

# POWER HARROWS

## ZIRKON





**Efficient seedbed preparation**



The soil is the most important resource in productive agriculture. Choice of the primary cultivation procedure, for the particular location, and optimal use of technology, help retain the long-term profitability of the soil. Another important factor for a successful harvest – irrespective of the cultivation procedure – is the preparation of seedbeds. The objective here is to prepare the soil so that the seeds can quickly germinate and efficiently grow. The prepared soil structure should remain stable right through to harvest.

After primary soil cultivation the land is prepared for optimum plant development by the preparation of seedbeds. The seeds which have been sown and are germinating in the soil require water, heat and air to develop. The surface soil should be soft enough for the seedlings to grow through. The area under the seeds should be reconsolidated to aid capillary action and water supply to the plant. These factors are optimised in a well prepared seedbed, thereby ensuring the basic requirements for a good growth rate.



Seedbed preparation must also perform the following tasks:

- The surface left by the primary soil cultivation must be levelled to create uniform conditions for sowing.
- The tools on a machine used for the preparation of seedbeds, e.g. power harrow tines, must break up clods, lumps and crumbs. However, it is not just a question of generating the correct aggregate sizes. Even clod distribution in the seedbed and the long-term structural stability of the soil are also important for plant development.
- The soil must be cultivated to a consistent working depth.
- An adequate reconsolidation of the soil under the seeds is essential for optimum soil compaction to ensure that the seedlings are supplied with water during the first growth phase.
- The pore volume, in the topsoil, must be large enough to ensure an adequate supply of water and air to the plant roots.

# Zirkon – perfection in many variations



It is becoming ever more important to adjust the intensity of the seedbed preparation to the prevailing field conditions. Practice shows that the power harrow is a very versatile and efficient device and therefore best performs this preparatory task.

To ensure optimum seedbed preparation, the working parameters of the Zirkon power harrow from LEMKEN can be perfectly adjusted. Whether shallow, quick and extensive, or deep and intensive – it is only necessary to set the specifications such as working depth, rotor speed, tine position and forward drive speed for the required soil cultivation. The Zirkon power harrow produces an intensive mixing and crumbling action down to a working depth of approx. 15 cm. The active tools will prepare an optimum seedbed in practically all soil conditions, even in compacted, dry and hard or heavy soils. The use of the power harrow in agriculture is therefore acquiring greater importance today. In combination with other machines many work processes can also be completed more quickly and economically.

The Zirkon power harrows from LEMKEN best meet the high demands of a modern arable farm. They are suitable for very high continuous loads

both in conventional and in conservation cultivation procedures and can be used both in a rear and front-mounted position.

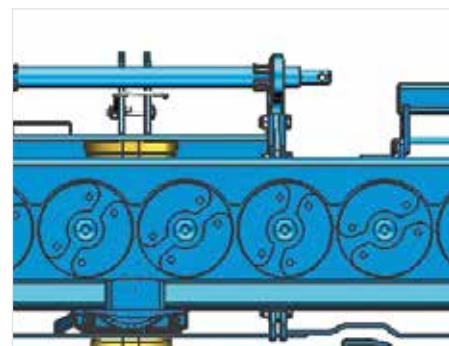
The Zirkon power harrows are available in different working widths and designs:

- Zirkon 8: The mounted, entry-level model in working widths from 2.5 to 4 metres non-folding format.
- Zirkon 12: The high-performance mounted, rigid power harrow with a 3 or 4 metre working width.
- Zirkon 12 K: At working widths from 4 to 6 metres the mounted power harrow can also be hydraulically folded to a transport width of 3 metres even in combination with the Solitair 9 K seed drill.
- Zirkon 12 KA: The semi-mounted power harrow in working widths from 4 to 6 metres. When combined with the pneumatic Solitair seed drill from LEMKEN, is a powerful combination for demanding arable farming.





# Maximum precision for long service life



**The quietest and smoothest running machine in its class**

## Maximum stability due to a welded gearbox trough

The heart of the Zirkon power harrow is the gearbox. It is manufactured as a closed unit made of thick-walled micro-alloyed quality steel with top and bottom sections welded together.

- The lower and the upper part are securely welded to each other and therefore guarantee maximum stability (marked in red on picture).

- The closed gearbox and the precisely aligned bearing housings which result, ensure that the power harrow runs particularly quietly and smoothly. These outstanding running properties, as well as the precise alignment of the tine carriers, guarantee that the LEMKEN Zirkon power harrows have a long service life.

Each four tine carriers per metre working width are arranged with a minimum offset to each other so that the tines of the Zirkon power harrow can work in succession to each other.

- A constant force flow of the tines in the soil is achieved even under extremely difficult conditions.
- This arrangement creates very smooth running characteristics and a uniform load on the tractor PTO.

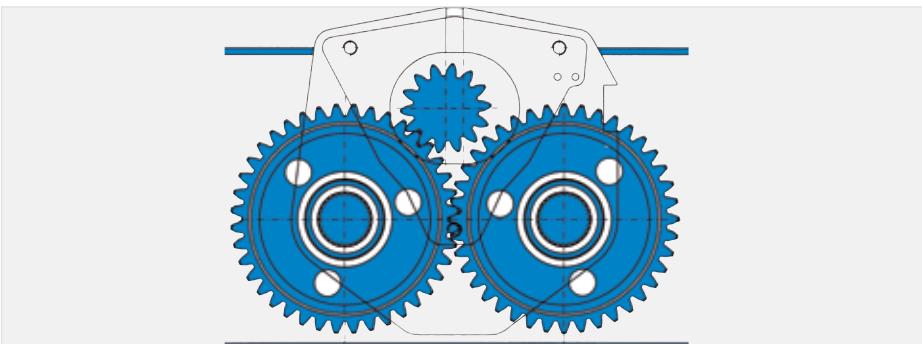




### Simple replacement of tines by the quick-change system

The advantages of the quick-change system are offered as standard by the Zirkon 12, optionally by the Zirkon 8. The knife tines have sharpened cutting edges on both sides.

- Each pair of tines is attached to the tine carrier with a safety plug. Tines can be changed simply and quickly.
- The special hardening process makes the knife tines particularly wear-resistant without becoming brittle.
- Hard facing in the main wear areas significantly extends the service life of the knife tines.



### Change of rotation direction – correct tine position simply & quickly

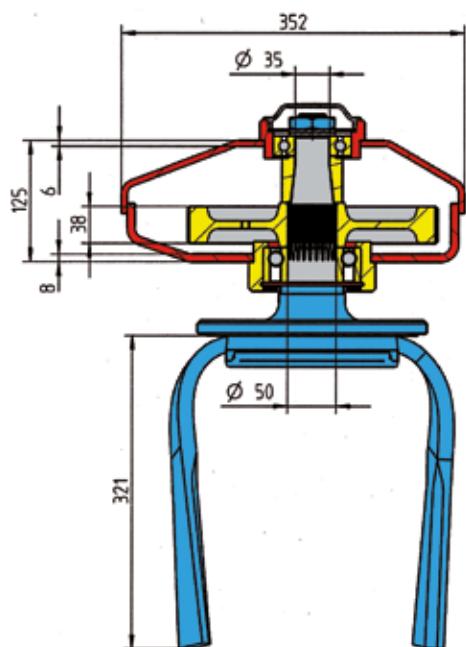
The DUAL shift gears from LEMKEN facilitate not only changing the speed of the rotors but also the direction of rotation of the rotors.

- The change in the direction of rotation enables the knife tines to be set to "grip" or "drag".
- When set to "drag", the tines have a better levelling effect and are particularly useful in stony conditions, as stones are pushed into the ground.

- In the "grip" position the tines aid soil penetration and prove themselves in mulch sowing through the intensive mixing of soil and vegetation. Fine earth is conveyed into the area of the seed placement. Large crumbs remain on the surface and reduce capping and erosion.



# Zirkon 8



**Strong, inclined box profile (all specifications in mm)**

## The versatile power harrow for optimum seedbed preparation

The Zirkon 8 from LEMKEN is the new power harrow for the low to middle HP class. A special feature is its modular design which offers options for components such as gearbox and attachment of tines. In this way the Zirkon 8 can be adjusted optimally to the particular requirements and application conditions.

- The large distance between the upper and the lower bearings supports the tine carrier and ensures that the bearings have a long service life.

- Thanks to the innovative higher and inclined box profile, dirt can slide off more easily.

- In addition to the simple angular gears, which set the required rotor speed by replacement of the gear wheels, the Zirkon 8 can be fitted with the DUAL shift manual gearbox. In addition to changing the speed with the shift lever, the direction of rotation of the tines can be changed from "grip" to "drag" without replacing the tines.

- Bolt-on knife tines, which have a length of 300 mm, are part of the standard equipment of the Zirkon 8. As accessory the tine can be delivered in a hard-faced version. Also as accessory quick-change tines for Zirkon 8 are available and then the tine is 340 mm long and can be hard-faced, too.

- Thanks to the equipment options, such as a heavy duty headstock, the centrally adjustable levelling bar, an optimum roller from the extensive range of LEMKEN rollers and other accessories, the Zirkon 8 can be adjusted to suit every customer requirement.



**Simple power transmission by the change gear train**



**Replacing a quick-change tine**

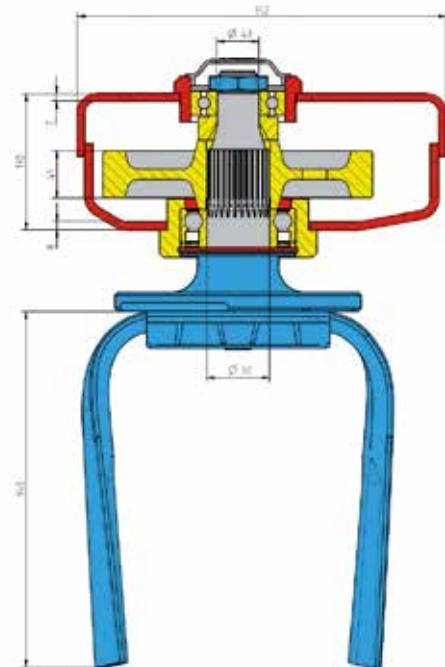


## The power harrow for very high continuous loads in all cultivation procedures

The LEMKEN Zirkon 12 power harrow is designed for very high continuous loads both in conventional and in conservation tillage procedures. The intensity of cultivation can be changed specifically by the working speed, the power take-off speed and the gears of the power harrow.

- The closed gearbox made of thick-walled micro-alloyed quality steel ensures that all gear wheels, shafts and bearings run smoothly and quietly thanks to the exactly aligned bearing housings. This guarantees a high service life.
- The mounted Zirkon 12 power harrow with mounted Solitair or Saphir seed drill from LEMKEN is an efficient combination for precise sowing.
- The DUAL shift gears allow easy adjustment of the speed from 330 to 440 rotor revolutions. The optional gears for 230 and 330 rotor revolutions extend the range of applications of the Zirkon 12.

- The direction of rotation of the tines from "grip" to "drag" for adjustment to all application conditions can also be easily changed with the DUAL shift gears.
- The forged quick-change knife tine with a tine length of 340 mm and a thickness of 20 mm guarantees maximum service lives. The quick-change system allows the tines to be changed simply and without tools.
- The "special tine" which is 380 mm long ensures intensive loosening in potato farming.



**Gearbox made of thick-walled quality steel (all specifications in mm)**



**DUAL shift gearbox**



**Quick-change tines**

# Zirkon 12 K



## Always efficient, whether stand-alone or together with other machinery

The compact design and good position of the centre of gravity make the foldable Zirkon 12 K power harrow and the LEMKEN Solitair seed drill a powerful combination.

- The optimised efficiency of the drive train ensures maximum power transmission to the rotors of the power harrow.
- To achieve optimum adjustment to the soil surface, at working widths from 4 metres, folding Zirkon power harrows consist of two separate units. Each unit is attached to a central pendulum axle and adjusts itself to the soil independently of the other units.

- As the pendulum axles are arranged centrally in relation to each working unit, the Zirkon power harrow follows ground contours accurately, guided by the roller. Despite the large working widths from 4 metres, the Zirkon 12 K power harrow can be folded to a transport width of less than 3 metres.

- The Zirkon power harrow can be quickly folded and unfolded, making it immediately ready for work or transportation.

- A unique feature is that the seed tank of the Solitair 9 K seed drill is housed between the folded power harrow units. This keeps weight as close as possible to the tractor.



## Zirkon 12 KA folding, semi-mounted machine - always safe on the road

The semi-mounted Zirkon 12 KA power harrow from LEMKEN can be used alone or in combination with seed drills. In stand-alone operation the axle is raised during work keeping the wheels away from the soil.

- Large tyres reduce soil damage during headland turns, as well as providing stable transport between fields.
- The Zirkon can be used together with LEMKEN's pneumatic Solitair seed drill. Mounting points above the axle of the power harrow, make the total combination compact and easy to connect or disconnect the drill when required.

- The standard weight transfer system ensures even weight distribution of the mounted machinery. The working depth of the power harrow is precisely maintained no matter what the level of seed in the seed drill.

- The semi-mounted Zirkon power harrow can be fitted with a compressed air braking system if this is required or if the power harrow is used in combination with a seed drill.
- A hydraulic rear linkage is also available to allow other seed drills, or precision drills, to be coupled to the Zirkon power harrow.
- The Zirkon power harrow can be mounted in the LEMKEN Compact-Solitair, if required, to provide a larger tank volume and full-width tyre packer roller.



Easily accessible coupling points



Even weight distribution

# Perfected down to the last detail



## Robust three-point headstock

The Zirkon power harrow features a robust headstock with integrated tool box.

- The spring steel, cross-shaft between the lower link arms absorbs shocks

and protects tractor and device during transportation and work.

- The movable lower link connection points enable the distance between tractor and power harrow to be adjusted to suit the tractor.





### Side plates prevent ridges at the side

The height-adjustable and spring-loaded side plates on each side prevent the outer tines from creating ridges.

- The side plates can move sideways and upwards.
- On machines with a 3-metre working width, they can be simply folded in for transport.
- Optionally the side plates can be fitted with an extension.



### Stone protection for trouble-free work

To ensure trouble-free work in soils which have a high stone content, stone protection (1) is available for all Zirkon power harrows and is attached to the underside of the gearbox in front of the rotors.

- The stone protection prevents stones becoming caught and causing damage as a result.



### Levelling bar for regulating the flow of soil

Levelling bars are available as optional equipment for all Zirkon power harrows.

- The levelling bar can be attached either in front of, or behind, the knife tines. The levelling bar regulates the flow of soil and optimizes the work of the knife tines.
- The height is adjusted centrally with a spanner on the side of the power harrows.



# Suitable for all application areas



## Optimum loosening and levelling of the tractor tracks

Tractor tracks are best loosened and levelled by using a narrow share track eradicator instead of the wing share track eradicator.

- Both tools can be easily attached to the standard carrier and simply adjusted to any tractor track width.

- The working depth can be adjusted without tools.

- To prevent damage, the track eradicators are fitted as standard with an auto-reset safety device.





**Tooth packer roller for medium and heavy soil conditions**



**Trapeze roller for light, medium and heavy soil conditions**



**Suitable for all seed drills**

Even sticky soil does not stick to the tooth packer roller. This makes it universally suitable even in medium and heavy soil conditions.

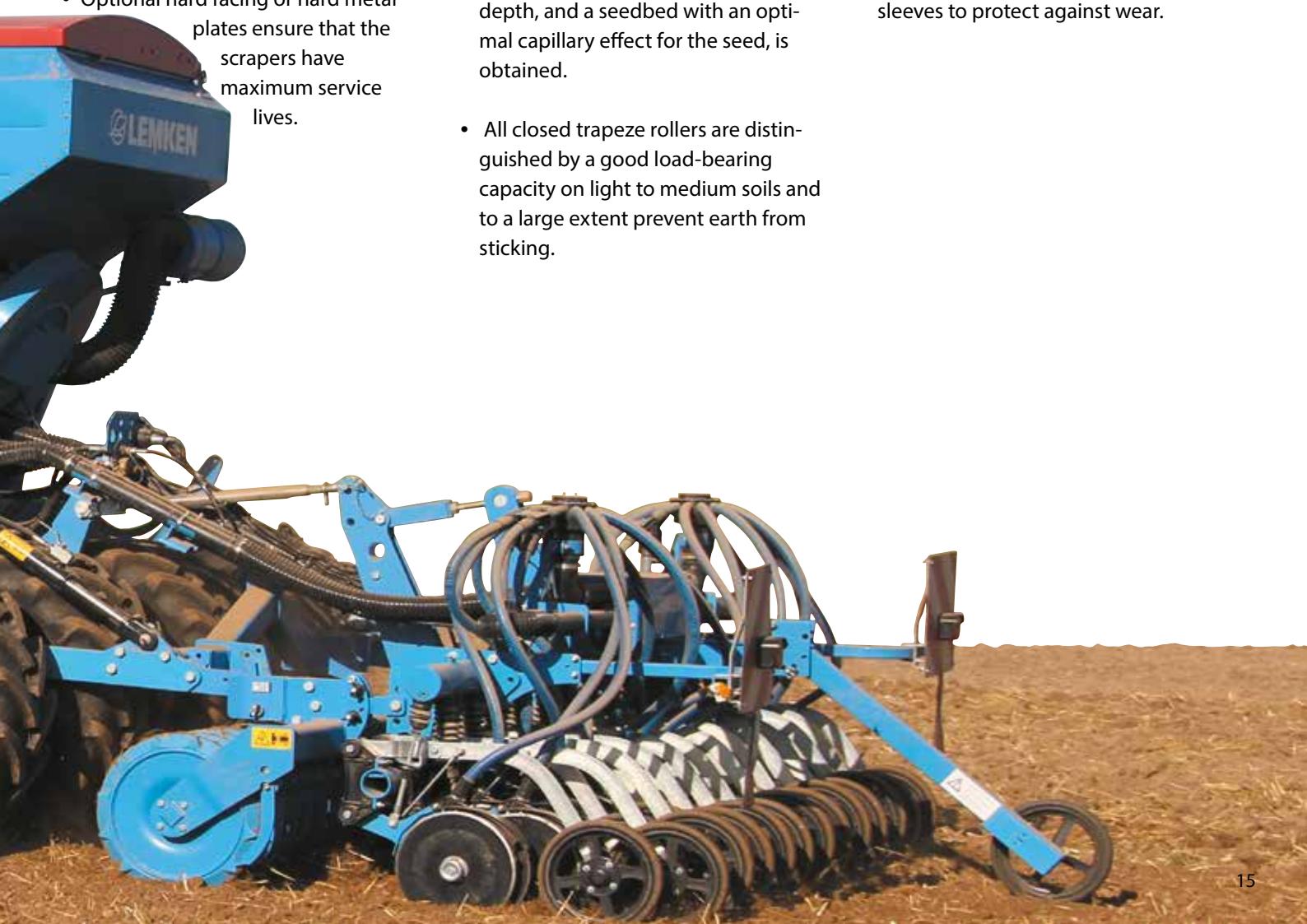
- The hardened scrapers are attached to stable holders. They can be easily adjusted with a spanner to ensure that the rollers are thoroughly cleaned.
- Optional hard facing or hard metal plates ensure that the scrapers have maximum service lives.

The key advantage of the trapeze roller is reconsolidation of the soil, in strips, by the trapeze rings which are directly in line with the following drill rows.

- Soil between the rows, retains a rough surface with a great deal of fine soil and is therefore less inclined to capping.
- An especially regular seed placement depth, and a seedbed with an optimal capillary effect for the seed, is obtained.
- All closed trapeze rollers are distinguished by a good load-bearing capacity on light to medium soils and to a large extent prevent earth from sticking.

Thanks to an adjustable coupling frame, the hydraulic three-point linkage can be adapted to all known seed drills.

- The variable vertical and longitudinal distances, of the coupling points, ensure the best possible adaptation of the power harrow to all seed drills.
- All articulated joints are fitted with sleeves to protect against wear.



# Always well equipped



## Clearly marked path by track markers

Foldable track markers are recommended if a drill is to be fitted to the power harrow. The markers produce a clear line in the soil to ensure sowing widths are accurate.

- The 360° adjustment of the disc ensures an optimum mark is left in all conditions.
- The shearbolt prevents the track marker from being damaged if it comes into contact with obstacles.

## Feed discs for precisely harrowed paths

To ensure a precisely harrowed path without any ridge build-up, the effect of the side plates can be further improved by the use of feed discs.

- The 450 mm large, curved, and height-adjustable feed discs are fitted to the outside of the power harrow.
- As the feed discs convey the earth inwards, an absolutely level seedbed is obtained.





### In all cases: the front-mounted position

All mounted Zirkon power harrows can also be used in a front-mounted position, by using the optional push linkage.

- This also provides a combination for particularly difficult conditions or for use by specialised crop companies.
- A tube bar roller in front of the power harrow ensures that the depth of the working tools is controlled exactly.



### Each PTO shaft with overload safety device

The drive of the Zirkon power harrows is designed to run up to a PTO speed of 1,000 revolutions per minute.

- All relevant PTO shafts are fitted with a cam shifting clutch as an overload safety device.
- To drive other machines, all power harrows are fitted with a PTO through shaft.



### Of course: Safety and lighting

Lighting and braking systems of the Zirkon power harrows conform with the current road traffic laws.

- Furthermore safety guards are available for folding harrows if they are required.



# Technical data

Model	Working width (cm)	Number of rotors	Weight without roller (approx, kg)	For power take-off speed up to (min-1)	Rotor speed (min-1) at 1,000 min-1	Tractor output			
						kW	HP	kW	HP
						Angular gearbox	Two-speed manual gearbox		
<b>Mounted, rigid</b>									
Zirkon 8/250 WG <sup>1</sup> / SG <sup>2</sup>	250	10	701	1,000	300/400			44-103	60-140
Zirkon 8/300 WG <sup>1</sup> / SG <sup>2</sup>	300	12	785	1,000	300/400			55-118	75-160
Zirkon 8/350 WG <sup>1</sup> / SG <sup>2</sup>	350	14	946	1,000	300/400			62-125	85-170
Zirkon 8/400 WG <sup>1</sup> / SG <sup>2</sup>	400	16	1,015	1,000	300/400			66-129	90-175
<b>Mounted, rigid</b>									
Zirkon 12/300	300	12	922	1,000	330/440			66-154	90-210
Zirkon 12/350	350	14	1,035	1,000	330/440			77-165	105-225
Zirkon 12/400	400	16	1,149	1,000	330/440			88-176	120-240
<b>Mounted, hydraulic folding</b>									
Zirkon 12/400 K	400	16	1,762	1,000	330/440	88 - 199	120 - 270	88 - 265	120 - 360
Zirkon 12/450 K	450	18	1,896	1,000	330/440	99 - 199	135 - 270	99 - 265	135 - 360
Zirkon 12/500 K	500	20	2,066	1,000	330/440	121 - 221	165 - 300	121 - 287	165 - 390
Zirkon 12/600 K	600	24	2,452	1,000	330/440	132 - 235	180 - 320	132 - 300	180 - 408
<b>Semi-mounted, hydraulic folding</b>									
Zirkon 12/400 KA	400	16	3,531	1,000	330/440	88 - 199	120 - 270	88 - 265	120 - 360
Zirkon 12/450 KA	450	18	3,734	1,000	330/440	99 - 199	135 - 270	99 - 265	135 - 360
Zirkon 12/500 KA	500	20	3,923	1,000	330/440	121 - 221	165 - 300	121 - 287	165 - 390
Zirkon 12/600 KA	600	24	4,447	1,000	330/440	132 - 235	180 - 320	132 - 300	180 - 408

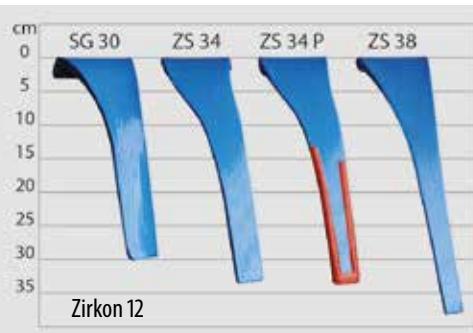
<sup>(1)</sup> Change gear train

<sup>(2)</sup> Manual gearbox

Power Harrow	Gears	Ratio/gear	Rotor speed (min <sup>-1</sup> )	
			540	1.000
Zirkon 8	Gear box with change gears <sup>1</sup>	22/25	162	300
		25/22	216	400
	Change gear box	1	162	300
		2	216	400
	Angular gearbox <sup>1</sup>	Standard	178	330
		Option 1	238	440
		Option 2	124	230
		1 (Standard)	178	330
Zirkon 12 <sup>2</sup> / 12 K / 12 KA	Two-speed manual gearbox	2 (Standard)	238	440
		1 (Option)	124	230
		2 (Option)	178	330

<sup>1</sup> Standard equipment

<sup>2</sup> Two-speed manual gearbox



Power harrow tines for different applications. Hard facing available if required for maximum service lives (marked in red on picture)

# Service decides



When you have bought a machine from LEMKEN, the well-known, almost proverbial LEMKEN service starts. 18 customer-oriented factory branches and outdoor storage areas in Germany as well as our own sales companies and importers in more than 40 countries, and a strong dealer network, ensure that machines and spare parts are supplied quickly.

If a part is not in stock, it can be delivered to the customer within 24 hours via the LEMKEN logistics centre which is manned round-the-clock 365 days a year.

## Knowledge from the LEMKEN specialist

Well trained customer service technicians are available to farmers,

contractors and trade, who are using machinery for the first time, as well as for professional maintenance and repairs. Thanks to regular training courses, LEMKEN customer service is always up to date with the latest LEMKEN technology.

## Original spare parts from LEMKEN

LEMKEN wearing parts are designed for a maximum service life. High-quality materials, the latest production methods, and an intensive quality control ensure a long service life. Therefore, all original spare parts bear a unique identification with the registered LEMKEN trademark. Original spare parts can be ordered at any time online on the Internet via the LEMKEN information and ordering system.



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