KEMROC®

revolution of cutting

English

SPECIAL ROCK CUTTERS

REVOLUTION OF CUTTING

An innovative, German engineering company developing revolutionary excavator attachments – focused on product development, quality engineering and reliability.

We can call on more than 15 years experience in design and manufacture of cutting attachments and auger drive units for excavators and back hoe loeaders.

Our attachments are robust and strong with all major components manufactured in Germany to the highest quality. Our international team of product specialists will be pleased to provide support for our products.

In this catalogue you will find a large range of special cutter attachments for excavators and skid steers that have been developed in cooperation with customers. Practical experience from job sites around the world is used in our continuous product development process.

1
Precision in manufacturing and assembling guarantees highest quality and reliability of our products.

2
Excellent Service. We support you with our team to install you **KEMROC** machine and provide trainings for your operators.

3
Modern production facilities


1


2


3

4

4
Satisfied customers

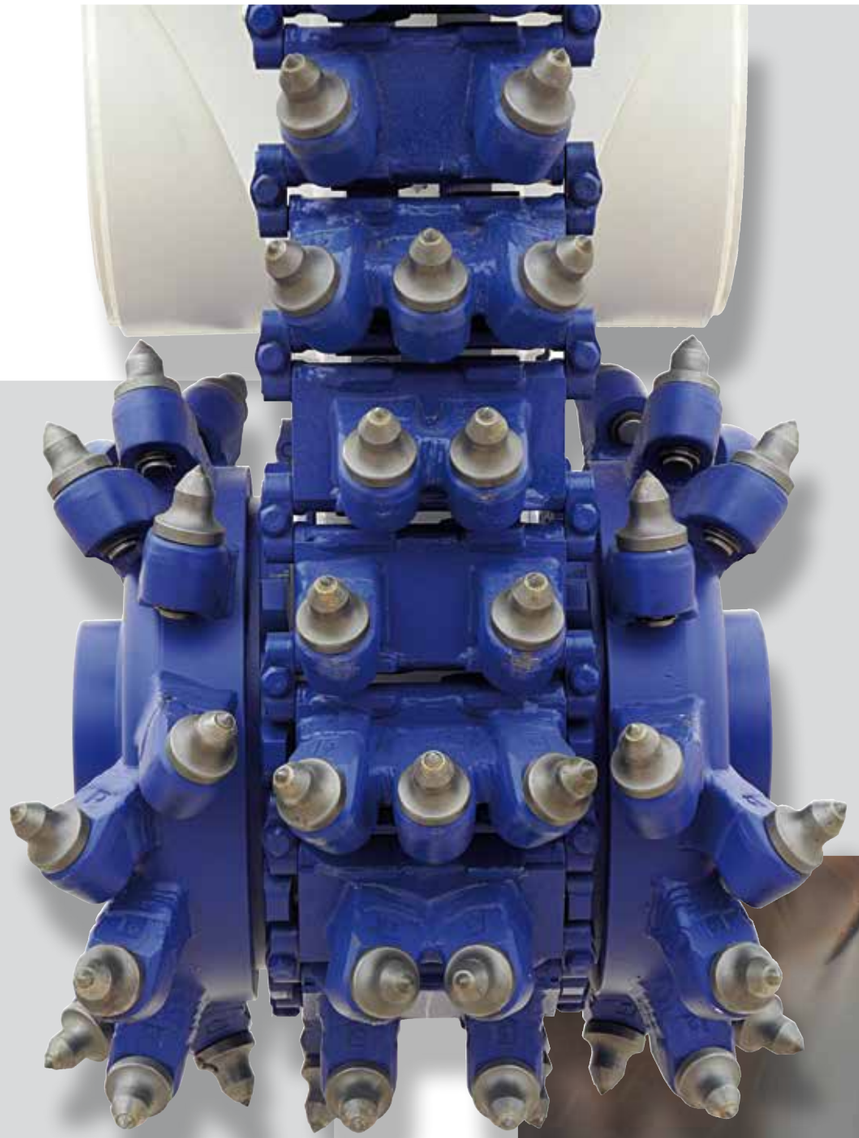
CONTENT

WELL PROVEN TRENCHING TOOLS

ADAPTABLE

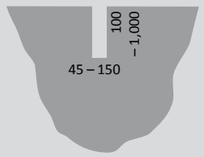
Trenching attachments from **KEMROC** provide options for trench widths from 4 centimeters.

The major components of our attachments are manufactured in Germany.



ATTACHMENTS FOR ALL TRENCH SIZES

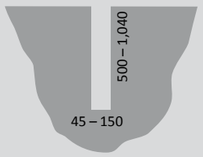
ES RANGE



1 – 40 t

Max. 60 MPa

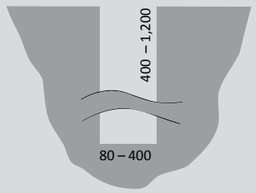
SMW RANGE



10 – 25 t

Max. 80 MPa

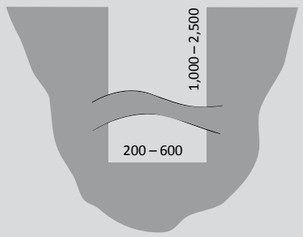
DMW RANGE



14 – 60 t

Max. 120 MPa

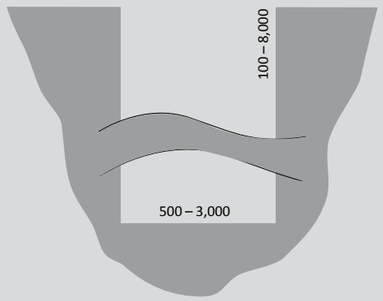
ETR RANGE



15 – 60 t

Max. 90 MPa

EK RANGE



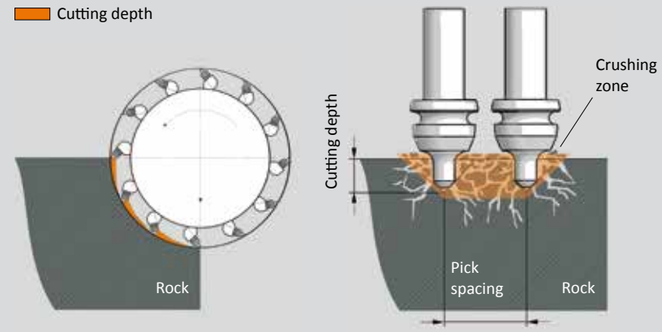
20 – 50 t

Max. 90 MPa

Dimensions trench width and trench depth in mm.

CUTTING TECHNOLOGY

The productivity of a drum cutter depends to a large extent on the uniaxial compressive strength of the material to be cut. The deeper a pick can be forced into the rock, the more material it can break out from it which in turn; increases productivity. The oil flow and pressure that the excavator is able to provide to the drum cutter combined with excavator weight and stability are also critical factors influencing productivity.



The experience gained from many years of cutting rock has gone into the design of the cutter wheels, drums and chains. They are designed to give maximum cutting performance with minimum wear costs. The selection of picks and boxes, as well as the design of the pick pattern, are part of our continuous product improvement.

KEMROC®

TRENCHING

1 + 2
Germany
A **KEMROC EK140** chain cutter excavating a trench with depths varying between 2 and 8 m and a width of 2 m. The cutter works in straight lines without having to be swung from side to side. Mounted on a CAT 328 excavator, productivity in the approx. 50 MPa hard sandstone was between 15 to 20 m^3/h.

3
Saudi Arabia
This **EK140** chain cutter cuts a trench exactly 80 cm wide to a depth of 3 m. Production rates of 12 to 15 m^3/h were achieved in the medium hard limestone with hardness of 60 MPa.

4
Germany
Impressive productivity in narrow trenching. An **EK100** chain cutter with 700 mm wide cutter head excavates almost 15 m/h of trench. With a central cutter chain, It works effectively without having to swing sideways. This saves energy which can be used for productivity and is kind to the excavator.

5
Germany
A 4 m deep by 4 m wide trench is being excavated. An **EK140** with 800 mm wide cutter head was used to cut medium hard sandstone with a compressive strength of 30 to 50 MPa at a rate of 15 to 20 m^3/h. The cutter was mounted on a Volvo EC 380.

6
Germany
The **KEMROC ETR3** trencher excavates a 60 cm wide trench with variable depth in a soft limestone with a uniaxial compressive strength of 60 MPa. The trench was cut to the side of the excavator tracks and the cutting speed was 50 m/h.

7
Germany
In Rottach Egern, a **DMW130** mounted on a CAT 329 excavates a trench at a speed of 5 linear m/min. The trench is 13 cm wide and 40 cm deep.

8 + 9
Azerbaijan
Cutting a trench 20 cm wide by 1 m deep, this **DMW220** achieved a production rate of 30 m/h in medium hard limestone.

TRENCHING

1 + 2
Germany
An **EK140** with an 80 cm wide cutter head was the ideal tool to excavate an 1.5 m deep trench for the installation of a summer toboggan run. In rock with a hardness from 50 to 60 MPa, the cutter excavated between 15 to 30 m^3/h (approx. 13 to 17 linear m/h).

3 + 4
Germany
A **KEMROC EK100** chain cutter excavating manholes in abrasive sandstone mud. The cutter was mounted on a 23 t CAT 323 D and the production rate in the 30 to 50 MPa sandstone was between 7 to 10 m^3/h.

5 + 6
Austria
At a job site in the Alps, an **EK100** chain cutter excavated 700 wide trenches to a depth of 3.5 m in dolomite with a hardness of 70 to 120 MPa. The cutter was mounted on a 25 ton CAT 325 short tail swing excavator and achieved between 3 and 6 m^3/h.

7 + 8
Germany
This **ES45HD** ground through a layer of asphalt 21 cm thick before trenching could start in the bedrock below. Mounted on a Liebherr A900 wheeled excavator, the cutting rate was 4 m/min.

TUNNELLING

1 + 2
Japan
Mounted on a 5 t mini excavator, this **EX30HD** removed a 5 cm thick layer of concrete (weathered B35 grade concrete) in the Shinaga-ku road tunnel near Tokyo. The production rate varied between 15 and 20 m²/h.

1

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3 + 4
Austria
An **DMW130** used to cut 600 mm deep slots to reduce stress in the walls of a tunnel in Austria.

5
Germany
A Brokk 60 demolition robot with an **EX30** being used to remove tiles in the historical Elb Tunnel in Hamburg. Just below the tiles was a layer containing rebar so the cutting depth had to be very accurate.


5


4

DEMOLITION / RENOVATION

1

2

KEMROC cutters can be used where traditional methods are either unsuitable or uneconomical.

1 + 2
Germany
The powerful **KEMROC DMW 220** cutter wheel slices through vertical concrete walls containing 16 mm to 30 mm diameter re-enforcement. The cutter wheel was mounted on a 40 t Volvo EC 380. The concrete walls were cut into sections and then pushed over using a 100 t excavator.

3 + 4
Sweden
Fitted with a special demolition cutter wheel, this **DMW 130** cut through a heavily reinforced concrete deck, 60 cm thick, at a rate of 12 m/h.

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5 + 6
Germany
At an old US army base in Germany, a contaminated layer, 50 mm deep, had to be removed from 12,000 m^2 concrete wall before the remaining building could be demolished.
The maximum operating height was 25 m and the production rate for the **EX 60 HD** was 5 min for 12.5 m^2.

7 + 8
Germany
An **EXR 60** with depth control and a tilt function used for the renovation of a canal lock.

KEMROC®

DEMOLITION / RENOVATION

1 + 2
Germany
A **DMW220** cuts through 60 cm thick concrete slabs at a rate of 1.5 m/min. The concrete contained re-enforcement with diameters from 16 mm to 25 mm. The wheel cut through all of the steel bars without any problems.

3
Germany
Mounted on a Case 240 excavator, this **DMW130** cuts 15 cm wide by 30 cm deep slots in concrete. Cutting speed in this lightly reinforced concrete was between 8 to 10 m per hour.

1

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4 + 5
Germany
At this demolition project an **DMW130** was used to cut slots in vertical walls. Cutting depth had to be very accurate so that the walls of neighbouring buildings were not damaged. The wall was then broken into smaller segments and transported away for disposal.

6 + 7
Germany
An **ES30HD** used to cut 15 cm deep by 6 cm wide horizontal slots in concrete.

4


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7

FOUNDATION WORK / DRILLING

1 + 2
Germany
This **ES 60 HD** is grinding limestone with a uniaxial compressive strength of 50 to 70 MPa to increase the depth of the foundations by 60 cm. Mounted on a Volvo EC 220, the production rate was 6 to 8 m^3/h.

3
Germany
An **ES 30 HD** used in Munich to profile a bored pile wall. Productivity ranged from 20 to 30 m^3/h. Without the need to swing the grinder from side to side, the work was completed to a great level of accuracy.

FOUNDATION WORK

4 + 5
Germany
An **EK 100** with a 600 mm wide cutting head removes excess concrete from HDI (high pressure injection) piles at a job site in Leipzig.

Production rate achieved was approx. 60 m^3/h. **KEMROC** can supply the **EK 100** with cutter heads up to 1 m wide with options to increase the production rate depending on site conditions.

DRILLING

1
Saudi Arabia
Three **EBA** auger drive units are drilling 2m deep holes with 40 cm and 60 cm diameters in medium hard limestone with compressive strength up to 40 MPa. The **KEMROC** auger drives are mounted on Sumitomo 240 excavator.

2 + 3 + 4
Germany
Mounted on an Atlas 180 W, this **EBA 2300** drilled 6 m deep holes with a diameter of 50 cm. The drill speed was 2 m/min.

KEMROC®

CLEANING METAL SURFACES / FORESTRY

CLEANING METAL SURFACES

1 + 2 + 3
Germany
An **EXRUST 60** used to remove a silicon mortar formed on the surface of steel baths used in aluminium smelting at a rate of 150 m^2/h. At this location the **KEMROC** cleaning attachment was used on a CAT M 322 wheeled excavator.

4 + 5 + 6
Germany
An **EXRUST 60** used to remove paint from walls inside the hold of a ship. Approximately 300 m^2 of wall were cleaned per hour!

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1

FORESTRY

1 + 2
Germany
An **ES 45 HD** cuts quickly and efficiently through large wooden beams.

3
Germany
This **ES 60** multi-purpose attachment fitted with a wood cutting wheel is used to remove 70 cm diameter tree stumps. The time taken to remove each 1 m tall stump was about 5 min.


3


2

ROCK EXTRACTION

C&B breaking tool

USING A CUTTER WHEEL AND BREAKING TOOL

THE C&B METHOD

1
Cut a minimum of three slots with a DMW cutter wheel in the quarry wall. The height of the wall should not be more than 8 m. The spacing and depth of the slots depend on the nature and characteristics of the stone. Determined through trial and error, the best combination can be found to give the ideal size of end product.

KEMROC C&B Cut & Break Technology

2
Cutting slots with the DMW cutter wheel de-stresses the rock. The C&B breaker tool is pressed down into the top of the middle slot by the excavator. Round attack picks located on the side of the breaker tool grind a groove into the rock creating a line of weakness along which the rock will crack.

3
Due to the wedge shape of the breaker tool, continuing to push the breaker tool into the slot eventually results in the rock cracking along the line of weakness and falling over.

The size and shape of the broken material depends to a large extent on the natural structure of the rock. Through trial and error, the ideal slot spacing, and depth can be found to provide the best results.

1 + 2 + 3
Germany
An **ES 60 HD** being used to accurately profile marble blocks to the required dimensions while also removing unwanted contaminants.

KEMROC®

ROAD BUILDING

1
Germany
An **EX45** removing damaged sections of road surface.

2
Germany
An **EX30** patch planer used to repair road surfaces.

3
The Netherlands
An **EX45HD** patch planer with hydraulic depth control, mounted on a Doosan DX 170 excavator, used to repair the asphalt surface on a dyke in Holland. The cutting depth varied between 8 to 10 cm.
A total of 400 m² were planed per day.


1


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4
Germany
An **EX45HD** mounted on a Liebherr A 904 removes a 10 cm deep by 45 cm wide layer of asphalt at a rate of 4 to 5 m/min.

5 + 6
Germany
This **EXR60HD** patch planer with hydraulic depth control was fitted with a special valve that allowed rotation and depth to be controlled from the cab without a need for an electric cable. The EX range of patch planers produce clean, smooth edges.

7 + 8
Germany
The **ES45HD** is used to cut 20 cm deep by 5 cm wide slots in asphalt. Cutting speed was 4 m/min.


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KEMROC®

ROAD BUILDING

MANEOUVERABILITY FOR ROAD CONSTRUCTION

1 + 2 + 3
Germany
Mounted on a Takeuchi TB 235, this **EX20HD** is removing a 3 cm deep layer of asphalt. The production rate is 25 m²/h.

4 + 5
Germany
This **EX30HD** is removing a 4 cm deep layer of asphalt. Production rate is between 50 and 60 m²/h.


1


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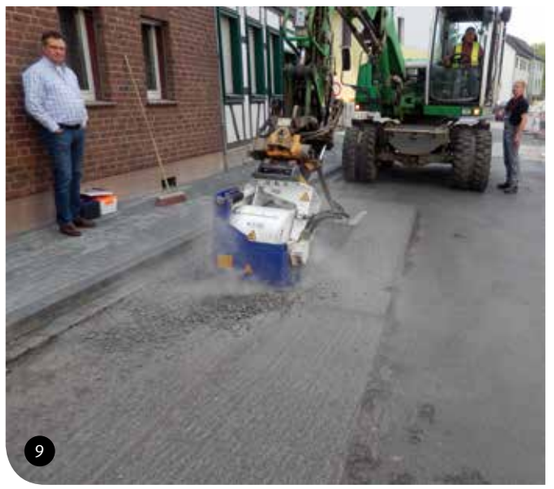
6 + 7 + 8
Germany
This **EX60HD** with rotation unit is cutting asphalt to a depth of a 4 cm. Mounted on a CAT M320, it achieves 140 m²/h and thanks to the rotation unit, it can cover a very large area without the excavator having to change position.

9
Germany
While repairing road surfaces in Germany, this **EX45HD** removes a layer of asphalt 5 cm deep at a rate of 4 m/min.


7


8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KEMROC®

ROAD BUILDING

1 + 2
Germany
An **ES60HD** with rotation unit mounted on a Liebherr A900 wheeled excavator cuts through a 30 cm thick asphalt layer. The cutting speed is 2 m/min.

1

2

3 + 4
Germany
A **KEMROC EX45HD** patch planer with rotation unit being used to repair a section of asphalt. The planer achieves a cutting speed of 4 m/min with a cutting depth of 5 cm. The rotation unit allows the excavator operator to repair all areas from one position.


3


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5 + 6 + 7 + 8
Germany
This **EX20** is being used to remove humps caused by tree roots from an asphalt surface. The **EX20** was mounted on a Neusson 1703.

PATCH PLANERS (EXACTOR)

Cold milling machines for asphalt and concrete with adjustable cutting depth

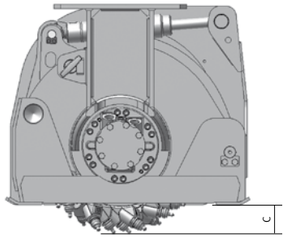
The Exactor range of patch planers are ideally suited for the repair of asphalt surfaces or for the removal of contaminated layers of concrete or screed. Mechanical or hydraulic depth control makes it possible to remove layers up to 19 centimeters thick.

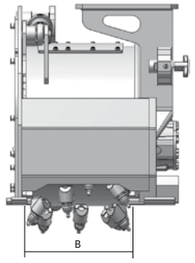
The Exactor range of patch planers comprises 5 different model sizes that can be mounted on excavators and carriers with operating weights between 1 and 23 tons.

Regardless of whether horizontal, vertical or inclined – the Exactor can be used on any surface orientation. Even in overhead applications, as in tunnelling for example, **KEMROC** planers can be used. The Exactor produces clean and smooth cut edges (pre-cutting is not necessary) and a fine grained cut material that can be used in other applications.

The cutter drum can be fitted with different pick types to get the best performance in the material being cut. In addition, special drum widths or shapes can be designed to suit surface conditions.

The cut material produced is very fine grained and ideal for use as fill.





- **Thanks to the quick coupler frame, the planer can be attached to an excavator, loader or skid steer without any modifications (optional)**
- **A rigid support frame with wear resistant slides**
- **High torque, modifiable, hydraulic motor**
- **Robust housing, low vibration**
- **Accurate depth control (mechanical or hydraulic)**
- **Smooth cut edges and fine grained cut material**
- **Integrated water jets for dust control (connections for vaccum dust extraction optional)**

TECHNICAL DATA	Unit	EX 20	EX 20 HD	EX 30 HD	EX 45 HD	EX 60 HD
Recommended excavator weight	t	1 – 3	2 – 4	5 – 10	10 – 16	15 – 23
Recommended skid steer weight	t	1.5	1.5	2 – 3	3 – 6	4 – 6
Rated power	kW	22	22	30	65	80
Cleaning width, standard (B)	mm	200	200	300	450	600
Cleaning depth, adjustable (C)	mm	0 – 70	0 – 70	0 – 120	0 – 150	0 – 190
Recommended rotation speed	rpm	80 – 200	80 – 200	80 – 125	70 – 110	70 – 95
Recommended oil flow at 100 bar	l/min	20 – 50	25 – 65	60 – 95	110 – 170	150 – 200
Minimum hydraulic flow	l/min	20	25	60	100	150
Maximum hydraulic flow	l/min	100	100	110	180	210
Maximum operating hydraulic pressure	bar	310	310	380	380	380
Torque at 350 bar	Nm	660 @ 205 bar	1,000 @ 205 bar	4,100	8,700	9,300
Cutting force at 350 bar	kN	4 @ 205 bar	6 @ 205 bar	16	30	28
Operating weight	kg	165	170	400	730	1,230
Number of picks	Pcs	42	42	35	49	69
Standard pick [1]	Type	ER 16/28/26/14 H	ER 16/28/26/14 H	ER 16/48/32/20 H	ER 16/48/32/20 H	ER 19/48/32/20 H

EXACTOR WITH ROTATION		EXR 20	EXR 20 HD	EXR 30 HD	EXR 45 HD	EXR 60 HD
Recommended excavator, skid steer loader weight	t	1 – 3	2 – 4	6 – 10	12 – 16	16 – 23
Operating weight	kg	250	255	585	1,010	1,700

1) An overview of standard picks is on page 43.
Cutter drums can be supplied with picks for special applications as required.

KEMROC®

UNIVERSAL CUTTERS (FLEXATOR)

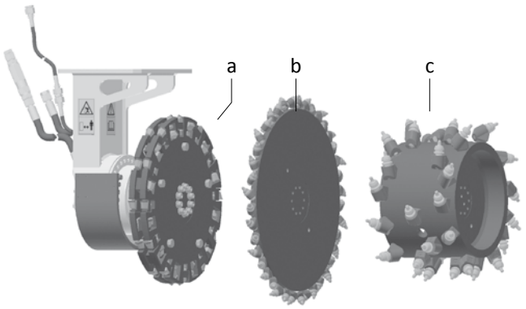
Multi-functional cutter for wood, asphalt, concrete and rock

The Flexator is a truly multi-talented machine, equally as effective at grinding tree stumps as grinding small slots in asphalt or concrete or for accurately profiling horizontal or vertical surfaces. It is available in 7 sizes and can be used on excavators or skid steers with an operating weight from 1 to a maximum of 40 tons.

Either discs or a cutter drum, for working on wood, concrete and rock, can be attached to the drive motor contained in the main housing.

Main applications include:

a Tree stump grinder fitted with a very efficient wood cutting wheel
b Slot cutter fitted with a disc suitable for use in asphalt, concrete or rock
c Fitted with a cutter drum, it can be used for the accurate profiling of horizontal and vertical surfaces



+ **Tool carrier with high torque hydraulic motor**
+ **An integrated rotation unit, providing continuous stepless rotation, is availabe as an option**
+ **Fitted with a swinging quick coupling bracket, it can be mounted on an excavator, loader or skid steer without further modification**
+ **Multi-purpose, with wood cutting disk disc, slotting disc of or cutter drum**

TECHNICAL DATA	Unit	ES 20	ES 20 HD	ES 30 HD	ES 45 HD	ES 60 HD	ES 80 HD	ES 110 HD
Recommended excavator weight	t	1 – 3	2 – 4	5 – 10	10 – 16	15 – 23	15 – 25	20 – 40
Recommended skid steer weight	t	1.5	1.5	2 – 3	3 – 6	4 – 6	–	–
Rated power	kW	22	22	30	65	80	80	110
Recommended rotation speed	rpm	80 – 200	80 – 200	80 – 125	70 – 110	70 – 95	70 – 95	50 – 70
Recommended oil flow at 150 bar	l/min	20 – 50	25 – 65	60 – 95	110 – 170	150 – 200	150 – 200	300
Minimum hydraulic flow	l/min	20	25	60	100	150	150	210
Maximum hydraulic flow	l/min	100	100	110	180	210	210	350
Maximum operating hydraulic pressure	bar	310	310	380	380	380	380	380
Maximum torque at 350 bar	Nm	660 @ 205 bar	1,000 @ 205 bar	4,100	8,700	9,300	15,200	27,800
Maximum operating weight, according to tool type	kg	90	90	205	350	530	1,300	2,200
Wood cutting disc								
Number of picks	Pcs	20	20	48	56	56	72	–
Standard pick [1]	Type	Wood cutting tool set	Wood cutting tool set	Wood cutting tool set	Wood cutting tool set	Wood cutting tool set	Wood cutting tool set	–
Slot cutting disc								
Maximum cutting dept	mm	150	150	200	300	300	600	1,000
Maximum cutting width	mm	70	70	70	80	100	130	150
Minimum cutting width	mm	45	45	45	45	50	45	80
Cutter drum								
Diameter/width/depth	mm	360/200/85	360/200/85	520/300/110	580/450/110	670/600/190	–	–
Number of picks	Pcs	42	42	35	49	69	–	–
Standard pick [1]	Type	ER 16/28/26/14 H	ER 16/28/26/14 H	ER 16/48/32/20 H	ER 16/48/32/20 H	ER 16/48/32/20 H	–	–

1) An overview of standard picks is on page 43.
Cutter drums can be supplied with picks for special applications as required.

A model of the **ES 80 HD**

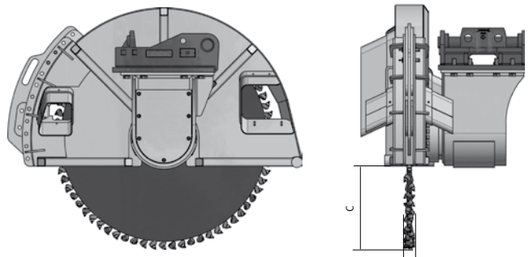
ERWETOR ROCK CUTTING WHEEL

For small trenches in soft and medium hard material up to 60 MPa

The SMW range is designed for use as an excavator slot cutting attachment. It can cut narrow trenches, especially for laying cables, quickly and efficiently. The reinforced mounting for the cutter wheel provides the strength required for cutting depths down to 1,000 millimeters.

When starting the cut, the weight of the attachment is supported by the sumping bracket and the wheel is gradually pressed down to the required depth. When the required depth has been reached, the wheel is then pulled along the cutting direction either by movement of the excavator arm or by driving the excavator slowly backwards. The cut material is guided out to the side of the trench.

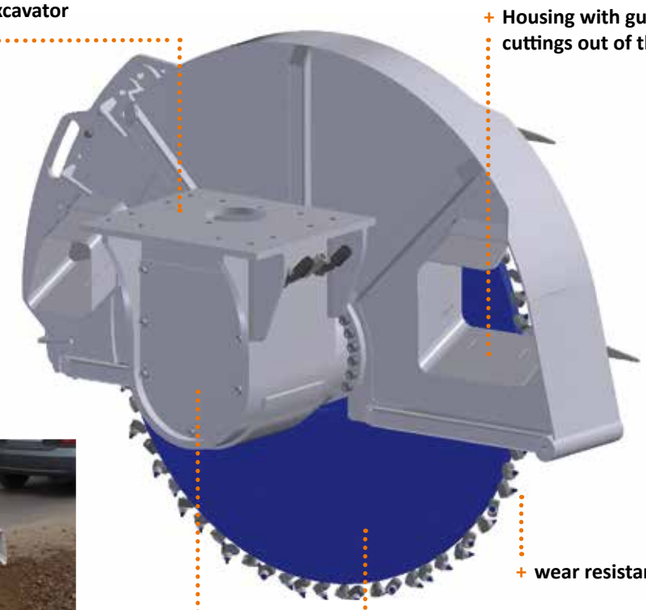
+ **Specially designed wheel for slots and narrow trenches to a depth of 1,000 millimeters**
+ **Housing with integrated guide to send cut material to the side of the trench**
+ **Cutter wheel mounted on extra strong bearings**
+ **Robust fastening of cutter wheel**
+ **High torque hydraulic motor**
+ **Can be used underwater to depths of 30 meters**



TECHNICAL DATA	Unit	SMW 50		SMW 80				SMW 110			
		Wheel 400	Wheel 600	Wheel 400	Wheel 600	Wheel 800	Wheel 1000	Wheel 400	Wheel 600	Wheel 800	Wheel 1000
Recommended excavator weight	t	10 – 15	10 – 15	15 – 25	15 – 25	20 – 25	25	20 – 40	20 – 40	25 – 40	30 – 40
Rated power	kW	50		80				110			
Cutting width (B)	mm	45 – 130		45 – 130				80 – 150			
Cutting dept (C)	mm	400	600	400	600	800	1,040	350	550	750	1,000
Cutting dept with shoe	mm	300	500	300	500	700					900
Cutting wheel diameter	mm	1,260	1,660	1,260	1,660	2,060	2,540	1,260	1,660	2,060	2,540
Maximum motor displacement	ccm	1,687		2,518				4,198			
Torque at 380 bar	Nm	12,700		15,200				27,800			
Cutting force at 380 bar	N	20,159	15,301	24,127	18,313	14,757	11,969	44,127	33,494	26,990	21,890
Recommended rotation speed	rpm	60		60							
Recommended oil flow	l/min	125		150				300			
Maximum oil flow at 50 bar	l/min	210		210				350			
Maximum operating hydraulic pressure	bar	380		380				380			
Maximum size of rebar in reinforced concrete	mm	not allowed		16	16	12	not allowed	16	16	12	12

1) An overview of standard picks and pick boxes is on page 43.
Cutter drums can be supplied with picks for special applications as required.
KEMROC offers a variety of picks to suit different applications.
The weight of the machine is related to the cutting wheel diameter.

+ **Flange for top plate to connect to excavator via quick adaptor or with pins**
+ **Housing with guide to eject cuttings out of the trench**



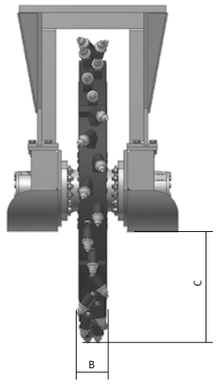
+ **wear resistant picks**
+ **Narrow, high performance disc with optimum pick pattern**
+ **High torque hydraulic motor**

KEMROC®

ERWETOR ROCK CUTTING WHEEL

With high torque double motor for rock up to 120 MPa

The Erwetor hydraulic excavator attachment was designed in cooperation with our customers. Two high torque hydraulic motors per wheel provide the torque required to guarantee results.



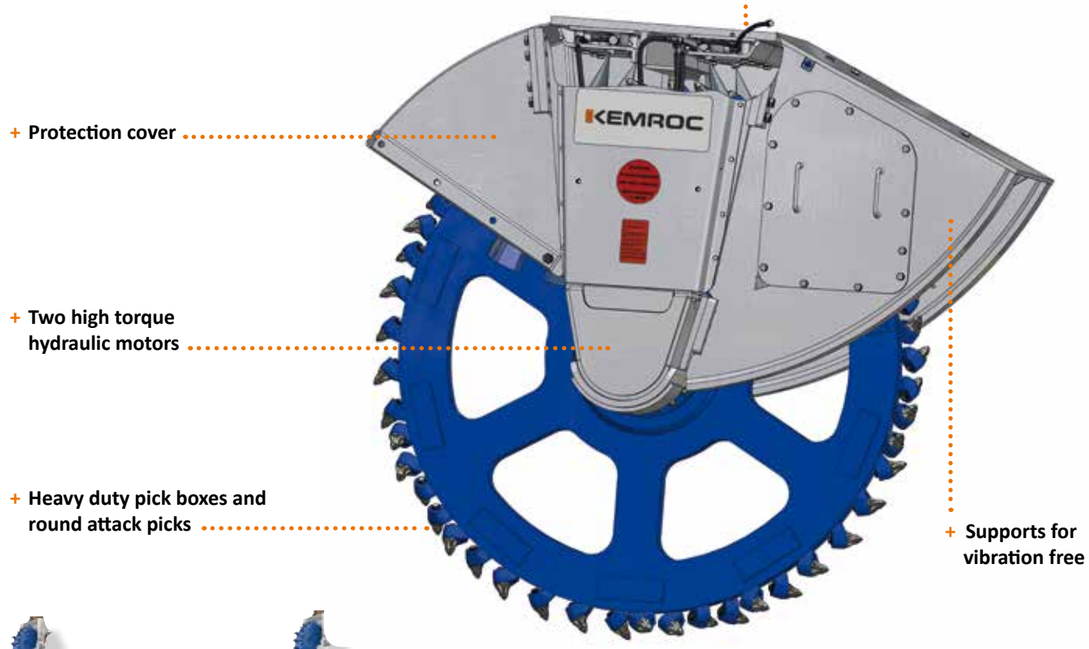
Exceptional cutting rates have been achieved even in rock with a uniaxial compressive strength of 120 MPa and in heavily reinforced concrete.

KEMROC produces these heavyduty attachments in 4 sizes suitable for use on excavators from 14 to 60 tons operating weight.

To suit all possible applications, **KEMROC** offers different wheel designs with a maximum cutting depth of 1,000 mm. All wheels are fitted with the well proven picks. Maximum cutting width offered as standard is 400 mm but wheels to cut non-standard depths or widths are available on demand. As the Erwetor can be used to 30 m underwater, it is ideally suited for canal work or for underwater demolition projects.

+ **Rigid, manouverable mounting frame**
+ **Two high torque hydraulic motors**
+ **Smooth and regular cutting action**
+ **Cutter wheels for various cutting depths and widths**
+ **High performance due to proven pick types and pattern**
+ **Operational to 30 meters underwater**
+ **Ideally suited for concrete demolition** [1)]

+ **Optional – water nozzles for dust suppression**
+ **Protection cover**
+ **Two high torque hydraulic motors**
+ **Heavy duty pick boxes and round attack picks**
+ **Supports for vibration free cutting**



TECHNICAL DATA	Unit	DMW 90		DMW 130				DMW 220			DMW 220 HD		
		Wheel 400	Wheel 600	Wheel 400	Wheel 600	Wheel 800	Wheel 1000	Wheel 600	Wheel 800	Wheel 1000	Wheel 600	Wheel 800	Wheel 1000
Recommended excavator weight	t	14 – 25	14 – 25	18 – 35	18 – 35	18 – 35	25 – 35	35 – 50	40 – 50	40 – 50	35 – 60	40 – 60	40 – 60
Rated power	kW	90		130				220			220		
Cutting width (B)	mm	80, 130, 200		80, 130, 150, 200				150, 200, 400			150, 200, 400		
Cutting depth (C)	mm	400	600	400	600	800	1,050	550	750	1,000	550	750	1,000
Cutting depth with shoe	mm	300	500	300	500	700	950	450	650	900	450	650	900
Cutting wheel diameter	mm	1,210	1,610	1,210	1,610	2,010	2,500	1,610	2,010	2,500	1,610	2,010	2,500
Maximum motor displacement	ccm	2,520		3,736				8,396			10,032		
Torque at 350 bar	Nm	10,400		21,000				47,000			56,000		
Cutting force at 350 bar	N	17,190	12,919	34,711	26,087	20,896	16,800	58,385	46,766	37,600	69,565	55,721	44,800
Recommended oil flow according to wheel diameter	l/min	120 – 170		230 – 300				300 – 550			350 – 600		
Maximum oil flow at 50 bar	l/min	200		340				600			600		
Maximum operating hydraulic pressure	bar	380		380				380			380		
Maximum rebar diameter in reinforced concrete [1)]	mm	16	12	20	20	16	12	25	25	25	30	25	25
Maximum uniaxial compressive strength	MPa	60	40	100	80	60	40	120	120	100	120	120	100
Weight cutting wheel, app. [2)]	kg	400	800	400	800		2,250	800		2,250	800		2,250
Weight Drive unit, app.	kg	1,100		1,150				2,750			2,750		
Weight dippin device, app.	kg	250		300				920			920		
Weight protection cover, app.	kg	55		55				180			180		
Pig holder [3)] … at 80 – 120 mm cutting width … at 130 – 400 mm cutting width Cutting wheel diameter = equal to PH 1000	Type Type	PH 600 PH 1500		PH 600 PH 1500				PH 600 PH 1500			PH 1000 PH 1500		

KEMROC can supply wheels to order for various cutting widths and depths.
The number of picks depends on the pattern on the wheel, for the exact quantity ask your supplier. Within technical boundaries, cutter wheels can be made to order.
1) To maintain the warranty, check with the manufacturer before use in re-enforced concrete containing larger diameter rebar.
2) Cutter wheel weight depends on diameter and width.
3) An overview of standard picks is on page 43.
Cutter drums can be supplied with picks for special applications as required.

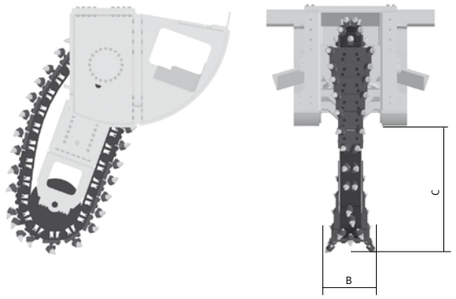
CHAIN TRENCHER FOR NARROW TRENCHES

Pure innovation! The ETR range of chain saw trenchers opens up a completely new range of opportunities for excavators. For the first time, a trenching attachment for excavators that is not limited to working in soils but can work in rock with a compressive strength of up to 90 MPa (ETR 3).

The ETR trencher can produce trenches with perfect profiles in widths from 18 to 60 centimeters to a maximum depth of 2 meters.

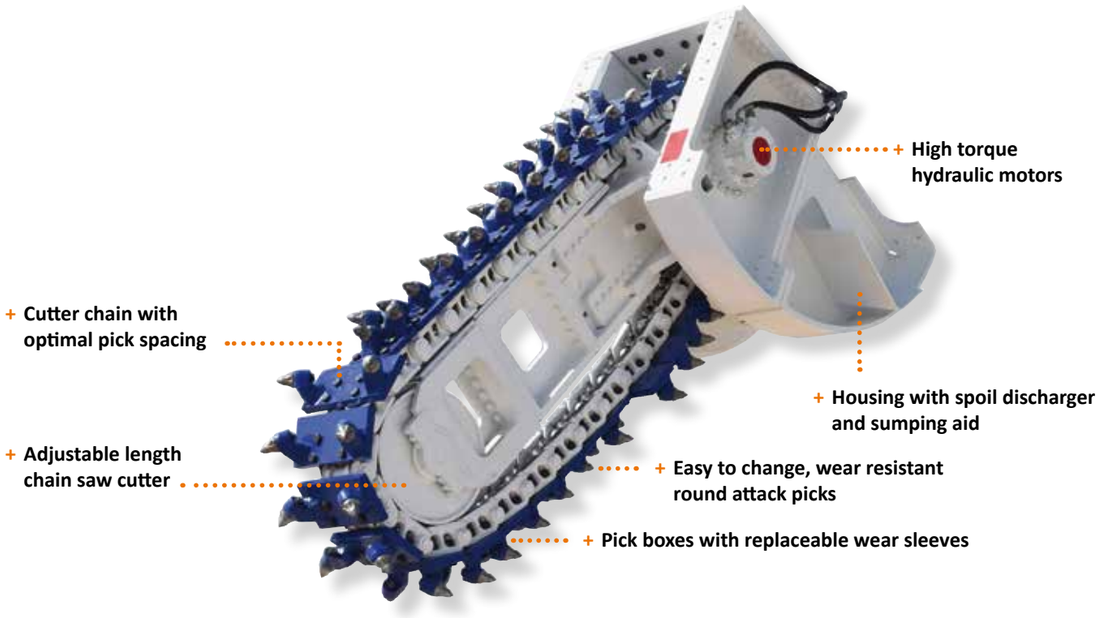
Chose from a range of cutting chain widths, each fitted with wear resistant picks. When starting the trench, the ETR is supported while sumping down to the desired cutting depth. When the trencher has reached the required depth, the excavator is driven backwards or the trencher is pulled forward with the excavator arm. The housing has a spoil discharger to deposit spoil to the side of the trench.

+ **Cutter chain fitted with wear resistant picks to achieve maximum performance with minimum wear costs**
+ **Driven by two high torque hydraulic motors to obtain maximum cutting force**
+ **Housing with spoil discharger and sumping aid**
+ **Heavy duty chain guides**
+ **Maintenance free cutter chain with high operating life**
+ **Adjustable length cutter chain**
+ **Rigid and maintenance free chain transmission**



TECHNICAL DATA	Unit	ETR 1	ETR 2	ETR 3
Recommended excavator weight	t	18 – 25	25 – 35	35 – 60
Rated power	kW	90	130	220
Cleaning width (B)	mm	200 – 450	200 – 450	300 – 600
Cutting depth (C)	mm	1,000 – 1,500	1,000 – 1,500	1,500 – 2,000
Recommended oil flow at 150 bar	l/min	170 – 200	250 – 350	350 – 500
Maximum oil flow	l/min	220	350	600
Maximum uniaxial compressive strength	MPa	40	50	90
Weight	kg	2,800	3,000	6,000
Standard pick [1]	Type	ER 12/45/38/22 HC	ER 12/45/38/22 HC	ER 17/75/70/30 Q

1) An overview of standard picks is on page 43.
Cutter drums can be supplied with picks for special applications as required.



Qatar
The new **KEMROC** trencher **ETR 3** trenches 60 cm wide and up to 2 m deep in medium hard limestone. The trencher is mounted on an EC 380 Volvo Excavator.

ERKATOR CHAIN CUTTERS

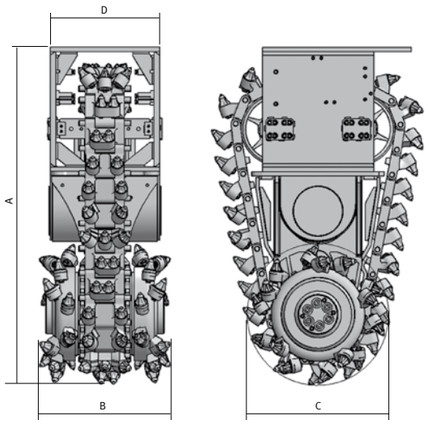
Patented chain cutter

The Erkator is the first of this type of attachment on the market. Designed for use on excavators from 10 to 50 tons and for working in rock with compressive strength up to 100 MPa. The Erkator can excavate deep and narrow trenches, from 500 mm wide, quickly, without vibration and with a perfect trench profile.

Another application is the excavation of soft to medium hard rock with compressive strength between 15 to 60 MPa, where the use of drill and blast is not possible.

Using the Erkator, trench width will never be wider than necessary. The continuous chain, driven by the cutter drums, removes the material automatically from the space between the cutter drums. With standard drum cutters, the trench width is always wider due to the need to remove the material from this area. Minimum trench width saves money in transport costs for cut material and the ability to use spoils as fill material also saves money.

Using the EK cutter, the spoil is fine enough to be used as fill material.



TECHNICAL DATA	Unit	EK 60	EK 100	EK 140	EK 150
Recommended excavator weight	t	10 – 17	18 – 30	30 – 45	35 – 50
Rated power	kW	60	100	140	150
Drum cutter length (A)	mm	1,900	1,900	2,050	2,050
Cutter head width (B)	mm	500, 600, 700	600, 700, 800	800, 900, 1,000	800, 900, 1,000
Standard cutter drum diameter (C)	mm	800	800	850	850
Width of gearbox (D)	mm	450	550	700	700
Recommended rotation speed	rpm	70	70	70	70
Recommended oil flow at 150 bar	l/min	130 – 200	180 – 250	250 – 400	280 – 420
Maximum oil flow	l/min	220	260	420	450
Torque at 380 bar	Nm	11,000	18,300	26,000	30,000
Cutting force at 380 bar	N	27,500	45,700	61,400	70,600
Maximum compressive strength	MPa	50	80	100	100
Weight	kg	1,300	2,400	3,150	3,150
Number of picks in cutter drums	Pcs	56	28	44	44
Number of picks in the cutter chain	Pcs	57	54	63	63
Standard pick [1]	Type	ER 19/48/32/20 H	ER 17/75/70/30 Q	ER 17/75/70/30 Q	ER 17/75/70/30 Q

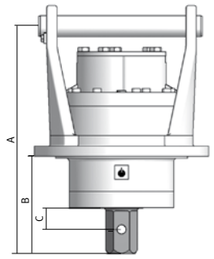
1) An overview of standard picks is on page 43.
Cutter drums can be supplied with picks for special applications as required.

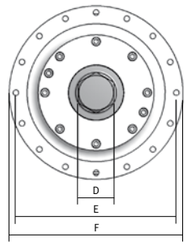
- **Design protected under patents DE 10 2008 041 B4 and EP 2324158**
- **Range of cutting widths available**
- **Fine grained cut material**
- **Easy on the excavator as trenching requires use of mimimum excavator functions, using only the standard digging cylinders**
- **Low noise and vibration levels**
- **Works underwater without needing any modifications**

KEMROC®

AUGER DRIVES

Auger drive attachment for excavators and back hoe loaders





The EBA range of auger drive units allows you to quickly convert your excavator or back hoe loader into a drill rig by simply changing the attachment.

These auger drive units are ideal for drilling shallow holes in soft to compact soils, cobbles and in soft rock with compressive strengths up to 40 MPa. For use in harder rock, **KEMROC** have developed special drilling tools to ensure higher drilling speeds.

TECHNICAL DATA	Unit	EBA 500	EBA 1000	EBA 2300
Recommended excavator weight	t	7 – 13	14 – 17	18 – 35
Rated power	kW	45	65	110
Maximum drilling depth / at drilling diameter				
Soil classification 1 – 3	m/mm	5/D.300	6/D.500	7/D.600
Soil classification 4 – 5	m/mm	3/D.300	4/D.500	4/D.700
Soil classification 6 – 7	m/mm	–	–	2/D.800
Maximum drill diameter / at drilling depth				
Soil classification 1 – 3	mm/m	1,000/1	1,200/1	1,500/2
Soil classification 4 – 5	mm/m	700/2	900/2	1,200/2
Soil classification 6 – 7	mm/m	–	–	800/2
Maximum uniaxial compressive strength of the rock	MPa	15	20	40
ength of drive unit (A)	mm	600	600	980
B	mm	275	275	605
C	mm	60	60	60
D	mm	80	80	80
Diameter of hole pattern on flange (E)	mm	360	360	455
Diameter of drive unit (F)	mm	390	390	500
Torque at 350 bar	Nm	5,200	10,400	23,400
Maximum oil flow	l/min	85	150	300
Maximum operating hydraulic pressure	bar	380	380	380
Maximum rotation speed	rpm	90	80	75
Recommended rotation speed at drilling diameter				
300 mm	rpm	80	80	70
600 mm	rpm	60	60	60
1.000 mm	rpm	40	40	40
1.500 mm	rpm	–	–	25
Weight excl. hydraulic hoses and mounting plate	kg	160	180	360

In contrast to the standard auger drive units available on the market, **KEMROC** do not use planetary gears. We use high torque radial piston motors that are more reliable in tough drilling conditions as well as giving us a short, compact, robust design. These motors have proven themselves in some very tough drilling conditions around the world.

+ **Very short and compact construction**
+ **Heavy duty hexagonal drive**
+ **High torque hydraulic motor**
+ **Robust and rigid bracket**
+ **Heavy duty bearings**
+ **Wear resistant augers**
+ **Auger drives for tough applications**

We recommend the following pilot bits:

Soil classification 1 + 2

Soil classification 5 + 6

Soil classification 7 to max. 40 MPa

Soil classification 3 + 4

Notes for drilling with KEMROC auger drive units: When mounted on an excavator arm, the augers are not supported in a feeder. Due to the natural curve of the excavator arm, augers can be bent during drilling. Therefore, special care must be taken to ensure that the augers are always working vertically. Only by keeping the auger in the vertical position can you guarantee a straight bore hole. Take great care to avoid bending the augers. Excessive bending of the auger can result in the hex drive breaking and damage to the auger drive. Select the auger rotation speed that corresponds to the auger diameter and material being drilled. Generally, rotation speeds should be lower for larger diameter augers or when drilling in harder material.

CLEANING HEADS

To clean smooth, metallic surfaces

Excavator attachment for the cleaning of metallic surfaces

The EXRUST range of cleaning heads head attachments were developed by **KEMROC** to clean flat metal surfaces such as those found in the holds of cargo ships. The drums rotate at a speed of 800 rpm. During operation, a specialy made chain reomoves removes paint or other materials from the metal surface.

Under certain conditions, the Exactor range of patch planers can be fitted with these drums.

Hearing protection must be worn while working with the EXRUST cleaning heads.

TECHNICAL DATA	Unit	EXRUST 60
Recommended excavator weight	t	8 – 15
Recommended skid steer weight	t	3 – 6
Rated power	kW	45
Cleaning width (B)	mm	600
Cleaning depth, adjustable (C)	mm	–
Recommended rotation speed	rpm	750 – 820
Recommended oil flow at 100 bar	l/min	75 – 90
Minimum hydraulic flow	l/min	75
Maximum hydraulic flow	l/min	95
Maximum operating hydraulic pressure	bar	350
Operating weight	kg	780

STANDARD TOOLS

STANDARD PICK	RETAINER	STANDARD PICK BOX
Round attack pick ER 12/45/38/22 HC Art. No. 12 45 38 23	Retaining clip ES 450 Art. No. 99 99 99 96	Pick box PH 450 UA Art. No. 72 10 25 UA
Round attack pick ER 17/64/60/25 Q Art. No. 17 64 60 26	QuickSnap QS 600 Art. No. 99 25 00 25	Pick box PH 600 Art. No. 76 10 25 UA
Round attack pick ER 17/75/70/30 Q Art. No. 17 75 70 35	QuickSnap QS 5000 Art. No. 99 50 00 30	Pick box PH 1500 Art. No. 71 10 22
Round attack pick ER 19/75/70/30 Q Art. No. 19 75 70 35 E	QuickSnap QS 5000 Art. No. 99 50 00 30	Pick box PH 1500 Art. No. 71 10 22
Round attack pick ER 22/75/70/30 Q Art. No. 22 75 70 30	QuickSnap QS 5000 Art. No. 99 50 00 30	Pick box PH 1500 Art. No. 71 10 22
Round attack pick ER 16/28/26/14 H Art. No. 16 28 26 14	–	Pick box PH 80 Art. No. 71 12 22
Round attack pick ER 16/29/25/14 C Art. No. 16 29 25 14	Retaining clip ES 70 Art. No. 99 99 99 76	Pick box PH 70 Art. No. 71 10 32
Round attack pick ER 19/33/30/15 S Art. No. 19 33 30 15	Circlip SG 100 Art. No. 99 99 99 90	Pick box PH 100-N Art. No. 79 10 04 E
Round attack pick ER 16/48/32/20 H Art. No. 16 48 32 20	–	Pick box PH 250 Art. No. 72 10 24
Round attack pick ER 19/48/36/20 H Art. No. 19 48 36 20	–	Pick box PH 250 Art. No. 72 10 24
Straight tooth with thread connection Art. No. 57 13 70		
Inclined tooth (right) with hole Art. No. 57 13 71		
Inclined tooth (left) with thread connection Art. No. 57 13 72		
Straight tooth with hole Art. No. 57 13 73		

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