KEMROC®

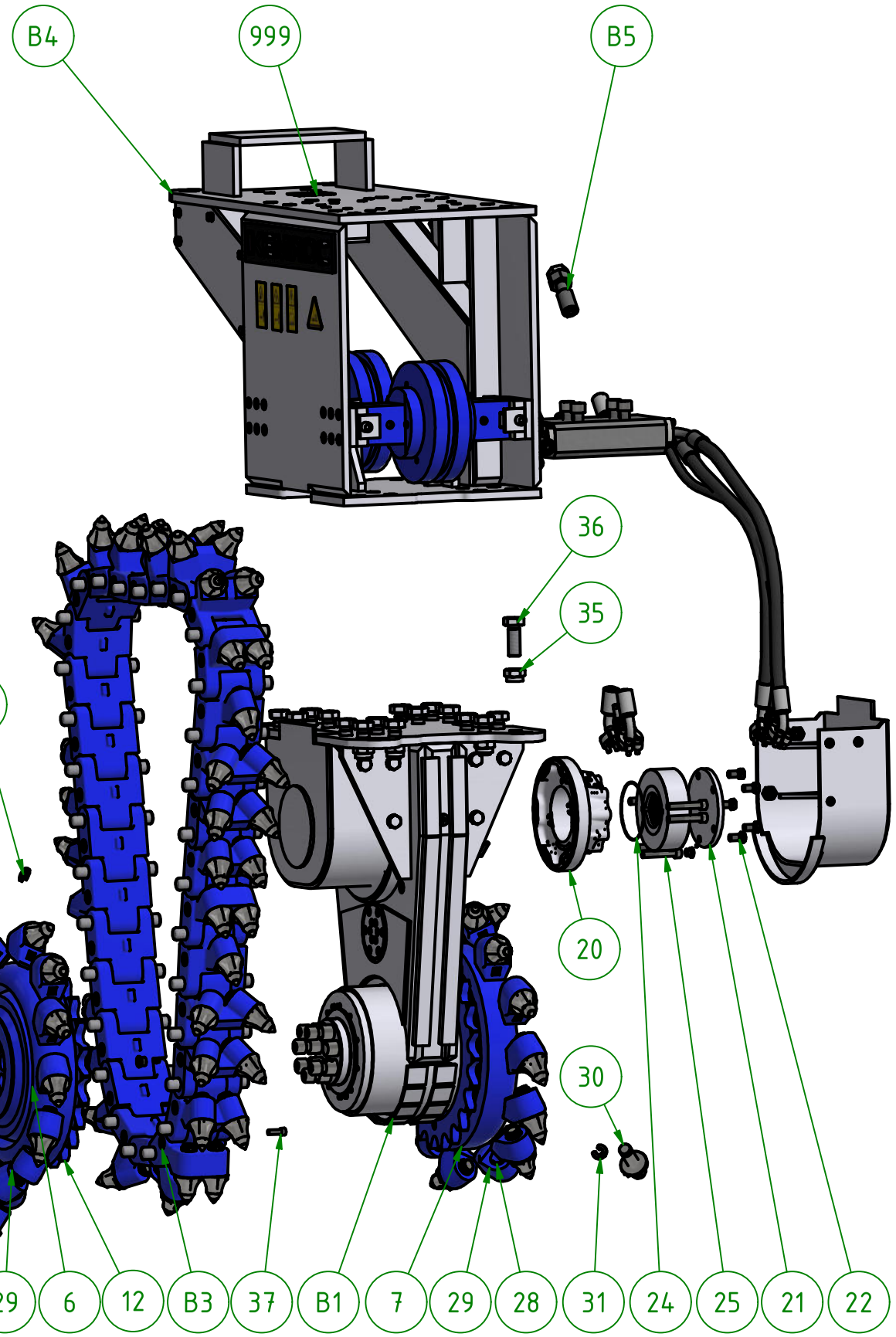
revolution of cutting

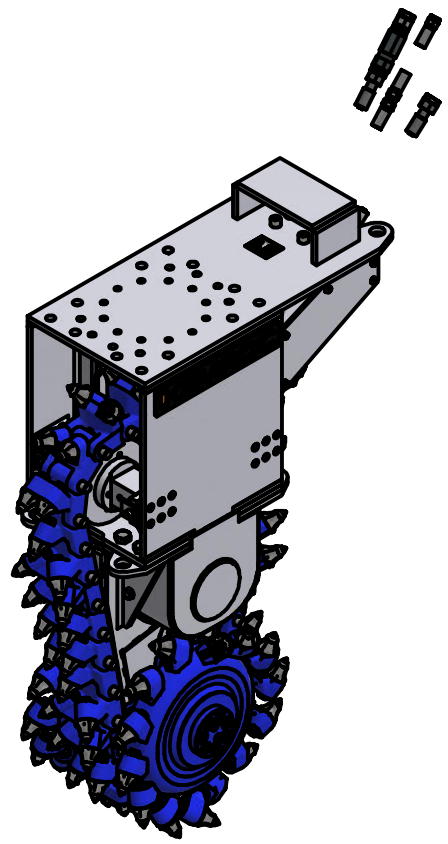
M A N U A L

KEMROC® EK110_600

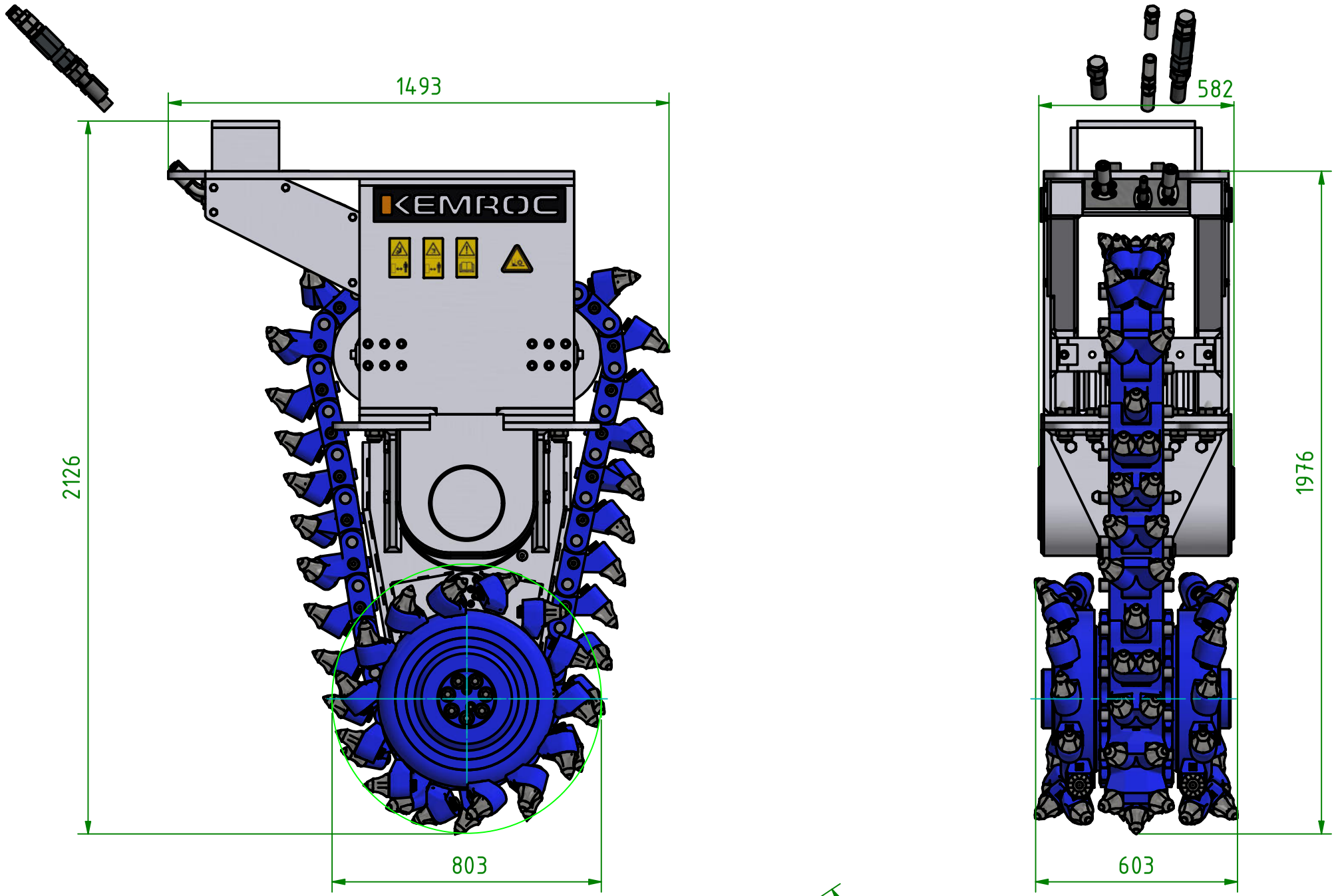
s/n EK110250

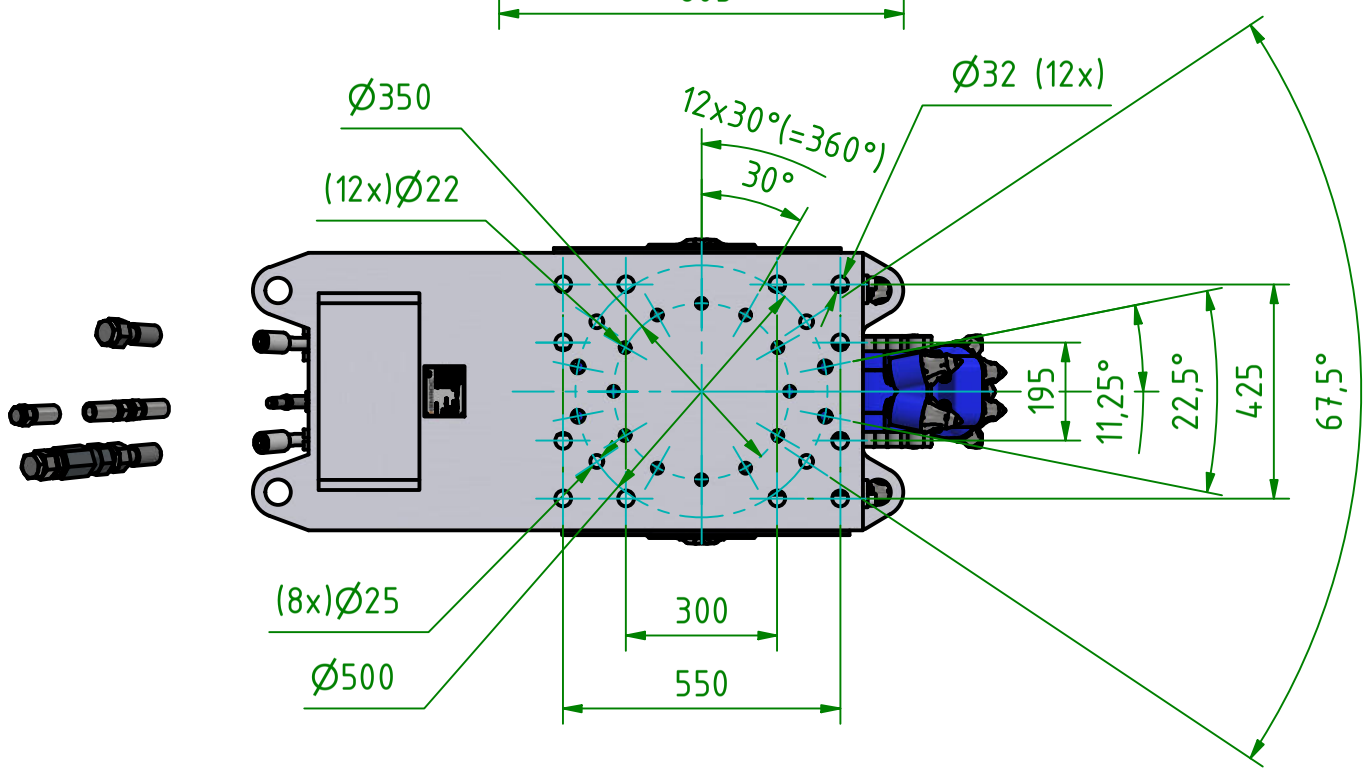
Client:
D30585
ONTRAC GROUP,
Ravenhall Victoria,
Australien



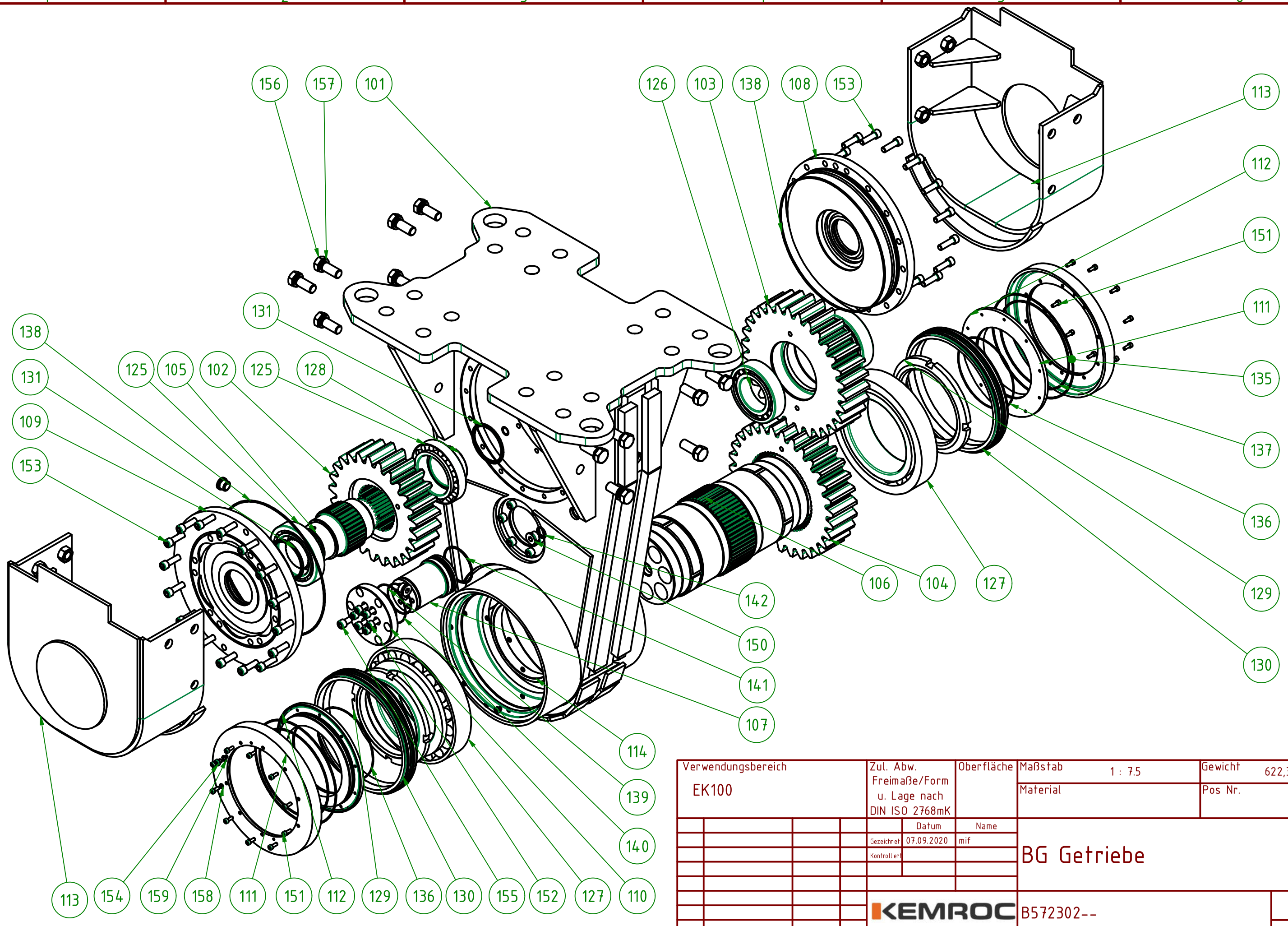


Verwendungsbereich: EK 110				Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK		Oberfläche	Maßstab 1 : 25 / Material	Gewicht 2417,4 kg / Pos Nr.
					Datum	Name	EK110_600_PH1500_M24	
				Gezeichnet	28.10.2020	nm		
				Kontrolliert				
				KEMROC			EK110006--	3 / A3
Status	Änderungen	Datum	Name					

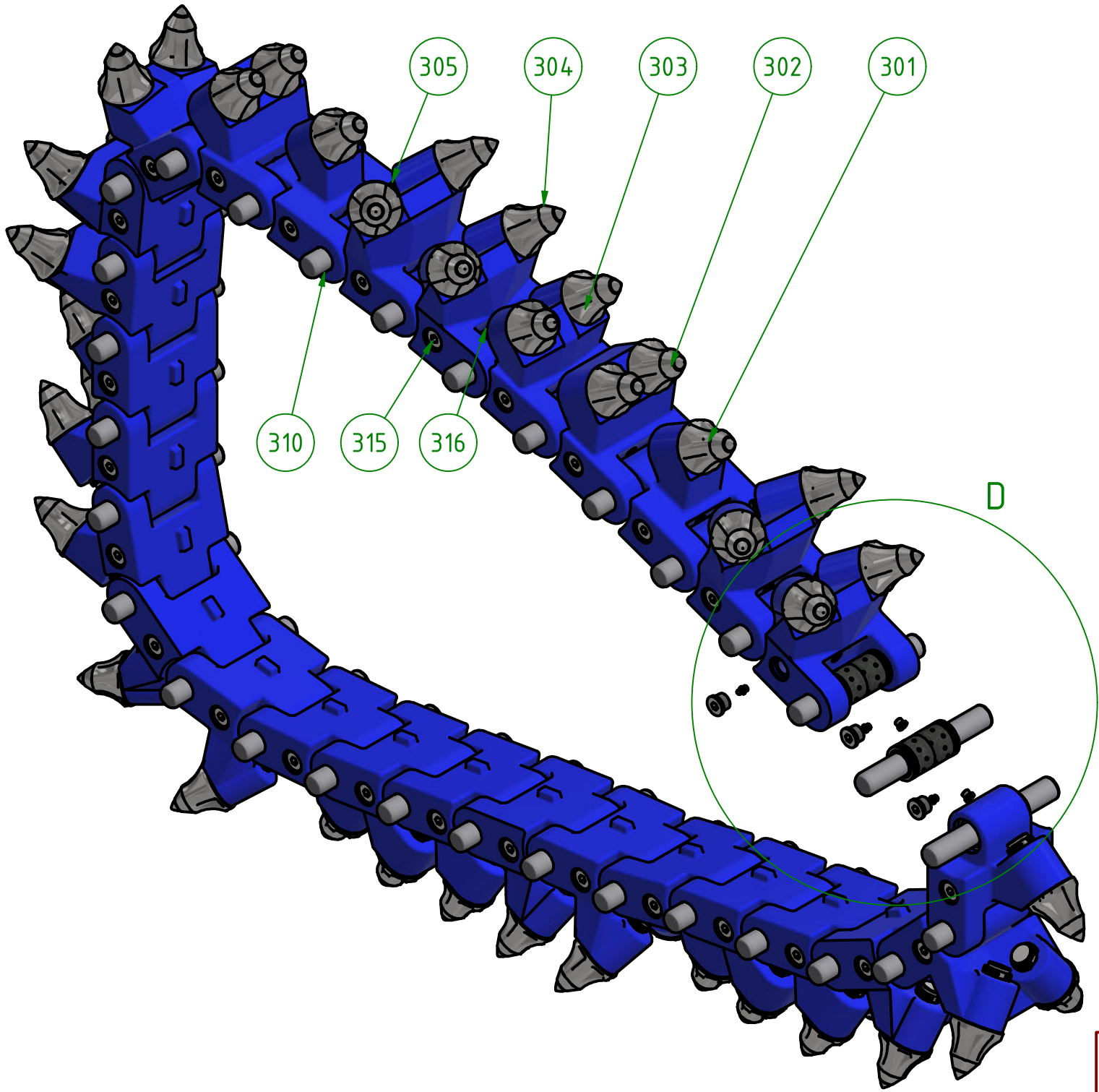




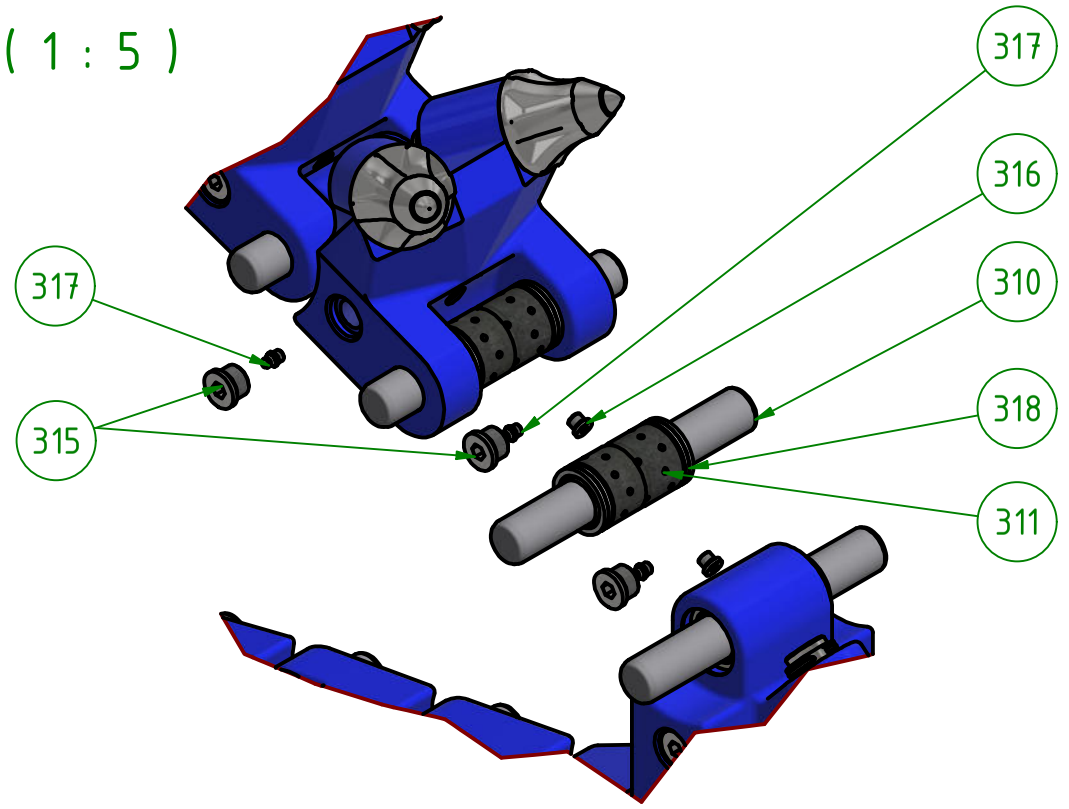
Verwendungsbereich: EK 110				Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK		Oberfläche	Maßstab 1 : 15		Gewicht 2417,4 kg
							Material		Pos Nr.
					Datum	Name	EK110_600_PH1500_M24		
				Gezeichnet	28.10.2020	nm			
				Kontrolliert					
				KEMROC			EK110006--		4
									A3
Status	Änderungen	Datum	Name						



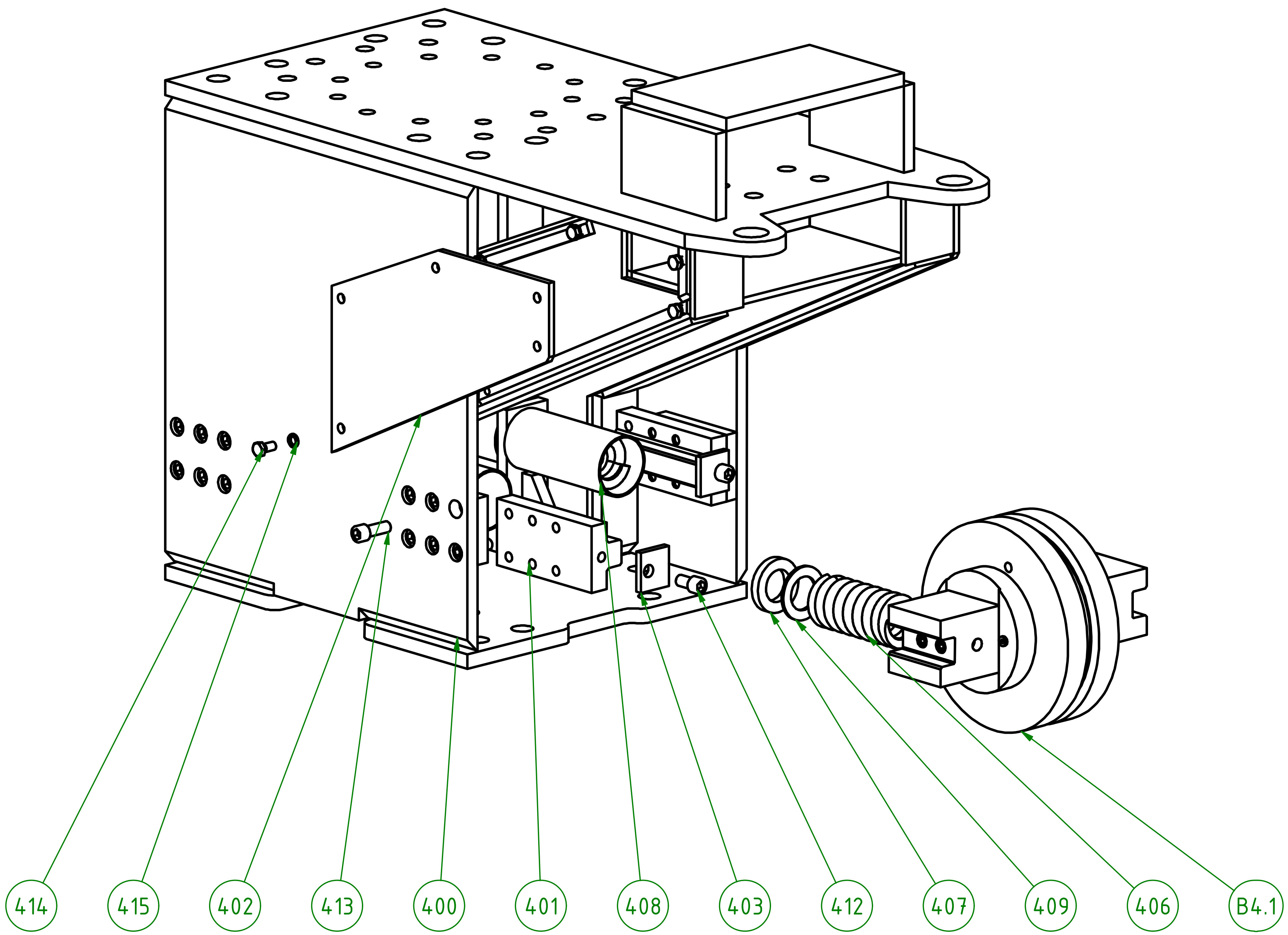
Verwendungsbereich: EK100	Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK	Oberfläche	Maßstab 1 : 7.5 / Gewicht 622,3 kg
			Material / Pos Nr.
	Datum	Name	
Gezeichnet	07.09.2020	mif	BG Getriebe
Kontrolliert			
KEMROC			B572302-- / 3 / A3
Status / Änderungen / Datum / Name			



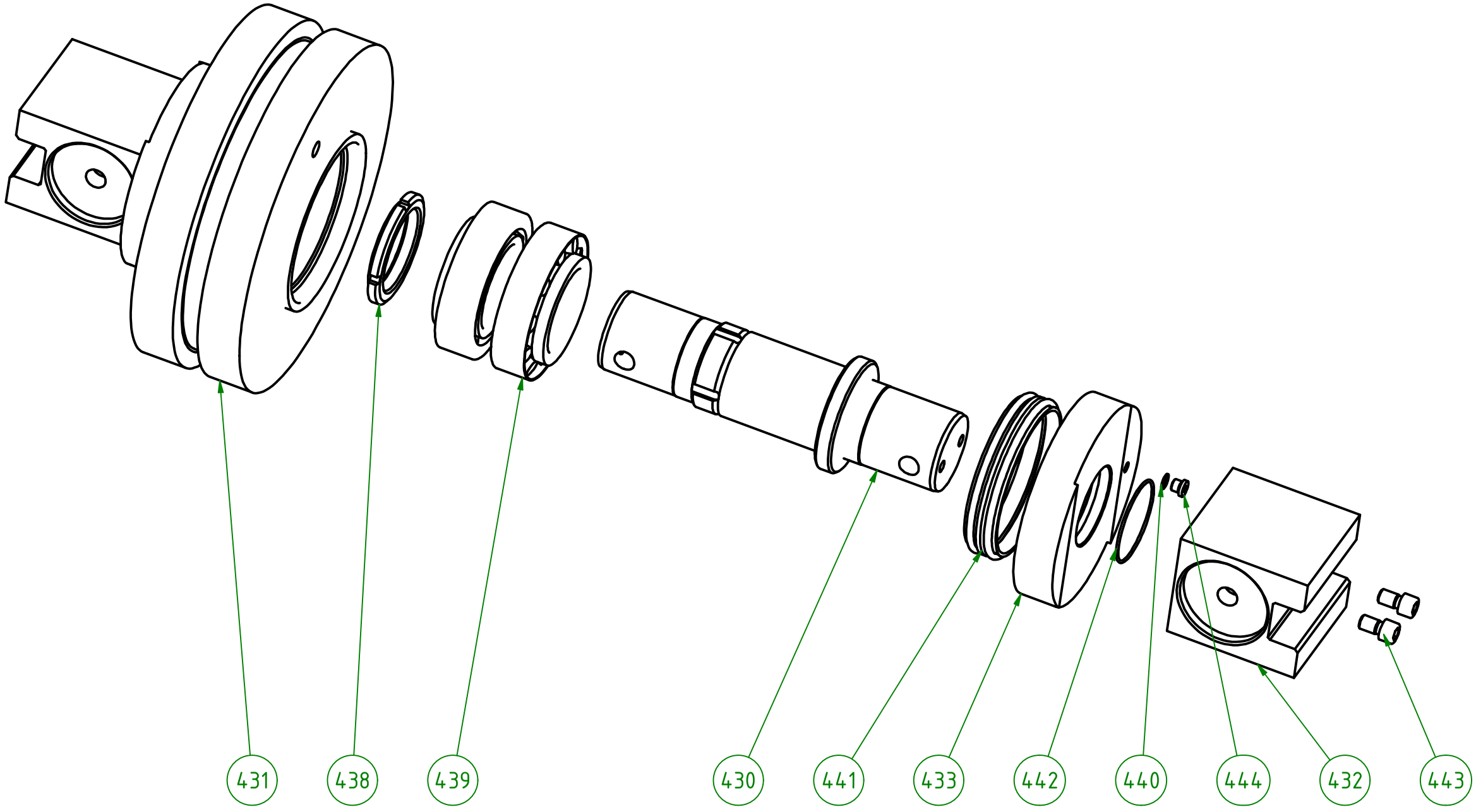
D (1 : 5)



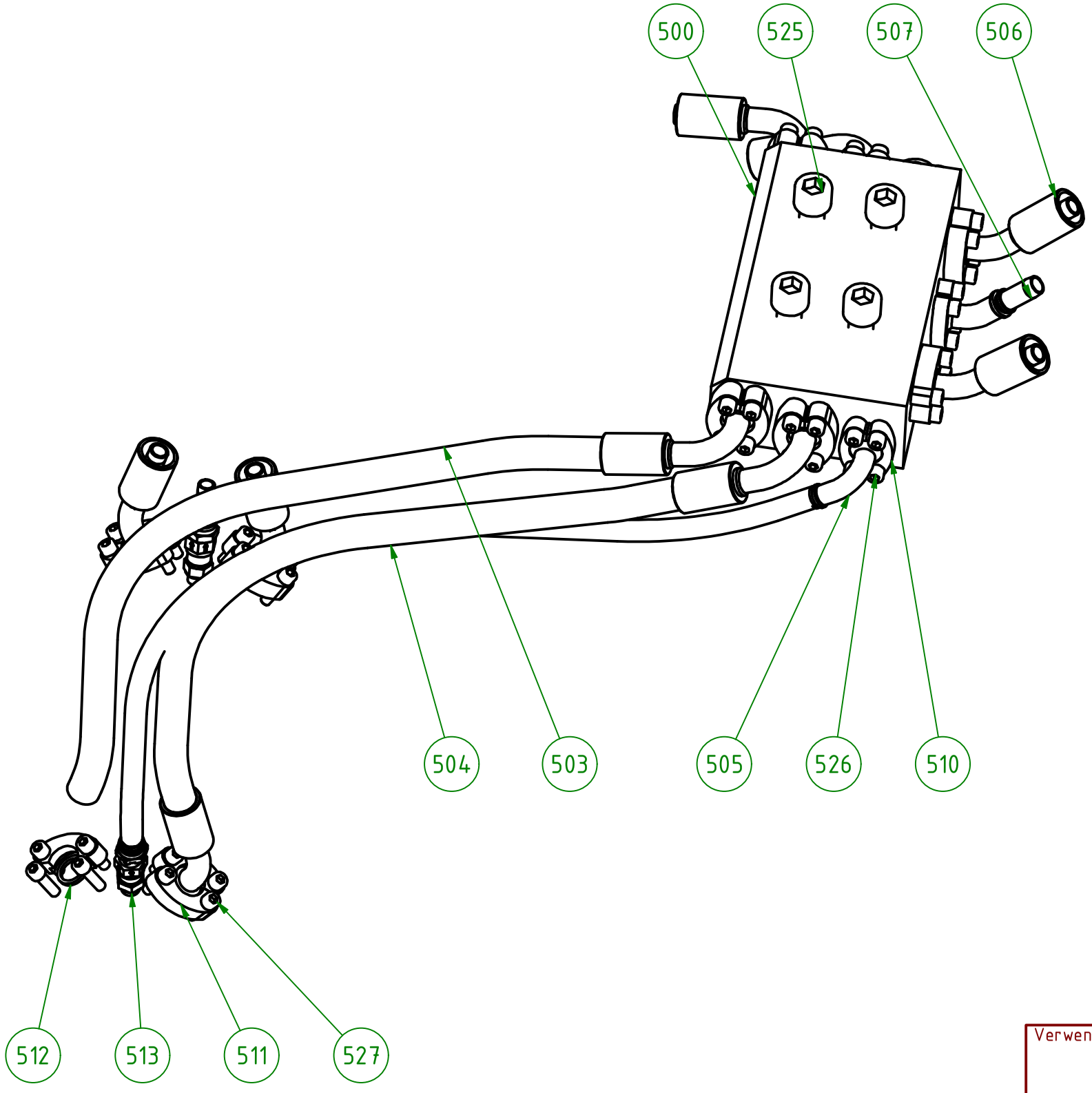
Verwendungsbereich				Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK		Oberfläche	Maßstab 1 : 7	Gewicht 553,8 kg
							Material	Pos Nr.
					Datum	Name		
				Gezeichnet	06.09.2017	mif		
				Kontrolliert			Kette	
				KEMROC			B740411--	1
								A3
Status	Änderungen	Datum	Name					

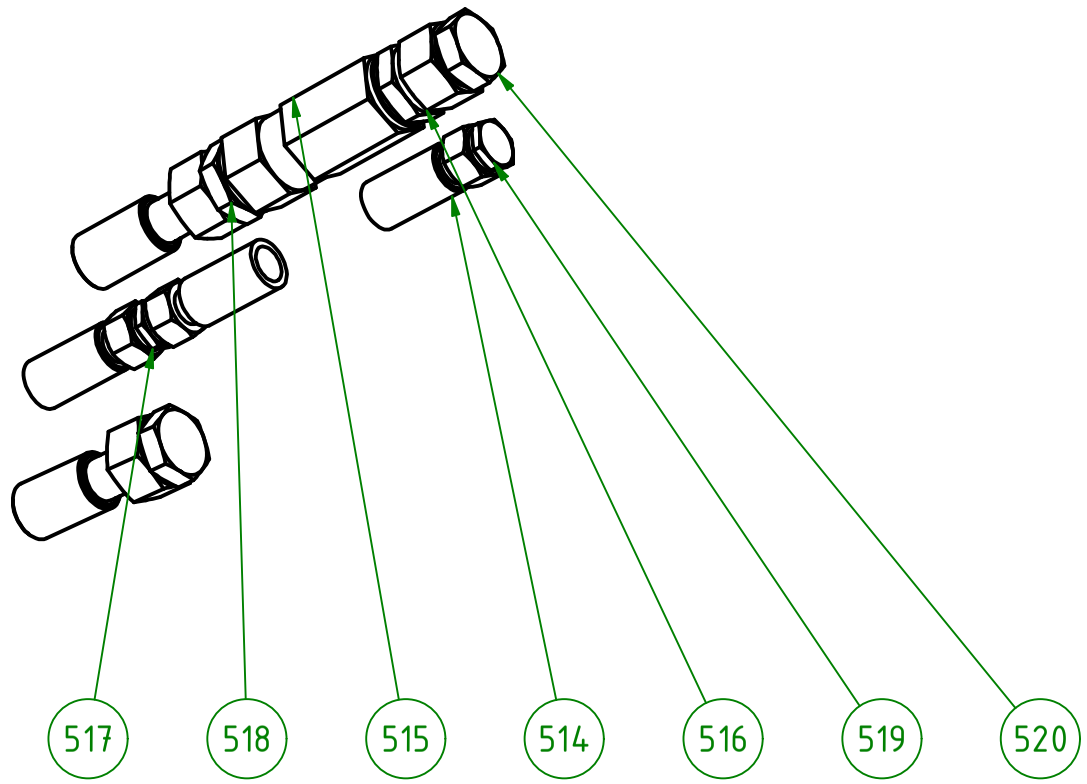


Verwendungsbereich	Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK	Oberfläche	Maßstab 1 : 7	Gewicht 651,9 kg	
			Material	Pos Nr.	
		Datum	Name		
	Gezeichnet	04.12.2018	mif	Umlenkung	
	Kontrolliert				
Status / Änderungen / Datum / Name	KEMROC			B572403--	3 / A3



Verwendungsbereich				Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK		Oberfläche	Maßstab 1 :4 / Gewicht 81,3 kg
							Material / Pos Nr.
					Datum	Name	
				Gezeichnet	01.03.2016	mif	Umlenkrolle
				Kontrolliert			
				KEMROC			B572401-- / 4 / A3
Status	Änderungen	Datum	Name				





Verwendungsbereich	Zul. Abw. Freimaße/Form u. Lage nach DIN ISO 2768mK	Oberfläche	Maßstab 1 :5 / Gewicht 53,0 kg
			Material / Pos Nr.

	Datum	Name
Gezeichnet	23.01.2020	nm
Kontrolliert		

BG Hydraulik

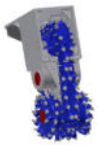
KEMROC B381453--

2

A3

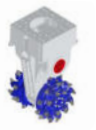
Status	Änderungen	Datum	Name

KEMROC
HOLE PATTERNS



EK

Range	Pattern
EK 15	DHP *
EK 20	DHP *
EK 40	LB 10
EK 60	LB 20
EK 100	LB 30
EK 110	LB 30
EK 140	LB 40
EK 150	LB 40
EK 160	LB 40
EK 220	LB 40

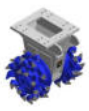


EKT

Range	Pattern
EKT 100	LB 30
ETR 110	LB 30
EKT 140	LB 40
EKT 150	LB 40
EKT 160	LB 40
EKT 220	LB 40

KR

Range	Pattern
KR 15	LB 10
KR 18	LB 10
KR 30	LB 10
KR 45	LB 20
KR 65	LB 20
KR 80	LB 30
KR 110 [C]	LB 40
KR 120 [C]	LB 40
KR 150	LB 40
KR 160	LB 40
KR 165	LB 40
KR 200	LB 40
KR 400	LB 50



KRD

Range	Pattern
KRD 100	LB 40
KRD 120	LB 40
KRD 150	LB 40

KRL

Range	Pattern
KRL 30	LB 10
KRL 45	LB 20
KRL 65	LB 20
KRL 70	LB 30
KRL 110	LB 30
KRL 120	LB 30
KRL 140	LB 40

DMW

Range	Pattern
DMW 90	LB 30
DMW 130	LB 30
DMW 220 [HD]	LB 40

EX

Range	Pattern
EX 20 [HD]	LB 10 **
EX 30 HD	LB 10
EX 45 HD	LB 20
EX 60 HD	LB 20

ES

Range	Pattern
ES 20 [HD]	LB 10 **
ES 30 HD	LB 10
ES 45 HD	LB 20
ES 60 HD	LB 20
ES 80 HD	LB 30
ES 110 HD	LB 40

ETR

Range	Pattern
ETR 1	LB 30
ETR 2	LB 30
ETR 3	LB 40

SMW

Range	Pattern
SMW 50	LB 20
SMW 80	LB 30
SMW 110	LB 40

KSI

Range	Pattern
KSI 5000	LB 30
KSI 10000	LB 40

EBA

Range	Pattern
EBA-P	—
EBA-D	—

KST

Range	Pattern
KST 20	LB 10
KST 30	LB 10
KST 40	LB 20
KST 50	LB 20

KDS

Range	Pattern
KDS 20	LB 10
KDS 30	LB 10
KDS 40	LB 20
KDS 50	LB 20

ETS

Range	Pattern
ETS	DHP *

KRM

Range	Pattern
KRM 20	LB 10
KRM 30	LB 10
KRM 40	LB 20
KRM 50	LB 30
KRM 60	LB 40
KRM 70	LB 40
KRM 80	LB 40

AW

Range	Pattern
AW 400	LB 40

* Different hole pattern available on request

** Plus hole pattern AC-SB152

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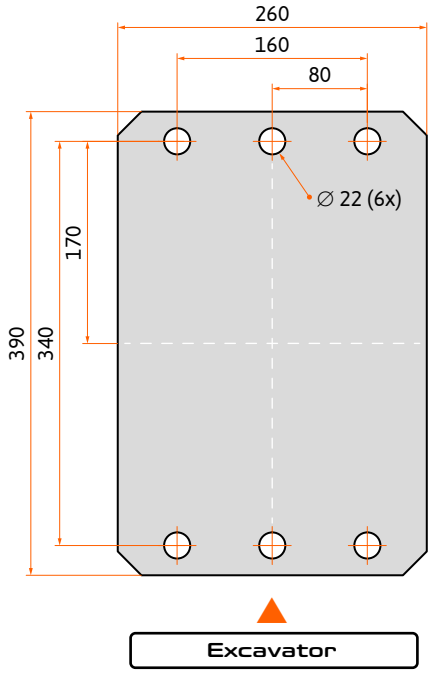
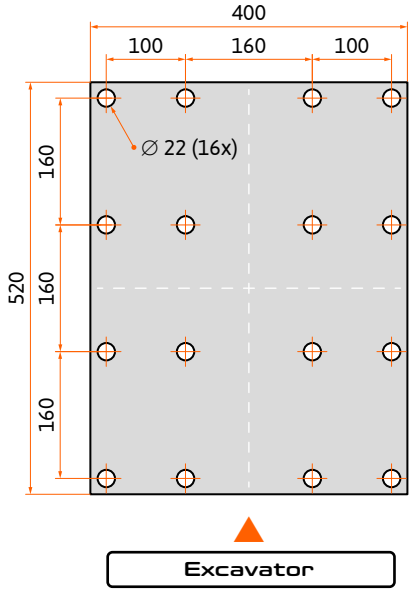
KEMROC HOLE PATTERNS

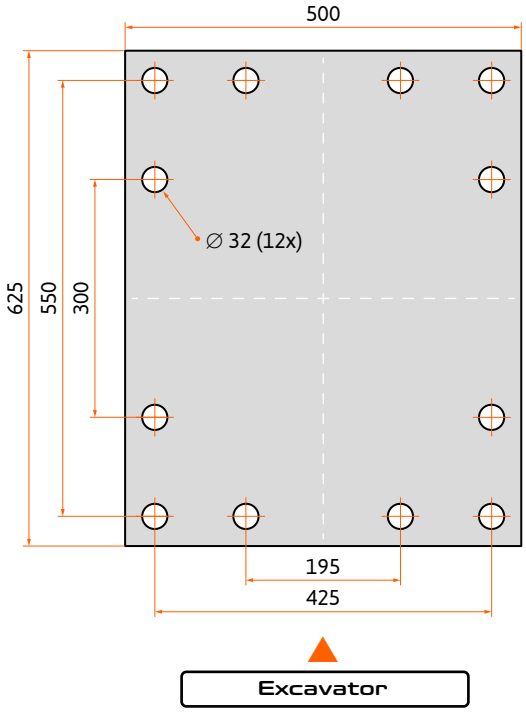
LB 10



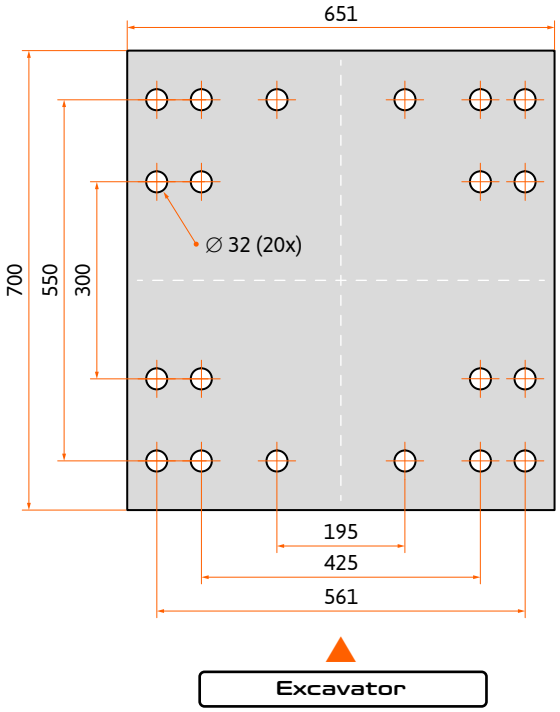
LB 20



LB 30



LB 40



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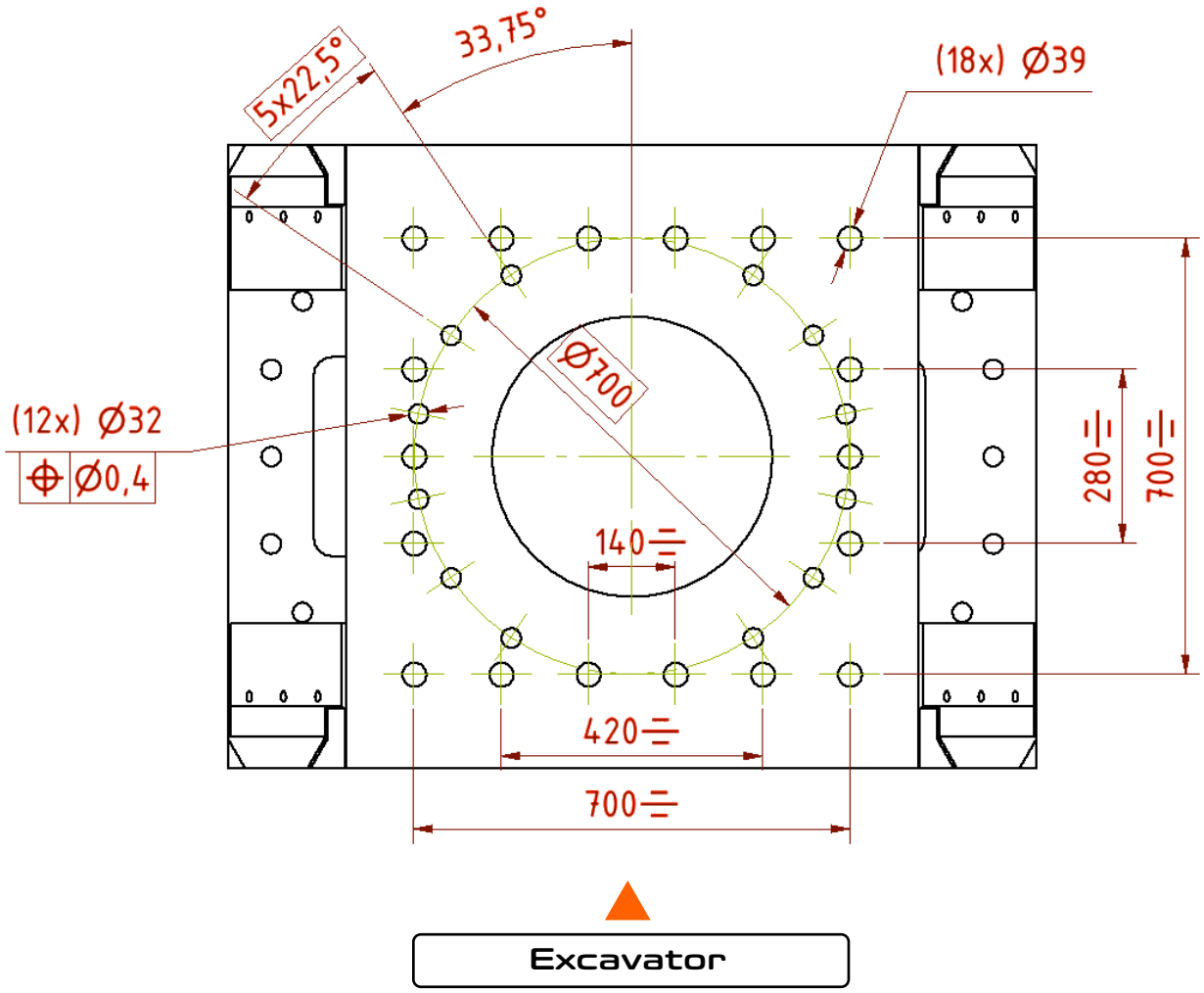
KEMROC HOLE PATTERNS

LB 50



KEMROC®

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www.kemroc.de

KEMROC

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Ersatzteilliste / Spare parts list

Pos	Article No.	Number	Bezeichnung	Description
Artikel / item: KEMROC® EK110_600				
Article No. : EK110006				
B1	B572302	1	Baugruppe Getriebe EK100/110_EKT100/110	Gearbox Assembly EK100/110_EKT100/110
B3	B740411_SN	1	Baugruppe Kette EK100/EK110	Complete Chain EK100/EK110
B4	B572403	1	BG Umlenkung EK100/EK110	Idler assembly EK100/EK110
B5	B381453	1	Baugruppe Hydraulik EK100/EK110	Hydraulic Assembly EK100/EK110
B4.1	B572401	2	Baugruppe Umlenkrolle EK100/EK110	Idler assembly EK100/EK110
6	740479	1	Schneidkopf IUZ EK100/110_600	Cutting drum CW EK100/110_600
7	740485	1	Schneidkopf GUZ EK100/110_600	Cutting drum ACW EK100/110_600
8	572316	2	Spanndeckel SK EK100/110_EKT100/110	Tensioning cover drum SK EK100/110_EKT100/110
10	711064	14	Spannhülse	Spring pin for cutter drum
11	613031	14	Zylinderschraube	Socket head bolt
12	740412	1	Antriebsrad Kette EK100/EK110	Chain sprocket EK100/EK110
12	740412	1	Antriebsrad Kette EK100/EK110	Chain sprocket EK100/EK110
16	661626	4	Zylinderschraube	Socket head bolt
20	365106	2	Hydraulikmotor EK110/EKT110	Hydraulic motor EK110/EKT110
21	360079	4	Überdruckdeckel	Hydraulic motor cover plate
22	600161	20	Sechskantschraube	Hex head bolt
24	602183	4	O - Ring Überdruckdeckel	O-ring for overpressure cover
25	670015	48	Zylinderschraube	Socket head bolt
27	600172	4	Nordlockscheibe	Nord-Lock washer
28	711029	14	Buchse für Meißelhalter PH30HD/PH32HD	Bushing for pick holder PH30HD/PH32HD
28	711029	14	Buchse für Meißelhalter PH30HD/PH32HD	Bushing for pick holder PH30HD/PH32HD
29	711022	14	Meißelhalter inkl. Verschleißbuchse PH32HD	Pick holder with bushing PH32HD
29	711022	14	Meißelhalter inkl. Verschleißbuchse PH32HD	Pick holder with bushing PH32HD
30	17757035EE	82	Rundschaftmeißel ER 17/75/70/30 Q HD	Pick ER 17/75/70/30 Q HD
31	99500030	82	QuickSnap QS 30mm	QuickSnap QS 30mm
35	600011	16	Stoppmutter	Lock nut
36	600003	16	Sechskantschraube	Hex head bolt
37	601235	2	Zylinderschraube	Socket head bolt
101	572301	1	Gehäuse EK100/110_EKT100/110	Gearbox EK100/110_EKT100/110
102	572302	1	Antriebsrad EK100/110_EKT100/110	Drive gear EK100/110_EKT100/110
103	572303	1	Zwischenrad EK100/110_EKT100/110	Idle cogwheel EK100/110_EKT100/110
104	572304	1	Abtriebsrad EK100/110_EKT100/110	Output cogwheel EK100/110_EKT100/110
105	572305	1	Antriebswelle EK100/110_EKT100/110	Drive shaft EK100/110_EKT100/110
106	572315	1	Abtriebswelle EK100/110_EKT100/110	Output shaft EK100/110_EKT100/110
107	572312	1	Bolzen Mitte EK100/110_EKT100/110	Middle pin EK100/110_EKT100/110
108	572307	1	Motorflansch EK100/110_EKT100/110	Motor flange EK100/110_EKT100/110

Pos	Article No.	Number	Bezeichnung	Description
109	572308	1	Motorflansch EK100/110_EKT100/110	Motor flange EK100/110_EKT100/110
110	572313	1	Deckel Mitte EK100/110_EKT100/110	Middle pin cover EK100/110_EKT100/110
111	572309	2	Dichtungsdeckel Abtrieb EK100/110_EKT100/110	Output sealing cover EK100/110_EKT100/110
112	572310	2	Dichtungsdeckel Fixierung EK100/110_EKT100/11	Fixing flange for sealing cover
113	572311	2	Motordeckel EK100/110_EKT100/110	Motor cover EK100/110_EKT100/110
114	572314	2	Distanzhülse EK100/110_EKT100/110	Sleeve EK100/110_EKT100/110
125	692202	2	Kegelrollenlager	Tapered roller bearing
126	666103	2	Zylinderrollenlager	Cylindrical roller bearing
127	612078	2	Kegelrollenlager	Tapered roller bearing
128	611170_A	2	Innenring EK100/110_EKT100/110	Inner ring EK100/110_EKT100/110
129	511014	2	Wellenmutter EK+EKT+DMW+ETR+ES+KSI	Shaft nut EK+EKT+DMW+ETR+ES+KSI
130	611046	2	Gleitringdichtung	Mechanical seal
131	642200	2	Turcon Roto Glyd Ring	Turcon roto glyd seal
135	602184	2	O - Ring Nockenring	O-ring for cam ring
136	666107	2	O - Ring	O-ring
137	690209	2	O - Ring Nockenring	O-ring for cam ring
138	610042	2	O - Ring	O-ring
139	666104	1	O - Ring	O-ring
140	666106	1	O - Ring	O-ring
141	666105	2	O - Ring	O-ring
142	623122	4	Dichtring	Sealing ring
150	621135	4	Verschlussschraube	Hex socket screw plugs
151	661166	20	Zylinderschraube	Socket head bolt
152	661030	6	Zylinderschraube	Socket head bolt
153	651109	32	Zylinderschraube	Socket head bolt
154	621164	4	Zylinderschraube	Socket head bolt
155	600182	6	Zylinderschraube	Socket head bolt
156	600162	12	Sechskantschraube	Hex head bolt
157	600171	12	Nordlockscheibe	Nord-Lock washer
158	621145	20	Usit - Ring	Usit-ring
159	611053	4	Usit - Ring	Usit-ring
301	572421-F	6	Kettenglied EK100/EK110	Chain link EK100/EK110
302	572422-F	6	Kettenglied EK100/EK110	Chain link EK100/EK110
303	572423-F	6	Kettenglied EK100/EK110	Chain link EK100/EK110
304	572424-F	6	Kettenglied EK100/EK110	Chain link EK100/EK110
305	572425-F	6	Kettenglied EK100/EK110	Chain link EK100/EK110
310	572427-B	30	Kettenbolzen EK100/EK110	Chain pin EK100/EK110
311	572429-A	30	Kettenbuchse EK100/EK110	Chain bushing EK100/EK110
315	621140	30	Verschlussschraube	Hex socket screw plugs

Pos	Article No.	Number	Bezeichnung	Description
316	642231	30	Verschlussschraube	Hex socket screw plugs
317	699002	30	Kegelschmiernippel	Grease nipple
318	611147	120	Kettendichtung EK100/EK110	Rotary Seal EK100/EK110
400	572410	1	Rahmen EK100/EK110	Console EK100/EK110
401	572408	4	Führungsstück EK100/EK110	Slide rail EK100/EK110
402	572411	2	Schläucheabdeckung EK100/EK110	Hoses Cover EK100/EK110
403	572409	4	Sicherungsblech EK100/EK110	Safety Plate EK100/EK110
406	642608	4	Druckfeder EK100/EK110	Spring EK100/EK110
407	572100R	4	Feder für besonders schwere Belastung	Elastomer Springs
408	381683	1	Schlauch Federummantelung EK100/110/140/150	Spring protection EK100/110/140/150/160
409	572119	4	Distanzscheibe EK60/100/110/140/150/160_EKT1	Washer EK60/100/110/140/150/160_EKT110
412	600278	4	Zylinderschraube	Socket head bolt
413	642406	24	Zylinderschraube	Socket head bolt
414	600041	10	Sechskantschraube	Hex head bolt
415	600181	10	Nordlockscheibe	Nord-Lock washer
430	572402	2	Achse Umlenkrolle EK100/EK110	Idler axle EK100/EK110
431	572404	2	Umlenkrolle EK100/EK110	Idler pulley EK100/EK110
432	572403	4	Achshalter EK100/EK110	Axle holder EK100/EK110
433	572405	4	Deckel LWD EK100/EK110	Mechnical seal cover EK100/EK110
438	590015	2	Wellenmutter EK/KDS/KST/KR/KRD	Shaft nut EK/KDS/KST/KR
439	692412	4	Kegelrollenlager	Tapered roller bearing
440	642301	4	Dichtring	Sealing ring
441	661164	4	Gleitringdichtung	Mechanical seal
442	666104	4	O - Ring	O-ring
443	600188	8	Zylinderschraube	Socket head bolt
444	642231	4	Verschlussschraube	Hex socket screw plugs
500	572450-A	1	Hydraulikblock EK100/EK110	Hydraulic block EK100/EK110
503	306759	2	Hydraulikschlauch	Hydraulic hose
504	306760	2	Hydraulikschlauch	Hydraulic hose
505	306767	2	Hydraulikschlauch	Hydraulic hose
506	306755	2	Hydraulikschlauch	Hydraulic hose
507	306756	1	Hydraulikschlauch	Hydraulic hose
510	315116	6	SAE Flanschhälften	SAE flange half
511	315109	20	SAE Flanschhälften	SAE flange half
512	315108	13	O - Ring für SAE Flanschanschlüsse	O-ring for SAE flange connection
513	306768	2	Rückschlagventil	Check valve
514	320044	1	Hydraulikschlauch	Hydraulic hose
515	350080	1	Rückschlagventil	Check valve
516	300111	1	Einschraubstutzen, gerade, verstellbar	Straight adjustable screw-in fitting

Pos	Article No.	Number	Bezeichnung	Description
517	306521	1	gerade Verschraubung	Straight coupling
518	300112	1	Gerade Einschraubverschraubung	Screw-in fitting straight
519	306520	1	Verschlussstück	Plug
520	306519	2	Verschlussstück	Plug
525	630001	4	Zylinderschraube	Socket head bolt
526	661030	12	Zylinderschraube	Socket head bolt
527	661034	40	Zylinderschraube	Socket head bolt
999	TSG	1	Typenschild groß	Name plate

EC - Declaration of Conformity

according to machine directive 2006/42/EC

We herewith declare that the design and construction of the following designated products and the version we have marketed comply with the basic health and safety requirements of Directive 2006/42/EC. In the event of any alteration to the product which has not been approved by us, this statement shall thereby be made invalid.

Manufacturer or authorized representative:

KEMROC Spezialmaschinen GmbH
Jeremiasstraße 4
36433 Leimbach
Germany

KEMROC® revolution of cutting

Description of the machine	Function	Attachment for excavator
	Type / Model	EK / EKT Cutting Unit
	Year of construction	2021
Applied harmonized standards, especially:	**DIN EN ISO 12100:2003-03:** Safety of machinery - General principles for design - Risk assessment and risk reduction **DIN 20066:2018-03:** Hydraulic fluid power - Hose assemblies - Dimensions, requirements **DIN EN ISO 4413:2011-04:** Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010) German version EN ISO 4413:2010 **DIN EN 474-1:2018-08**: Earth-moving machinery — Safety — Part 1: General requirements German version EN 474-1:2006+A5:2018 **DIN EN ISO 3457:2009-06:** Earth-moving machinery - Guards - Definitions and requirements (ISO 3457:2003); German version EN ISO 3457:2008 **DIN EN 474-10:2010-04:** Earth-moving machinery - Safety - Part 10: Requirements for trenching machines; German version EN 474-10:2006+A1:2009	
Year of award of license plate	2019	
Location, date	Leimbach,	
Indication/identity to the person of the signatory / signature	Dipl.-Ing. Klaus Ertmer, CEO	

KEMROC®

revolution of cutting

EK • EKT
Cutting Unit

Instruction Manual

English

Basic Information

Scope of application of this manual

This Instruction Manual applies to the following cutting unit:

+ EK series with cutting chain:
  EK 40, EK 60, EK 100, EK 110, EK 140, EK 150, EK 160, EK 200, EK 220, EK 240
+ EKT series without cutting chain:
  EKT 40, EKT 100, EKT 110, EKT 140, EKT 150, EKT 160, EKT 200, EKT 220, EKT 240

How to use this manual

The Instruction Manual contains important information about the safe and effective use of the appliance. Please read this document before using the unit, and keep it for later reference.
The Instruction Manual belongs to the appliance, and must be available to the personnel at all times. To do this, keep this document near the unit.
Illustrations in this manual are for basic understanding and may differ from the actual design.

Safety instructions

Before using the unit, read in particular Chapter 2 “Safety” and follow it at all times. The safety precautions described in that chapter provide information on how to safely use the device in general.

Manufacturer

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1 About this manual

1.1 Explanation of terms

Device For simplicity and clarity, the cutter attachment is generally referred to as the “unit” in this document.

Excavator In this manual, the term “excavator” generally refers to a hydraulic excavator. The unit is suitable only for use with hydraulic excavators conforming with the technical specifications stated in this manual.

1.2 Explanations of warnings and signal words

Warning notes Warnings provide specific information about residual risks, which could occur when using the unit. Warning notices are indicated by signal words in the Instruction Manual.

Key words The various signal words provide information on the severity of the danger:

+ **WARNING!** The marked notice warns of a possible danger, which could lead to death or serious injuries if safety precautions are not taken.
+ **NOTE:** The marked notice warns of a possible danger, which could lead to material or environmental damage if precautionary measures are not taken.

2 Safety

2.1 Indented use

The unit is intended exclusively for mounting on a hydraulic excavator. Other carriers are only permitted after consultation with the manufacturer **KEMROC**.
The unit is used exclusively for the removal of materials from:

+ Asphalt
+ Rock
+ Unreinforced concrete
+ Reinforced concrete up to 12 mm (0.47 in) reinforcement thickness
+ Frozen ground
+ Ice

The unit may be used under water to a maximum depth of 30 m (98 ft). Correct orientation and secure mounting of the unit on the extension arm of an excavator is the prerequisite for use for its intended purpose. The recommended size class of the excavator, the technical data and the operating and ambient conditions must be observed for the intended use (see chapter 3.3 on page15).
Any other use or use beyond this is considered improper use. The manufacturer is not liable for damage resulting from improper use.

Inadmissable use cases

Operational safety is not provided if the unit is misused. The following cases are considered misuse and are **not** permitted:

+ Use of the equipment on excavators of other size classes than that specified in the technical data
+ Milling or digging of other materials or glass slags
+ Operation of the unit in areas at risk of explosion
+ Beating or compacting work
+ Use as lifting device for persons or other materials
+ Use as standing or transport area for machines, materials or tools
+ Supporting the equipment to lift the carrier vehicle

Limitations of liability

The manufacturer will not assume liability for damage, in particular in the following cases:

+ This manual was not followed.
+ The unit was not used for its intended purpose.
+ The unit was not used by specifically trained personnel.
+ Unauthorized modifications or technical changes were made to the unit.
+ Unauthorized spare parts were used.

2.2 Safety equipment

Safety equipment protect personnel and tangible assets against dangers, which could arise from the unit or its work. Before starting work, always check to ensure that all safety devices are complete, in good working order and properly attached. Never disable or bypass any safety devices.

Housing and coverings

The intermediate console of the unit, the motors and the gearbox are covered with a housing that protects the hydraulic hoses and internal parts of the unit. Covers protect against unauthorized access to the unit. Never open the housing or remove the covers.

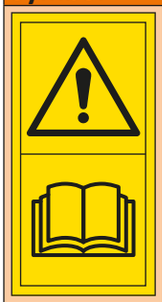
Check valve

The cutting heads are only permitted to rotate in a specified direction. A hydraulic check valve in the return line ensures that the cutting heads can only be turned in one direction. Never make unauthorized changes to the check valve. When using hammer hydraulics, removing the check valve from the return line will destroy the hydraulic motors.
Contact the manufacturer if the unit is to be converted to a different direction of rotation.

Warning symbols

Adhesive labels with warning symbols provide information about residual dangers and more detailed information about mounting and operating the unit.
Never remove adhesive labels from the unit. Keep adhesive labels in a clearly legible condition at all times, and replace when necessary. Replacement labels can be obtained from the manufacturer.

The unit has the following adhesive labels with warning symbols:

Symbol	Meaning	Item
	**Warning of general dangers!** Heed the safety and warning notices in the Instruction Manual!	On the drive housing
	**Risk of injury in the slewing range of the unit!** Keep a safe distance away from the unit!	On the drive housing

Symbol	Meaning	Item
	**Risk of injury from parts thrown off while the motor is running!** Keep a safe distance away from the unit!	On the drive housing
	**Danger of being drawn in and cut by the cutting head or the milling chain!** Keep a safe distance away from the unit!	On the drive housing
	**Loud noise emissions!** Wear suitable hearing protection!	On the drive housing
	**Parts thrown off!** Wear suitable eye protection!	On the drive housing
	**Sharp edges and hot surfaces!** Wear suitable, hear-resistant, protective gloves!	On the drive housing

2.3 General Safety Instructions

Notes on the dangers from parts thrown off

The cutting unit reaches high speeds during operation. The cut material can fly off and injure people in the surrounding area. Depending on the work hydraulics of the excavator, the cutting unit may continue to run after being switched off.

+ Safely cordon off the working area before starting work.
+ During operation, always maintain a safe distance of at least 15 m (50 ft) from the cutting unit.
+ During operation in reinforced concrete, always maintain a safety distance of at least 50 m (164 ft) from the unit.
  The cabin of the hydraulic excavator must be protected with suitable measures against damage from flying parts (safety glass).
  Ensure that no fragments of reinforcement can leave the safety area, for example with a safety fence.
+ Do not start work on the unit until the cutter heads have stopped, the excavator has been switched off, and it has been secured against unauthorized restarting. This can be done, for example, by removing the ignition key and keeping it with you.

Notes on the dangers of high temperatures

During operation, parts of the cutting unit, the hydraulic motor and the hydraulic oil take on high temperatures. Hot surfaces or liquids can cause injuries.

+ Allow all parts to cool before starting work on the unit.
+ Wear personal protective equipment, especially protective gloves.

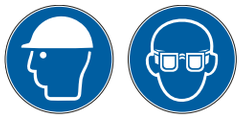
Notes on the dangers of hydraulic drives

The hydraulic system of the unit is under high pressure during operation. Damage to the hydraulic system may lead to a jet of hydraulic oil squirting out and causing serious injuries.

+ Depressurize the hydraulic system before starting work on the unit.
+ Check the hydraulic hoses and connections regularly for damage.
  A damaged unit must be immediately taken out of operation and repaired.
+ Damaged hydraulic hoses must be professionally changed immediately even if the damage is only slight.
+ Have the hydraulic hoses professionally changed when they reach the end of their service lives. It is recommended to replace highly stressed hydraulic hoses every 2 years.

2.4 Personal protective equipment

Personal protective equipment helps to protect persons from residual dangers when working with the unit. The personnel must wear the following protective equipment in particular when handling the unit:



Safety helmet and eye protection
When the unit is in operation, cut material may fly off. This can cause head and eye injuries.

+ Wear a suitable safety helmet.
+ Wear suitable protective goggles or use the eye protection of the safety helmet.

Protective gloves
The cutting heads and other parts of the unit have sharp edges which can cause injuries. Furthermore, some parts of the unit can reach high temperatures during operation and cause burns.

+ Wear suitable, mechanically resilient and heat-resistant protective gloves.

Safety shoes
Parts of the unit may fall off and cause injuries during transport or while working. There are typically other dangers for the feet in the working area of a cutter, for example sharp splinters.

+ Wear suitable safety shoes with steel toecaps

Hearing protection
Depending on the material being cut, a high noise level may occur during operation.

+ Wear suitable hearing protection.
+ Before starting operation, warn all persons in the surrounding area so that they keep further away and wear ear protection.

2.5 Conformity

CE

The unit is an exchangeable device in the context of the Machinery Directive 2006/42/EC, and complies with the basic health and safety requirements of the directive.
The enclosed declaration of conformity contains additional information. If a change is made to the unit that has not been authorized by the manufacturer, the declaration of conformity loses its validity.

2.6 Responsibility of the operator

The unit is used in the commercial sector. The operator is subject to the legal obligations for work safety and accident prevention.
In addition to the safety instructions and warning notices given in this document, the laws and regulations for industrial safety, accident prevention and environmental protection in the country of use, which are applicable to the intended use of the unit must be observed.
The operating company bears the following responsibilities in particular:

- Make an on-site risk assessment of the hazards arising from the specific conditions on site involved with the use of the unit.
- Ensure that the appropriate safety measures are taken.
- Ensure that the unit is only used for its intended purpose and in a perfect, operationally safe condition.
- Clearly define all responsibilities for work on or with the unit.
- Allow only personnel with the necessary qualifications and who have read and understood the Instruction Manual to work on or with the appliance. To this end, train the personnel regularly and inform them of the dangers.
- Provide appropriate personal protective equipment for the work and ensure that it is worn.

2.7 Personnel qualification

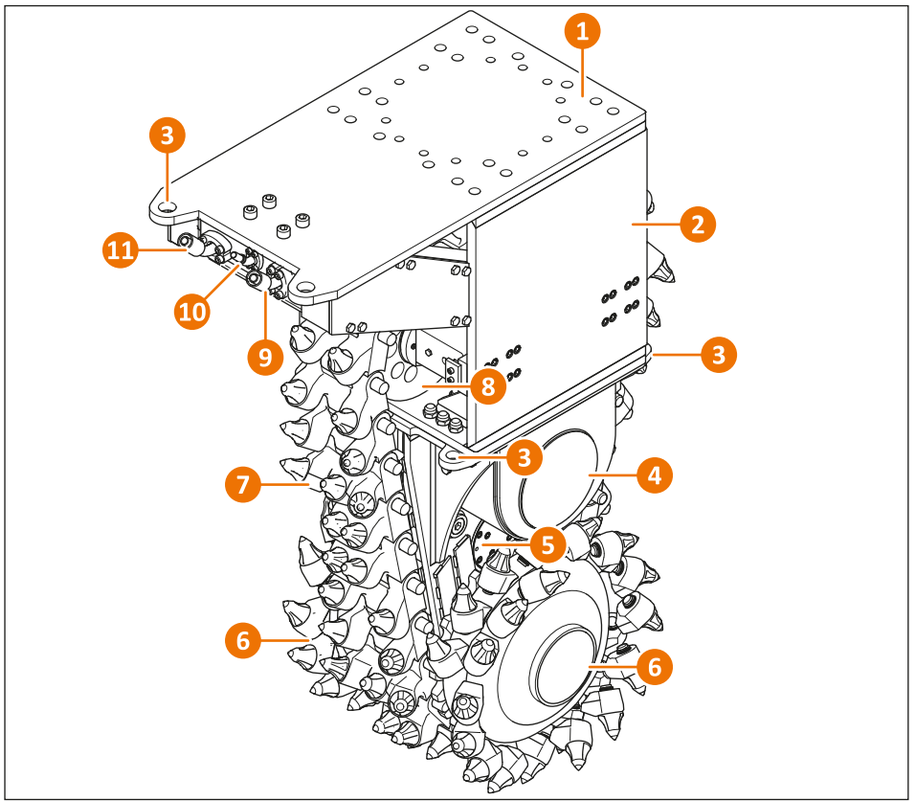
The unit is used on construction machines with hydraulic drives. Hazards can arise in this environment, in particular when improper work is performed on or with the unit by unqualified personnel, or it is used for other than its intended purpose.
Each person appointed to work on or with the unit must have read and understood this User Manual and the associated documents.

Only those persons may work with the unit who, on account of their technical training, knowledge, experience and knowledge of relevant regulations, can operate the excavator and associated attachments, and can themselves recognize possible hazards.

3 Overview

3.1 Design and function of the EK series

Structure



(1) Mounting plate
(2) Deflection housing
(3) Lifting eyes
(4) Hydraulic motor
(5) Gearbox housing
(6) 2 cutting heads with picks
(7) Cutting chain with picks
(8) Deflection rollers with tension springs
(9) Hydraulic connector for the return (T)
(10) Hydraulic connector for the leak oil pipe (L)
(11) Hydraulic connector for supply line (P)

EK series fields of activity

The EK series units are used for digging and cutting rock, unreinforced concrete, reinforced concrete, asphalt, frozen soil or ice. The equipment is used for digging and tunneling, for demolition and renovation work, for use in quarries and for special civil engineering. EK series units are also used for trenching.

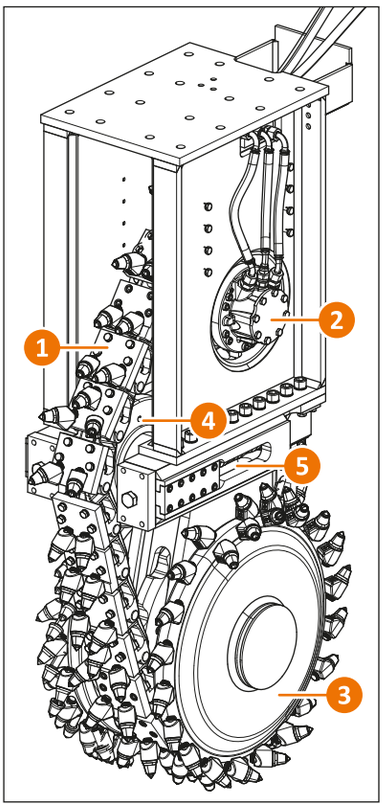
EK series functionality

The unit is mounted on the extension arm of an excavator with the mounting plate **(1)** and a compatible adapter, and the unit is moved by the excavator. The cutting heads**(6)** have multiple picks and are hydraulically driven. The circulating cutting chain **(7)** is driven by the cutting heads**(6)** and guided by 2 deflection rollers**(8)**. The deflection rollers are spring-mounted to tension the cutting chain.
The hydraulic motor **(4)** of the unit is connected to the hydraulic system of the excavator via the hydraulic connectors **(9)**, **(10)** and **(11)**. The speed of the cutting heads **(6)** can be controlled by the operating elements of the excavator.

Expansion of the areas of tasks

After consultation with the manufacturer, units of the EK series (except EK 60) can be converted to the EKT series for use without cutting chain. The unit then only works with the cutting heads (see chapter 7.4 on page 52).

Special feature of type EK 60



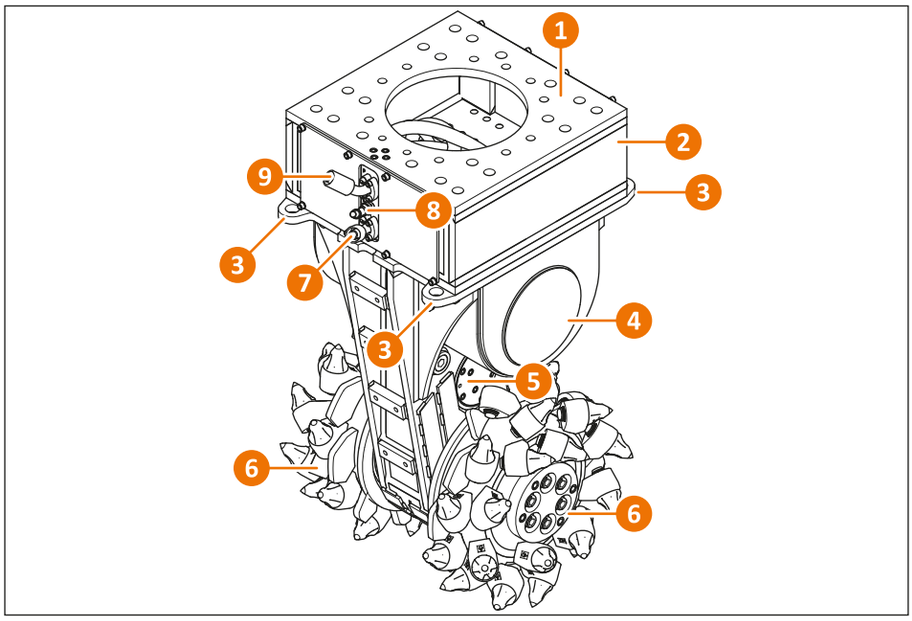
The design and mode of operation of EK 60 units differs slightly from the other unit sizes:

+ The rotating cutting chain **(1)** is driven directly by the hydraulic motor **(2)** and transmits the torque to the cutting heads **(3)**.
+ Instead of 2 deflection rollers, it has only one deflection roller **(4)** with 2 tension springs **(5)** on the side of the unit.
+ The pick holders are attached to the chain links with bolts. The fastening screws of the milling inserts must be tightened after the first 20 operating hours and then checked once a week.

Therefore, different maintenance instructions apply to units of type EK 60.
Type EK 60 units cannot be converted to EKT series.

3.2 Design and function of the EKT series

Structure



(1) Mounting plate
(2) Console
(3) Lifting eyes
(4) Hydraulic motor
(5) Gearbox housing
(6) 2 cutting heads with picks
(7) Hydraulic connector for the return (T)
(8) Hydraulic connector for the leak oil pipe (L)
(9) Hydraulic connector for supply line (P)

EKT series fields of activity

The units of the EKT series have a compact housing and operate without a cutting chain. They are used for cutting rock, unreinforced concrete, reinforced concrete, asphalt, frozen earth or ice only using the cutting heads. The equipment is used for digging and tunneling, for demolition and renovation work, for use in quarries and for special civil engineering.

EKT series functionality

The unit is mounted on the extension arm of an excavator with the mounting plate **(1)** and a compatible adapter, and the unit is moved by the excavator. The cutting heads**(6)** have multiple picks and are hydraulically driven. The hydraulic motor **(4)** of the unit is connected to the hydraulic system of the excavator via the hydraulic connectors **(7)**, **(8)** and **(9)**. The speed of the cutting heads **(6)** can be controlled by the operating elements of the excavator.

Expansion of the areas of tasks

After consultation with the manufacturer, units of the EKT series can be converted to the EK series for use with cutting chains (see chapter 7.5 on page 54).

3.3 Technical Data

3.3.1 Drive unit

EK 40 – EK 110

Technical Data	Unit	EK 40	EK 60	EK 100	EK 110
Recommended excavator weight	t	5 – 10	10 – 17	18 – 30	25 – 32
	lb	11000 – 22000	22000 – 37000	40000 – 66000	55000 – 70500
Cutting unit length	mm	1500	1900	1900	1900
	in	59.1	74.8	74.8	74.8
Cutting head width	mm	500	500/600	600/700/800	600/700/800
	in	19.7	19.7/23.6	23.6/27.6/31.5	23.6/27.6/31.5
Cutting head diameter	mm	513	800	800	800
	in	20.2	31.5	31.5	31.5
Drive housing width	mm	380	450	550	550
	in	15.0	17.7	21.7	21.7
Rated power	kW	45	60	100	110
	Hp	60.3	80.4	134.1	147.5
Max. torque at max. operating pressure	Nm	5700	11000	18300	24500
	lbf.ft	4300	8200	13500	18100
Recommended speed	rpm	70	70	70	70
Recommended oil quantity	l/min	70 – 90	130 – 200	180 – 250	240 – 300
	gal/min	19 – 24	34 – 53	48 – 66	63 – 79
Max. oil quantity	l/min	120	220	260	300
	gal/min	32	58	69	79
Max. hydraulic operating pressure	bar	380	380	380	380
	psi	5500	5500	5500	5500
Max. compressive strength (without reinforced concrete)	MPa	30	50	80	80
	psi	4400	7300	11700	11700
Number of picks on cutting heads	pcs	52	60/78	28/44/52	28/44/52
Number of picks on cutting chain	pcs	49	55	54	54
Cutting unit weight	kg	800	1300	2600	2600
	lb	1800	2900	5800	5800

EK 140 – EK 160

Technical Data	Unit	EK 140	EK 150	EK 160
Recommended excavator weight	t	30 – 45	35 – 50	35 – 50
	lb	66000 – 99000	77000 – 110000	77000 – 110000
Cutting unit length	mm	2050	2050	2050
	in	80.7	80.7	80.7
Cutting head width	mm	800/900/ 1000	800/900/ 1000	800/900/ 1000
	in	31.5/35.4/ 39.4	31.5/35.4/ 39.4	31.5/35.4/ 39.4
Cutting head diam-eter	mm	850	850	850
	in	33.5	33.5	33.5
Drive housing width	mm	700	700	700
	in	27.6	27.6	27.6
Rated power	kW	140	150	160
	Hp	187.7	201.2	214.6
Max. torque at max. operating pressure	Nm	26000	30000	34000
	lbf.ft	19200	22200	25100
Recommended speed	rpm	70	70	70
Recommended oil quantity	l/min	250 – 400	300 – 420	300 – 420
	gal/min	66 – 106	79 – 111	79 – 111
Max. oil quantity	l/min	420	450	450
	gal/min	111	119	119
Max. hydraulic operating pressure	bar	380	380	380
	psi	5500	5500	5500
Max. compressive strength (without reinforced concrete)	MPa	100	100	120
	psi	14600	14600	17400
Number of picks on cutting heads	pcs	44/48/56	44/48/56	44/48/56
Number of picks on cutting chain	pcs	63	63	63
Cutting unit weight	kg	3800	3800	3800
	lb	8400	8400	8400

EK 200 – EK 240

Technical Data	Unit	EK 200	EK 220	EK 240
Recommended excavator weight	t	45 – 70	50 – 70	50 – 80
	lb	99000 – 155000	110000 – 155000	110000 – 177000
Cutting unit length	mm	2400	2400	2400
	in	94.5	94.5	94.5
Cutting head width	mm	900/1100/ 1300	900/1100/ 1300	900/1100/ 1300
	in	35.4/43.3/ 51.2	35.4/43.3/ 51.2	35.4/43.3/ 51.2
Cutting head diam-eter	mm	994	994	994
	in	39.1	39.1	39.1
Drive housing width	mm	850	850	850
	in	33.5	33.5	33.5
Rated power	kW	200	220	240
	Hp	268.2	295.0	321.8
Max. torque at max. operating pressure	Nm	48000	63000	78000
	lbf.ft	35400	46500	57500
Recommended speed	rpm	45	40	40
Recommended oil quantity	l/min	350 – 500	420 – 550	520 – 650
	gal/min	93 – 132	111 – 145	138 – 171
Max. oil quantity	l/min	550	600	650
	gal/min	145	158	171
Max. hydraulic operating pressure	bar	400	400	400
	psi	5800	5800	5800
Max. compressive strength (without reinforced concrete)	MPa	120	120	120
	psi	17400	17400	17400
Number of picks on cutting heads	pcs	44/52/60	44/52/60	44/52/60
Number of picks on cutting chain	pcs	58	58	58
Cutting unit weight	kg	6000	6000	6000
	lb	13300	13300	13300

EKT 40 – EKT 110

Technical Data	Unit	EKT 40	EKT 100	EKT 110
Recommended excavator weight	t	5 – 10	18 – 30	25 – 32
	lb	11000 – 22000	40000 – 66000	55000 – 70500
Cutting unit length	mm	990	1440	1440
	in	39.0	56.7	56.7
Cutting head width	mm	500	700/800	700/800
	in	19.7	27.6/31.5	27.6/31.5
Cutting head diameter	mm	450	690	690
	in	17.7	27.2	27.2
Drive housing width	mm	380	550	550
	in	15.0	21.7	21.7
Rated power	kW	44	100	110
	Hp	59.0	134.1	147.5
Max. torque at max. operating pressure	Nm	5700	18300	24500
	lbf.ft	4300	13500	18100
Recommended speed	rpm	70	70	70
Recommended oil quantity	l/min	70 – 90	180 – 250	240 – 300
	gal/min	19 – 24	48 – 66	63 – 79
Max. oil quantity	l/min	120	260	300
	gal/min	32	69	79
Max. hydraulic operating pressure	bar	380	380	380
	psi	5500	5500	5500
Max. compressive strength (without reinforced concrete)	MPa	30	80	80
	psi	4400	11700	11700
Number of picks on cutting heads	pcs	60	44/46	44/46
Cutting unit weight	kg	450	1400	1400
	lb	1000	3100	3100

EKT 140 – EKT 160

Technical Data	Unit	EKT 140	EKT 150	EKT 160
Recommended excavator weight	t	30 – 45	35 – 50	35 – 50
	lb	66000 – 99000	77000 – 110000	77000 – 110000
Cutting unit length	mm	1550	1550	1550
	in	61.0	61.0	61.0
Cutting head width	mm	880	880	880
	in	34.6	34.6	34.6
Cutting head diameter	mm	715	715	715
	in	28.1	28.1	28.1
Drive housing width	mm	700	700	700
	in	27.6	27.6	27.6
Rated power	kW	140	150	150
	Hp	187.7	201.2	201.2
Max. torque at max. operating pressure	Nm	26000	30000	34000
	lbf.ft	19200	22200	25100
Recommended speed	rpm	70	70	70
Recommended oil quantity	l/min	250 – 400	300 – 420	300 – 420
	gal/min	66 – 106	79 – 111	79 – 111
Max. oil quantity	l/min	420	450	450
	gal/min	111	119	119
Max. hydraulic operating pressure	bar	380	380	380
	psi	5500	5500	5500
Max. compressive strength (without reinforced concrete)	MPa	100	100	120
	psi	14600	14600	17400
Number of picks on cutting heads	pcs	44	44	44
Cutting unit weight	kg	1900	1900	1900
	lb	4200	4200	4200

EKT 200 – EKT 240

Technical Data	Unit	EKT 200	EKT 220	EKT 240
Recommended excavator weight	t	40 – 60	45 – 60	50 – 75
	lb	88000 – 133000	99000 – 133000	110000 – 165000
Cutting unit length	mm	1785	1785	1785
	in	70.3	70.3	70.3
Cutting head width	mm	925	925	925
	in	36.4	36.4	36.4
Cutting head diameter	mm	860	860	860
	in	33.9	33.9	33.9
Drive housing width	mm	850	850	850
	in	33.5	33.5	33.5
Rated power	kW	220	220	240
	Hp	295.0	295.0	321.8
Max. torque at max. operating pressure	Nm	48000	63000	78000
	lbf.ft	35400	46500	57500
Recommended speed	rpm	45	40	40
Recommended oil quantity	l/min	350 – 500	420 – 550	520 – 650
	gal/min	93 – 132	111 – 145	138 – 171
Max. oil quantity	l/min	800	800	800
	gal/min	211	211	211
Max. hydraulic operating pressure	bar	400	400	400
	psi	5800	5800	5800
Max. compressive strength (without reinforced concrete)	MPa	120	120	120
	psi	17400	17400	17400
Number of picks on cutting heads	pcs	44	44	44
Cutting unit weight	kg	3000	3000	3000
	lb	6700	6700	6700

Other data

Operating and environmental conditions	
Operating temperature	-15 to +50 °C (5 to 122 °F)
Max. operating time in one piece	24 h

Suitable picks

EK and EKT series units have round shank picks that can be selected and changed according to the work task. Round shank picks are attached to the cutting heads in pick holders and, in the EK series, additionally to the cutting chain.

Noise emission

On account of the varied fields of application, it is not possible to give a generally valid statement of the noise emission. Depending on the material cut, the unit may emit a higher noise level.
Wear suitable ear protection for all work with the unit.

Suitable gear oils

Manufacturer	Temperature range	
	-20 to +30 °C (-4 to +86 °F)	-15 to +40 °C (+5 to +104 °F)
ARAL	EP 80 Degol BG 68	EP 90 Degol BG 220
BP	EP SAE 80 Energol GR XP 68	EP SAE 90 Energol GR XP 220
ESSO	GPD 80 Spartan EP 100	Spartan EP 200 Gear oil GPD 90
MOBIL	Mobil Gear 80 EP Mobilube GX 80	Mobilube GX 90 Mobil Gear 630
SHELL	Spirax 80 EP Omala oil 100	Omala oil 220 Spirax 90 EP
TEXACO	Texaco Meropa 68 Universal gear oil EP 80	Texaco Meropa 220 Universal gear oil EP 90

Gear oil quantity

Series	Gear oil quantity
EK/EKT 40	6.5 l (1.7 gal)
EK 60	–
EK/EKT 100	16.5 l (4.4 gal)
EK/EKT 110	16.5 l (4.4 gal)
EK/EKT 140	25 l (6.6 gal)
EK/EKT 150	25 l (6.6 gal)
EK/EKT 160	25 l (6.6 gal)
EK/EKT 200	58 l (15.3 gal)
EK/EKT 220	58 l (15.3 gal)
EK/EKT 240	58 l (15.3 gal)

3.3.2 Hydraulic system

Flow and return lines

Series	Nominal diameter	Union nut thread	Wrench size
EK/EKT 40	13 mm	M 24 x 1.5	size 30
EK 60	20 mm	M 36 x 2	size 46
EK/EKT 100	25 mm	M 42 x 2	size 50
EK/EKT 110	25 mm	M 42 x 2	size 50
EK/EKT 140	25 mm	M 42 x 2	size 50
EK/EKT 150	25 mm	M 42 x 2	size 50
EK/EKT 160	25 mm	M 42 x 2	size 50
EK/EKT 200	31 mm	M 52 x 2	size 60
EK/EKT 220	31 mm	M 52 x 2	size 60
EK/EKT 240	31 mm	M 52 x 2	size 60

The supply and return pipes have a 24° sealing cone with O-ring according to DIN 3865.

Oil leakage pipe

Series	Nominal diameter	Union nut thread	Wrench size
EK/EKT 40	13 mm	M 22 x 1.5	size 27
EK 60	13 mm	M 22 x 1.5	size 27
EK/EKT 100	20 mm	M 30 x 2	size 36
EK/EKT 110	20 mm	M 30 x 2	size 36
EK/EKT 140	20 mm	M 30 x 2	size 36
EK/EKT 150	20 mm	M 30 x 2	size 36
EK/EKT 160	20 mm	M 30 x 2	size 36
EK/EKT 200	20 mm	M 30 x 2	size 36
EK/EKT 220	20 mm	M 30 x 2	size 36
EK/EKT 240	20 mm	M 30 x 2	size 36

Connected loads

Parameters	Value
Operating pressure	see section 3.3.1 on page 15
Temperature	+50 to +80 °C (122 to 176 °F)
Viscosity class	46 or 68 SAE

Suitable hydraulic oils

Class HLP 46 or HLP 68 hydraulic oils corresponding to DIN 51524 are suitable for the unit.
Always use biologically degradable hydraulic oils in drinking water protection areas.

Temperature monitoring

Ensure that the temperature of the oil in the excavator does not exceed a temperature of 80 °C (176 °F).

Hydraulic motor displacement

Series	Hydraulic motor displacement
EK/EKT 40	0.8 l (0.21 gal)
EK 60	1.5 l (0.40 gal)
EK/EKT 100	2.5 l (0.66 gal)
EK/EKT 110	3.3 l (0.87 gal)
EK/EKT 140	4.2 l (1.11 gal)
EK/EKT 150	5.0 l (1.32 gal)
EK/EKT 160	5.6 l (1.48 gal)
EK/EKT 200	8.4 l (2.22 gal)
EK/EKT 220	10.0 l (2.64 gal)
EK/EKT 240	10.8 l (2.85 gal)

3.3.3 Tightening torque for screws

Unless otherwise stated in the instruction, the following tightening torques apply to screw connections:

ISO standard pitch thread	Property class		
	8.8	10.9	12.9
M 5	6 Nm	9 Nm	10 Nm
M 6	10 Nm	15 Nm	17 Nm
M 8	25 Nm	36 Nm	42 Nm
M 10	48 Nm	70 Nm	82 Nm
M 12	84 Nm	123 Nm	144 Nm
M 16	206 Nm	302 Nm	354 Nm
M 20	415 Nm	592 Nm	692 Nm
M 24	714 Nm	1017 Nm	1190 Nm
M 27	1050 Nm	1500 Nm	1750 Nm
M 30	1400 Nm	2050 Nm	2400 Nm

3.4 Type plate

The rating plate is located on the side of the drive housing, and contains the following data:

+ Manufacturer
+ Type
+ Year of construction
+ Series number
+ Weight
+ Maximum hydraulic pressure

The appliance is uniquely identifiable by its serial number. Please have the data on the rating plate ready when contacting the manufacturer to order spare parts or ask questions about the device.
Maintain the rating plate is good legible condition.

3.5 Scope of delivery

The scope of delivery of the unit includes the following components:

+ Cutting unit with cutting heads/chain, hydraulic motor and hydraulic connectors
+ Unit-specific transport frame
+ Instruction Manual and technical documentation

The actual scope of delivery may differ for special designs or if additional order options are exercised.

4 Transport and Storage

4.1 General instructions

Delivery

The unit is delivered by carrier or, on request, by the manufacturer's service personnel. The unit is generally delivered on a special transport frame and secured by a tensioning strap.

Transport frame

The transport frame is made of wood or steel, depending on the size of the appliance. The transport frame enables the unit to be transported safely and stored correctly.
The transport frame is an important part of the appliance. Keep the transport frame for storage and transport in a safe place and protect it from damage. Contact the manufacturer if the transport frame is lost.

4.2 Instructions relating to transport

The unit has a high weight. Safe transport is only possible with suitable equipment, in particular the associated transport frame and tensioning straps.

Heed the following instructions during transport:

+ Allow transportation to be performed only by qualified and authorized skilled personnel.
+ If possible, always transport and store the unit only on the corresponding transport frame.
+ For transport, secure the unit to the transport frame with additional tensioning straps.
+ Observe the center of gravity of the unit, especially when using the lifting eyes directly on the unit.
+ Use only authorized hoisting gear and slings with an adequate loading capacity. Take into account additional loads, in particular the weight of the transport frame.

Transport with the fork lift

The transport frame enables the unit to be transported safely with the aid of a fork-lift truck.
Insert the forks of the fork-lift truck as far as possible underneath the bars of the transport frame until they project out of the other side.

Transport with the crane

Transport by crane is only permissible with steel transport frames fitted with lifting eyes. Alternatively, the unit has its own transport lugs on the housing.
Use all the available lifting eyes so that the load cannot tip over and hangs straight. Always keep a safe distance away from suspended loads.

4.3 Unpacking instructions

The delivery note lists the contents of the delivery. Check the completeness and integrity of the delivery on receipt. Report any transport damage or missing parts immediately in writing to the carrier and manufacturer.

Packing material

The unit is attached to the transport frame by tensioning straps, and packed in protective foil. The packaging protects the unit against damage and corrosion until it is mounted. Therefore do not destroy the packaging, and do not unpack the unit until shortly before it is installed.

Keep the transport frame and the tensioning strap in a safe place for future storage or transport, do **not** dispose of them.
Other packaging material may be disposed of in accordance with the national environmental protection regulations.

4.4 Storage instructions

The manufacturer recommends storing the unit only on its transport frame. The transport frame allows adequate ventilation and prevents direct contact with the ground.

Heed the following instructions for storage:
+ Thoroughly clean the unit before putting it into storage.
+ Store the device in a clean and dust-free condition.
+ Protect the unit against mechanical shocks and damage.
+ Check the general condition of the unit regularly.

Heed the following instructions for longer periods of storage:
+ Remove the picks from the pick holders, clean them and preserve them with oil.
+ Preserve cutting heads and cutting chain with oil.

Preparation of the hydraulic motor

For longer periods of storage, the hydraulic motor must be prepared for the ambient conditions by qualified, skilled personnel:

	Storage time			
Climatic region	**3 months**	**6 months**	**12 months**	**24 months**
Temperate climate	**A**	**B**	**C**	**C**
Tropical climate	**B**	**C**	**D**	**D**
Maritime climate	**C**	**D**	**D**	**D**

The following definitions apply:
A No special maintenance activities are required. Fit plugs and locks.
B Fill the hydraulic motor with hydraulic oil.
C Flush the hydraulic motor with conservation fluid.
D Fill the hydraulic motor with conservation fluid.

Use SRS Antikorrol M plus or a comparable conservation oil as conservation fluid.

5 Installation

WARNING! Danger of injury from improper mounting.
The hydraulic oil of the excavator reaches high temperatures during operation, which can lead to burns during the mounting work. Furthermore, incorrect mounting makes operation unsafe, and persons could be injured.

+ Only qualified, authorized skilled personnel may install the unit.
+ Allow the excavator to cool before starting work on the hydraulic system.

Mounting variants

The mounting plate of the unit has a standardized hole pattern. The unit can be fitted with a quick-change adapter or a bolt adapter. Compatible adapters for conventional systems can be obtained directly from the manufacturer **KEMROC**.

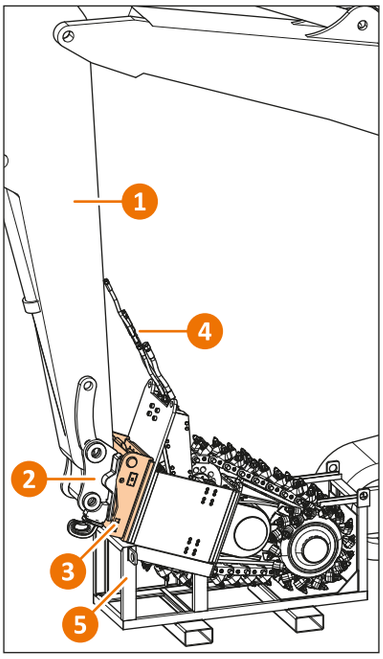
5.1 Preparation of the excavator

Create and check the preconditions

The parameters of the excavator must correspond to the technical data of the unit. Before mounting, check the following characteristics of the excavator in particular, and if necessary have them created by qualified, skilled personnel:

+ The excavator must be generally suitable for operating a cutter attachment, have all the required safety devices, and provide an adequate view of the working area of the unit.
+ The cabin of the hydraulic excavator must be protected with suitable measures against damage from flying parts (safety glass).
+ The hydraulic pressure, oil flow and hydraulic oil of the excavator must correspond to the specifications of the unit.
+ In addition to the feed and return pipes, there must be a leak oil pipe running along the extension arm, and an additional leak oil filter must be connected to the excavator.
  Contact qualified, skilled personnel or the manufacturer if the leak oil pipe and leak oil filter need to be retrofitted.

5.2 Flexible mounting with quick change adapter



If the quick change adapter is ordered with the appliance, it is already mounted in the factory. Otherwise have the quick-change adapter mounted on the unit by qualified, skilled personnel, and observe the following instructions:

+ The contact surfaces of the adapter must be flat (maximum surface roughness R_a 12.5 µm, max. flatness deviation 0.5 mm).
+ Leave the appliance in the transport frame **(5)** during assembly:
+ Screw the correct side of the adapter to the mounting plate:
  If possible, mount the unit only so that the direction of rotation of the cutting heads points towards the excavator.
+ In order to screw the adapter to the mounting plate, use wedge lock washers or lock nuts and tighten the screws to the appropriate tightening torque (see section 3.3.3 on page 23).
+ If a fully automatic quick change system is used:
  Connect the hydraulic feed pipe, return pipe and leak oil pipe of the unit directly to the quick change adapter.
  Make sure that the cables are correctly assigned to each other.

Docking the unit

The operation of a quick change system varies according to the manufacturer. For further instructions, refer to the Instruction Manual of the quick change system used.

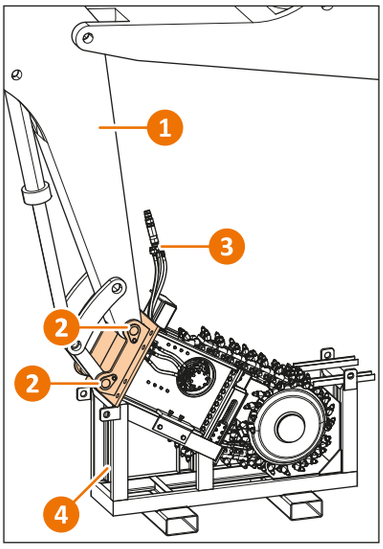
1. Carefully move the extension arm **(1)** with the holder **(2)** into the adapter **(3)**.
2. Hook the holder **(2)** in the adapter **(3)** and lock securely.
3. Connect the hydraulic connectors **(4)** of the appliance to the connectors of the extension arm (feed pipe, return pipe and leak oil pipe). Make sure that the cables are correctly assigned to each other.
   If a fully automatic quick change system is used, the hydraulic connectors are connected automatically.

The excavator can then lift the unit out of the transport frame **(5)**.

Undocking the unit

To undock the unit, carefully move the extension arm **(1)** above the transport frame **(5)** and lower the unit safely into it.
If a fully automated quick change system is not used, disconnect the hydraulic connectors **(4)** manually before the quick change system is opened. Place a suitable container underneath to catch leaking hydraulic oil, and dispose of the oil in an environmentally friendly way.

5.3 Fixed mounting with the bolt adapter



If the bolt adapter is ordered with the appliance, it is already mounted in the factory. Otherwise have the bolt adapter mounted on the unit by qualified, skilled personnel, and observe the following instructions:

+ The contact surfaces of the adapter must be flat (maximum surface roughness R_a 12.5 µm, max. flatness deviation 0.5 mm).
+ Leave the unit in the transport frame **(4)** during assembly:
+ Screw the correct side of the adapter to the mounting plate so that the hydraulic connections **(3)** are on the correct side of the extension arm. If possible, mount the unit only so that the direction of rotation of the cutting heads points towards the excavator.
+ In order to screw the adapter to the mounting plate, use wedge lock washers or lock nuts and tighten the screws to the appropriate tightening torque (see section 3.3.3 on page 23).

Docking the unit

If a bolt adapter is used, the unit is firmly connected to the extension arm:

1. Move the extension arm **(1)** carefully into the adapter, and align the mounting holes with one another.
2. Insert suitable bolts **(2)** between the adapter and the extension arm.
3. Fit the bolts **(2)** with bolt retainers and check that they are firmly seated.
4. Connect the hydraulic connectors **(3)** of the unit to the connectors of the extension arm (feed pipe, return pipe and leak oil pipe). Make sure that the cables are correctly assigned to each other.

The unit can then be lifted out of the transport frame **(4)** with the excavator.

Undocking the unit

Move the unit carefully over the transport frame **(4)** with the extension arm **(1)**, lower it safely into the frame and allow to cool.
Disconnect the hydraulic connectors **(3)** manually before removing the bolts **(2)**. Place a suitable container underneath to catch leaking hydraulic oil, and dispose of the oil in an environmentally friendly way.

6 Operation and control of the device

The appliance is totally controlled by the work hydraulics of the excavator. The pressure and quantity of hydraulic oil must be adjusted for different work tasks as necessary.

The operation of the work hydraulics varies according to the manufacturer. Follow the instructions in the excavator Instruction Manual.

First start-up

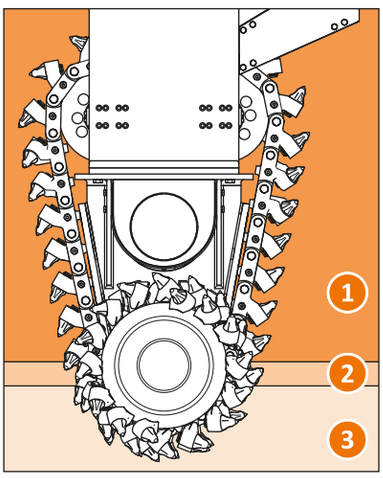
Before starting work, thoroughly check the proper functioning of the unit, in particular before the first use and after each maintenance activity.

1. Ensure that all maintenance and installation work has been completed, all safety devices are mounted, and that there are no loose objects on or in the unit.
2. Check the hydraulic system of the excavator, in particular the oil level, tightness, conditions of the filters and shut-off valves.
3. Check all fastenings and lines on the unit.
4. Move the unit to a raised position.
5. Switch on the excavator motor, and bring it slowly under a light load up to normal operating conditions (oil volume and pressure).
   Listen for normal operating noises of the appliance, in particular for the smooth running of the cutting heads.
   Monitor the pressure and temperature of the hydraulic system with the aid of the excavator system.

Instructions for cutting work

Heed the following work instructions for effective function and a long service life:

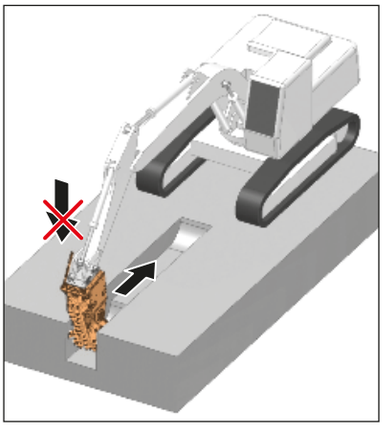
+ When working with the appliance, extend and retract the hydraulic cylinder of the extension arm with great care. Never completely extend or retract the lifting cylinder of the extension arm.
+ Only switch on the machine in the raised position and outside the material to be cut. Always start with low power and slowly adapt the power to the work task.
+ Insert the rotating cutting head slowly into the material to be cut to avoid blockages.
  If the cutting heads get blocked, reduce the torque of the excavator until the cutting heads starts running again. Never attempt to remove blockages by hand! Keep the trench free of cut material.
+ Do not insert the cutting head more than 50% into the material to be cut to avoid blocking:
  (1) not allowed area
  (2) maximum allowed working range
  (3) recommended working range
+ Do not switch the appliance on or off at full power. This can prevent overloading of the hydraulic system.



+ If possible, switch off the unit while the cutting heads are still engaged with the material being cut. This can prevent unwanted after-running.
+ If the appliance is used continuously, always monitor the pressure and temperature of the hydraulic system. The temperature of the hydraulic oil must not exceed 80 °C (176 °F).

Working direction for EK series

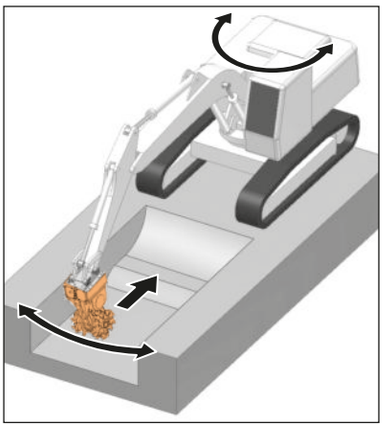
EK series units can use the cutting chain to cut straight trenches that are exactly the same width as the cutter.



+ Always execute the cutting movement in the direction of the carrier vehicle.
+ Do not perform any lateral cutting movements.
+ Do not press on the milling chain.
+ Always perform cutting movements slowly. Do not apply strong forces to the excavator. Always ensure that the excavator has full contact with the ground.

Working direction for EKT series

EKT series units do not have a cutting chain and must be swiveled to break off the web between the two cutting heads.



+ Perform the cutting movements either in horizontal or vertical direction. Guide the unit so that the material to be cut is also removed between the cutting heads.
+ Always perform cutting movements slowly. Do not apply strong forces to the excavator. Always ensure that the excavator has full contact with the ground.

7 Maintenance

7.1 Notes about the maintenance

The appliance requires little maintenance effort. Careful handling of the appliance maintains its high reliability. To this end, clean the unit regularly, and check for wear and visible damage.

General instructions

All maintenance activities may only be carried out by qualified and authorized skilled personnel.
Observe the following instructions for maintenance:

+ Depressurize the hydraulic system before starting work on the unit, and allow all parts of the unit to cool.
+ Do not start work on the unit until the cutter heads have stopped, the excavator has been switched off, and it has been secured against unauthorized restarting. This can be done, for example, by removing the ignition key and keeping it with you.
+ Wear personal protective equipment, in particular close-fitting protective work clothing, protective gloves and protective goggles.
+ After completing work, ensure that all safety devices are mounted, and that there are no loose objects on or in the unit.

Instructions for hydraulic hoses

WARNING! Risk of injury due to hydraulic hoses bursting!
Damaged hydraulic hoses may burst and cause serious injuries. Furthermore, hydraulic hoses are subject to an aging process, and generally have to be replaced at the end of their service lives, even if there is no visible damage.

+ Check all hydraulic hoses regularly for damage. Damaged hydraulic hoses must be professionally changed immediately even if the damage is only slight.
+ Have the hydraulic hoses professionally changed when they reach the end of their service lives. It is recommended to replace highly stressed hydraulic hoses every 2 years.

Spare and wear parts

False or faulty spare parts endanger the operational safety of the appliance, and can lead to malfunctions and injuries. Only use original spare parts made by the manufacturer, **KEMROC**.
Wearing parts (for example picks) can be replaced by qualified, skilled personnel, provided that the work is described in this manual.

Tools and equipment

Different tools and equipment are required, depending on the series of the unit used, in particular:

+ Hexagon wrench set
+ Hexagon socket wrench set
+ Medium-strength locking adhesive for screw connections
+ Grease gun
+ Collection container for waste oil (at least 25 liters or 7 gallons)
+ lint-free cotton cloths
+ 50-ton press
+ Ferrule
+ Tool set for bushings and seals of the chain links
+ 2 M 20 threaded rods (at least 800 mm or 31.5 in)
  (for EK 140: 4 threaded rods and 4 adapter plates No. 572125)
+ Special tool for removing the picks safety devices
+ Chisel
+ Hammer
+ Plastic hammer
+ Sledge hammer with M 30 threaded rod

Repair work

Unauthorized repairs must not be made to the appliance. For repairs, contact the manufacturer or a service partner authorized by the manufacturer. Damaged units must not be used.

7.2 Maintenance intervals

The following maintenance intervals are generally recommended by the manufacturer. In the event of increased wear, further reduce the maintenance intervals, and adapt to the conditions of use and the ambient conditions.

General activities

Maintenance activity	Each time before and after use	Daily	Twice a week	Every 2 years	if necessary
Clean the unit thoroughly (see chapter 7.3.1 on page 36).	•				•
Check the round shank picks for wear and firm seating. Replace the worn picks if necessary (see section 7.3.2 on page 36).	•	•			•
Check the picks holders of the cutting heads for wear. In case of damage, have the picks holders or existing wear bushes replaced by a specialist.	•	•			•
Check the cutting heads for jammed materials. Remove jammed cut material	•	•			
Check the hydraulic motor for unusual noises and leaks.	•	•			
Check all screws of the unit for tightness, especially between the mounting plate and the quick-change adapter or bolting adapter. Heed the corresponding tightening torques (see chapter 3.3.3 on page 23).	•	•			
Check all hydraulic hoses for damage and leaks. Have damaged hydraulic hoses professionally changed.	•	•			
Have all hydraulic hoses professionally changed.				•	

Change the gear oil regularly and depending on the work task (see section 7.3.4 on page 44):

Work task	1st interval	following intervals
normal cutting operation	200 operating hours	2000 operating hours
heavy cutting operation	100 operating hours	1000 operating hours

Further activities at EK series

The following maintenance activities apply **additionally** to units of the EK series:

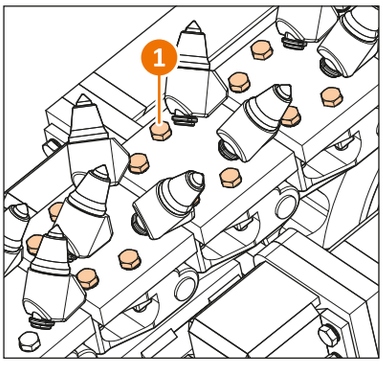
Maintenance activity	Each time before and after use	Daily	Twice a week	Every 2 years	if necessary
Check the chain links and pick holders for wear and cracks. If necessary, replace the worn chain links and chain pins (see section 7.3.6 on page 46).	•	•			•
Check the deflection rollers assembly for wear and cracks, especially the guide rod. Immediately remove or replace any damage to the deflection rollers. Check the tension of the tension springs (see chapter 7.3.7 on page 50).	•	•			•
Check the sprockets between the cutting head and cutting chain for wear. In case of damage, have the sprockets replaced professionally.	•	•			
Lubricate the cutting chain with special grease (see chapter 7.3.5 on page 46; not for type EK 60 units).			•		•

Change the oil of the deflection rollers regularly and depending on the work task (0.4 l gear oil CLP 220 according to DIN 51517):

Work task	Interval
normal cutting operation	2000 operating hours
heavy cutting operation	1000 operating hours

Further activities for EK 60 type

Tighten all fastening screws **(1)** of the milling inserts to 170 Nm after the first 20 operating hours in type EK 60 units. Then check the fastening screws weekly.



7.3 Maintenance Activities

7.3.1 Cleaning the Unit

Clean areas bearing adhesive labels or signs with a damp cloth.
The cutting chain, the cutting heads and all other parts of the machine can be cleaned with a high-pressure cleaner. Avoid direct irradiation of the seals on the unit and on the chain links.
Remove any dirt from the spaces between the round shank picks and the pick holders. Do not place excessive strain on the cutting heads and cutting chain when removing dirt or jammed fragments. Do not hit parts of the cutting chain or cutting heads with hard objects.

Visual inspection after cleaning

Check the entire unit for damage, wear, leakage and tightness after cleaning.
Ensure that there is no residual dirt under the cutting tools, such as fresh concrete. Such residues can harden and cause the bits to stick to the holders.

Drying

After cleaning, place the appliance in the transport frame. This ensures that the unit is adequately ventilated and avoids corrosion.

7.3.2 Testing and replacing cutting tools

EK and EKT series units have picks that can be selected and changed according to the work task. **KEMROC** round shank picks are suitable for EK and EKT series units. Depending on the design of the cutting chain and cutting heads, the following pick safety devices are used:

+ with Quick Snap
+ with locking ring
+ with C-clip
+ with clamping sleeve

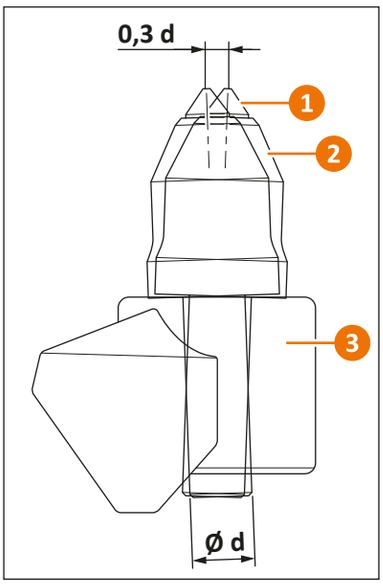
When replacing picks, equip the cutting chain and cutting heads in such a way that a uniform cutting process is ensured.

Signs of wear

Round shank picks must be replaced when the following signs appear:

+ when the carbide tip is worn
+ if the heads of the round shank picks are of different lengths
+ if there are cracks between the shaft and the head

Check picks

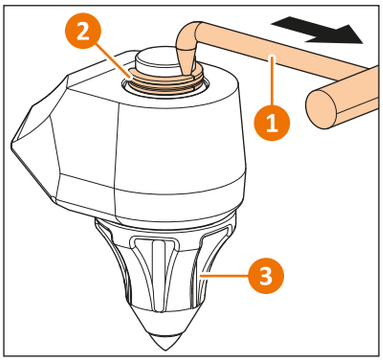


1. Move the unit into an easily accessible position with the extension arm of the excavator.
2. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
3. Check all cutting tools **(2)** for even wear and damage, especially the cutting edge **(1)** (brazed-on carbide tip).
4. If one or more picks are worn out, replace the picks immediately (see following pages).
5. Check the picks for firm seating in the pick holder. If the cutting tools have a clearance of more than 0.3 times the diameter of the pick shaft, have the pick holder **(3)** or the wear bush replaced correctly without delay.

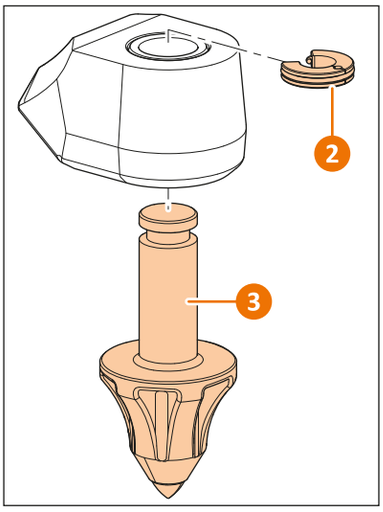
In order to reach all the picks, the unit can be carefully turned further with the help of the excavator. Ensure that there are no loose objects or tools on or in the unit. Then switch off the excavator, and secure it against unauthorized switch on.

Replacing the picks with Quick Snap

A draw hook is required for picks with Quick Snap.

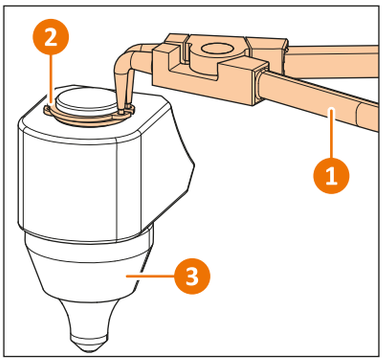


1. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
2. Grasp the tip of the draw hook **(1)** into the hole in the Quick Snap circlip **(2)**.
3. Hold the draw hook safely and remove the Quick Snap circlip across the pick shaft.
4. Pull the pick **(3)** out of the holder.



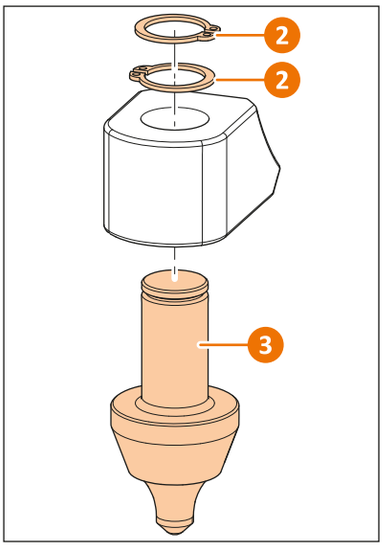
5. Remove any dirt from the spaces between the pick and the holder.
6. Insert the new pick **(3)** into the holder.
7. Press the new Quick Snap circlip **(2)** onto the pick shaft until it snaps safely into place.

Replacing pick with circlip



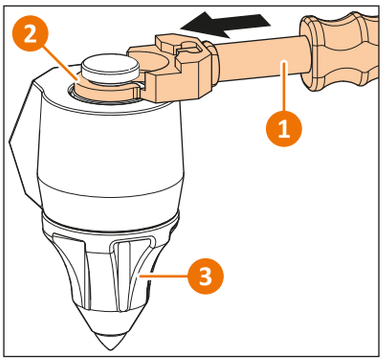
For picks with circlips a circlip pliers for outer rings is required.

1. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
2. Use the circlip pliers **(1)** one after the other to remove both circlips **(2)** from the pick shaft.
3. Pull the pick **(3)** out of the holder.



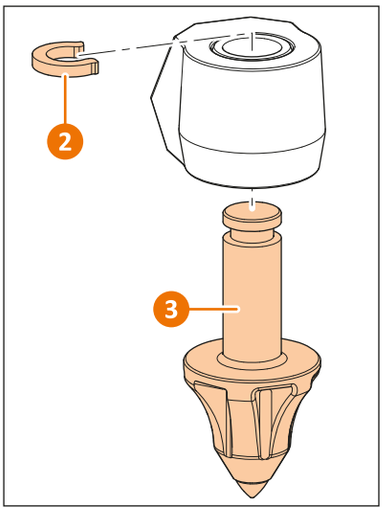
4. Remove any dirt from the spaces between the pick and the holder.
5. Insert the new pick **(3)** into the holder.
6. Insert 2 new circlips **(2)** one after the other into the groove of the pick shaft.
   NOTE: Always use 2 circlips per pick. Turn the openings of the circlips by 180° against each other.

Replacing pick with C-clip

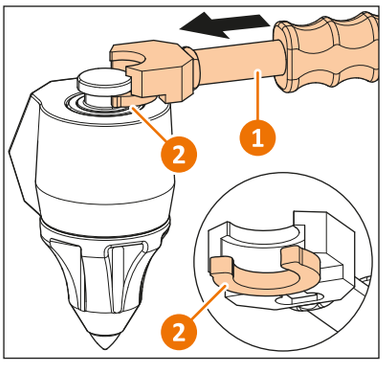


A hammer and a **KEMROC** inserting and removing tool are required for picks with C-clip.

1. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
2. Place the removing tool **(1)** with the semicircular opening on the opening of the C-clip **(2)**.
3. Using a hammer and the removing tool **(1)**, knock the C-clip **(2)** off the pick shaft.

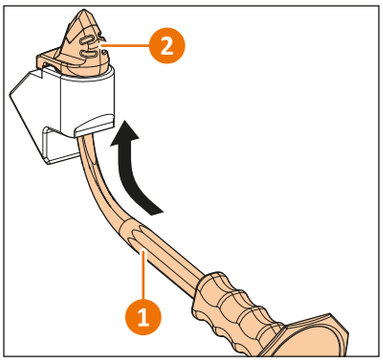


4. Pull the pick **(3)** out of the holder.
5. Remove any dirt from the spaces between the pick and the holder.
6. Insert the new pick **(3)** into the holder.



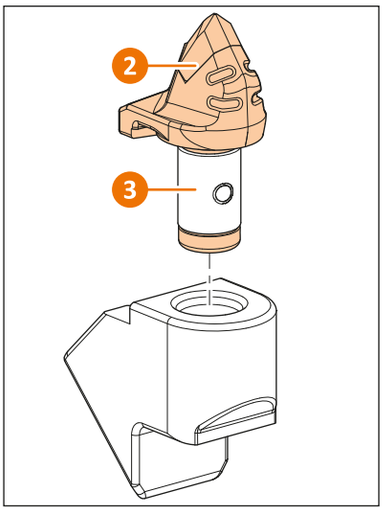
7. Fit a new C-clip **(2)** to the inserting tool **(1)**.
   NOTE: The holder of the tool is magnetic and fixes the C-clip.
8. Position the inserting tool **(1)** with the C-clip **(2)** on the pick shaft.
9. Using a hammer and the inserting tool **(1)**, knock the C-clip **(2)** onto the pick shaft.

Replacing pick with clamping sleeve



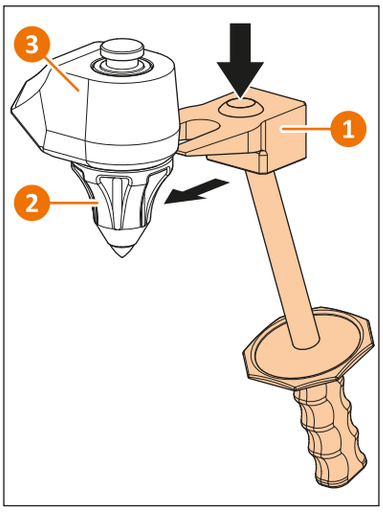
A hammer and a **KEMROC** removing tool are required for picks with clamping sleeve.

1. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
2. Place the removing tool **(1)** through the bore of the holder onto the pick shaft.
3. Use a hammer and the removing tool **(1)** to knock the pick **(2)** out of the holder.



4. Pull the pick **(2)** and the clamping sleeve **(3)** out of the holder.
5. Remove any dirt from the spaces between the pick and the holder.
6. Insert the new pick **(2)** with the clamping sleeve **(3)** into the holder.
7. Drive the pick into the holder until it engages securely with the clamping sleeve.

Wedge ejector



A **KEMROC** wedge ejector can be used as a support for fixed picks.

1. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
2. Remove the pick safety device (circlip, C-clip or Quick Snap).
3. Place the wedge ejector **(1)** between the pick **(2)** and holder **(3)**.
4. Carefully tap the wedge ejector **(1)**. After each impact, reposition the wedge ejector and pull the pick out of the holder step by step.

7.3.3 Changing the cutting heads

Signs of wear

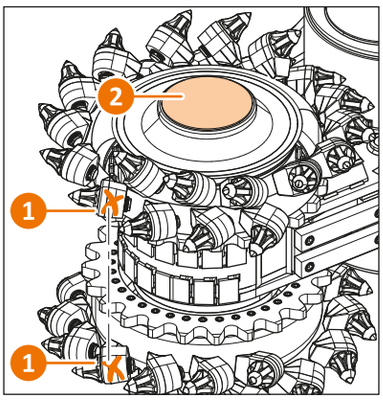
Cutting heads must be replaced when the following signs appear:

+ when 30% of the pick holders or wear bushings have reached a state of wear as described in chapter 7.3.2
+ when 30% of the pick holders are broken
+ when the holes of the cutting head are knocked out

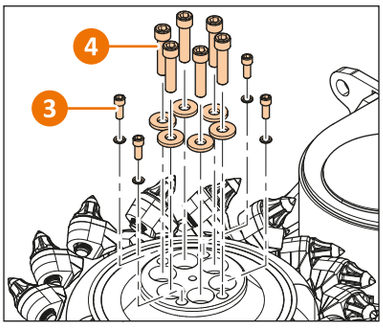
Changing cutting heads

Always replace cutting heads in pairs. Equip the cutting chain and cutting heads in such a way that a smooth cutting process is possible.

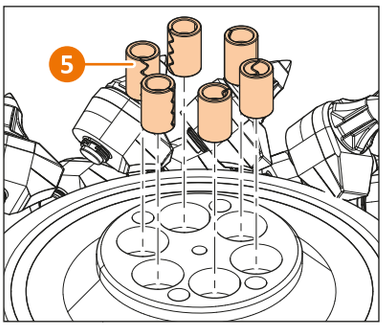
1. Switch off the unit and wait until it has come to a complete stand-still.
2. Place the unit with the extension arm of the excavator horizontally on the ground and undock from the excavator.
3. Remove the excavator from the unit and create sufficient space around the unit.
4. **For EK series (except EK 60):** Remove the cutting chain from the unit (see chapter 7.3.6 on page46, steps 1 to 8).



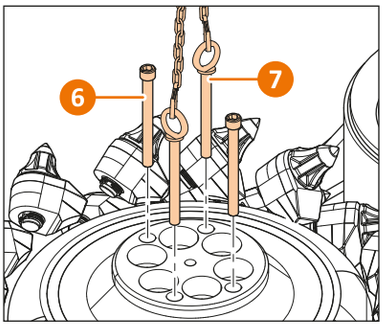
5. Place the unit on its side using suitable lifting gear.
6. Clearly mark the position of the cutting heads in relation to each other, for example on 2 opposing pick holders **(1)**.
7. If present, carefully remove the wear plate **(2)**, e.g. with a cut-off machine.



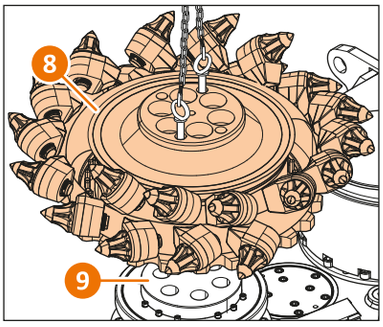
8. Remove the screws **(3)** with wedge lock washers from the cutter head.
9. Remove the screws **(4)** with washers from the cutting head.



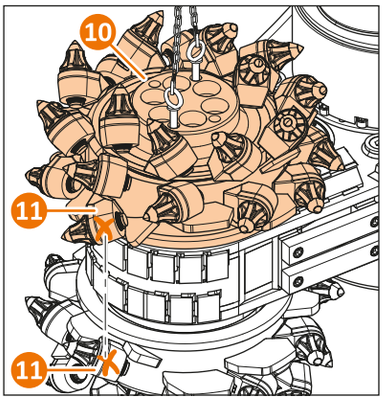
10. Remove the bushes **(5)** one by one with a knockout hammer.



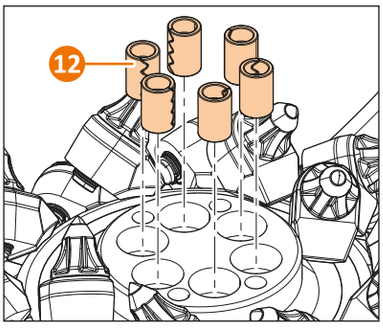
11. Screw 2 long screws **(6)** and eyebolts **(7)** crosswise into the cutting head.
12. Tighten the screws **(6)** and **(7)** alternately and gradually to push the cutting head upwards.
13. Attach a suitable lifting gear to the eyebolts **(7)**.



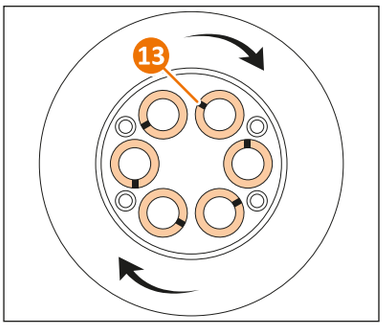
14. Carefully remove the old cutting head **(8)** and lay it down safely.
15. Clean the shaft **(9)** and apply copper paste to the connecting surfaces and bores.

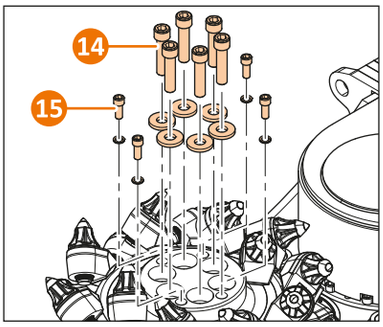


16. Lift the new cutting head **(10)** onto the unit with the eyebolts.
17. Align the cutting head according to the marks **(11)** made during disassembly.
18. Remove the eyebolts.
19. Align the holes of the cutting head exactly with the holes of the shaft.



20. Insert the bushes **(12)** into the holes of the cutting head.
    NOTE: Align the bushes with their threads **upwards** and with their slots **(13) against** the direction of rotation of the cutting head.
21. Drive the bushes **(12)** into the bores of the cutting head and the shaft with a plastic hammer.





22. Thoroughly clean the screws **(14)** and apply medium-strength securing adhesive. Then insert and tighten the screws **(14)** each with a washer in the cutting head.
23. Insert the screws **(15)** with wedge lock washers and tighten them crosswise.
24. Weld on a new wear plate depending on the requirements of the cutting head.
25. Place the unit on the other side using suitable lifting equipment and repeat steps 7 to 24 on the second cutting head.
    Before starting operation, allow the locking adhesive to harden.
26. **For EK series:** Refit the cutting chain (see chapter 7.3.6 on page 46, steps 9 to 18).

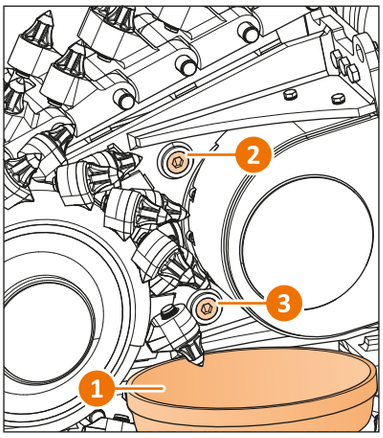
7.3.4 Changing the gear oil

WARNING! Risk of injury from hot gear oil!
During operation the transmission oil takes on high temperatures and can cause burns when drained.

+ Let the unit cool down before draining the gear oil.

Type EK/EKT 40, 100 – 240

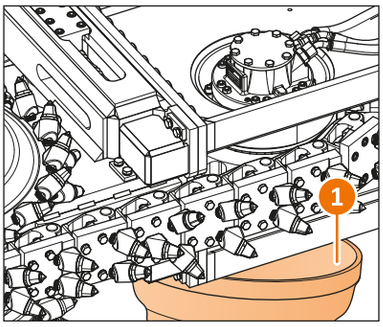
1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the excavator's boom horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.



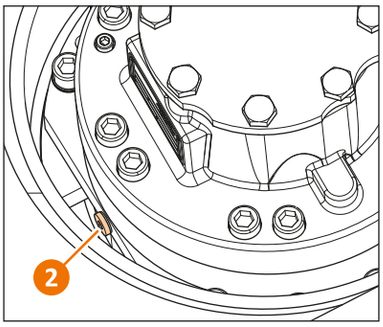
4. Place a suitable collection container **(1)** for used oil under the oil drain plug **(3)**.
5. **NOTE:** Increased pressure may be present in the gearbox, which must first be released when opening the screws.
   Slowly open the oil filler plug **(2)** and carefully release the pressure in the gearbox housing.
6. First unscrew the oil filler plug **(2)** completely from the gear unit housing and then the oil drain plug **(3)**.
7. Collect the waste oil completely in the collection container.
8. Clean both screws and openings with a lint-free cotton cloth.
9. Check the sealing rings of both screws for damage.
10. Check the screws for chips caused by metal abrasion. Remove metal chips if necessary.
    NOTE: The oil drain plug and oil filler plug are each equipped with a magnet that attracts metal chips.
    If there are larger metal chips on the magnet, contact the manufacturer **KEMROC**.
11. Screw the oil drain plug **(3)** back in.
12. Fill in new gear oil according to the specifications (see chapter 3.3 on page 21).
13. Clean the oil filler opening with a lint-free cotton cloth.
14. Screw the oil filler plug **(2)** back in.
15. Clean the unit (see chapter 7.3.1 on page 36).
16. Dispose of the waste oil in accordance with the applicable environmental protection regulations.

Type EK 60

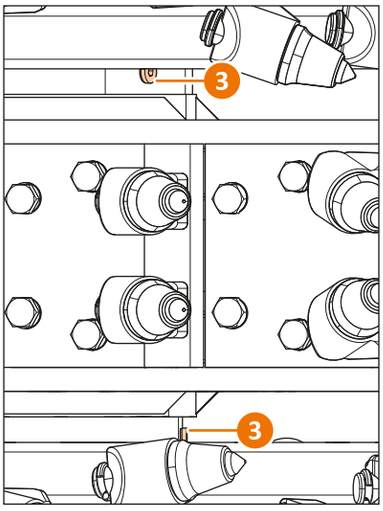
The gear oil on the input and output assembly must be changed separately for type EK 60 units.



1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and to the side.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
4. Remove the covers of the hydraulic motor on both sides with 8 screws and wedge lock washers.
5. Place a suitable collection container **(1)** for used oil under the drive assembly.
6. **NOTE:** Increased pressure may be present in the gearbox, which must first be released when opening the screws.
   Slowly open the oil filler plug **(2)** and carefully release the pressure in the gearbox.

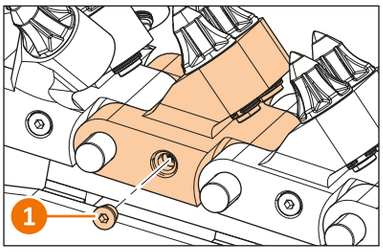


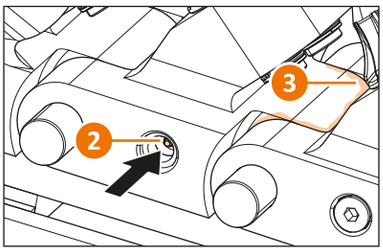
7. First unscrew the oil filler plug **(2)** completely from the gearbox and then the oil drain plug (symmetrically on the underside of the drive assembly).
8. Collect the waste oil completely in the collection container.
9. Clean both screws and openings with a lint-free cotton cloth.
10. Check the sealing rings of both screws for damage.
11. Check the screws for chips caused by metal abrasion. Remove metal chips if necessary.
    NOTE: The oil drain plug and oil filler plug are each equipped with a magnet that attracts metal chips.
    If there are larger metal chips on the magnet, contact the manufacturer **KEMROC**.
12. Screw the oil drain plug back in at the bottom of the drive assembly.
13. Fill in 300 ml (0.08 gal) of new gear oil.
14. Clean the oil filler opening with a lint-free cotton cloth.
15. Screw the oil filler plug **(2)** back in.



16. Place a suitable collection container for used oil under the output assembly.
17. Change the gear oil on the output assembly in the same way. The oil drain and oil filler plugs **(3)** are located between the cutting heads.
    Fill in 1.3 liter of new gear oil at the output assembly.
18. Clean the unit (see chapter 7.3.1 on page 36).
19. Dispose of the waste oil in accordance with the applicable environmental protection regulations.

7.3.5 Lubricating the cutting chain (EK series, except EK 60)

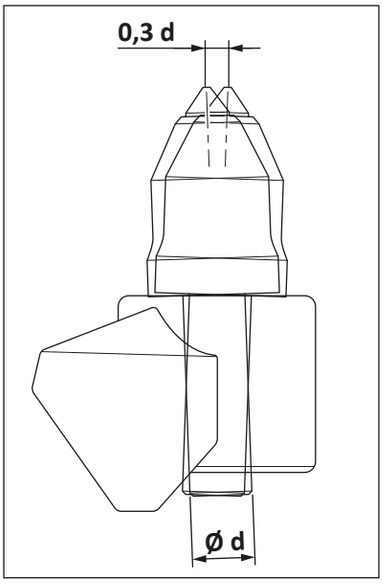




1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
4. Remove the screw plug **(1)** from the grease nipple of a chain link.
5. Press **KEMROC** special grease into the grease nipple **(2)** of the chain link until the grease escapes between the chain links **(3)**.
6. Screw the screw plug **(1)** firmly back into the chain link.
7. Repeat steps 4 to 6 on all other chain links.

7.3.6 Changing the cutting chain or a chain link (EK series)

Signs of wear



The chain or chain links must be replaced when the following signs appear:

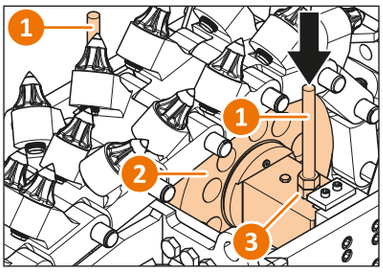
+ if the chain links show cracks
+ when the chain links are worn out
+ if the play in the bracket on the chain is greater than 0.3 times the shaft diameter
+ if the axial bearing surface is worn
+ when the distance between 2 bolts increases:

Series	no change required	change recommended	change required
EK 40	95 mm (3.7 in)	100 mm (3.9 in)	102 mm (4.0 in)
EK 60	135 mm (5.3 in)	141 mm (5.5 in)	143 mm (5.6 in)
EK 100/110	132 mm (5.2 in)	138 mm (5.4 in)	140 mm (5.5 in)
EK 140/150/160	155 mm (6.1 in)	158 mm (6.2 in)	160 mm (6.3 in)
EK 200/220/240	190 mm (7.5 in)	197 mm (7.8 in)	200 mm (7.9 in)

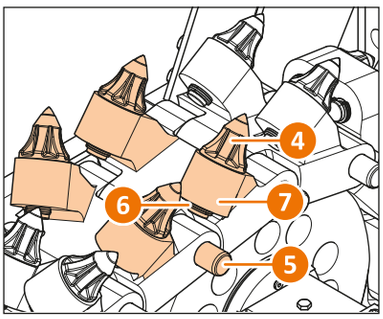
Type EK 40, 100 – 240

The cutting chain can be replaced completely or as individual chain links. When changing individual chain links, equip the cutting chain so that a uniform cutting process is possible.

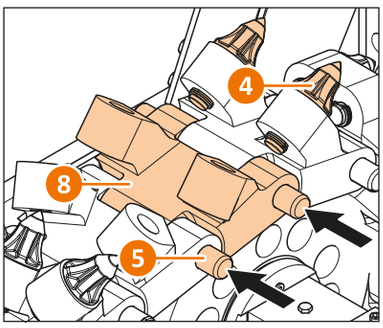
1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.



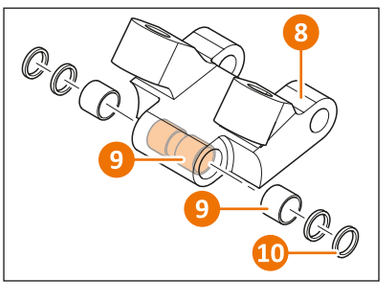
4. Guide the 2 threaded rods **(1)** on the left and right through the deflection roller assembly **(2)**.
NOTE: In case of EK 140 the threaded rods cannot be guided directly through the deflection roller assembly. In this case mount 4 adapter plates 572125 and guide 4 threaded rods through them.
5. Fit the threaded rods **(1)** with nuts **(3)** and washers at each end and tighten. Press the tension springs together completely and secure them so that they do not come loose.
NOTE: Tighten the threaded rods alternately and gradually so that the guides do not tilt.



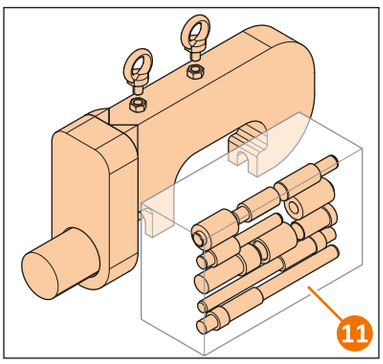
6. Remove the chisels **(4)** before and after the bolt **(5)** to be removed. To do this, remove the pick safety device **(6)** from the pick and pull the pick out of the holder **(7)** (see chapter 7.3.2 on page 36).
7. Secure the cutting chain against slipping out from both sides. To do this, for example, insert a metal rod between the pick holder and the housing.

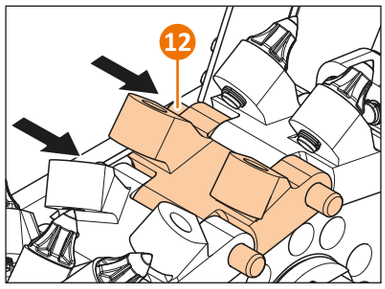


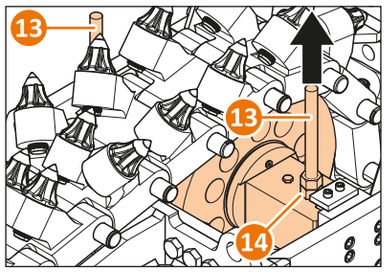
8. Press out the bolt **(5)** with a suitable press (pressing force > 50 tons). While doing so, push the bolt out from the tapered end to the blunt end (see direction of arrow).
The cutting chain is now detached and can be replaced as a whole if necessary.
If a single chain link**(8)** has to be replaced, remove the picks **(3)** also on the second bolt and press out the second bolt on the chain link.



9. Remove the bushes **(9)** and the seals **(10)** from the chain link **(8)**. Use the appropriate **KEMROC** tool set **(11)** for this purpose.
10. Check the bolt, bushings, seals and chain link for damage and replace if necessary.
11. Clean the chain link and the bushes from old grease.
12. Lubricate the bushes **(9)** and press them into the chain link **(8)** until they are each 12 mm (0.47 in) below the edge.
13. Fill the space between the two bushes with **KEMROC** special grease.
14. Mount 2 gaskets **(10)** on each side.





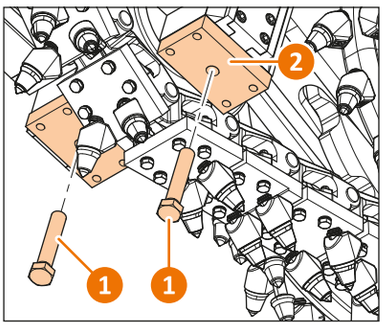


15. Align the two ends of the cutting chain.
When inserting a new chain, align it so that the tips of the picks point correctly in the direction of rotation of the unit.
16. Press the bolt **(12)** in using the press. Insert the tapered end first and press the bolt in from the blunt end (see direction of arrow).
The press-in force must be at least 10 tons.
For EK 140 the bolt must protrude 40 mm (1.57 in), for EK 100 only 30 mm (1.18 in).
17. **WARNING!** The threaded rods are under high tension and can lead to injuries if they are released quickly.
Slowly unscrew the threaded rods **(13)** with the nuts **(14)** from the idler pulley assembly.
NOTE: Loosen the threaded rods alternately and step by step so that the guides do not tilt. Make sure that the chain links are securely seated in the guides of the deflection rollers.
18. Reinsert the removed cutting tools into the pick holders and secure them with the specified pick safety device (see chapter 7.3.2 on page 36).

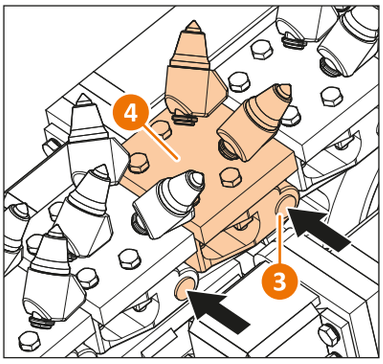
Type EK 60

The cutting chain can be replaced completely or as individual chain links. When changing individual chain links, equip the cutting chain so that a uniform cutting process is possible.

1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.



4. Remove the 2 protective screws **(1)** from the deflection roller assembly **(2)** and replace them with longer jacking screws.
5. Tighten the two forcing screws and press the tension springs together completely and completely relax the cutting chain.
   NOTE: Tighten the forcing screws alternately and step by step so that the guides do not tilt.
6. Secure the cutting chain against slipping out from both sides. To do this, for example, insert a metal rod between the pick holder and the housing.



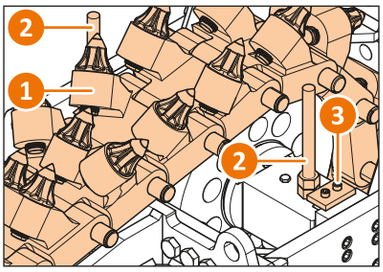
7. Press out the bolt **(3)** with a suitable press (pressing force > 50 tons). The pressing direction can be freely selected.
   The cutting chain is now detached and can be replaced as a whole if necessary.
   If a single chain link **(4)** has to be replaced, also press out the second bolt on the chain link.
8. Check the bolt, bushings, seals and chain link for damage and replace if necessary.
9. Align the two ends of the cutting chain.
   When inserting a new chain, align it so that the tips of the picks point correctly in the direction of rotation of the unit.
10. Press the bolt **(3)** in using the press. The pressing direction can be freely selected.
    The press-in force must be at least 10 tons.
11. Slowly unscrew the forcing screws from the deflection roller assembly **(2)**.
    NOTE: Loosen the forcing screws alternately and step by step so that the guides do not tilt. Make sure that the chain links are securely seated in the guides of the deflection roller.
12. Replace and tighten the original protective screws **(1)**.

7.3.7 Increasing the spring tension or changing the tension springs (EK series)

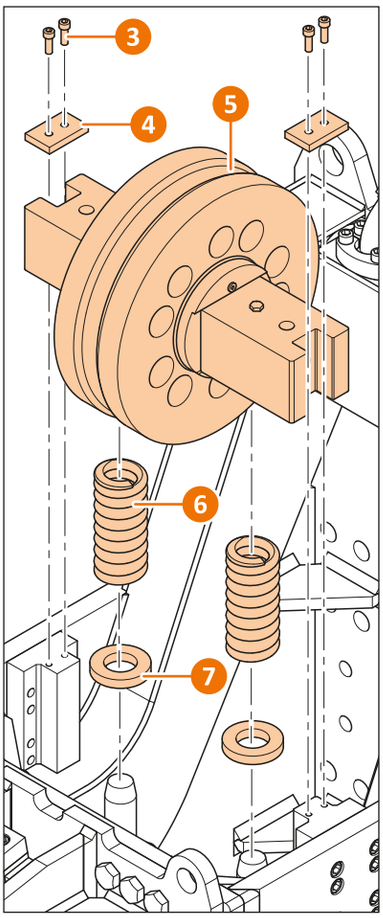
Type EK 40, 100 – 240

A sufficient spring tension is necessary for the smooth and safe running of the cutting chain and must be checked regularly. If necessary, the spring tension must be increased or the tension springs replaced. Always change tension springs in pairs and adjust them evenly.

1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.



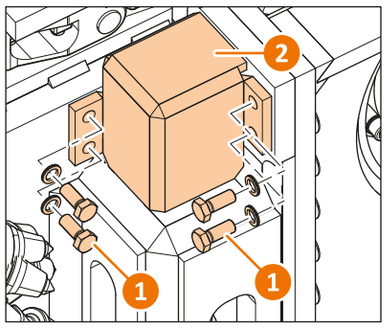
4. Remove the cutting chain **(1)** from the unit (see chapter 7.3.6 on page 46, steps 1 to 8). Do **not** yet loosen the threaded rods **(2)** again.
5. Loosen the screws **(3)** on both stops **(4)** and remove the stops from the guides.
6. **WARNING!** The threaded rods are under high tension and can lead to injuries if they are released quickly.
   Slowly unscrew the threaded rods **(2)** from the deflection roller assembly. Do not remove the nuts until the tension springs are completely relieved.

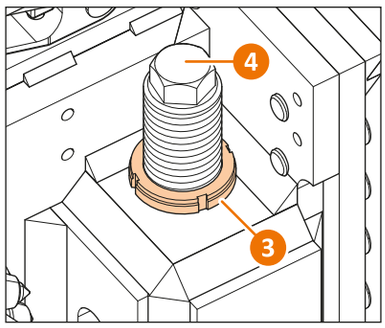


7. Pull the deflection roller assembly **(5)** upwards from the guides.
8. Replace the tension springs **(6)** if they are damaged.
   If necessary, insert a 10 mm (0.4 in) clamping disk **(7)** underneath to increase the spring tension.
9. Replace the deflection roller assembly **(5)** over the guides.
10. Guide the threaded rods **(2)** left and right through the deflection roller assembly **(5)**.
11. Fit the threaded rods **(2)** with nuts and washers at each end and tighten. Press the tension springs together completely and secure them so that they do not come loose.
    NOTE: Tighten the threaded rods alternately and gradually so that the guides do not tilt.
12. Fit the stops **(4)** to the guides with the screws **(3)**.
13. Rotate the unit using the excavator or a crane to reach the second pulley assembly.
14. Repeat steps 5 to 12 on the second deflection roller.
15. Refit the cutting chain and remove the threaded rods **(2)** (see chapter7.3.6 on page 46, steps 9 to 18).

Type EK 60

A sufficient spring tension is necessary for the smooth and safe running of the cutting chain and must be checked regularly. If necessary, the spring tension must be increased. Always adjust the tension springs in pairs and evenly.





1. Switch off the unit and wait until it has come to a complete standstill.
2. Place the unit with the extension arm of the excavator horizontally and laterally on the transport frame.
3. Switch the excavator off and secure it against unauthorized switch on. Make sure that the unit is completely stationary and cannot be switched on.
4. Above the tension springs on the left and right loosen the 4 screws **(1)** with wedge lock washers and remove the covers **(2)**.
5. Loosen the lock nut **(3)** on the left and right.
6. Tighten both clamping bolts evenly on the hexagon **(4)** until the chain is tensioned again.
7. Retighten both lock nuts **(3)**.
8. Refasten the covers **(2)** on the left and right with 4 screws **(1)** and wedge lock washers.

7.4 Conversion instructions from EK series to EKT series

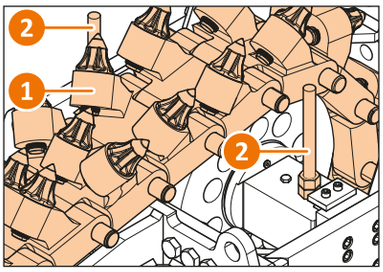
WARNING! Risk of injury in the event of improper conversion!
Heavy or sharp-edged components can cause injuries during conversion. If the unit is not installed correctly, the operational safety of the unit is no longer ensured, which can result in personal injury.

+ The unit may only be modified after consultation with the manufacturer **KEMROC** and only with original spare parts.
+ Only qualified and authorized personnel may modify the unit.
+ Wear personal protective equipment.
+ Switch off the unit, place it in the appropriate transport frame and undock it from the excavator.
+ Let the unit cool down completely before starting the conversion.
+ Leave the unit in the transport rack during the conversion. Secure all parts against falling down before loosening them.
+ Provide suitable lifting equipment to safely lift, rotate and support parts of the unit.

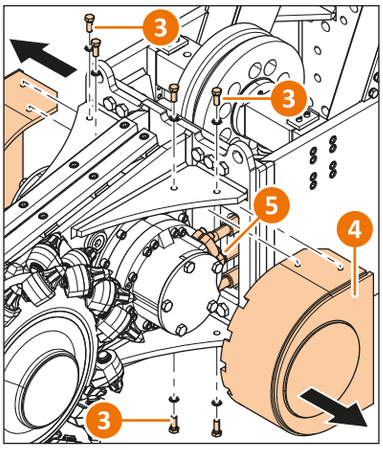
NOTE: Type EK 60 units cannot be converted to EKT series.

The following spare parts are required for the conversion according to the size of the unit:

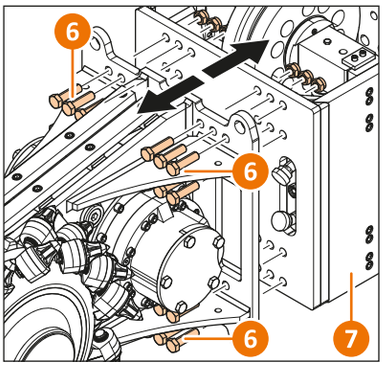
+ 1 EKT intermediate console
+ 2 EKT cutting heads



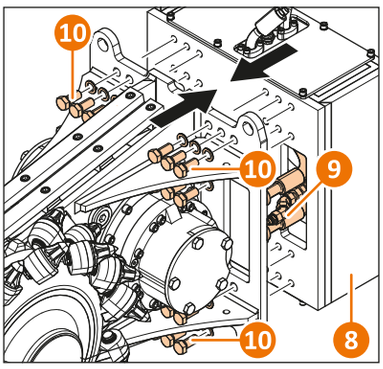
1. Remove the cutting chain **(1)** from the unit (see chapter 7.3.6 on page 46, steps 1 to 8).
2. **WARNING!** The threaded rods are under high tension and can lead to injuries if they are released quickly.
   Slowly unscrew the threaded rods **(2)** from the deflection roller assembly.
   NOTE: Loosen the threaded rods alternately and step by step so that the guides do not tilt.



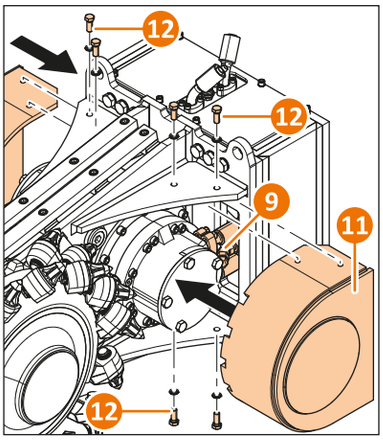
3. Loosen the 4 screws **(3)** with wedge lock washers on the left and right side of the hydraulic motor and remove the covers **(4)**.
4. Detach the hydraulic hoses **(5)** on the hydraulic motor. Place a suitable container underneath to catch leaking hydraulic oil, and dispose of the oil in an environmentally friendly way.
   NOTE: Hydraulic connections are located on both the left and right side of the unit.
   Depending on the size of the unit, connections with SAE flange or union nut are located on the hydraulic motor.



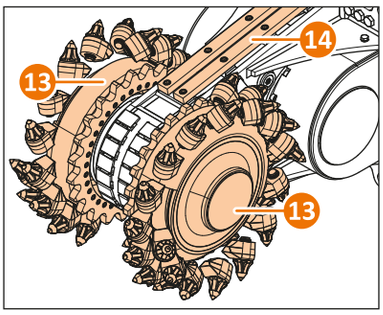
5. Loosen 6 screws **(6)** with nuts at each of the 4 corners of the housing.
6. Carefully remove the EK intermediate console **(7)** from the housing flange and place it safely.



7. Carefully lift the new EKT intermediate console **(8)** on the housing flange.
   NOTE: Observe the direction of rotation of the cutting heads and align the intermediate console accordingly.
8. Pass the hydraulic hoses **(9)** on both sides through the recess in the housing.
9. Screw the new EKT intermediate console **(8)** at all 4 corners with 6 screws **(10)** and wedge lock washers each.



10. Connect the hydraulic hoses **(9)** to the hydraulic motor.
    NOTE: Observe the direction of rotation of the hydraulic motors. Connect the supply and return lines parallel to each other (not crosswise) so that the hydraulic motors turn in the same direction.
11. Refasten the covers **(11)** on the left and right with 4 screws **(12)** and wedge lock washers.



12. Replace both EK cutting heads **(13)** with new EKT cutting heads (see chapter 7.3.3 on page 41). Before starting operation, allow the locking adhesive to harden.
13. If necessary, remove the slide rails **(14)** on both sides of the housing. To do this, loosen the screws along the slide rails.
14. Remove the quick-release adapter or bolt adapter from the EK mounting plate and mount it on the new EKT mounting plate (see chapter 5 on page 27).
15. Check the device according to the maintenance plan for the EKT series (see chapter 7 on page 32).
16. Check the correct operation of the unit on the excavator (see chapter 6 on page 30).

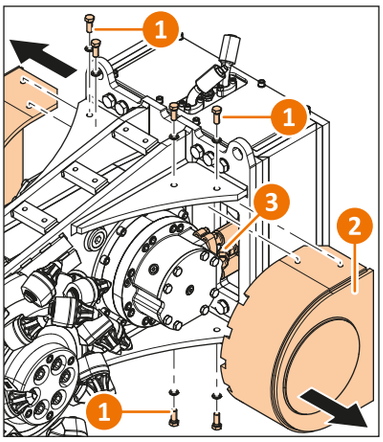
7.5 Conversion instructions from EKT series to EK series

WARNING! Risk of injury in the event of improper conversion!
Heavy or sharp-edged components can cause injuries during conversion. If the unit is not installed correctly, the operational safety of the unit is no longer ensured, which can result in personal injury.

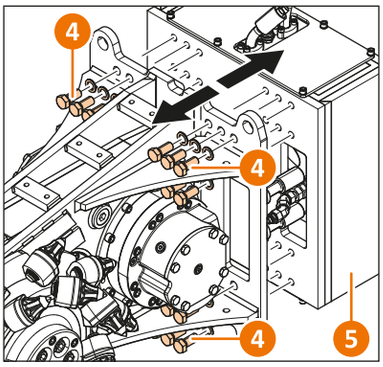
+ The unit may only be modified after consultation with the manufacturer **KEMROC** and only with original spare parts.
+ Only qualified and authorized personnel may modify the unit.
+ Wear personal protective equipment.
+ Switch off the unit, place it in the appropriate transport frame and undock it from the excavator.
+ Let the unit cool down completely before starting the conversion.
+ Leave the unit in the transport rack during the conversion. Secure all parts against falling down before loosening them.
+ Provide suitable lifting equipment to safely lift, rotate and support parts of the unit.

The following spare parts are required for the conversion according to the size of the unit:

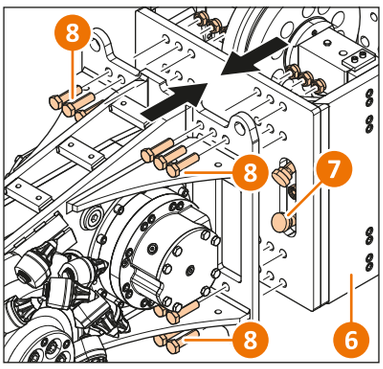
+ 1 EK intermediate console with deflection wheel assembly
+ 2 EK cutting heads with chain drive wheels
+ 1 EK cutting chain
+ 4 EK slide rails



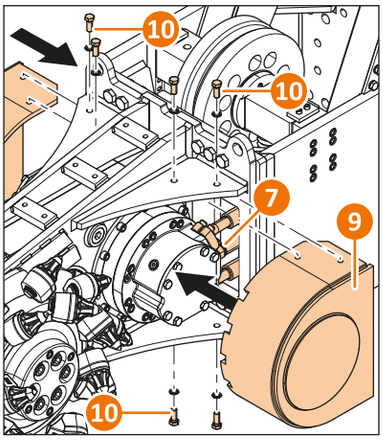
1. Loosen the 4 screws **(1)** with wedge lock washers on the left and right side of the hydraulic motor and remove the covers **(2)**.
2. Detach the hydraulic hoses **(3)** on the hydraulic motor. Place a suitable container underneath to catch leaking hydraulic oil, and dispose of the oil in an environmentally friendly way.
   NOTE: Hydraulic connections are located on both the left and right side of the unit.
   Depending on the size of the unit, connections with SAE flange or union nut are located on the hydraulic motor.



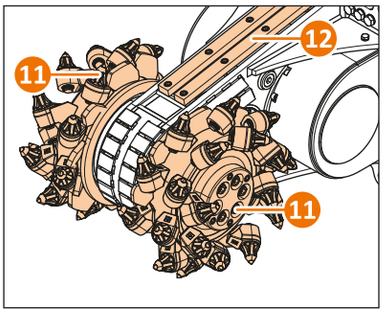
3. Loosen 6 screws **(4)** with lock washers at each of the 4 corners of the housing.
4. Carefully remove the EKT intermediate console **(5)** from the housing flange and lay it down securely.



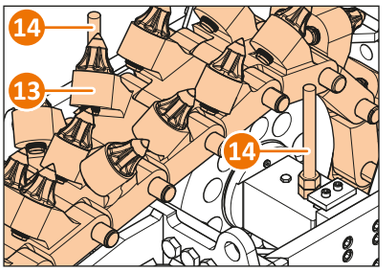
5. Carefully lift the new EK intermediate console **(6)** onto the housing flange.
   NOTE: Observe the direction of rotation of the cutting heads and align the intermediate console accordingly.
6. Pass the hydraulic hoses **(7)** on both sides through the recess in the housing.
7. Screw the new EK intermediate console **(6)** to all 4 corners with 6 screws **(8)** and nuts each.



8. Connect the hydraulic hoses **(7)** to the hydraulic motor.
   NOTE: Observe the direction of rotation of the hydraulic motors. Connect the supply and return lines parallel to each other (not crosswise) so that the hydraulic motors turn in the same direction.
9. Refasten the covers **(9)** on the left and right with 4 screws **(10)** and wedge lock washers.



10. Replace both EKT cutting heads **(11)** with new EK cutting heads (see chapter 7.3.3 on page 41). Before starting operation, allow the locking adhesive to harden.
11. If not already present, mount the 4 slide rails **(12)** on both sides of the housing. To do this, tighten the screws along the slide rails and additionally weld the slide rails.



12. Fit the cutting chain **(13)** to the unit (see chapter 7.3.6 on page 46, steps 1 to 8).
13. **WARNING!** The threaded rods are under high tension and can lead to injuries if they are released quickly.
    Slowly unscrew the threaded rods **(14)** from the deflection roller assembly.
    NOTE: Loosen the threaded rods alternately and step by step so that the guides do not tilt.
14. Remove the quick-release adapter or bolt adapter from the EKT mounting plate and mount it on the new EK mounting plate (see chapter 5 on page 27).
15. Check the device according to the maintenance schedule for the EK series (see chapter 7 on page 32).
16. Check the correct function of the unit on the excavator (see chapter 6 on page 30).

7.6 Troubleshooting

If malfunctions occur, switch off the excavator, secure it against unauthorized switch on, and allow the appliance to cool. Allow troubleshooting and fault rectification to be performed only by qualified and authorized skilled personnel.

Fault	Possible reason	Possible remedies
The device does not rotate or is blocked.	Cut material clamped between cutting head, chain wheel and cutting chain.	Switch off the excavator and unit, allow them to cool, and secure them against unauthorized switch on. Remove jammed cut material
	Hydraulic oil pressure too low.	Check the hydraulic system of the excavator.
	Hydraulics not connected correctly.	Check the connection of the hydraulic hoses.
	Forward/reverse on the excavator closed.	Open forward/reverse on the excavator.
	Hydraulic motor defective.	Contact manufacturer **KEMROC**.
The unit rotates too slowly	Oil level too low	Check the hydraulic system of the excavator and top up the oil volume.
	Hydraulic motor defective.	Contact manufacturer **KEMROC**.
There is unusual vibration of the unit.	Cutter damaged or worn.	Check the picks, and change when necessary.
	Screw connections between mounting plate and adapter are too loose.	Check correct mounting of the unit.
The drive makes an unusually loud noise.	Air bubbles in the hydraulic circuit or hydraulic motor.	Bleed hydraulic system.
	Pressure too high in the leak oil pipe.	Check the leak oil pipe and leak oil filter.

Fault	Possible reason	Possible remedies
The cutting chain jumps over the chain wheels.	Cut material clamped between sprockets and chain pins.	Switch off the excavator and unit, allow them to cool, and secure them against unauthorized switch on. Remove jammed cut material
	Tension in the tension springs of the deflection rollers too low.	Switch off the excavator and unit, allow them to cool, and secure them against unauthorized switch on. Check the tension of the cutting chain. Check tension springs for breaks and replace if necessary.
	Cutting chain worn out.	Change or general overhaul the chain.
Tension springs are broken.	Dirt or mud has settled between the coils of the springs.	Change the tension springs and clean the device regularly.
	It was pressed on the cutting chain during operation.	Change the tension springs and observe the instructions for cutting work.

If malfunctions occur which are not listed in this table or cannot be rectified by the stated remedial measures, switch off the unit and contact the manufacturer.

7.7 Guarantee provisions

The manufacturer's warranty is for 12 months from the date of delivery, or a maximum of 1000 operating hours.
During this time, defective parts are replaced free of charge provided that the defects can be shown to be the responsibility of the manufacturer. The customer supplies the necessary equipment and tools for repair work. Compensation for work stoppages resulting from malfunctions cannot be enforced, neither can compensation for cases of damage or consequential damage to the excavator.

Not covered by the guarantee:

+ Malfunctions caused by improper handling contrary to this manual.
+ Replacement of parts that are damaged or lost.
+ Modifications made to the unit without the authorization of the manufacturer and the resulting defects.
+ Defects caused by using spare parts not complying with the manufacturer's specifications.
+ Defects caused by unauthorized repair work that has not been approved by the manufacturer.
+ Defects caused by using the unit outside the specified conditions of use and environmental conditions
+ Defects caused by using unsuitable or unmatched picks.
+ Incorrect installations of pressure and flow control valves that could lead to increased flow rates, and incorrect installation of the leak oil pipe.
+ Damage caused by improper mounting on the excavator.

Wearing parts are excluded from the manufacturer's warranty, especially cutting heads, cutting chain, picks, hydraulic hoses and seals.

8 Disassembly and Disposal

WARNING! Danger of injury from improper dismounting!
The hydraulic oil of the excavator reaches high temperatures during operation, which can lead to burns during the dismounting work. Furthermore, during dismounting, heavy or sharp-edges parts are released, which can lead to injuries.

+ Only qualified, authorized skilled personnel may dismount the unit.
+ Before dismounting, depressurize the unit and the hydraulic system and allow it to cool.
+ To dismount, support all parts of the unit and use the associated transport frame.

NOTE: Improper dismounting harms the environment!
The appliance contains lubricants and residual quantities of hydraulic oil. Improper dismounting can lead to lubricants and hydraulic oils escaping and causing serious environmental damage.

+ When dismounting the unit, collect the residual quantities of hydraulic oil in a suitable container.
+ Dispose of lubricants, hydraulic oil and hydraulic hoses in accordance with the valid safety regulations.
+ Lubricants and hydraulic oils must be disposed of by a waste disposal company.

8.1 Dismounting instructions

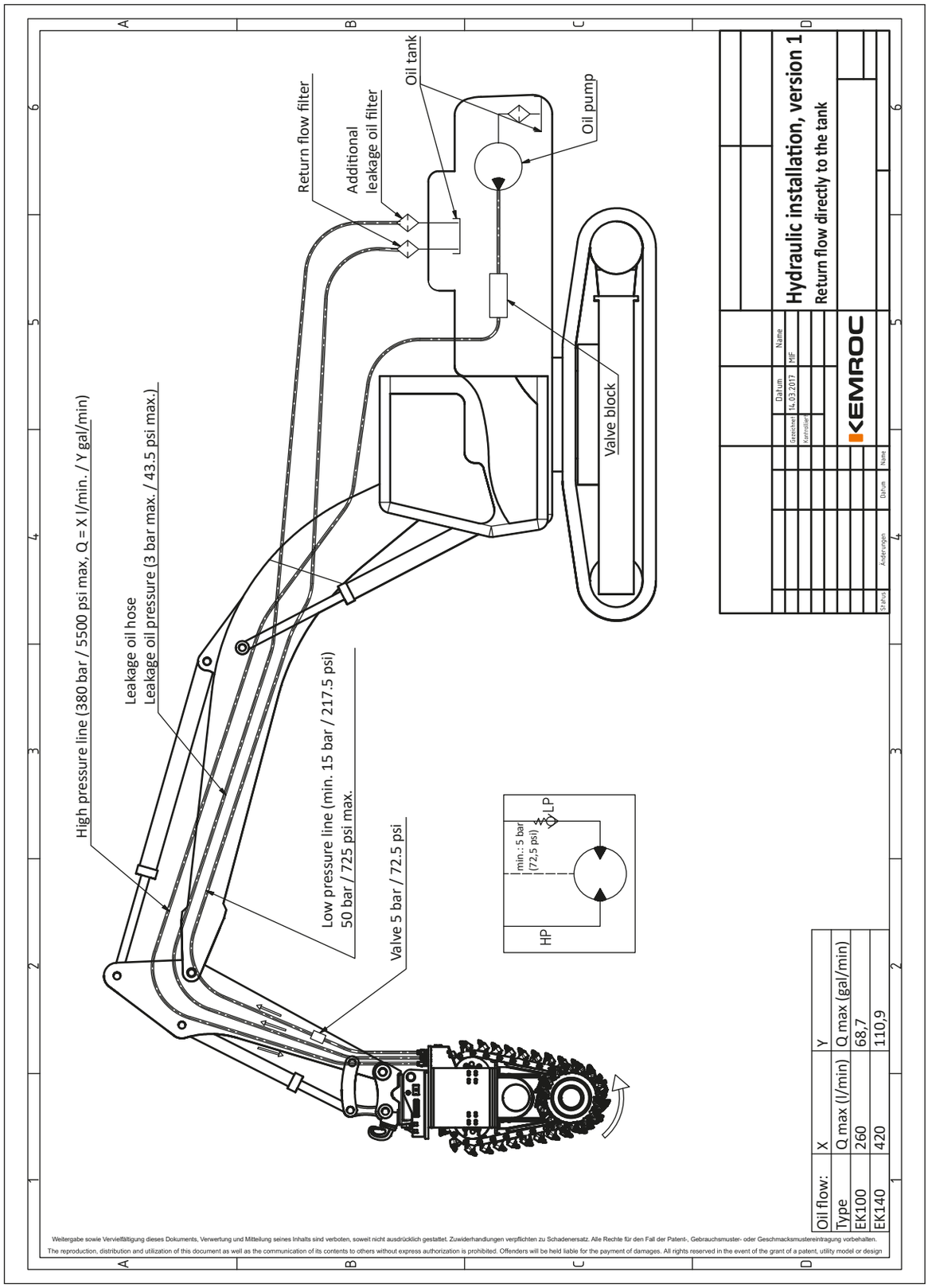
To dismount the appliance, lower it into its transport frame and undock it from the excavator. To disassemble the quick-change adapter or bolt adapter, follow the relevant instructions for assembly (see chapter 5 on page 27).
When disconnecting hydraulic connections, place a suitable container underneath to catch leaking hydraulic oil, and dispose of the oil according to the environmental regulations.

8.2 Disposal considerations

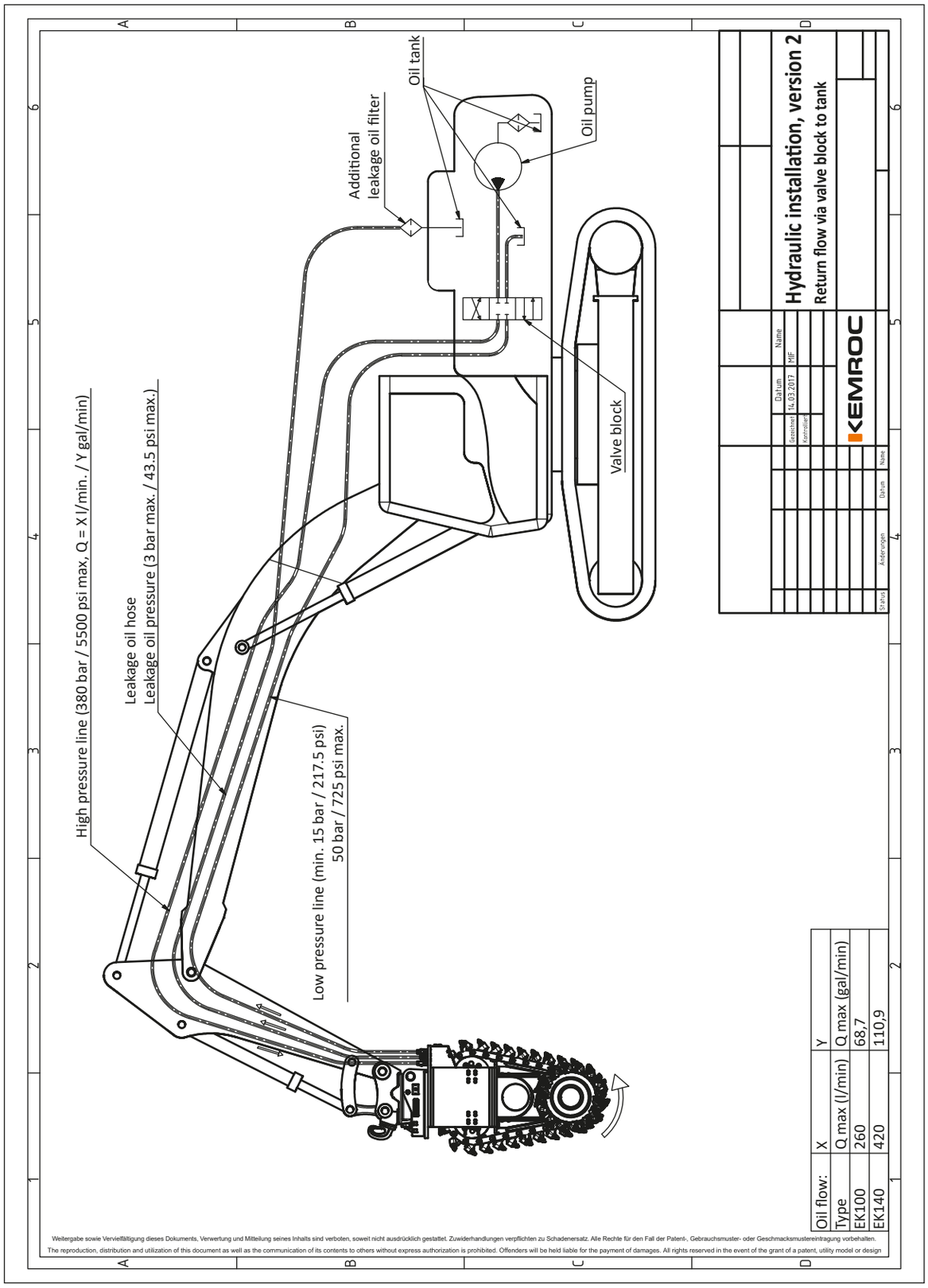
The device contains valuable raw materials, and must be disposed of by environmentally sound recycling. All components must be disposed of in accordance with the local provisions applicable in terms of environmental protection.
When disposing of lubricants and hydraulic oils, observe their safety data sheets. In cases of doubt, contact the local environmental authorities or specialist waste disposal companies for information about environmentally compatible disposal.
If you have any other question on disposal, please contact the manufacturer.

9 Appendix

9.1 Hydraulic installation version 1 (return flow directly to tank)



9.2 Hydraulic installation version 2 (return flow via valve block to tank)



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