55.9	814	7,480	6,600
<b>KM 605HPX-Z-300 c</b>	0.39	25.6	39.8	55.9	880	7,480	6,600
<b>KM 605HPX-Z-370 c</b>	0.48	31.5	39.8	55.9	946	7,480	6,600
<b>KM 605HPX-Z-460 c</b>	0.60	39.4	39.8	55.9	1,023	7,480	6,600

**Package consists of:** clamshell bucket with flap, bolt-on teeth, rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

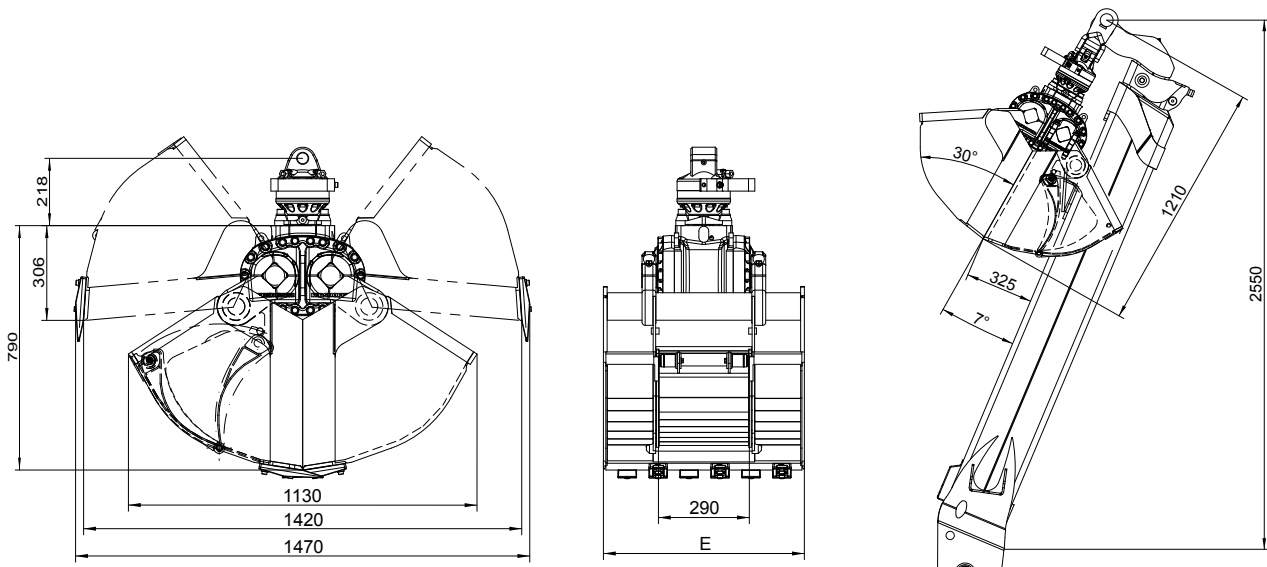
### Accessories

Type	Description:
<b>KM 685 05</b>	adapters for compression rails (Load capacity max. 550 lbs, without compression rails)
<b>KM 685 06 hook set 2</b>	welded hooks (2 pieces)
<b>KM 685 07 set</b>	wear plates to protect horizontal cutting edges (2 pieces)
<b>KM 204 01</b>	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)
<b>KM 204 03</b>	hydraulic quick change kit incl. mobile and fixed parts (2 pieces each) mounted with adapters to rotator

### Requirements of truck crane

**Operating pressure at oil flow:**  
max. 4,600 psi at 10.5 - max. 24 GPM  
**Mind the pressure!**

### Technical drawings (here with 4t-rotator)



The KM 605U HPX Refuse is a powerful clamshell bucket using the *HPXdrive Heavy Duty* for handling and easy digging tasks. The open shells enable the handling of bulky materials. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive. The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle up to 50%!** The drive unit runs in a permanent oil bath - no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (4,800 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package refuse grapple KM 605U HPX Refuse with **KINSHOFER** flange rotator

Type	Volume (c.y.)	Width B (in)	Height C (in)	Opening A max. (in)	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
KM 605U HPX Refuse-420 c	0.55	39.4	42	60	915	4,800	6,600
KM 605U HPX Refuse-510 c	0.67	48.0	42	60	970	4,800	6,600
KM 605U HPX Refuse-660 c	0.86	39.4	51	78	1,015	3,700	6,600

**Package consists of:** refuse grapple with open shells, KINSHOFER rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

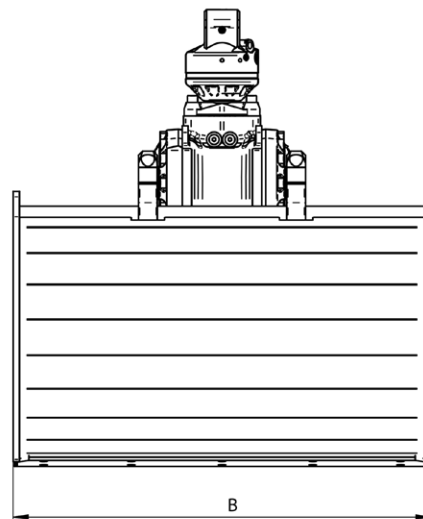
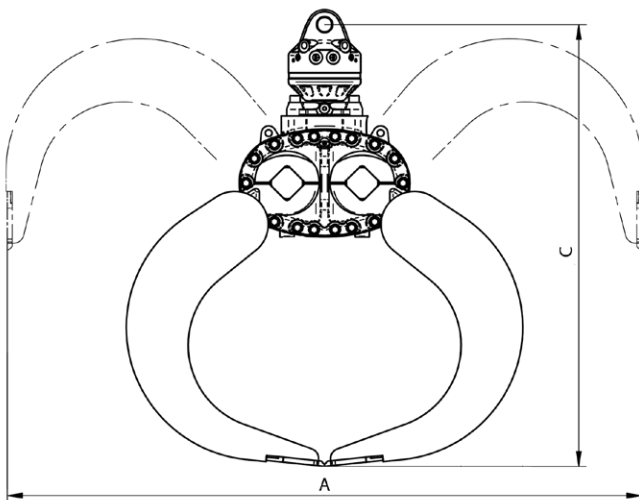
### Accessories

Type	Description
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.39 in, 2 pieces)

### Requirements of truck crane

**Operating pressure:** max. 4,600 psi  
**Oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)





The KM 605U HPX is a powerful clamshell bucket using the *HPXdrive Heavy Duty* for handling and easy digging tasks. The open shells enable the handling of bulky materials. Non-return valve, welded hooks and reversible wear plates are delivered on each grapple. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle up to 50%!** The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ Versatility with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (6,600 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package clamshell bucket KM 605U HPX with **KINSHOFER** flange rotator

Type	Volume (c.y.)	Width B (in)	Height (in)	Opening max. (in)	Number of teeth (optional)	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
<b>KM 605U HPX-300 c</b>	0.39	26.5	44	61	5	946	6,600	6,600
<b>KM 605U HPX-400 c</b>	0.52	32.5	44	61	7	1,001	6,600	6,600
<b>KM 605U HPX-450 c</b>	0.59	36.0	44	61	7	1,034	6,600	6,600
<b>KM 605U HPX-500 c</b>	0.65	40.0	44	61	9	1,067	6,600	6,600

**Package consists of:** clamshell bucket, rotator KM 06 F140-40, upper suspension KM 501 6000, wear plates KM 685 07 set, welded hooks KM 685 06 hook set 2, non-return valve

**Please note:** – optional the grapple is available with bolt-on teeth

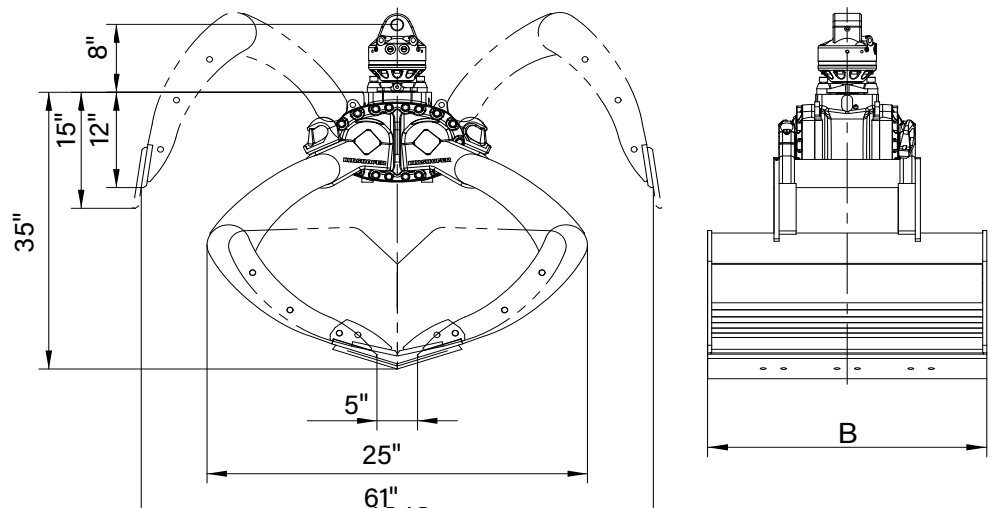
### Accessories

Type	Description
<b>KM 685 05</b>	adapters for mounting of compression rails (non-return valve necessary)
<b>KM 381 09 720</b>	compression rails – length 28.4 in (2 pieces)
<b>KM 381 09 1000</b>	compression rails – length 39.4 in (2 pieces)
<b>KM 685 09 C</b>	side plates to screw onto the grapple for easy digging tasks (4 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
max. 32 MPa (4,600 psi) at 10.5 - max. 24 GPM  
**Mind the pressure!**

### Technical drawings (here with 4t-rotator)



The KM 605U HPX-Z universal grapple with integrated flap rests flat and safe against the crane arm in its transport position. The special flap at the shell carrier allows to transport a large universal grapple, whereas the grapple does not protrude the carrier machine's width (100.4 in)\* - without any loss in loading volume. The flap is secured automatically by a robust pressure piece with rubber bump.

\* depending on crane kinematics and mounting

- ▷ **Reliability** of the HPXdrive. The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle** up to 50%! **Self-lubrication:** The drive unit runs in a permanent oil bath. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ Versatility with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Constant closing force** (6,160 lbf at 4,600 psi operating pressure) over the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts of the HPXdrive.



### Package clamshell bucket KM 605U HPX-Z with **KINSHOFER** flange rotator

Type	Volume (c.y.)	Width E (in)	Height (in)	Opening max. A (in)	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
KM 605U HPX-Z-400 c	0.52	32.3	45.1	60.8	1,023	6,160	6,600
KM 605U HPX-Z-450 c	0.58	36.2	45.1	60.8	1,056	6,160	6,600
KM 605U HPX-Z-500 c	0.65	40.2	45.1	60.8	1,089	6,160	6,600
KM 605U HPX-Z-600 c	0.78	48.0	45.1	60.8	1,155	6,160	6,600

**Package consists of:** clamshell bucket with flap, rotator KM 06 F140-40, upper suspension KM 501 6000, wear plates KM 685 07 set, non-return valve

### Accessories

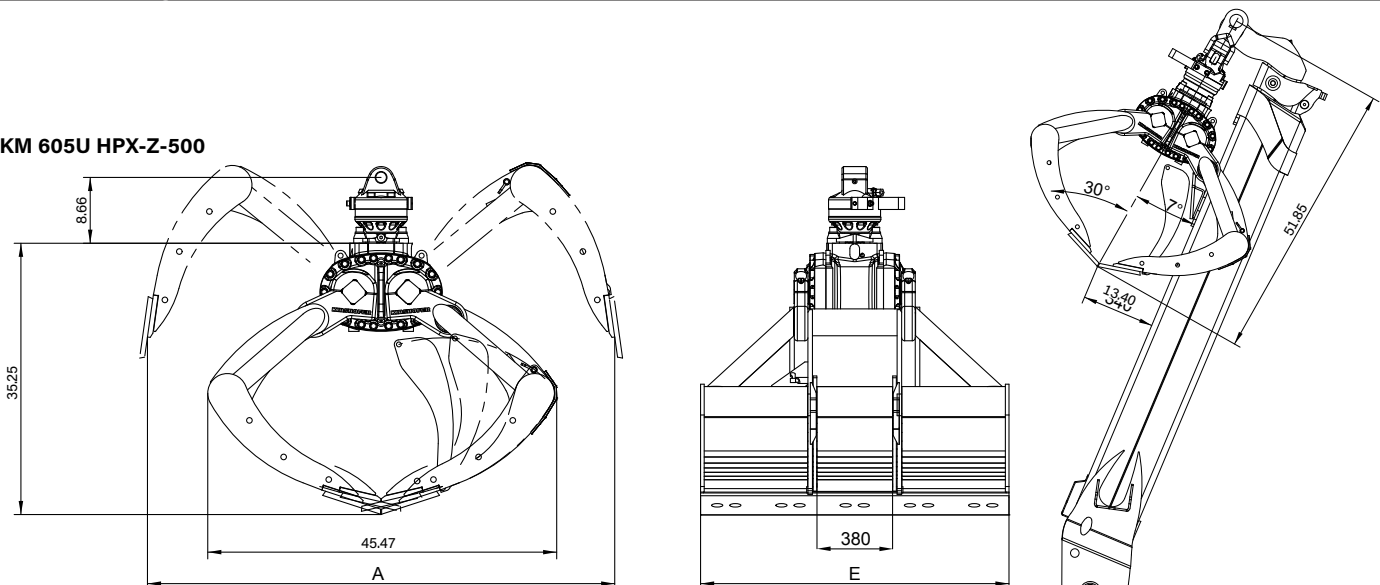
Typ	Description
KM 685 06 eye / hook set 2	welded eyes / welded hooks (2 pieces)
KM 685 09 C	side plates to screw onto the grapple for easy digging tasks (4 pieces)
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)
KM 204 03	hydraulic quick change kit incl. mobile and fixed parts (2 pieces each) mounted with adapters to rotator

### Requirements of truck crane

**Operating pressure:** max. 32 MPa (4,600 psi)  
**Recommended oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)

KM 605U HPX-Z-500



The KM 613HPX-HD with *HPXdrive Heavy Duty* for positioning and handling natural stones, curbstones etc. is an ideal tool for landscaping architecture. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and low- maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (4,840 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package rock grapple KM 613HPX-HD with **KINSHOFER** flange rotator

Type	Capacity (cords)	Width B (in)	Height (in)	Opening max. (in)	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
<b>KM 613HPX-HD-0,35 c</b>	0.23	16	50	67	737	4,840	4,400

**Package consists of:** rock grapple, rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

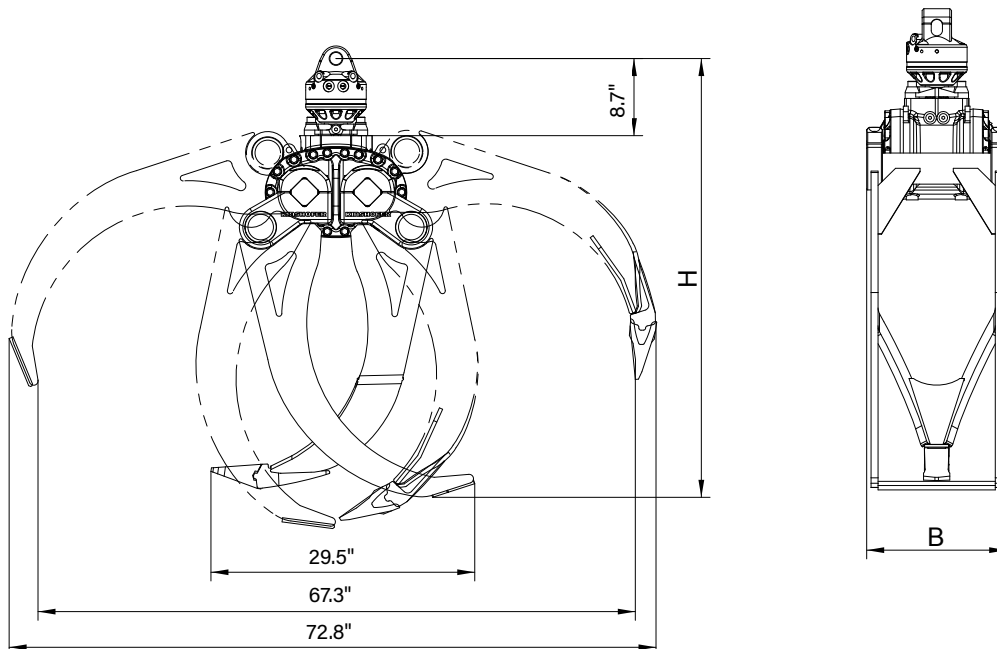
### Accessories

Type	Description
<b>KM 685 06 HPX HD</b>	central lifting device
<b>KM 204 01</b>	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)
<b>KM 204 02</b>	fixed part of hydraulic quick coupling for rotator (Ø 0.39 in, 2 pieces)

### Requirements of truck crane

**Operating pressure:** 3,750 - 5,350 psi  
**Recommended oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)



The KM 632HPX with *HPXdrive Heavy Duty* for loading short logs, shrubbery, branches etc. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and low-maintenance attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (6,820 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package timber grapple KM 632HPX-HD with **KINSHOFER** flange rotator

Type	Capacity	Width B	Height	Log-Ø min.	Opening max.	Self weight	Closing force	Load capacity
	(cords)	(in)	(in)	(in)	(in)	(lbs)	(lbf @4,600 psi)	(lbs)
<b>KM 632HPX-HD-0,16 c</b>	0.11	16	40	6.7	51	627	6,820	4,400

**Package consists of:** timber grapple, rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

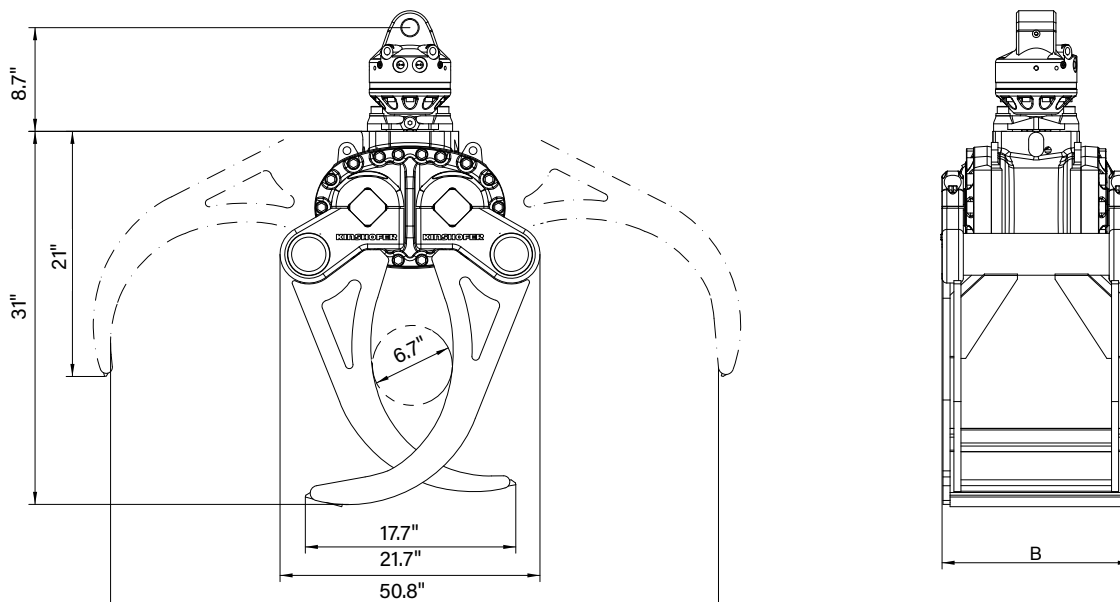
### Accessories

Type	Description
<b>KM 204 01</b>	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
<b>KM 204 02</b>	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

**Operating pressure:** max. 4,600 psi  
**Oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)



The KM 632L HPX with *HPXdrive Heavy Duty* for loading short logs, shrubbery, branches etc. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and virtually maintenance free attachment.

- ▷ **Reliability** of the HPXdrive. The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the drive unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (3,900 lbf. at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package logging grapple KM 632L HPX-HD with **KINSHOFER** flange rotator

Type	Capacity (cords)	Width (in)	max. Opening A		Height B		Self weight		Load capacity (lbs)
			bypass (in)	butt (in)	bypass (in)	butt (in)	bypass (lbs)	butt (lbs)	
KM 632L HPX-HD-0.25	0.25	18	50	57	45	32.5	790	820	6,600
KM 632L HPX-HD-0.33	0.33	18	60	67	49	36.3	850	885	6,600
KM 632L HPX-HD-0.40	0.4	18	67	73	52	39.5	890	985	6,600

**Package consists of:** logging grapple, KINSHOFER rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

**Please note:** The grapple is available with two different closing styles: 'Butt' (tines tip to tip) or 'Bypass' (interlocking tines)

### Accessories

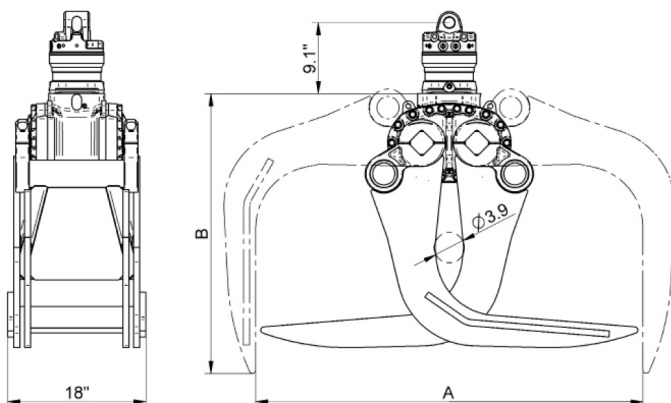
Type	Description
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

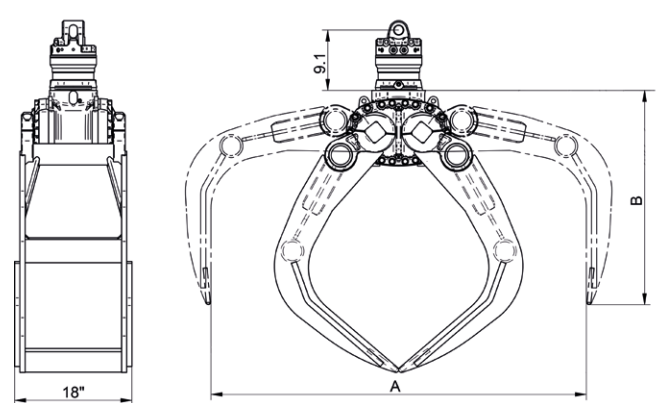
**Operating pressure:** max. 4,600 psi  
**Recommended oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)

Bypass type



Butt type



The hay and forestry grapple KM 641HPX-HD using the *HPXdrive Heavy Duty* is ideal for handling hay, brushwood, compost or manure – often used for municipal operations and road work. The revolutionary *HPXdrive* technology guarantees a reliable and virtually maintenance free attachment.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. **No more hydraulic cylinder!**
- ▷ **Longer life cycle** up to 50%! The drive unit runs in a permanent oil bath – no lubrication service is necessary. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Precise handling** with the gear-type KINSHOFER rotator and shells synchronised by the single piston turning both shafts.
- ▷ **Rotator with shaft** is available as an alternative, in case a quick change to a non-rotating hook is favoured.
- ▷ **Constant closing force** (5,060 lbf at 4,600 psi operating pressure) for the entire opening and closing process; high efficiency provided by hydro static bearings of the axes.



### Package hay and forestry KM 641HPX-HD with **KINSHOFER** flange rotator

Type	Capacity (cords)	Width (in)	Height (in)	Opening max. (in)	Number of tines	Self weight (lbs)	Closing force (lbf @4,600 psi)	Load capacity (lbs)
KM 641HPX-HD-0,4 c	0.27	37	47	68	7	858	5,060	4,400

**Package consists of:** hay and forestry grapple, rotator KM 06 F140-40, upper suspension KM 501 6000, non-return valve

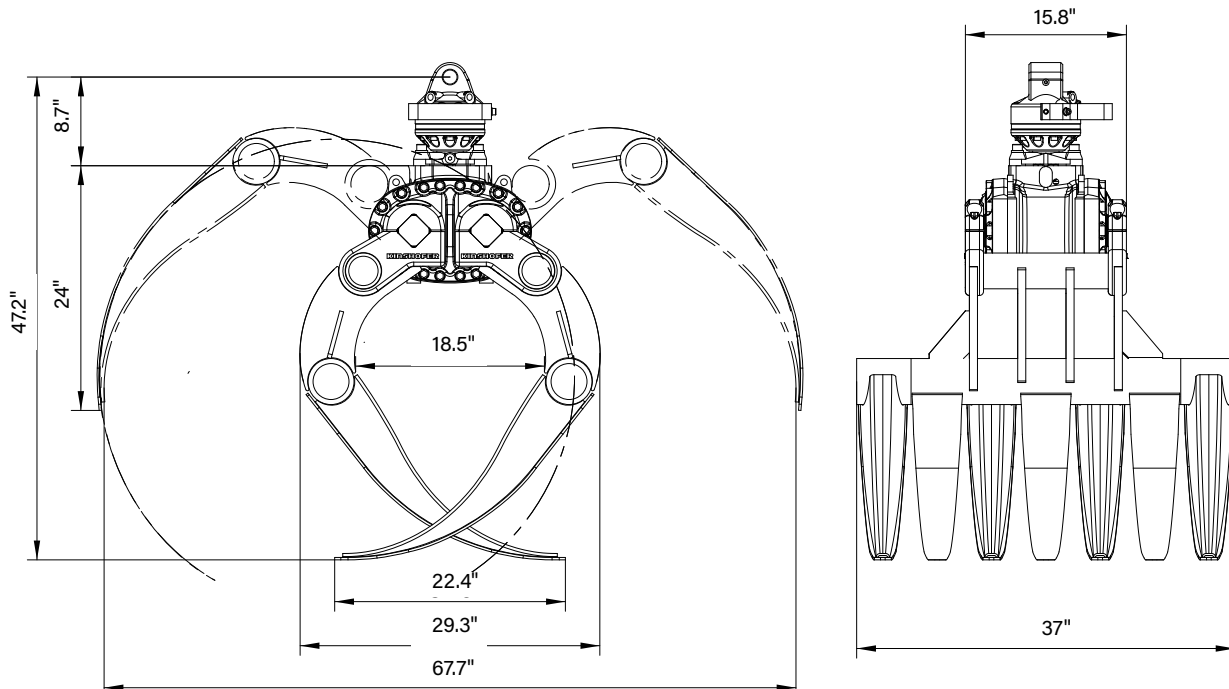
### Accessories

Type	Description
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.4 in, 2 pieces)
KM 204 02	fixed part of hydraulic quick coupling for rotator (Ø 0.4 in, 2 pieces)

### Requirements of truck crane

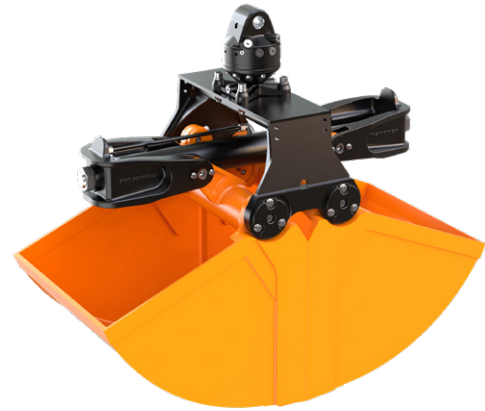
**Operating pressure:** max. 4,600 psi  
**Oil flow:** 10.5 - max. 24 GPM **Mind the pressure!**

### Technical drawings (here with 4t-rotator)



The rugged clamshell bucket KM 605 is recognized as successful synthesis of form, function and performance.

- ▷ **Maximum loading height** is achieved through the compact design with the horizontal hydraulic cylinder.
- ▷ **Long life is ensured** through the use of 500 HB steel in the manufacture of the cutting edges and a generously dimensioned bearing system.
- ▷ **Synchronized opening and closing** through sturdy compensation bar.
- ▷ **Bolt-on digging teeth** are delivered with each clamshell bucket.
- ▷ **Excellent digging characteristics** are a result of high closing forces (6,600 lbf at 3,750 psi operating pressure).
- ▷ **Also available as smaller version KM 604.**



### Packages clamshell bucket KM 605-250 c & KM 605-350 c

Type	Volume (c.y.)	Width E (in)	Opening max. (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 605-250 c	0.33	20	56	5	704	6,600	6,600
KM 605-350 c	0.46	26	56	5	759	6,600	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, non-return valve

### Clamshell bucket KM 605 incl. teeth

Type	Volume (c.y.)	Width E (in)	Opening max. (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 605-200	0.26	16	56	3	583	6,600	6,600
KM 605-250	0.33	20	56	5	627	6,600	6,600
KM 605-350	0.46	26	56	5	682	6,600	6,600
KM 605-450	0.59	32	56	9	748	6,600	6,600
KM 605-550	0.72	39	56	9	825	6,600	6,600
KM 605-650	0.85	47	56	9	902	6,600	6,600

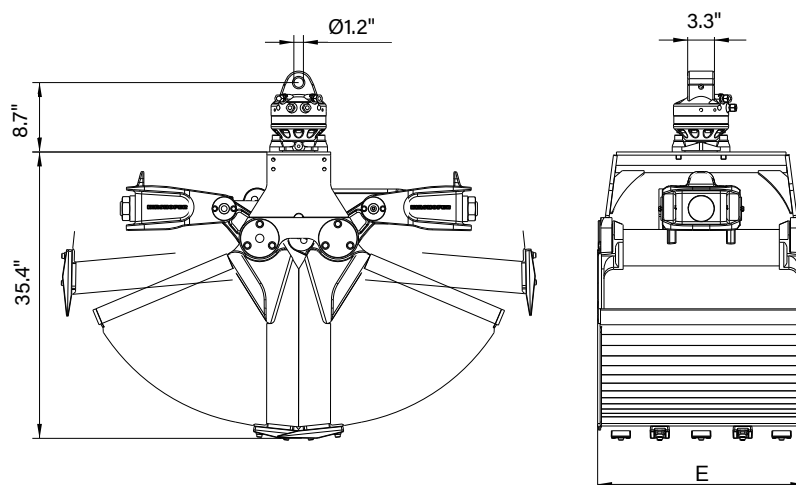
### Accessories

Type	Description
KM 04 F	recommended KINSHOFER rotator for KM 605
KM 680 01	scraper
KM 685 06 hook set 2	welded hooks
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

### Requirements of truck crane

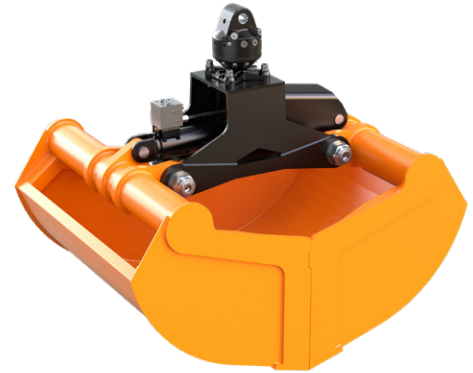
**Operating pressure:** 3,750 - 4,600 psi  
**Recommended oil flow:** 6.5 - max. 20 GPM

### Technical drawings



The high volume clamshell bucket KM 622 has a significant narrow frame and can therefore fulfill small digging tasks besides the handling.

- ▷ **Suitable for digging** due to the narrow frame.
- ▷ **Compact design** due to the narrow frame enables manual filling of the bucket without obstacles.
- ▷ **Practically no 'left overs'** of the material to be picked up as the working edges are vertical when the buckets are open and allow a deep plunge into a pile of material.
- ▷ **High stability** through reinforced buckets, torsion-free frame, generously dimensioned bearing system and the use of 500 HB steel in the manufacture of cutting edges.
- ▷ **Combination of compensator mechanism and cylinder guard** has many advantages: parallel action, longer life for piston rod and seals, significant weight savings.
- ▷ **Efficient handling** with high closing forces (4,400 lbf at an operating pressure of 3,750 psi).



Package high volume clamshell bucket KM 622-400 c & KM 622-500 c

Type	Volume (c.y.)	Width B (in)	Opening max. (in)	Number of teeth (optional)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 622-400 c	0.52	32	66	9	836	4,400	6,600
KM 622-500 c	0.65	39	66	9	891	4,400	6,600

**Package consists of:** high volume clamshell bucket (w/o teeth), rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, non-return valve

High volume clamshell bucket KM 622

Type	Volume (c.y.)	Width B (in)	Opening max. (in)	Number of teeth (optional)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 622-300	0.39	25	66	5	693	4,400	6,600
KM 622-400	0.52	32	66	9	759	4,400	6,600
KM 622-500	0.65	39	66	9	814	4,400	6,600

Accessories

Type	Description
KM 04 F	recommended KINSHOFER rotator for KM 622
KM 685 06 eye set 2	welded eyes
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

Requirements of truck crane

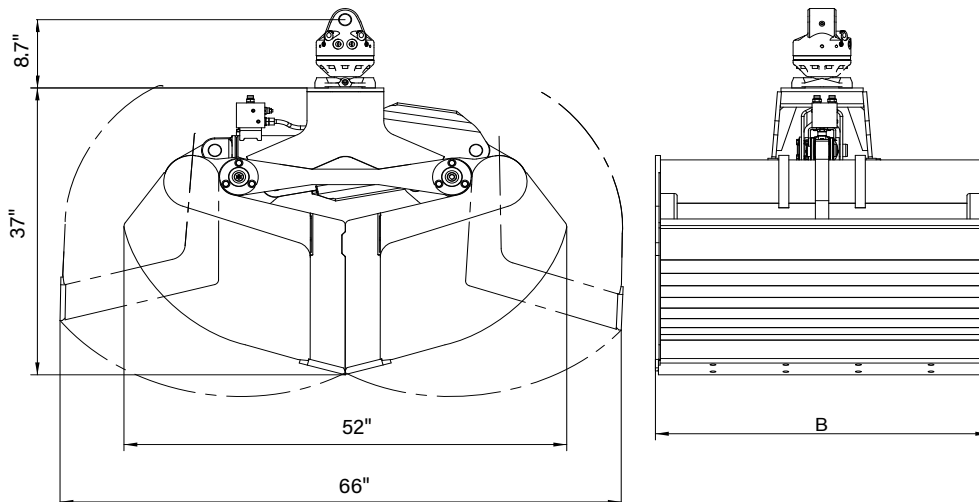
**Operating pressure:** 3,750 - 5,350 psi  
**Recommended oil flow:** 9 - max. 20 GPM

**! Pump capacity/Operating pressure**

> 10.56 GPM / 3744 psi

≤ 10.56 GPM / 4608 psi

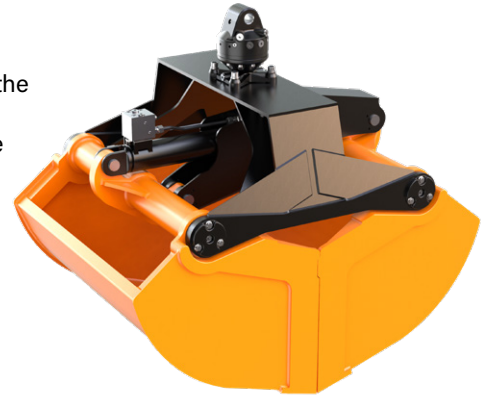
Technical drawings





A robust clamshell bucket for handling loose material such as sand, gravel, soil - perfectly matched to heavy duty work on vehicle mounted cranes.

- ▷ **Excellent filling characteristics** of the rugged grapple due to the special shape of the buckets and the wide separation between their axes that enables wide opening.
- ▷ **Practically no "left overs"** of the material to be picked up as the working edges are vertical when the buckets are open and allow a deep plunge into a pile of material.
- ▷ **High stability** through reinforced buckets, torsion-free frame, generously dimensioned bearing system and the use of 500 HB steel in the manufacture of cutting edges.
- ▷ **Combination of compensator mechanism and cylinder guard** has many advantages: parallel action, longer life for piston rod and seals, significant weight savings.
- ▷ **Efficient handling** with high closing forces (6,160 lbf at an operating pressure of 3,750 psi).



### Package high volume clamshell bucket KM 602 c

Type	Volume (c.y.)	Width B (in)	Opening max. (in)	Number of teeth (optional)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 602-400 c	0.52	32	72	9	1,023	6,160	6,600
KM 602-500 c	0.65	39	72	9	1,122	6,160	6,600

**Package consists of:** high volume clamshell bucket, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, (without teeth), non-return valve

### High volume clamshell bucket KM 602

Type	Volume (c.y.)	Width B (in)	Opening max. (in)	Number of teeth (optional)	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 602-300	0.39	20	72	5	924	6,160	6,600
KM 602-400	0.52	32	72	9	990	6,160	6,600
KM 602-500	0.65	39	72	9	1,023	6,160	6,600
KM 602-650	0.85	47	72	9	1,056	6,160	6,600
KM 602-1000	1.31	47	86	9	1,518	5,060	6,600

### Accessories

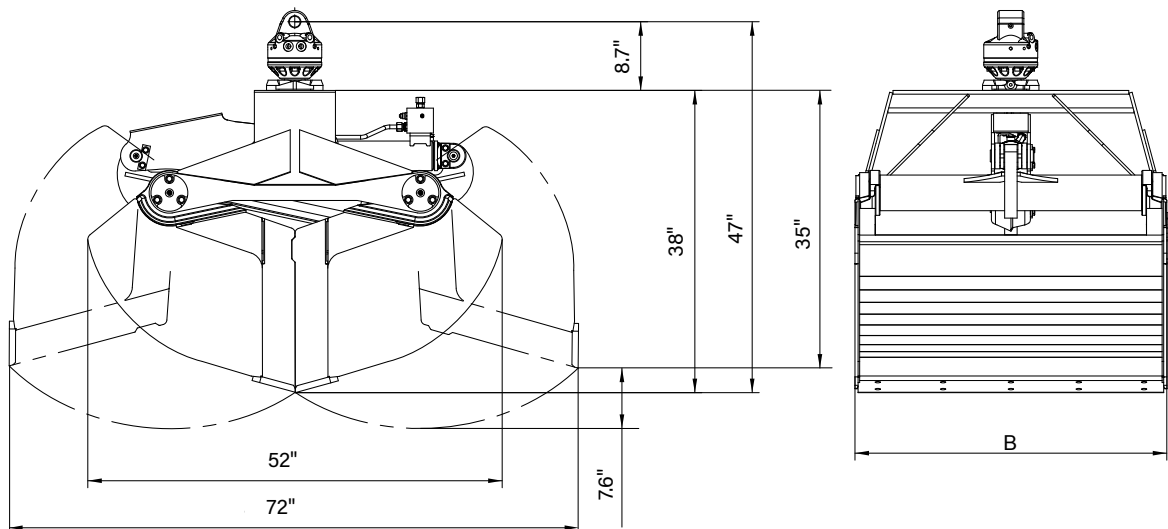
Type	Description
KM 04 F	KINSHOFER rotator for KM 602
KM 685 06 eye set 2	welded eyes
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

### Requirements of truck crane

**Operating pressure:** 3,750 - 5,350 psi  
**Oil flow:** 9 - max. 20 GPM

**Pump capacity/Operating pressure**  
 > 10.56 GPM / 3744 psi  
 ≤ 10.56 GPM / 4608 psi

### Technical drawings



The KM 603 is a proven grapple for daily routine work - ideal for excavating foundations, trenches and other similar applications in civil engineering. The closely positioned shell pivots ensure good digging behaviour and high closing pressure.

- ▷ **Good digging behaviour** through the closely positioned shell pivots.
- ▷ **Longevity** is ensured through the use of 500 HB steel in the manufacture of cutting edges and the generously dimensioned bearing system. The enclosed hydraulic cylinder (in a hub unit) and short hydraulic connection hoses lower the risk of damage and down-time.
- ▷ **Maximum loading height** is achieved through the compact design.
- ▷ **Bolt-on digging teeth** are delivered with each clamshell bucket.
- ▷ **Excellent digging characteristics** are the result of high closing forces (4,400 lbf at an operating pressure of 3,750 psi).

→ As an alternative to the KM 603, the KM 604HPX can be used with an extension for excavating.



### Package clamshell bucket KM 603 c

Type	Volume (c.y.)	Width E (in)	max. Opening A (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 603-250 c	0.33	20	55	5	726	4,400	6,600
KM 603-350 c	0.46	26	55	5	781	4,400	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, non-return valve

### Clamshell bucket KM 603 incl. teeth

Type	Volume (c.y.)	Width E (in)	max. Opening A (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 603-150	0.20	13	55	3	572	4,400	6,600
KM 603-200	0.26	16	55	3	605	4,400	6,600
KM 603-250	0.33	20	55	5	649	4,400	6,600
KM 603-325	0.43	24	55	5	693	4,400	6,600
KM 603-350	0.46	26	55	5	704	4,400	6,600
KM 603-450	0.59	32	55	9	781	4,400	6,600

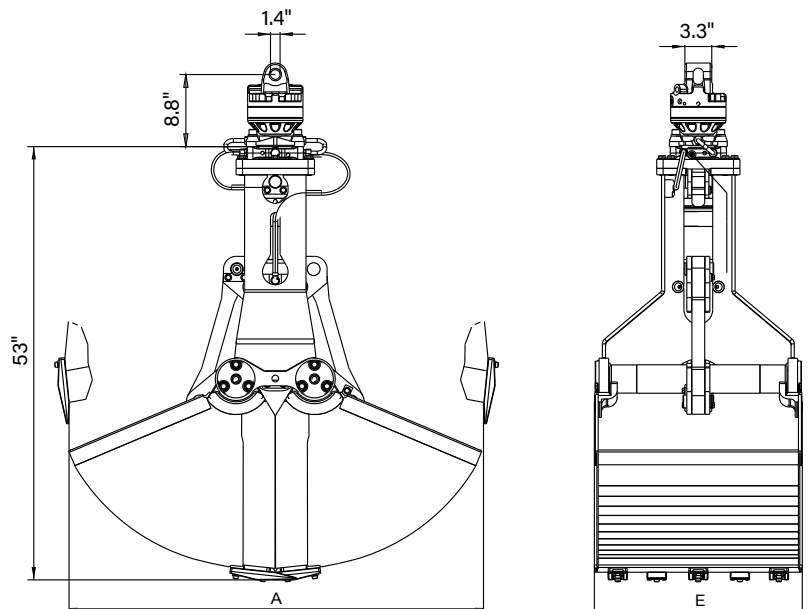
### Accessories

Type	Description
KM 04 F	recommended KINSHOFER rotator for KM 603
KM 680 01	scraper
KM 685 06 hook set 2	welded hooks (2 pieces)
KM 685 06 eye set 2	welded eyes (2 pieces)
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
max. 3,750 psi at 6.5 - max. 20 GPM **Mind the pressure!**

### Technical drawings



The KM 603F is a special clamshell bucket with vertical cylinder for the daily routine work and has been constructed especially for the excavation of foundations and graves and includes a scraper.

- ▷ **Good digging behaviour** through the closely positioned shell pivots.
- ▷ **Longevity** is ensured through the use of 500 HB steel in the manufacture of cutting edges and the generously dimensioned bearing system. The enclosed hydraulic cylinder (in a hub unit) and short hydraulic connection hoses lower the risk of damage and down-time.
- ▷ **Synchronization of shells** due to largely dimensioned push rods between carrier and shells.
- ▷ **Bolt-on digging teeth** are delivered with each clamshell bucket.
- ▷ **Excellent digging characteristics** are the result of high closing forces.



KM 603F here with rotator

### Special clamshell bucket KM 603F (incl. scraper)

Type	Volume (c.y.)	Width E (in)	Opening A max. (in)	Number of teeth	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 603F-190	0.25	30	39.4	7	671	6,600	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, scraper

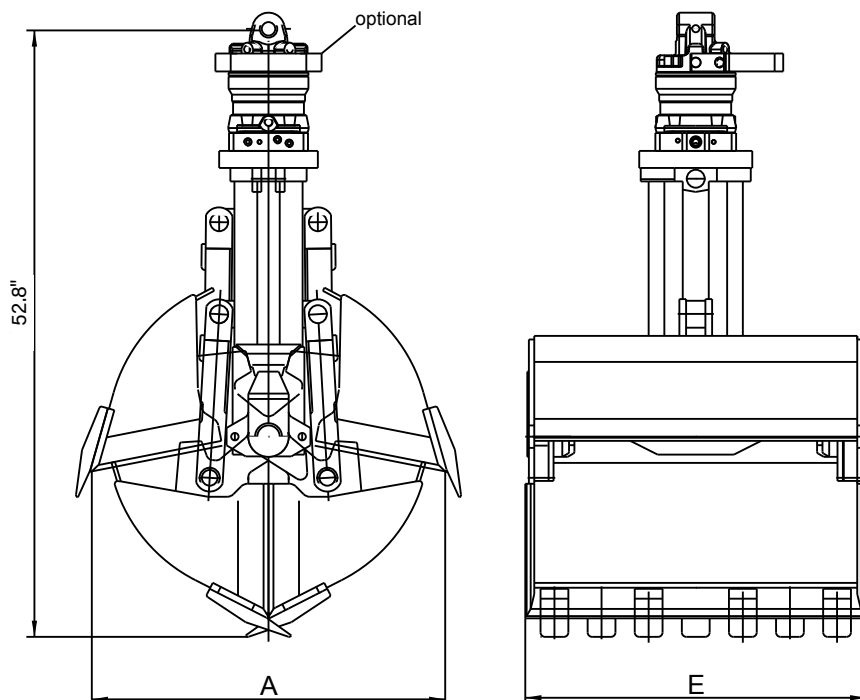
### Accessories

Type	Description
KM 04 F140-30US	recommended KINSHOFER rotator
KM 685 06 hook set 2	welded hooks (2 pieces)
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
max. 3,750 psi at 6.6 - max. 19.8 GPM **Mind the pressure!**

### Technical drawings



The powerful clamshell bucket KM 607 with two vertical hydraulic cylinders is ideal for heavy digging work in grown soil.

- ▷ **Good digging behaviour** due to good plunge behaviour and proven shell geometry.
- ▷ **Long life** is ensured through the use of 500 HB steel in the manufacture of cutting edges and the generously dimensioned bearing system. Piston rod protection for the vertical hydraulic cylinders are standard.
- ▷ **Synchronised bucket movements** due to sturdy compensation rods.
- ▷ **Bolt-on digging teeth** are delivered with each clamshell bucket.
- ▷ **Excellent digging characteristics** are the result of high closing forces (7,040 lbf at an operating pressure of 3,750 psi).



→ As an alternative to the KM 607, the KM 605HPX can be used with an extension for excavating.

### Package clamshell bucket KM 607-250 c & KM 607-350 c

Type	Volume (c.y.)	Width E (in)	max. Opening (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 607-215 c	0.28	20	51	5	704	7,040	6,600
KM 607-255 c	0.33	24	51	5	737	7,040	6,600

**Package consists of:** clamshell bucket, bolt-on teeth, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, non-return valve

### Clamshell bucket KM 607 incl. teeth

Type	Volume (c.y.)	Width E (in)	max. Opening (in)	Number of teeth	Self weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 607-135	0.18	13	51	3	572	7,040	6,600
KM 607-170	0.22	16	51	3	594	7,040	6,600
KM 607-215	0.28	20	51	5	627	7,040	6,600
KM 607-255	0.33	24	51	5	660	7,040	6,600
KM 607-340	0.44	32	51	9	847	7,040	6,600

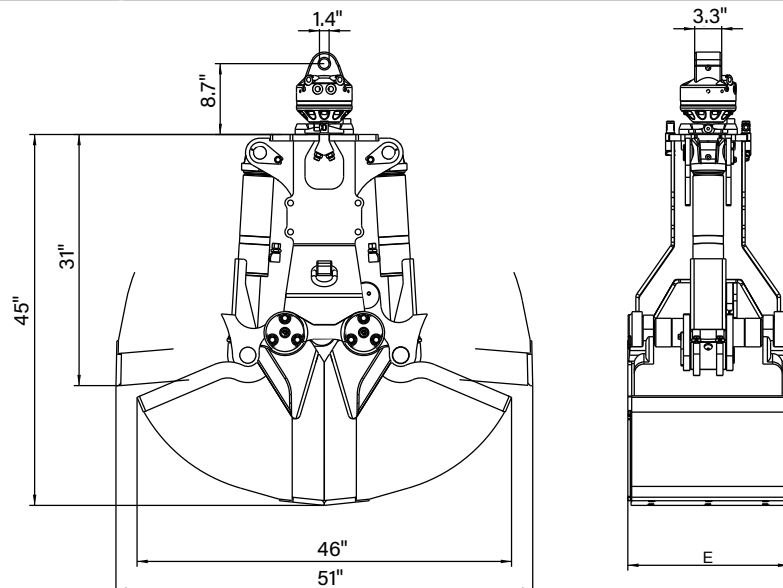
### Accessories

Type	Description
KM 04 F	recommended KINSHOFER rotator for KM 607
KM 680 01	scraper
KM 685 06 hook set 2	welded hooks
KM 685 07 set	wear plates to protect horizontal cutting edges (2 pieces)

### Requirements of truck crane

**Operating pressure:** max. 3,750 psi  
**Recommended oil flow:** 8 - max. 20 GPM **Mind the pressure!**

### Technical drawings



The KM 605U Refuse is a robust grapple for handling all kinds of refuse material, for use on loader cranes.

- ▷ The use of **500 HB steel** in the manufacture of the cutting edges ensures the longevity of the KM605U.
- ▷ With **linkage arms made of forged steel** and a **generously dimensioned bearing system**, overall wear is reduced.
- ▷ Your **safety is assured** in the event of an unexpected pressure drop due to the integrated non-return valve and a constant operating pressure is guaranteed through the automatic overload protection provided by the pressure relief valve.
- ▷ The **compact design** achieves a maximum loading height.
- ▷ Running at an operating pressure of 3,750 psi, the KM 605Uc has a **6,200 lbf closing force**.



→ As an alternative to the KM 605U Refuse, the KM 605U HPX Refuse can be used.

## Refuse grapple KM 605U Refuse

Type	Volume (c.y.)	Width B (in)	Opening max. (in)	Self weight (lbs)	Load capacity (lbs)
KM 605U Refuse-420 c	0.55	39.40	60	790	4,400
KM 605U Refuse-470 c	0.61	47.20	60	810	4,400
KM 605U Refuse-660 c	0.86	39.40	78	955	4,400
KM 605U Refuse-730 c	0.96	47.20	78	980	4,400

**Package consists of:** refuse grapple, KINSHOFER rotator KM 04 F, short connecting hoses KM 203 01, upper suspension KM 501 4500, cylinder rod protection, pressure relief valve, non-return valve

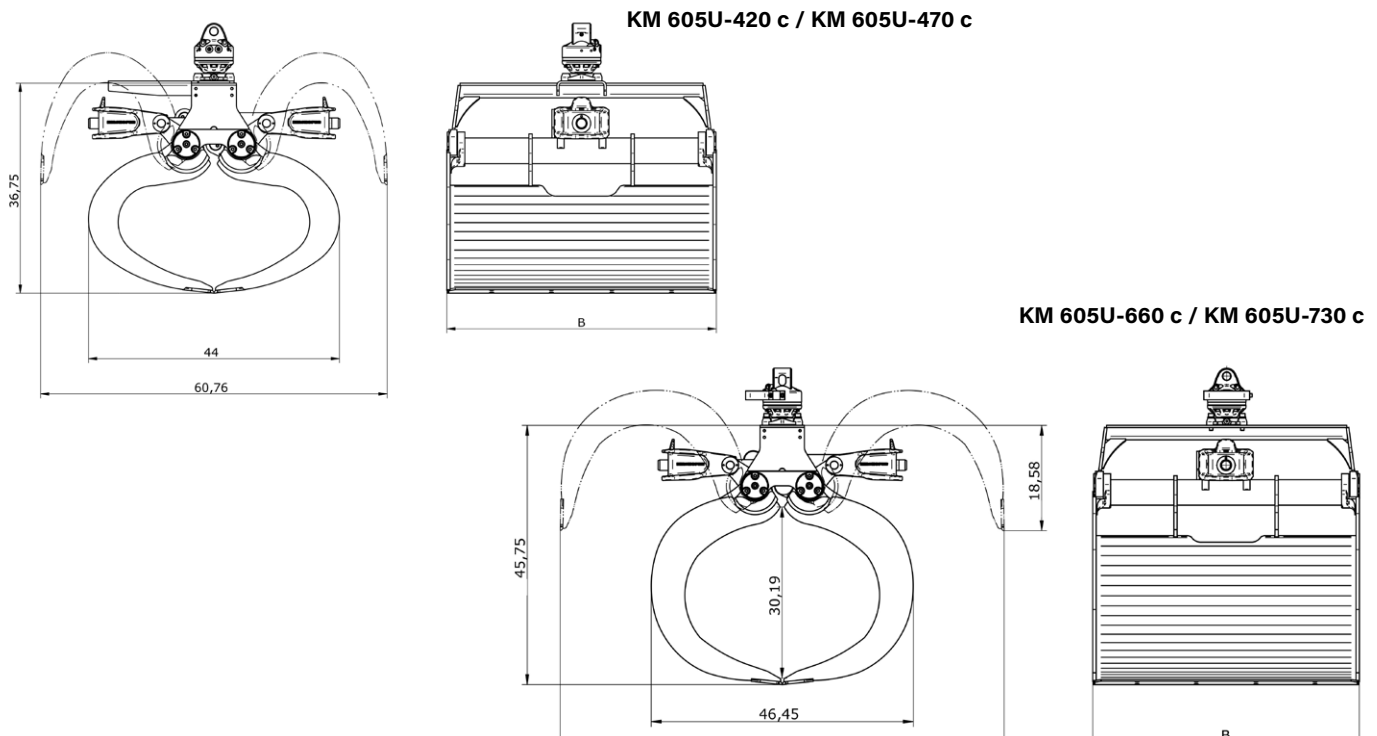
## Accessories

Type	Description
KM 685 07	wear plates

## Requirements of truck crane

**Operating pressure:** 3,750 - 4,600 psi  
**Recommended oil flow:** 6 - max. 20 GPM

## Technical drawings



The KM 605U-Z universal grapple for Z-cranes rests flat and safe against the crane arm in its transport position. The special gap at the shell carrier allows to transport a large universal grapple, whereat the grapple does not protrude the carrier machine's width (100.4 in)\* - without any loss in loading volume.

\* depending on crane kinematics and mounting

- ▷ **Maximum loading height** is achieved through the compact design with horizontal hydraulic cylinders.
- ▷ **Long life is ensured** through the use of 500 HB steel in the manufacture of the cutting edges and a generously dimensioned bearing system.
- ▷ **Synchronized opening and closing** through sturdy compensation bar.
- ▷ **Safety** is assured in the event of an unexpected pressure drop due to the integrated non-return valve.
- ▷ **Wear plates** (reversible) and **welded hooks** are delivered on each grapple.
- ▷ **Powerfull operation** due to high closing force (6,380 lbf at an operating pressure of 3,750 psi).



### Package universal grapple KM 605U-Z c

Type	Volume (c.y.)	Width E (in)	Height C (w/o rotator) (in)	Opening max. A (in)	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 605U-Z-500 c	0.65	40.2	41.7	63.2	1,071	6,380	6,600

**Package consists of:** clamshell bucket with gap, rotator KM 04 F, upper suspension KM 501 4500, wear plates KM 685 07 set, welded hooks KM 685 06 hook set 2, short connecting hoses KM 203 01, non-return valve

### Universal grapple KM 605U-Z single

Type	Volume (c.y.)	Width E (in)	Height C (w/o rotator) (in)	Opening max. A (in)	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 605U-Z-500	0.65	40.2	41.7	63.2	1,007	6,380	6,600

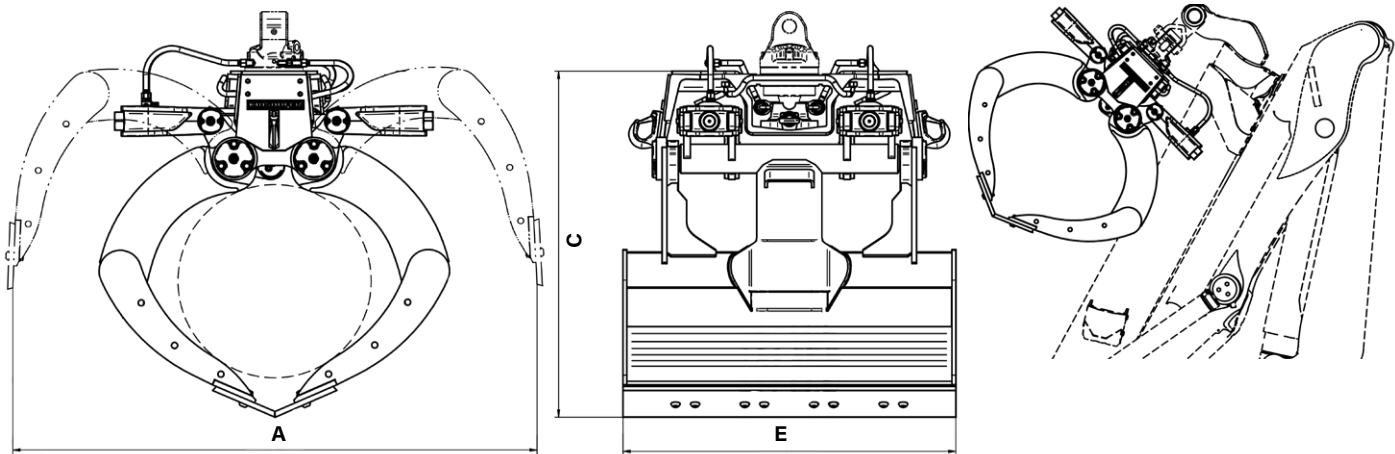
### Accessories

Type	Description
KM 04 F140-30US	recommended KINSHOFER rotator for KM 605U-Z for heavy duty tasks
KM 685 05	adapters for compression rails (load capacity max. 550 lbs, without compression rails)
KM 381 09 (720)	compression rails - length 28.4 in (2 pieces)
KM 381 09 (1000)	compression rails - length 39.4 in (2 pieces)
KM 685 09 C	side plates to screw onto the grapple for easy digging tasks (4 pieces)

### Requirements of truck crane

**Operating pressure at oil flow:**  
3,750 psi at 6.5 - max. 24 GPM

### Technical drawings



The reliable, asymmetric orange peel grapple KM 652/2 with half closing tines provides for easy transport, resting flat against the crane arm, with no protruding parts wider than the carrier machine. It is mainly used for handling scrap, waste and construction materials, and is available with 5 (KM 652-5/2) or 6 arms (KM 652-6/2) – depending on the task.

- ▷ **Asymmetric construction:** the grapple rests flat against the crane arm in its transport position (see below drawing).
- ▷ **Special slot on the main carrier** allows the transportation of a large orange peel grapple, that does not protrude the width of the carrier (98.40 in).
- ▷ **Half closing tines** by default, completely closing at the points, for handling waste, scrap, loose materials, etc.
- ▷ **Non-return valve** guarantees a secure retention of loads even when pressure drops.
- ▷ **Long service life** due to robust design – oil distributor and hydraulic hoses are protected in the center part, with large bearings, wear-resistant shells made of 400 HB steel, cylinder with piston rod protection, stops for both end positions of tines.
- ▷ **Strong operation** due to high closing forces (2,860 lbf at 3,750 psi operating pressure).



### Asymmetric orange peel grapples KM 652-5/2 and KM 652-6/2

Type	Number of tines	Volume (c.y.)	Opening Ø A (in)	Width E (closed) (in)	Height C (closed, incl. rotator) (in)	Weight (w/o rotator) (lbs)	Capacity (lbs)	Closing force (lbf)
KM 652-5/2	5	0.31	70.5	41.9	43.7	770	5,500	2,860
KM 652-6/2	6	0.31	70.5	41.9	43.7	902	5,500	2,860

**Package consists of:** orange peel grapple, non-return valve

### Accessories

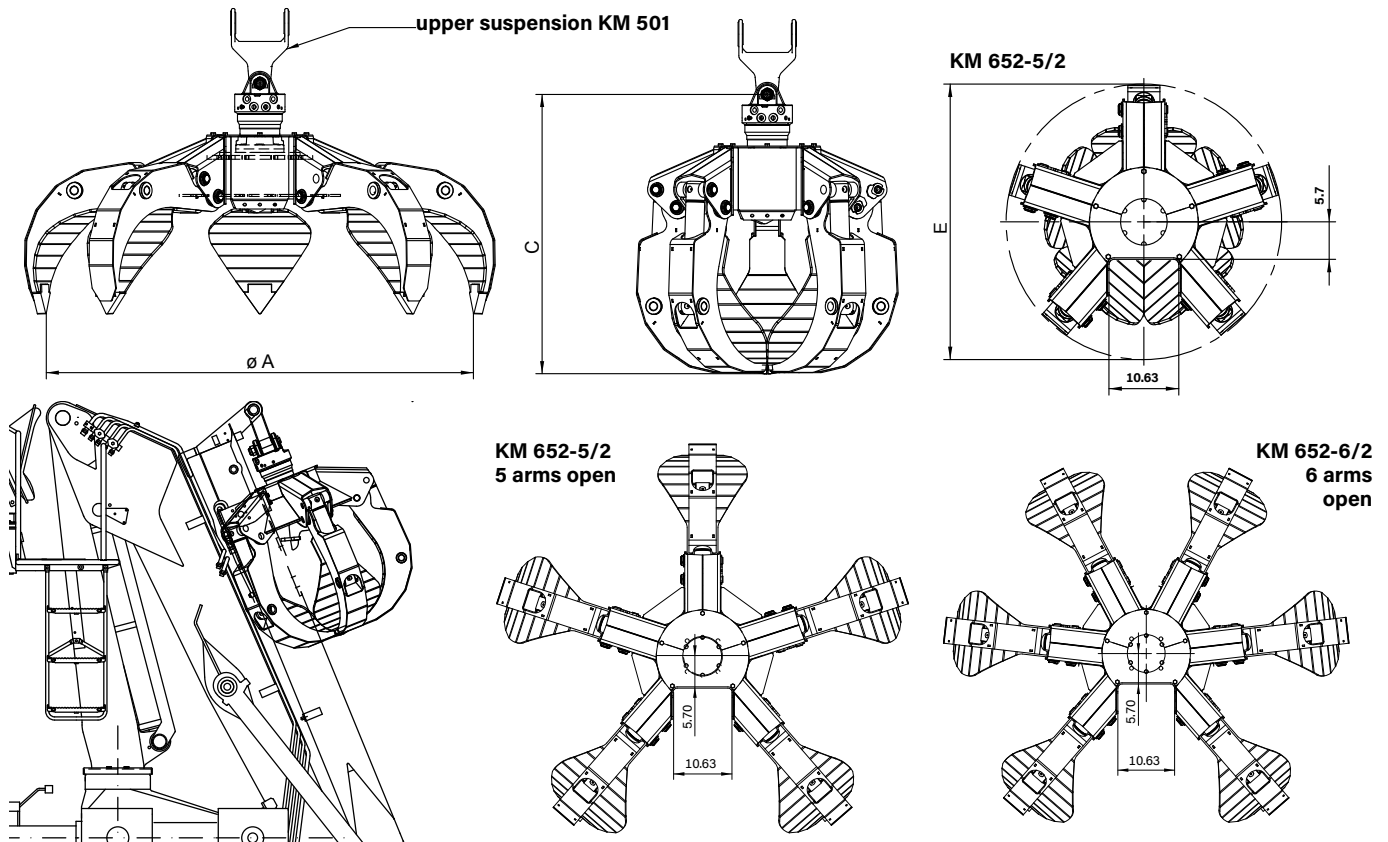
**Type**                      **Description**

**KM 06 F173-35**    KINSHOFER rotator for KM 652/2

### Requirements of truck crane

**Operating pressure:**                      **max. 3,750 psi**  
**Oil flow:**                                      6.5 - max. 20 GPM    **Mind the pressure!**

### Technical drawings



The small orange peel grapple KM 652-5 small for the handling of bulky scrap is available with five tines and three different volumes (0.16 c.y., 0.24 c.y., 0.31 c.y.).

- ▷ The KM 652-5 small is available with 5 half closing tines for handling swarf, scrap, rubbish, waste paper etc.
- ▷ **Long life** due to a solid design: the hydraulic cylinder pistons are protected by the gripping arms and the hydraulic hoses, connections and oil distributor are positioned in the robust centre section. Special wear resistant materials used in the production of the gripping arms and oversized bearings ensure a long service life for these sturdy grapples.
- ▷ **A lifting-eye** on the centre section acts as an additional stop.
- ▷ **Powerful operation** with high closing force (2,420 lbf to 3,718 lbf at an operating pressure of 3,750 psi).



here with optional rotator

### Orange peel grapple KM 652-5 small

Type	Number of tines	Volume (c.y.)	max. Opening A (in)	Width E (closed) (in)	Height C (incl. rotator) (in)	Self weight (w/o rotator) (lbs)	Load capacity (lbs)	Closing force (lbf)
KM 652-5	5	0.16	54	41.9	32	660	4,400	2,860
		0.24	57	42.1	33	671	4,400	2,640
		0.31	68	44.3	39	748	4,400	2,420

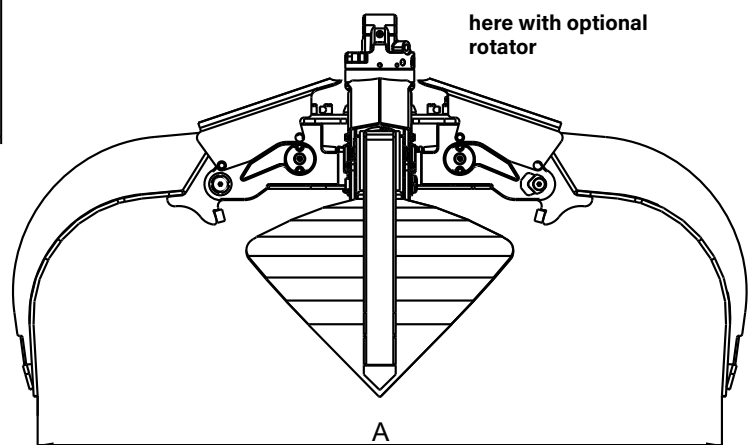
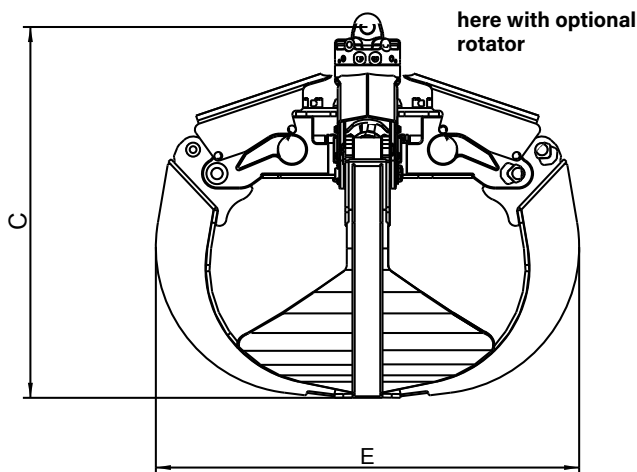
### Accessories

Type	Description
KM 04 F	recommended KINSHOFER rotator

### Requirements of truck crane

Operating pressure: max. 3,750 psi  
 Recommended oil flow: 8 - max. 20 GPM **Mind the pressure!**

### Technical drawings





Large orange peel grapple for the handling of bulky scrap, the KM 650 large for various applications is available with different tine shapes, different volumes (0.33 c.y., 0.46 c.y., 0.65 c.y.), with 4 or 5 tines.

- ▷ **Different tine shapes** of the KM 650 series to accommodate handling a variety of materials:
  - **KM 651:** fully closing tines for handling swarf, loose waste, soil, gravel etc.
  - **KM 652:** half closing tines for handling swarf, scrap, rubbish, waste paper etc.
  - **KM 653:** pointed tines for bulky scrap, car bodies, bundled waste paper etc.
- ▷ **Number of tines** can be chosen with 4 or 5 tines.
- ▷ **Long life** due to a solid design: the hydraulic cylinder pistons are protected by the gripping arms and the hydraulic hoses, connections and oil distributor are positioned in the robust centre section. Special wear resistant materials used in the production of the gripping arms and oversized bearings ensure a long service life for these sturdy grapples.
- ▷ **A lifting-eye** on the centre section acts as an additional stop.
- ▷ **Powerful operation** with high closing force (2,860 lbf to 3,960 lbf at an operating pressure of 3,750 psi).



### Orange peel grapple KM 650 large

Type	Number of tines	Volume (c.y.)	max. Opening A (in)	Width E (closed) (in)	Height C (closed, incl. rotator) (in)	Self weight (w/o rotator) (lbs)	Load capacity (lbs)	Closing force (lbf)
<b>KM 651-4</b>	4	0.33	61	51	40	979	5,500	3,960
		0.46	68	50	43	1,034	6,600	3,520
		0.65	85	52	53	1,221	6,600	2,860
<b>KM 651-5</b>	5	0.33	61	51	40	1,144	5,500	3,960
		0.46	68	50	43	1,199	6,600	3,520
		0.65	85	52	53	1,397	6,600	2,860
<b>KM 652-4</b>	4	0.33	61	51	40	935	5,500	3,960
		0.46	68	50	43	968	6,600	3,520
		0.65	85	52	53	1,111	6,600	2,860
<b>KM 652-5</b>	5	0.33	61	51	40	1,111	5,500	3,960
		0.46	68	50	43	1,144	6,600	3,520
		0.65	85	52	53	1,309	6,600	2,860
<b>KM 653-4</b>	4	0.33	61	51	40	858	5,500	3,960
		0.46	68	50	43	869	6,600	3,520
		0.65	85	52	53	957	6,600	2,860
<b>KM 653-5</b>	5	0.33	61	51	40	1,034	5,500	3,960
		0.46	68	50	43	1,056	6,600	3,520
		0.65	85	52	53	1,155	6,600	2,860

### Accessories

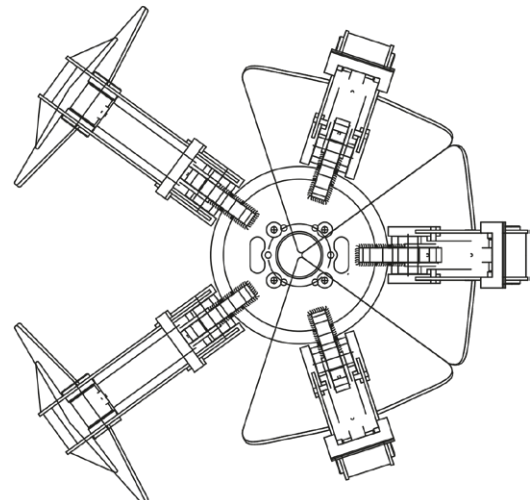
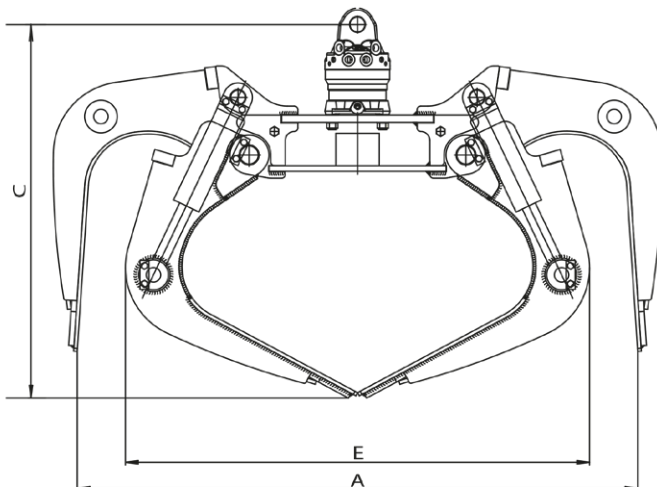
**Type**                      **Description**

- KM 04 F**                      recommended KINSHOFER rotator for KM 650 large
- KM 06 F140-40**            recommended KINSHOFER rotator for KM 650 large – for heavy duty application

### Requirements of truck crane

**Operating pressure:**                      max. 3,750 psi  
**Recommended oil flow:**                8 - max. 20 GPM      **Mind the pressure!**

### Technical drawings



Designed to handle the various demands of the rail, the universal railroad grapple with horizontal cylinders KM 632-2-R can be used for rail or ties. This robust and versatile tool is optimal for use on loader cranes.



- ▷ The universal railroad grapple is **ideal for handling used sleepers and rails – and even for clearing brush.**
- ▷ **Long service life** is ensured by the sturdy construction and high quality components.
- ▷ **Reduced wear** resulting from generously dimensioned bearing system.
- ▷ **Tine tips are vertical when the grapple is fully opened**, allowing easy loading and unloading of bundled ties - directly from gondola cars.
- ▷ **Gears are standard** and ensure synchronized movement of tines.
- ▷ **The tool is equipped with two horizontal hydraulic cylinders**, providing an extremely high clamping force.
- ▷ The **gear-type continuous rotator** allows precise positioning of the grapple.
- ▷ **Safety:** a special holding valve provides a safe grip – even if pressure drops.
- ▷ **Central lifting eye** included with 4,400 lbs load capacity.

**Universal railroad grapple KM 632-2-R**

Type	Capacity	Width E	Opening A max.	Height C max. (w/rotator)	Height C min. (w/rotator)	Self weight (lbs)	Load capacity (lbs)	Closing force (lbf)
KM 632-2-R	0.33 (cords)	24 (in)	78 (in)	56 (in)	45 (in)	780 (lbs)	6,600 (lbs)	3,080 (lbf)

**Package consists of:** universal railroad grapple, KINSHOFER rotator KM 06 F140-40, short connecting hoses, upper suspension KM 501 6000, non-return valve, central lifting eye

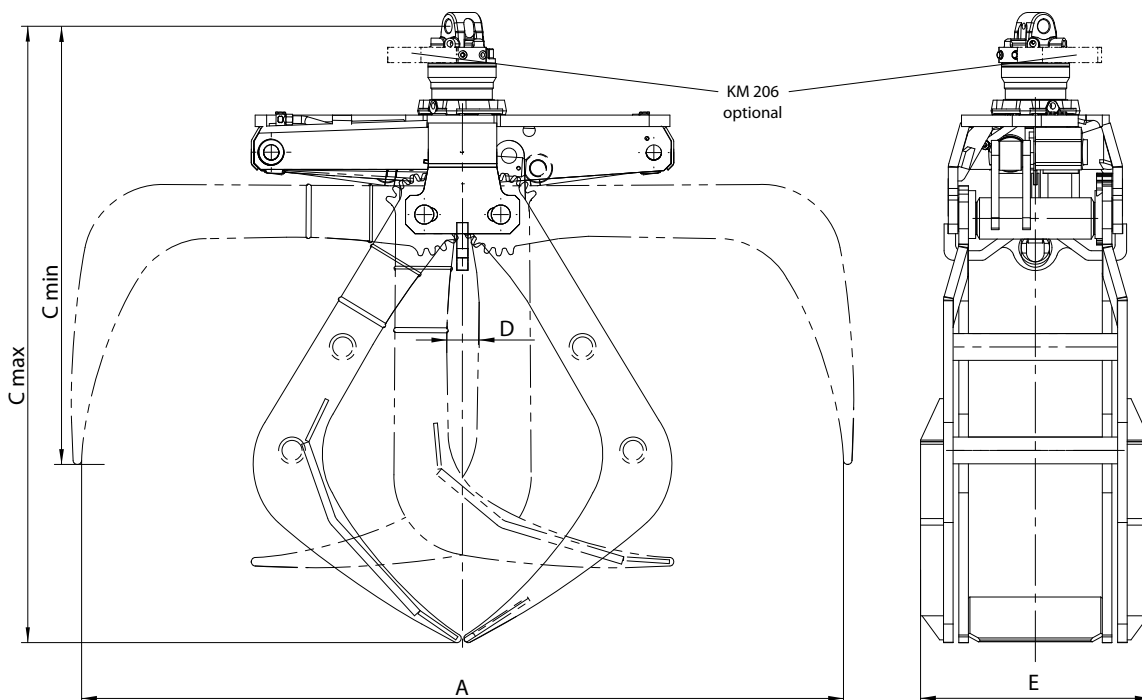
**Accessories**

Type	Description
KM 505 HD	quick change system set for KINSHOFER shaft rotators, incl. hydraulic couplings
KM 685 05	adapter for compression rails (load capacity max. 550 lbs)
KM 685 06 eye / hook set 2	welded eyes / welded hooks (2 pieces)
KM 511 6000	upper suspension including pendulum damper

**Requirements of truck crane**

<b>Operating pressure (open/close):</b>	<b>max. 3,750 psi</b>
<b>Recommended oil flow (open/close):</b>	6.5 - max. 20 GPM
<b>Operating pressure (rotation):</b>	<b>max. 4,600 psi</b>
<b>Recommended oil flow (rotation):</b>	4 - max. 13 GPM

**Technical drawings**



Designed to handle the various demands of the rail, the universal railroad grapple with vertical cylinders KM 632R can be used for rails and railroad ties / sleepers – and even for clearing brush. This robust and versatile tool is optimal for use on loader cranes.

- ▷ The universal railroad grapple is **ideal for handling used sleepers or rails – single or bundled.**
- ▷ **Long service life** is ensured by the sturdy construction and high quality components.
- ▷ **Reduced wear** resulting from generously dimensioned bearing system.
- ▷ **Tine tips are vertical when the grapple is fully opened**, allowing easy loading and unloading of bundled ties – directly from gondola cars.
- ▷ **Exchangeable gears are standard** and ensure synchronized movement of tines.
- ▷ **Each arm is equipped with a heavy duty hydraulic cylinder**, providing an extremely high clamping force.
- ▷ The **gear-type continuous rotator** allows precise positioning of the grapple.
- ▷ **Safety:** a special holding valve provides a safe grip – even if pressure drops.
- ▷ **Central lifting eye** included with 4,400 lbs load capacity.



## Universal railroad grapple KM 632R

Type	Capacity (cords)	Width E (in)	Opening A max. (in)	Height C max. (in)	Height C min. (in)	Gripping range D (in)	Self weight (lbs)	Load capacity (lbs)	Closing force (lbf)
KM 632R-0.25 c	0.25	24	69	54	42	3	968	6,600	4,950
KM 632R-0.33 c	0.33	24	78	59	47	3	1,023	6,600	4,270
KM 632R-0.50 c	0.5	24	96	67	50	3	1,320	6,600	3,370

**Package consists of:** universal railroad grapple, KINSHOFER rotator KM 06 F140-40, short connecting hoses, upper suspension KM 501 6000, non-return valve, central lifting eye

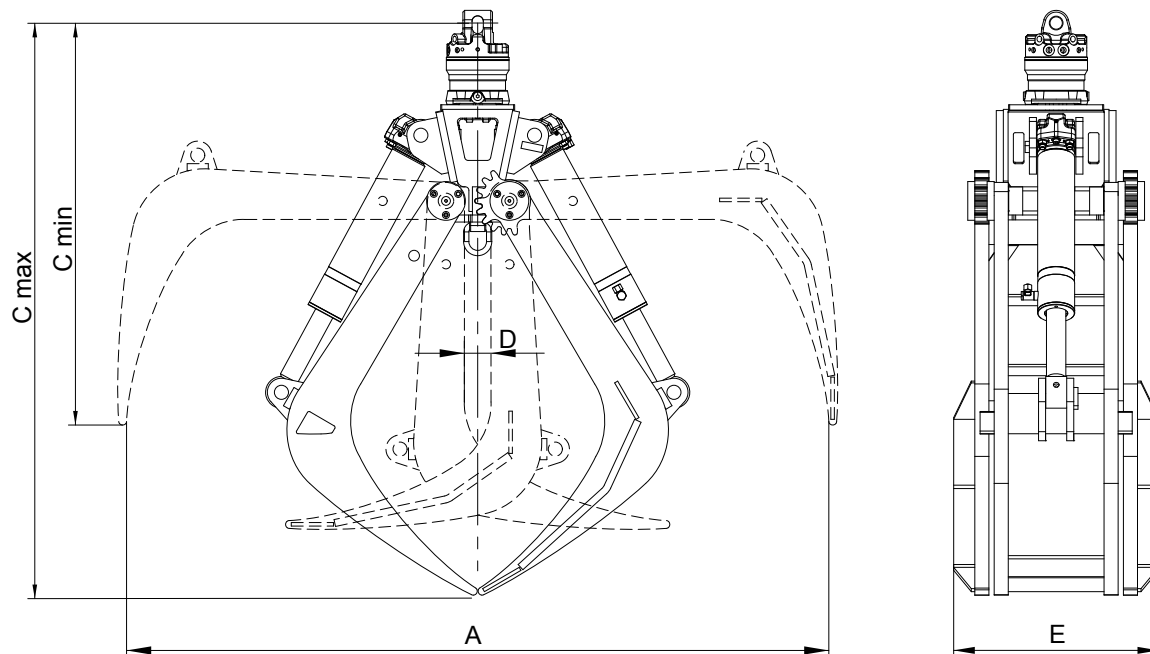
## Accessories

Type	Description
KM 505 HD	heavy duty quick change system set for KINSHOFER shaft rotators, incl. hydraulic couplings
KM 685 06 eye / hook set 2	welded eyes / welded hooks (2 pieces)
KM 511 6000	upper suspension including pendulum damper

## Requirements of truck crane

<b>Operating pressure (open/close):</b>	max. 3,750 psi
<b>Recommended oil flow (open/close):</b>	6.5- max. 20 GPM
<b>Operating pressure (rotation):</b>	max. 4,600 psi
<b>Recommended oil flow (rotation):</b>	4 - max. 13 GPM

## Technical drawings



The rail grapple KM 632HPX Rail with its *HPXdrive* is used for the loading and unloading of rails, but also, with care, handle single sleepers. A non-return valve secures constant pressure even in case of unexpected pressure drop. The revolutionary *HPXdrive* technology guarantees a reliable and low maintenance attachment. The gripper is ideal for mobile loader cranes as well as for rigidly mounted loader cranes on maintenance trailers.

- ▷ **Reliability** of the HPXdrive! The movement of the arms of the grapple is generated by two hollow shafts, which run opposed and have a helix thread, hydraulically driven by a single piston. No more hydraulic cylinder.
- ▷ **Longer life cycle** up to 50%! **Self-lubrication:** The drive unit runs in a permanent oil bath. The compact design makes the HPXdrive resistant to dirt and debris.
- ▷ **Versatility** with different types of shells that can easily be refitted onto the driving unit.
- ▷ **Profitability** through low maintenance costs and longer life cycle.
- ▷ **Rotator with shaft** KM 04 S is available as an alternative, in case a quick change KM 505 (or a reduction link KM 502 or e.g. for a non-rotating hook) is required.
- ▷ **Constant closing force** (7,480 lbf at 3,750 psi operating pressure) during the entire opening and closing process.



**Package rail grapple KM 632HPX Rail c with KINSHOFER flange rotator**

Type	Length (in)	Width (in)	Height (in)	Weight (lbs)	Closing force (lbf @3,750 psi)	Load capacity (lbs)
KM 632HPX Rail c	39.4	22.1	29.1	583	7,480	4,400
KM 632HPX Rail + KM 505c	39.4	22.1	32.3	605	7,480	4,400

**Package KM 632HPX Rail:** rail grapple, KINSHOFER rotator KM 04 F140-30V, upper suspension KM 501 4500, non-return valve

**Package KM 632HPX Rail + KM 505 consists of:** rail grapple, KINSHOFER rotator KM 04 S, upper suspension KM 501 4500, KM 505 quick change system, KM 203 01 short hoses, non-return valve

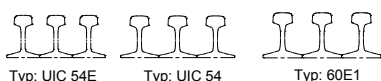
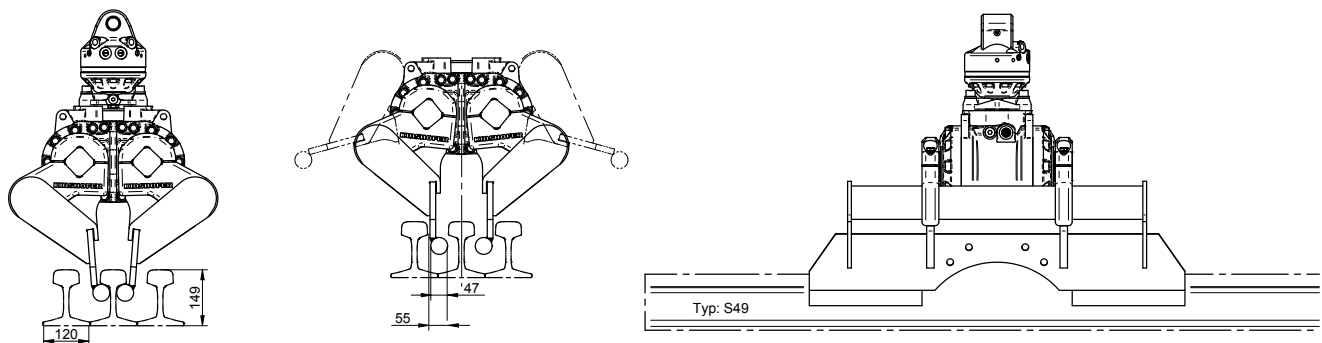
**Accessoires**

Type	Description
KM 04 S68-30US	recommended KINSHOFER shaft rotator for heavy duty tasks – up to 9,900 lbs load capacity
KM 505 HD	quick change system HD for shaft-type rotator KM 04 S68-30US
KM 502 4500	reduction link between rotator and grapple
KM 204 01	mobile part of hydraulic quick coupling for hose (Ø 0.39 in, 2 pieces)
KM 204 03	hydraulic quick change kit incl. mobile and fixed parts (2 pieces each) mounted with adapters to rotator
KM 632HPX Rail-S	exchangeable tines for rail grapple, incl. exchange aid – weight tines 275 lbs

**Requirements of truck crane**

**Operating pressure:** 3,750 psi  
**Recommended oil flow:** 6.5 - max. 20 GPM

**Technical drawings**



The KM 634 is a robust and powerful tool for logs – especially for heavy duty operation. Well suited for handling single trunks.

- ▷ **Low height** with one horizontal hydraulic cylinder – especially when closed due to the interlocking arms.
- ▷ **Long service life** is ensured by the sturdy construction, high quality components and generously dimensioned bearing system. All bearing bolts are case hardened and housed in steel bearing bushes.
- ▷ **Optimised design** allows extremely small grapple diameter – ideal for handling thin timber securely. The arms open almost vertically. That enables an easy penetration into the timber stack.
- ▷ **Synchronisation** of arms due to sturdy compensation rods.
- ▷ **Protection of the hoses** for the hydraulic connections by a hose guard on the rotator.
- ▷ **Precise positioning** of the loads is no problem in combination with the KINSHOFER rotator – continuous rotation, precise start and stop ability.
- ▷ **Safety** is assured in the event of an unexpected pressure drop due to the integrated non-return valve.
- ▷ **The reinforced logging grapple KM 634S** has an even more sturdy construction.



### Packages logging grapple KM 634-0,25c / KM 634-0,35c / KM 634-0,50c

Type	Capacity (cords)	Width B (in)	min. Log-Ø D2 (in)	max. Log-Ø D2 (in)	max. Opening A (in)	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 634-0,25 c	0.17	17	3.5	18.1	58	473	2,860	8,800
KM 634-0,35 c	0.23	20	5.3	23.2	77	660	3,520	11,000
KM 634-0,50 c	0.33	20	6.7	25.6	78	722	3,300	11,000

**Package consists of:** logging grapple, rotator with hose protection (for KM 634-0,25: KM 06 F173-35, for KM 634-0,35: KM 10 F173-35, for KM 634-0,50: KM 10 F173-45), short hoses KM 203 01, suitable upper suspension KM 501, non-return valve

### Logging grapple KM 634

Type	Capacity (cords)	Width B (in)	min. Log-Ø D2 (in)	max. Log-Ø D2 (in)	max. Opening A (in)	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 634-0,25	0.17	17	3.5	18.1	58	374	2,860	8,800
KM 634-0,35	0.23	20	5.3	23.2	77	495	3,520	11,000
KM 634-0,50	0.33	20	6.7	25.6	78	550	3,300	11,000

### Logging grapple KM 634S – reinforced version of KM 634

Type	Capacity (cords)	Width B (in)	min. Log-Ø D2 (in)	max. Log-Ø D2 (in)	max. Opening A (in)	Weight (lbs)	Closing force (lbf)	Load capacity (lbs)
KM 634S-0,40	0.27	20	5.3	23.2	77	594	3,520	13,200
KM 634S-0,50	0.33	20	6.7	25.6	78	605	3,520	15,400
KM 634S-0,70	0.47	23	4.3	34.3	101	1,166	3,300	17,600

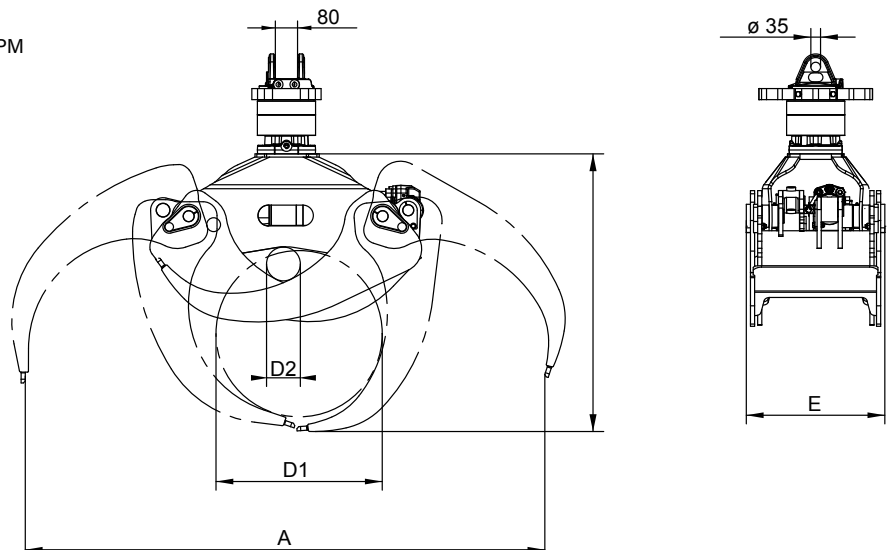
### Accessories

Type	Description
KM 10 F173-45	recommended KINSHOFER rotator for KM 634S

### Requirements of truck crane

**Operating pressure:** max. 3,500 psi  
**Recommended oil flow:** 6.5 - max. 20 GPM  
**Mind the pressure!**

### Technical drawings



The Harvester KM 634-3Z has been developed especially for telescopic forklifts. During the sawing process, the three robust tines of the integrated grab hold the log firmly and securely. Available in two sizes.

- ▷ **Three interlocking, robust tines** made of Hardox 400 steel.
- ▷ **Automatic re-stress** of the grab during the sawing process. The re-stress can be stopped by a lever to cut e.g. single branches separately.
- ▷ **Optimum grab design** allows to clamp even very thin logs.
- ▷ Saw equipped with **automatic chain pretension and greasing**.
- ▷ Precise positioning thanks to the **worm drive**. High torque.
- ▷ **Highly safe hydraulics** due to an integrated non-return valve, so the load is held safely even in the case of pressure drops.
- ▷ **8/3 solenoid valve** included to operate the grab with only one control circuit.



### Harvester KM 634-3Z

Type	Capacity (cords)	Widths E1 / E2 / (E3) (in)	Log-Ø D max. (in)	Log-Ø min. (in)	Opening A max. (in)	Weight (lbs)	Closing force (lbs)	Torque (ft.lbs.)	Load capacity (lbs)
KM 634-0,25-3Z	0.17	13.8 / 39.4	20.5	1.9	57.9	1,389	2,923	8,851	2,756
KM 634-0,35-3Z	0.24	16.9 / 52.2 / (60.6)	24.6	2	67.3	2,094	4,046	1,0621	4,409

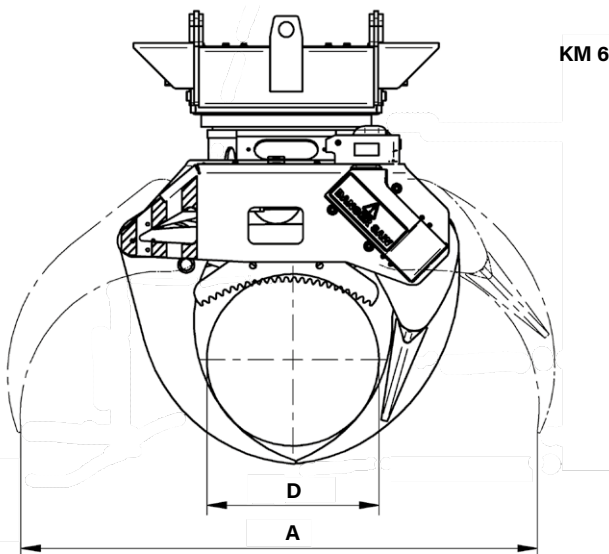
**Package consists of:** harvester, rotation with worm drive, quick change adapter for telescopic fork lift, 8/3 solenoid valve, non-return valve

### Requirements of truck crane

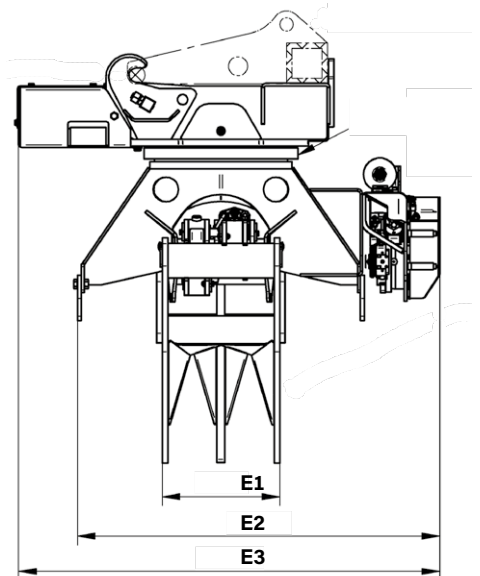
	KM 634-0,25-3Z	KM 634-0,35-3Z
Operating pressure (open/close):	max. 3,500 psi	max. 4,060 psi
Operating pressure (rotate):	2,450 psi	2,900 psi
Recommended oil flow (open/close):	16 to 26.5 GPM	20 to 32 GPM
Recommended oil flow (rotate):	5 to 13 GPM	5 to 13 GPM

**Mind the pressures!**

### Technical drawings



KM 634-0,35-3Z

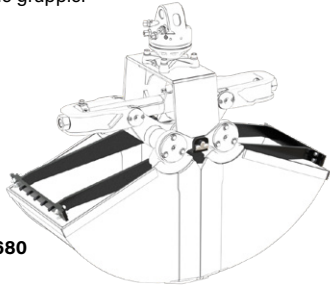


KM 634-0,25-3Z

# Accessories for Clamshell Buckets

## KM 680 - Scraper

Scrapers for clamshell buckets with narrow widths clear the inside of the shells of sticky materials such as clay, during each opening. The design varies depending on the grapple.



KM 680

**Type** for Clamshell bucket

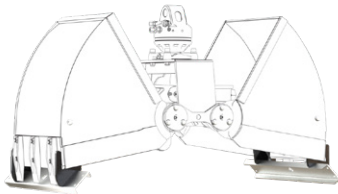
<b>KM 680 01</b>	KM 603/ 604/ 604HPX/ 605/ 605HPX/ 606/ 607
<b>KM 680 02</b>	KM 626HPX
<b>KM 505 04</b>	link-set for KM 604HPX/605HPX/626HPX in combination with KM 505 / KM 505 HD and scraper KM 680

link for the combination  
KM 505 (HD) + HPXdrive + scraper



## KM 685 05 - Adapters for compression rails

Adapters enable mounting of compression rails or support for concrete rings, for handling paving slabs, curbstones, concrete rings etc. The adapters can only be used with a **non-return valve**. They are not suitable for the use with a scraper.



KM 685 05

**Type** **Description**

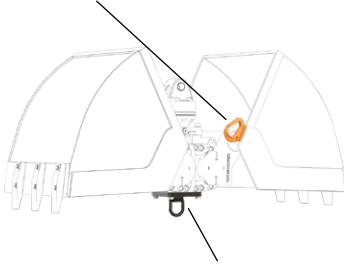
<b>KM 685 05</b>	adapters for compression rails
<b>KM 381 09 720</b>	compression rails – length 28 in long (2 pieces)
<b>KM 381 09 1000</b>	compression rails – length 39 in long (2 pieces)

The adapters for compression rails are available for the following clamshell buckets:  
KM 603 / 604HPX / 605 / 605HPX / 605U HPX

## KM 685 06 - Central lifting device for HPX, welded hook or welded eye

The central lifting device for HPXdrive, welded eyes or welded hooks suit lifting chains or slings. The max. capacity per eye or hook is 2200 lbs.

### KM 685 06 hook



KM 685 06 HPX

<b>KM 685 06 HPX SD</b>	to suit lifting chain or sling, 1 piece
<b>KM 685 06 HPX HD</b>	to suit lifting chain or sling, 1 piece
<b>KM 685 06 hook</b>	to suit lifting chain or sling, 1 piece
<b>KM 685 06 hook set 2</b>	to suit lifting chain or sling, 2 pieces
<b>KM 685 06 hook set 4</b>	to suit lifting chain or sling, 4 pieces
<b>KM 685 06 eye</b>	to suit lifting chain or sling, 1 piece
<b>KM 685 06 eye set 2</b>	to suit lifting chain or sling, 2 pieces



central lifting device HPXdrive

### KM 685 06 hook



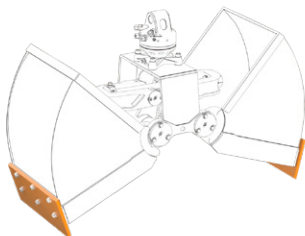
welded hook

### KM 685 06 eye (not with HPXdrive)



welded eye

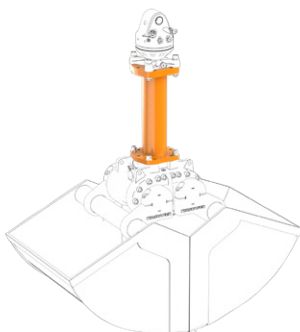
## KM 685 07 - Wear plates (2 pieces)



**Type** **Description**

<b>KM 685 07 set</b>	wear plates, 2 pieces, reversible, to protect horizontal cutting edges
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## KM 685 08 - Extension for excavating with HPXdrive



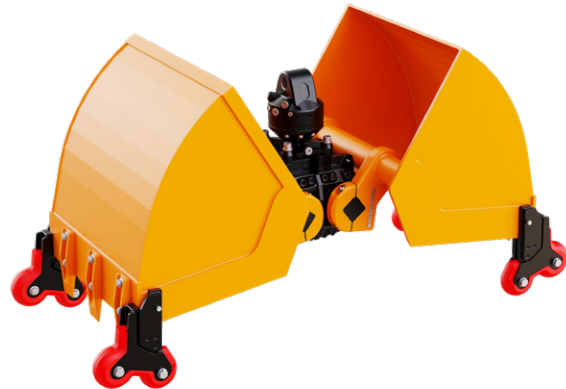
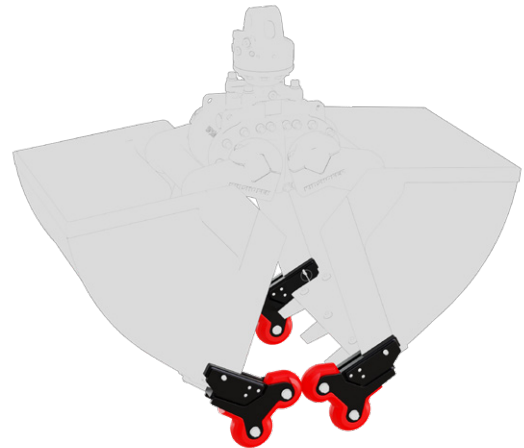
**Type** **Description**

<b>KM 685 08 HPX-450</b>	HPXdrive extension for excavating e.g. trenches (for canal and civil engineering) 17.7 in (66 lbs)
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The device is simply attached to the bottom of the shells and you can grip concrete parts, curbs, etc. precisely, safely and without damage. The 4-Grip is simply plugged onto the grab shells and secured with a folding pin. The gripper teeth must not be removed, which significantly reduces assembly time.

Thanks to its special kinematics you can grab items not only when closing the shells but also when opening. Shaft rings can be loaded and unloaded fast and easy without damaging them!

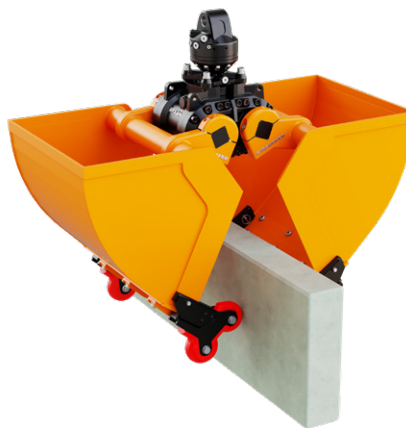
- ▷ **Economic solution**, as it is only an accessory that increases the flexibility of your attachment.
- ▷ **Robuste design**.
- ▷ **Plastic compression rolls** avoid damage of the material to be gripped.
- ▷ **Fast and easy mounting and removal** on site.
- ▷ **Low additional weight**: only 62 lbs in total.
- ▷ **High load capacity of 1,980 lbs.**



**Precise gripping of very narrow objects**



**Careful gripping of plain, slippery surfaces**



**Safe inside gripping without retooling**





A hydraulically operated attachment used for positioning tubes or poles, the KM 930 is for use on loader cranes with three functions. Flange mounting on the mechanical extension of the crane.

- ▷ **Manoeuvrability** through three hydraulic functions gripping, lifting and turning (rotation and tilting) of straight round poles (three hydraulic circuits are necessary). Unlimited angle of rotation.
- ▷ **Heavy loads** of 1,100 lbs up to 6,600 lbs can be handled by the KINSHOFER manipulators.
- ▷ **Precision operation** assured through continuous rotation, equipped with mechanically operating, hydraulic pilot controlled brake to prevent unintentional rotation.



### Manipulator KM 930

Type	Load capacity (lbs)	Pipe - Ø (min./max.) (in)	Width (in)	Number of tines	Self weight (lbs)	Closing force (lbf)
KM 930-500	1,100	3.9 / 11.8	31	1	517	2,420
KM 930-1000	2,200	3.9 / 11.8	50	2	682	5,060
KM 930-2000	4,400	9.8 / 23.6	54	4	1,903	5,500
KM 930-3000	6,600	9.8 / 23.6	64	6	2,387	8,580

**Package consists of:** manipulator, KINSHOFER rotator (KM 930-500 / KM 930-1000) / KINSHOFER rotary drive (KM 930-2000 / KM 930-3000), hydraulic pilot controlled brake, non-return valve

**Please note:** tubes or poles have to be grabbed always in the centre of gravity

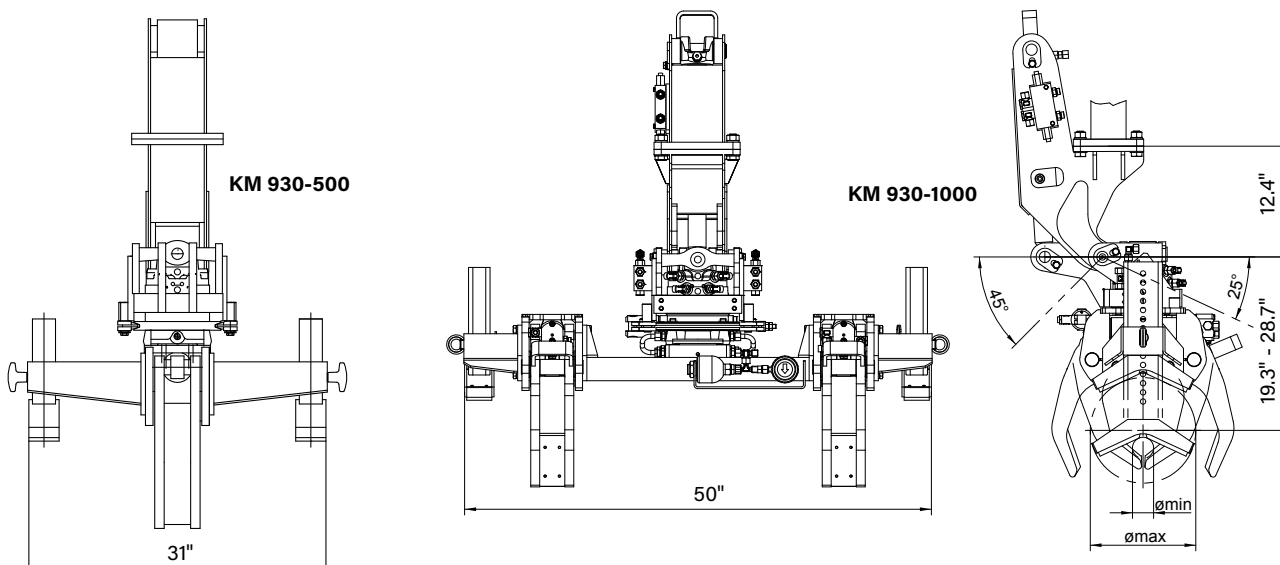
### Accessories

Type	Description
KM 980-2 c	Solenoid valve to upgrade to the third hydraulic control circuit, to switch when there are only two free hydraulic circuits available for three required functions (rotate, grab and tilt) - for 12/24 V, operating pressure max. 3,600 psi, oil flow 15.9 GPM. Complete including assembly parts, hose protection, hoses and assembly

### Requirements of truck crane

Type	Operating pressure at oil flow:	
KM 930-500 / KM 930-1000	max. 2,880 psi at 20 - max. 10.6 GPM	<b>Mind the pressure!</b>
KM 930-2000	max. 3,600 psi at 20 - max. 10.6 GPM	
KM 930-3000	max. 3,600 psi at 20 - max. 19.6 GPM	

### Technical drawings



The 3-Axes-Manipulator KM 931 features maximum manoeuvrability for your attachments at the loader crane's tip - and provides flexibility of the loader crane's use in any arc position.

- ▷ **3-axes-manipulator: maneuverability** by three hydraulic functions: gripping, rotating and tilting (3<sup>rd</sup> hydraulic circuit needed).
- ▷ **Endless rotation.**
- ▷ **High loads** up to 2,200 lbs.
- ▷ **Precise positioning** guaranteed by self-locking worm drive (KM 931-1000).
- ▷ **5-line feedthrough.**
- ▷ **Exchange system for the use with different attachments.**



### 3-Axes-Manipulator KM 931-1000

Type	Load capacity (lbs)	Slewing angle	Tilting angle	Rotation	Self weight (lbf)
KM 931-1000	2,200	130°	± 80°	360° endless	638

**Package consists of:** manipulator, hydraulic pilot controlled brake, worm drive, non-return valve

**Please note:** tubes or poles have to be grabbed always in the centre of gravity

### Accessories

Type	Description
KM 980-2 c	Solenoid valve to upgrade to the third hydraulic control circuit, to switch when there are only two free hydraulic circuits available for three required functions (rotate, grab and tilt) - for 12/24 V, operating pressure max. 3,600 psi, oil flow 15.9 GPM. Complete including assembly parts, hose protection, hoses and assembly

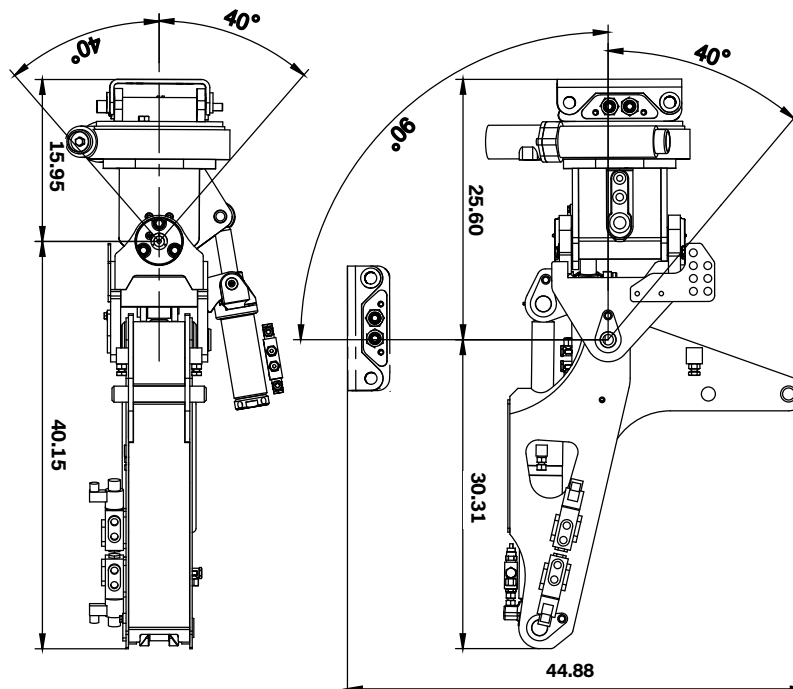
### Requirements of Truck Crane

**Three hydraulic circuits needed**

**Operating pressure:** 2,900 - 3,500 psi

**Oil flow:** 5 - max. 10.5 GPM

### Technical Drawings



Hydraulic hook KM 920-5 in different versions including Kinshofer rotator for tools and loads with ring system.

- ▷ **Low overall height** due to compact design.
- ▷ **Precise positioning** in combination with KINSHOFER rotator.
- ▷ The **safety load hook** is equipped with a hydraulic cylinder for opening/closing without opening unintentionally in a loaded condition.
- ▷ Suitable for the hydraulic suspension of pallet forks with vertical crane hook suspension or with additional hook (version B) for the fast and precise load suspension with e.g. tightropes, lashing straps, etc. and the following release of the loads (version C w/o additional hook).
- ▷ Including **integrated locking indicator**.
- ▷ Versions B **with switch valve/CEJN Multi-X-couplings**: for the hydraulic suspension and operation of universal forks and other hydraulic attachments with vertical crane hook suspension; with additional load hook by default.
- ▷ All versions can also open and empty containers with only one suspension opening (measurements container flap see drawing below).



here version B

### KM 920-5 for tools and loads with ring system

Type	Width (in)	Load capacity (lbs)	Ring - Ø max. (in)	Height (w/rotator) (in)	Weight (lbs)	Operating pressure at oil flow
KM 920-5Bc	12.3	9,900	1.18	18.9	128	5,330 psi at 0.5 - max. 2.6 GPM
KM 920-5Cc	12	9,900	1.18	18.9	126	5,330 psi at 0.5 - max. 2.6 GPM

**Package consists of:** hydraulic hook (B incl. load hook; C excl. load hook), rotator KM 04 F, short connection hoses KM 203 01, upper suspension KM 501 4500, non-return valve

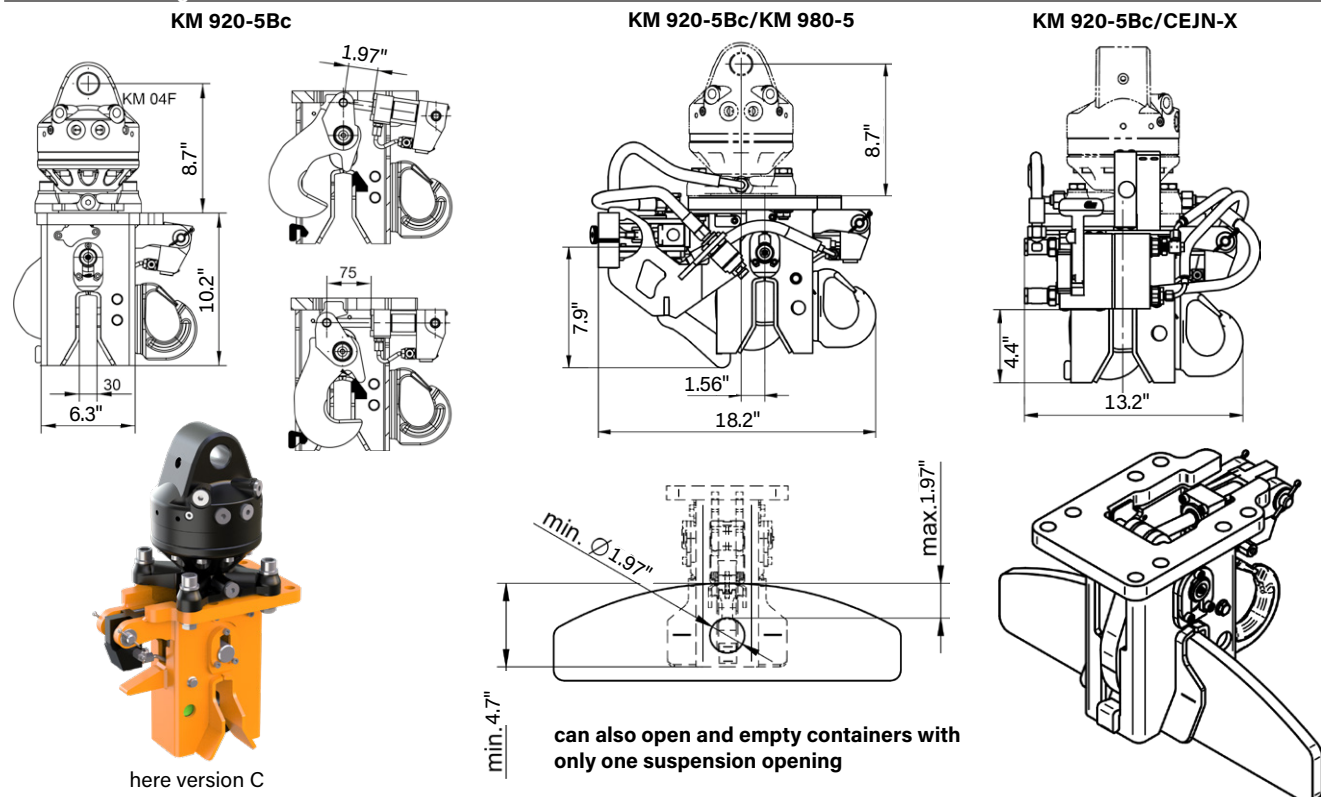
### KM 920-5 with hook and switch valve / CEJN Multi-X-couplings

Type	Width (in)	Load capacity (lbs)	Ring - Ø max. (in)	Height (w/rotator) (in)	Weight (lbs)	Operating pressure at oil flow
KM 920-5Bc/KM 980-5	18.2	9,900	1.18	19.1	150	5,040 psi at 0.5 - max. 2.6 GPM
KM 920-5Bc/CEJN-X	13.2	9,900	1.18	18.9	152	5,040 psi at max. 21.1 GPM

**Package consists of KM 920-5Bc/KM 980-5:** hydraulic hook incl. load hook, rotator KM 04 F, switch valve, short connection hoses KM 203 01, upper suspension KM 501 4500, non-return valve

**Package consists of KM 920-5Bc/CEJN-X:** hydraulic hook incl. load hook, rotator KM 04 F, CEJN Multi-X DUO10 couplings (set), short connection hoses KM 203 01, upper suspension KM 501 4500, non-return valve

### Technical drawings



here version C

**Hydraulic hook KM 920-4 for containers and loads with ring system**

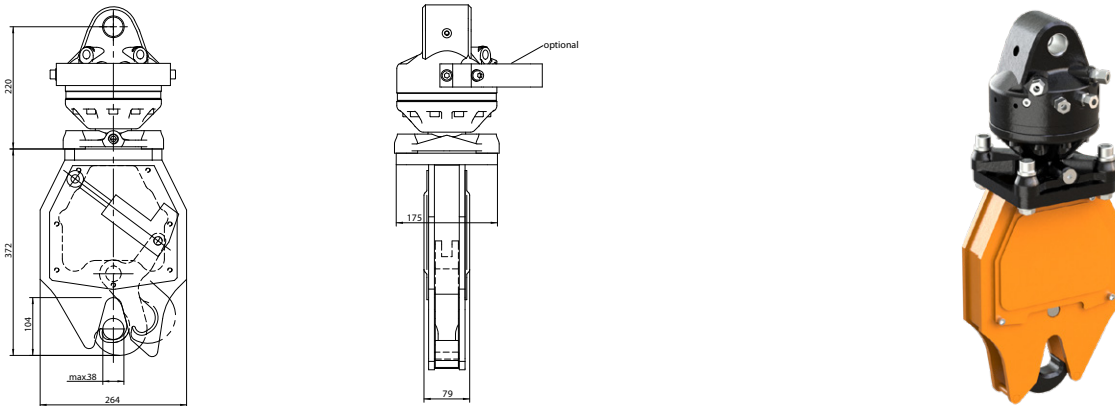
The hydraulic hook facilitates the fast and precise lifting and loosening of containers and loads with ring system.

- ▷ **Precise positioning** in combination with KINSHOFER rotator.
- ▷ **Low overall height** due to compact design.
- ▷ **Robust mechanics** with hydraulic cylinder (open/close).
- ▷ V-shaped cutout **facilitates ring suspension**.
- ▷ Rotator with vertical oil ducts, so **no open short hose** connections.

Type	Width (in)	Height (with motor) (in)	Ring - Ø max. (in)	Self weight (incl. motor) (lbs)	Load capacity max. (lbs)	Operating pressure at oil flow <b>Mind the pressure!</b>
<b>KM 920-4c</b>	10.4	23.3	1.5	101	5,500	2,880 psi at 0.5 - max. 2.6 GPM

**Package consists of:** hydraulic hook, rotator KM 04 F140-30V, upper suspension KM 501 4500, non-return valve

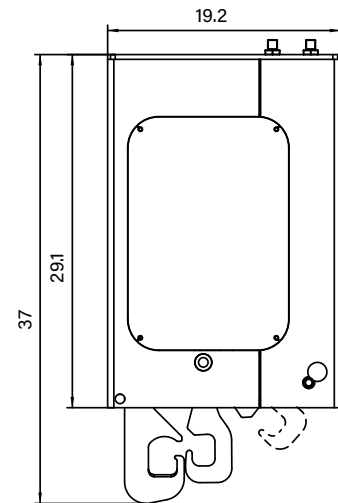
**Technical drawings**



**KINSHOFER** container discharge attachments with ring system or the fast KINSHOFER mushroom system are characterised by short cycle times and an attractive acquisition price. Containers can be emptied even faster and more cost effectively with a one-man operation.

**Container discharge unit KM 920-1 with ring system / low overall height**

- ▷ **Low overall height** due to compact design.
- ▷ **Extremely low maintenance and ecofriendly**, because no bearing has to be lubricated.
- ▷ **Hooks on automatically** when container is lifted.
- ▷ **Precise positioning** with KINSHOFER rotator.
- ▷ Protection against damage of container by **automatic lift stop**.
- ▷ Available with **two load capacities** (version A and B).



Type	max. Lift of the hook (in)	Load capacity (lbs)	Height (incl. rotator) (in)	Self weight* (lbs)	Operating pressure at oil flow
<b>KM 920-1-Ac</b>	19.7	9,900	45.7	383	5,040 psi at 10.6 GPM
<b>KM 920-1-Bc</b>	19.7	5,500	45.7	383	5,040 psi at 10.6 GPM

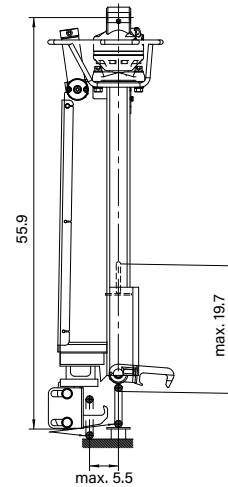
\* incl. motor / excl. upper suspension & pendulum damper

**Package consists of:** container discharge unit, KINSHOFER-rotator KM 04 F, connecting tubes, upper suspension with pendulum damper KM 511 4500, non-return valve

**KINSHOFER** container discharge attachments with ring system are characterised by short cycle times and an attractive acquisition price. Containers can be emptied even faster and more cost effectively with a one-man operation.

### Container discharge unit KM 920-11 for containers with ring system

- ▷ Robust mechanics with few moving parts and guided lifting hook.
- ▷ Precise positioning with KINSHOFER rotator, due to the use of a rotator with vertical oil ducts no externally installed hydraulic hoses are necessary.
- ▷ Pressure relief valve ensures independence of crane operating pressure.
- ▷ Protection against damage of container by automatic lift stop.



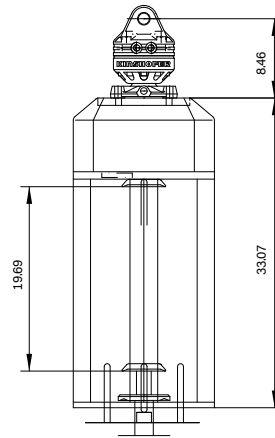
Type	max. Lift of the hook (in)	Load capacity (lbs)	Height (incl. rotator) (in)	Self weight* (lbs)	Operating pressure at oil flow
KM 920-11c	19.7	5,500	55.1	385	2,900 - 3,750 psi at max. 20 GPM 2,900 - 5,350 psi at max. 10.5 GPM

\* incl. rotator & hoses / excl. upper suspension & pendulum damper

**Package consists of:** container discharge unit, rotator KM 04 F140-30V, short connecting hoses KM 203 01, non-return valve, upper suspension with pendulum damper KM 511 4500, pressure relief valve

### Container Discharge Unit KM 921 with KINSHOFER Mushroom System or Ring System

- ▷ Combination model: without any adjustments both types of containers can be handled – with KINSHOFER mushroom system or ring system.
- ▷ Low overall height due to compact design.
- ▷ Robust mechanics with self locking spindle.
- ▷ Precise positioning with KINSHOFER rotator.
- ▷ Pressure relief valve ensures independence of crane operating pressure.
- ▷ Protection against damage of container by automatic lift stop and an additional height control system.



**The safe operation of the container discharge unit KM 921 can only be guaranteed by KINSHOFER GmbH if the containers are equipped with ORIGINAL KINSHOFER HOIST AND FIXED DISKS and the specified spacing dimensions are complied with!**  
**Do not use fixed discs with locking ribs!**

Type	max. Lift of the hook (in)	Load capacity (lbs)	Height (incl. rotator) (in)	Self weight* (lbs)	Operating pressure at oil flow
KM 921	20	5,500	42	396	2,900 - 3,750 psi at max. 20 GPM 2,900 - 5,350 psi at max. 10.5 GPM

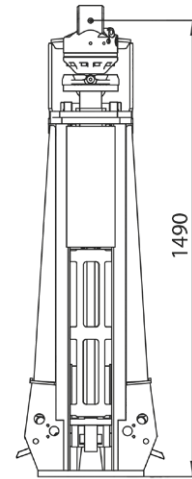
\* incl. rotator & hoses / excl. upper suspension & pendulum damper

**Package consists of:** Container discharge unit, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension with pendulum damper KM 511 4500, pressure relief valve

**KINSHOFER** container discharge attachments with the fast KINSHOFER mushroom system are characterised by short cycle times and an attractive acquisition price. Containers can be emptied even faster and more cost effectively with a one-man operation.

**Container discharge unit KM 920-12 for containers with KINSHOFER mushroom system**

- ▷ Robust mechanics with **self centring hydraulic interlocking**.
- ▷ **Precise positioning** with KINSHOFER rotator, direct hose routing.
- ▷ **Independence of crane operating pressure** due to the pressure relief valve.
- ▷ Protection against damage of container by **automatic lift stop and an additional height control system**.
- ▷ Pressure control for **user controlled unlocking**.
- ▷ Including **integrated locking indicator**.



Type	max. Lift of the hook (in)	Load capacity (lbs)	Height (incl. rotator) (in)	Self weight* (lbs)
KM 920-12	19.7	5,500	58.7	462

\* incl. rotator & hoses / excl. upper suspension & pendulum damper

**Package consists of:** container discharge unit, rotator KM 04 F, short connecting hoses KM 203 01, upper suspension with pendulum damper KM 511 4500, pressure relief valve and non-return valve



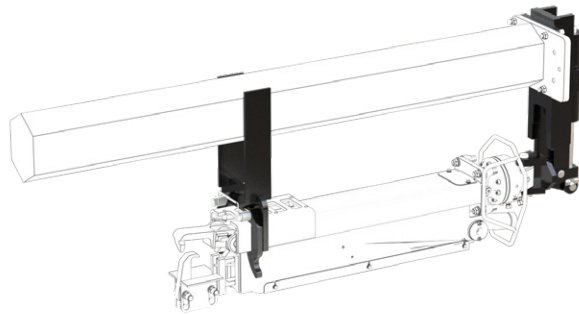
The safe operation of the container discharge unit KM 920-12 can only be guaranteed by KINSHOFER GmbH if the containers are equipped with ORIGINAL KINSHOFER HOIST AND FIXED DISKS and the specified spacing dimensions are complied with!  
Do not use fixed discs with locking ribs!

**Requirements of truck crane**

**Operating pressure at oil flow:**  
2,880 - 3,750 psi at max. 19.8 GPM  
2,880 - 5,330 psi at max. 10.6 GPM

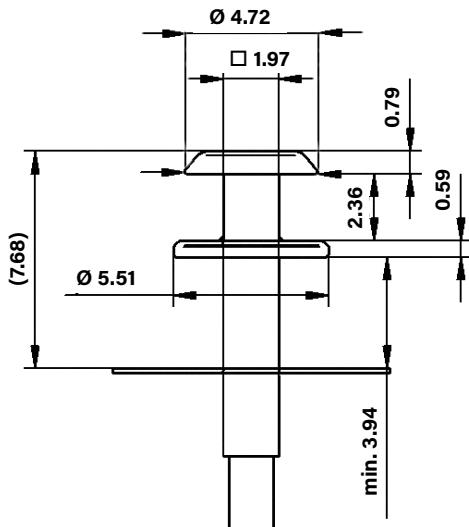
## Docking device for container discharge units KM 920-11, KM 920-12 and KM 921

Type	Description	Tilting angle (deg.)	Self weight (lbs)
KM 924	docking device for container discharge units: it allows the discharge unit to be hydraulically docked and locked onto the crane jib. When unlocked, acts as a hydraulic pendulum damper. A solenoid valve for switch-over between the hydraulic circuits is included. Please state crane model when ordering. Operating pressure <b>max. 4,030 psi</b>	90°	154

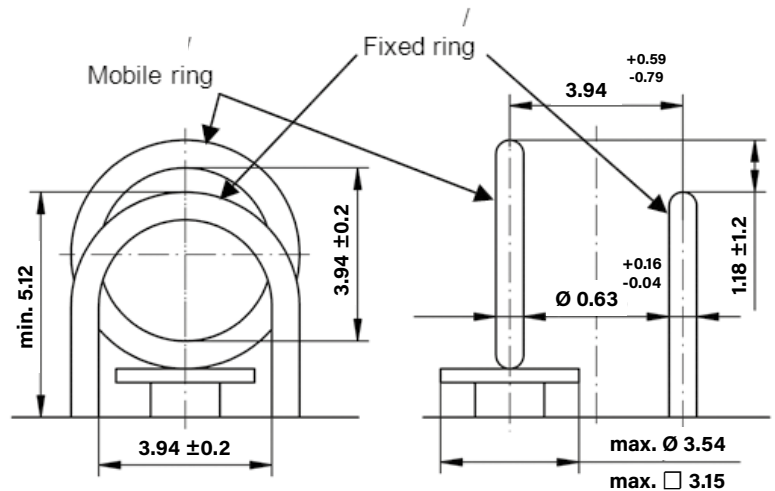


## Dimensions for containers with KINSHOFER mushroom or ring system

mushroom system for containers



ring system for containers



**mushroom and ring system: leverage hoisting max. 500 mm**

**Mushroom system at container**  
Usage only for containers with mushroom system with dimensions as shown above that are equipped with „**ORIGINAL KINSHOFER FIXED and HOIST DISCS**“. (According to DIN EN 13071-3)



**Ring system at container**  
Usage only for containers with ring system with dimensions as shown above .  
**Hoist ring at container with max. lifting height 500 mm.**

The KM 932MB Barrier Lifter is a mechanical grapple for fast and convenient handling of concrete barriers and blocks.

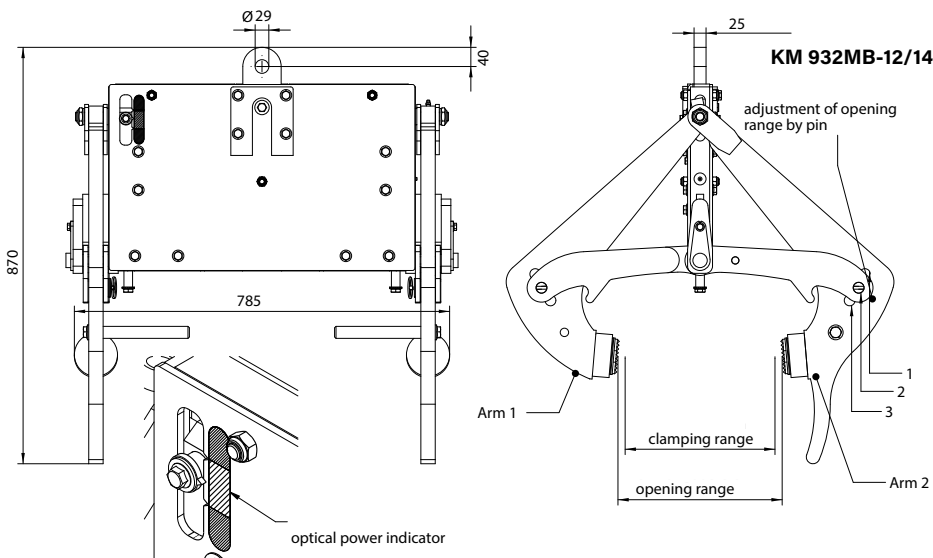
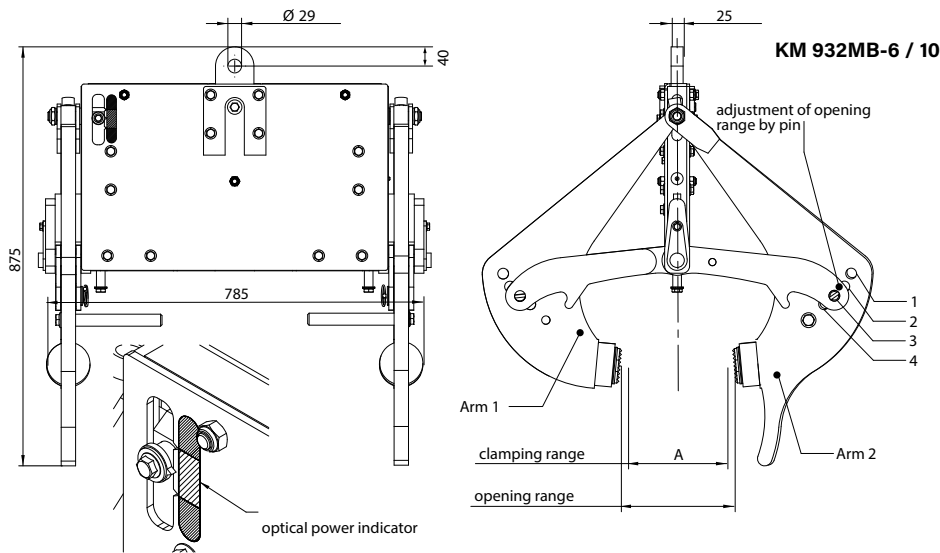
- ▷ **Safe:** Carbide gripping pads ensure safe operation, even on wet or coated surfaces. An optical power indicator illustrates the range for optimum grip.
- ▷ **Efficient:** The fully integrated, mechanically operated "latch & release" system allows the unit to function independently, without assistance from a ground man.
- ▷ **Versatile:** Multi-position arms are a standard feature. This means one unit can achieve different gripping ranges by simply changing a pin position.
- ▷ **Cost-effective:** The elimination of slings and chains means more cycles can be achieved per hour.
- ▷ **Fast:** The "latch & release" system functions automatically each time the load line is slackened.



### Barrier lifter KM 932MB

Type	Gripping A (min./max.) (in)	Self weight (lbs)	Load capacity max. (in)
KM 932MB-6/10	4.7 - 12	396	14,476
KM 932MB-12/14	11.6 - 15.5	363	14,476

### Technical drawings





The robust earth drills for truck cranes up to 18,0 t/m are an economical and customized solution for earth drills e.g. for fencing, road signage, landscaping and tree planting. Well borings, screw pile installations and sound barrier installations are also no problem for the earth drills.

- ▷ Non Dislodgement Shaft (NDS) for more safety and lower down times, as this unique construction prevents the output shaft from dislodgement.
- ▷ Pre-filled with a colored gear oil. Not only is the use of a colored oil a good indicator of correct service, but it also aids identifying possible hydraulic oil leaks.
- ▷ The heavy duty fabricated hoods feature forged steel ears; these high strength ears easily transmit the high torsional loads, experienced whilst drilling, without becoming fatigued.
- ▷ Easy access oil service points.



### Earth Drills for Truck Cranes 2300-10 / 4000-14 / 5000-14

Type	For cranes up to (t/m)	Shaft standard (in)	Shaft options (in)	Speed range (RPM)	Height (in)	Diameter (in)	Weight (lbs)	Suitable augers
2300-10	9	2.56 round	2" hex; 2.24 square	7 - 46	26.18	9.61	161	S4 100 - 600
4000-14	15	2.95 square	2.5" hex	11 - 38	30.71	10.59	238	S5 150 - 800
5000-14	9 - 18	2.95 square	2.5" hex	9 - 30	30.71	10.59	243	S5 150 - 1000

**Standard package consists of:** earth drill, connecting link for suspension

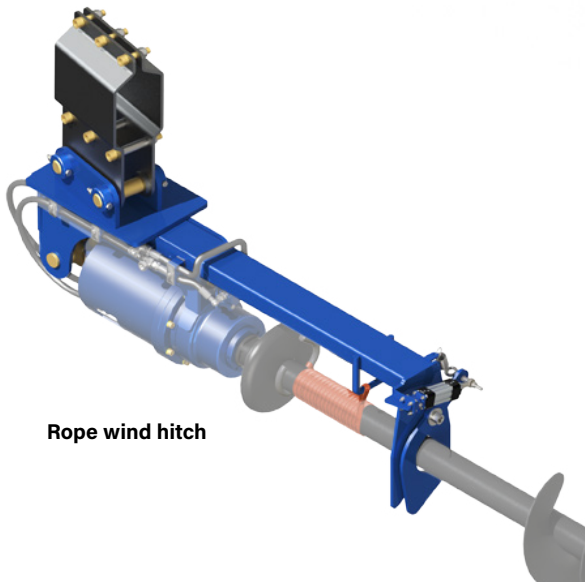
### Accessories

Type	Description
S4 Ext 500	extension suitable for earth drill 2300-10 and S4 augers - 19.68 in length
S4 Ext 1000	extension suitable for earth drill 2300-10 and S4 augers - 39.37 in length
S5 Ext 1000	extension suitable for earth drills 4000-14 / 5000-14 and S5 augers - 39.37 in length
S5 Ext 1500	extension suitable for earth drills 4000-14 / 5000-14 and S5 augers - 59.05 in length
S5 Ext 2000	extension suitable for earth drills 4000-14 / 5000-14 and S5 augers - 78.74 in length
S6 TeleExt 1500	telescopic extension suitable for earth drills 5500TC / 7000TC and S5/S6 augers starting from diameter 11.81 in length 59.05 in
S6 TeleExt 2000	telescopic extension suitable for earth drills 5500TC / 7000TC and S5/S6 augers starting from diameter 11.81 in length 78.74 in
Rope wind hitch	rope wind hitch for safe position on the truck crane during transport

### Technical Details

Type:	2300-10	4000-14	5000-14
Oil pressure range:	1,450 - 3,750 psi	1,450 - 3,750 psi	1,450 - 3,750 psi
Oil flow range:	1.3 - 10.5 GPM	4 - 14.5 GPM	4 - 14,5 GPM
Torque range:	707 - 2,295 ft.lbs.	1242 - 4,039 ft.lbs.	1547 - 5,029 ft.lbs.

### Pictures



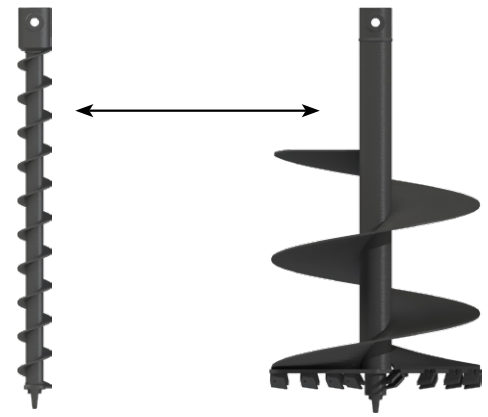
Rope wind hitch



Extensions / telescopic extension

The S4 auger is perfectly matched to the 2300-10 earth drill and every task. A constant spiral configuration and a shallow pitch flight guarantee extreme efficiency and productivity. Suitable for truck cranes up to 9 t/m .

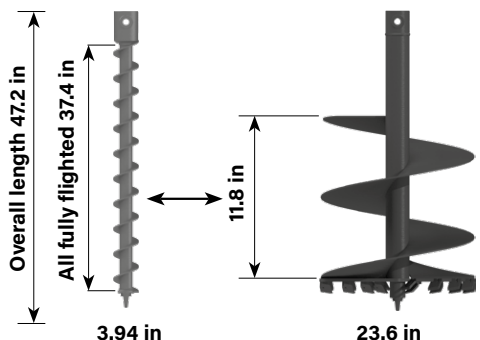
- ▷ Higher productivity by constant spiral configuration and the perfectly angled tooth holder.
- ▷ Interchangeable pilots and teeth allow for differing ground conditions.
- ▷ Easy fitting of teeth and pilots.
- ▷ Patented Shock Lock-System: incorporating a shock absorbing rubber element to protect the tungsten carbide on the tooth assembly coupled with a solid locking pin prevent tooth loss.
- ▷ High flexibility thanks to different auger extensions.



**S4 Augers** (specify pilot and teeth when ordering)

Type	Diameter (in)	Spiral length (in)	Total length (in)	Weight (lbs)	Number of teeth	Type of teeth
S4-100 Earth				37	0	Earth
S4-100 Tungsten	3.94	37.4	47.2	37	0	Tungsten
S4-100 Extra-Dig				37	0	Extra-Dig*
S4-150 Earth				46	2	Earth
S4-150 Tungsten	5.91	30.7	47.2	48	2	Tungsten
S4-150 Extra-Dig				48	2	Extra-Dig*
S4-200 Earth				53	2	Earth
S4-200 Tungsten	7.87	29.5	47.2	53	2	Tungsten
S4-200 Extra-Dig				53	2	Extra-Dig*
S4-225 Earth				59	2	Earth
S4-225 Tungsten	8.86	29.5	47.2	62	2	Tungsten
S4-225 Extra-Dig				59	2	Extra-Dig*
S4-250 Earth				59	3	Earth
S4-250 Tungsten	9.84	27.6	47.2	62	3	Tungsten
S4-250 Extra-Dig				62	3	Extra-Dig*
S4-300 Earth				70	4	Earth
S4-300 Tungsten	11.81	27.6	47.2	73	4	Tungsten
S4-300 Extra-Dig				70	4	Extra-Dig*
S4-350 Earth				77	4	Earth
S4-350 Tungsten	13.78	26.6	47.2	79	4	Tungsten
S4-350 Extra-Dig				79	4	Extra-Dig*
S4-400 Earth				84	5	Earth
S4-400 Tungsten	15.75	24.6	47.2	86	5	Tungsten
S4-400 Extra-Dig				84	5	Extra-Dig*
S4-450 Earth				92	6	Earth
S4-450 Tungsten	17.72	24.6	47.2	95	6	Tungsten
S4-450 Extra-Dig				95	6	Extra-Dig*
S4-500 Earth				106	6	Earth
S4-500 Tungsten	19.69	24.6	47.2	106	6	Tungsten
S4-500 Extra-Dig				106	6	Extra-Dig*
S4-600 Earth				119	8	Earth
S4-600 Tungsten	23.62	23.6	47.2	123	8	Tungsten
S4-600 Extra-Dig				121	8	Extra-Dig*

\* Tungsten-teeth with special digging pilot



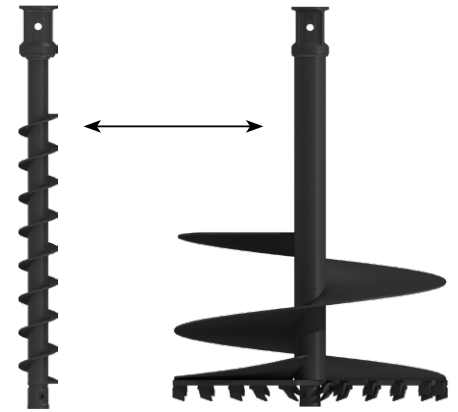
**S4 Extensions**



**Note:** all augers are fitted with shock lock tooth holder. Overall length stated includes fitted wear parts.

The S5 auger is perfectly matched to the corresponding earth drills and every task. A constant spiral configuration and a shallow pitch flight guarantee extreme efficiency and productivity. Suitable for truck cranes from 9 t/m up to 18 t/m.

- ▷ Higher productivity by constant spiral configuration and the perfectly angled tooth holder.
- ▷ Interchangeable pilots and teeth allow for differing ground conditions.
- ▷ Easy fitting of teeth and pilots.
- ▷ Patented Shock Lock-System: incorporating a shock absorbing rubber element to protect the tungsten carbide on the tooth assembly coupled with a solid locking pin prevent tooth loss.
- ▷ High flexibility thanks to different auger extensions and telescopic extensions.
- ▷ For earth drills 4000-14 and 5000-14.



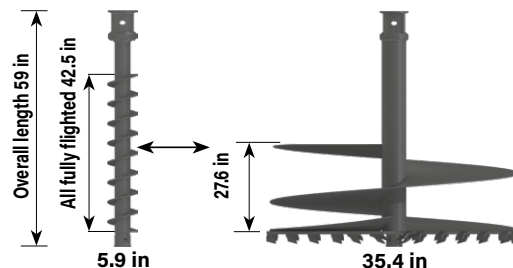
**S5 Augers (specify pilot and teeth when ordering)**

Type	Diameter (in)	Spiral length (in)	Total length (in)	Weight (lbs)	Number of teeth	Type of teeth
S5-150 Earth				79	0	Earth
S5-150 Tungsten	5.91	42.5	59.0	77	0	Tungsten
S5-150 Rock				77	2	Rock
S5-200 Earth				90	2	Earth
S5-200 Tungsten	7.87	38.5	59.0	88	2	Tungsten
S5-200 Rock				88	3	Rock
S5-225 Earth				99	2	Earth
S5-225 Tungsten	8.86	38.4	59.0	97	2	Tungsten
S5-225 Rock				97	4	Rock
S5-250 Earth				101	2	Earth
S5-250 Tungsten	9.84	38.0	59.0	101	2	Tungsten
S5-250 Rock				99	4	Rock
S5-300 Earth				112	4	Earth
S5-300 Tungsten	11.81	35.4	59.0	112	4	Tungsten
S5-300 Rock				110	5	Rock
S5-350 Earth				123	4	Earth
S5-350 Tungsten	13.78	35.4	59.0	123	4	Tungsten
S5-350 Rock				121	6	Rock
S5-400 Earth				136	5	Earth
S5-400 Tungsten	15.75	34.4	59.0	134	5	Tungsten
S5-400 Rock				130	7	Rock
S5-450 Earth				145	6	Earth
S5-450 Tungsten	17.72	29.5	59.0	145	6	Tungsten
S5-450 Rock				138	8	Rock
S5-500 Earth				161	6	Earth
S5-500 Tungsten	19.69	29.5	59.0	161	6	Tungsten
S5-500 Rock				161	6	Rock
S5-600 Earth				185	8	Earth
S5-600 Tungsten	23.62	29.5	59.0	185	8	Tungsten
S5-600 Rock				180	11	Rock
S5-700 Earth				218	9	Earth
S5-700 Tungsten	27.6	27.6	59.0	218	9	Tungsten
S5-700 Rock				209	13	Rock
S5-750 Earth				222	9	Earth
S5-750 Tungsten	29.5	27.6	59.0	222	9	Tungsten
S5-750 Rock				216	14	Rock
S5-800 Earth				240	9	Earth
S5-800 Tungsten	31.5	27.6	59.0	240	9	Tungsten
S5-800 Rock				249	15	Rock
S5-900 Earth				301	10	Earth
S5-900 Tungsten	35.4	27.6	59.0	301	10	Tungsten
S5-900 Rock				293	17	Rock
S5-1000 Earth				262	11	Earth
S5-1000 Tungsten	39.4	20.7	59.0	262	11	Tungsten
S5-1000 Rock				293	19	Rock

**S5 Extension**



**S6 Telescopic extension**



**Note:** all augers are fitted with shock lock tooth holder. The use of rock teeth depends on the rock tooth type of the auger. Overall length stated includes fitted wear parts.

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## Two Year Warranty

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### **KINSHOFER North America - Warranty Policy**

KINSHOFER warrants its products against defects in material and workmanship for a period of two years from the date its products are available for shipment to the original purchaser.

No responsibility will be assumed by KINSHOFER for repairs or parts other than those provided or supplied by KINSHOFER.

This warranty is limited to the replacement of parts or repair of parts, if repairs are authorized by KINSHOFER.

It does not cover damages or defects due to normal wear and tear, misuse, alteration or neglect.

KINSHOFER warrants that the products shall be delivered free of any claims of any third person by way of infringement, unless specifications are provided by the purchaser in which event the purchaser, holds KINSHOFER harmless against any claims which arise out of compliance with purchaser's specifications.

No other warranty is expressed or implied and KINSHOFER assumes no responsibility for consequential damages arising from the failure of the products for any reason whatsoever, nor does it extend any warranty for any damages, whatsoever, for improper storage or handling by purchaser prior to placing into service.

The purchaser shall determine the suitability for the product, for its use, and purchaser assumes all risks and liabilities in connection therewith.

### **KINSHOFER North America - Returned Goods Policy**

Upon written authorization, KINSHOFER products can be returned for credit, provided merchandise is unused and complete.

The customer pays freight back and a credit will be issued to the customer account upon satisfactory receipt and inspection of the returned products.

No return can be processed without the issuance of an RMA number by KINSHOFER.

A 25% restocking fee will apply to all non-warranty related returns.

### **KINSHOFER North America - Warnings and Cautions**

Ensure the correct equipment is obtained and installed for the application.

Ratings shown in KINSHOFER literature are applicable only to new products.

Working load limits (load capacity) shown are the maximum load the product is authorized to support under normal environmental conditions.

Shock loading and abnormal conditions must be taken into account when selecting products.

Working load limits or safety factors for each KINSHOFER product may be affected by wear, misuse or environmental conditions.

Regular inspections must be conducted to ensure the equipment continues to meet the most current revision of the published standard.

Welding to any KINSHOFER products can be hazardous and should only be implemented after written permission from KINSHOFER.

KINSHOFER products are sold on the strict understanding that all product selection is the full responsibility of the purchaser.

KINSHOFER accepts no liability for the use, misuse or incorrect application of its products.



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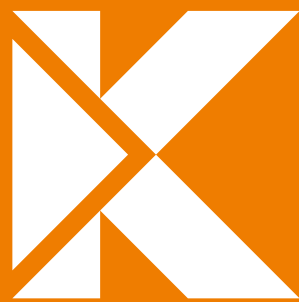
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