

INTENSIVE CULTIVATOR
KARAT 9
KARAT 12







Modern stubble cultivation

The aims of stubble cultivation have changed in many places in recent years. While stubble cultivation mainly served to control weeds and loosen soils in the past, these days most fields are already largely weed-free due to the use of herbicides, and as a result only very few weeds still produce seeds in crops.

Large straw volumes

Modern combine harvesters with extremely wide cutting units need to process very large volumes of straw, which harvesters are often unable to chop optimally or distribute evenly. The resulting large volumes of organic matter and volunteer cereals then need to be incorporated intensively, especially when sowing a subsequent crop into mulch. At the same time, capillary action needs to be disrupted to prevent moisture from being lost. This is why it is all the more important to adapt stubble cultivation precisely to these needs and prepare seedbeds to a greater depth.

The LEMKEN Karat intensive cultivator allows fields to be cultivated at various levels, whether at a shallow, medium or greater depth. With shallow cultivation during the first pass, the specially

shaped wing shares incorporate volunteer cereals and organic matter into the soil close to the surface. Volunteer cereals remain in the top soil layer, where they can germinate quickly.

The second pass is then completed about two weeks later, when the same cultivator is used to work at a depth of about 10–15 cm. The wing shares of the cultivator cut underneath the volunteer regrowth, slice it off across the full surface and uproot any seedlings. At the same time, the Karat intensive cultivator intensively incorporates straw and organic matter and distributes it evenly across the soil.

Fit for mulch sowing

If it is intended to sow the fields in mulch later on, but the top soil layer contains large volumes of straw, a third pass can be completed with the Karat intensive cultivator to a depth of up to 30 cm. This deep cultivation loosens the entire topsoil and reduces the density of straw in the upper soil layer, both of which are important prerequisites for successful mulch sowing.

Karat 9 – intensive cultivation



The Karat 9 intensive cultivator is available in working widths of three to seven metres, of which the tines, are arranged on the cultivator frame with an average line distance of about 28 cm to achieve thorough mixing of soil and straw. The symmetrical tine arrangement effectively prevents lateral pull during work.

For any requirements

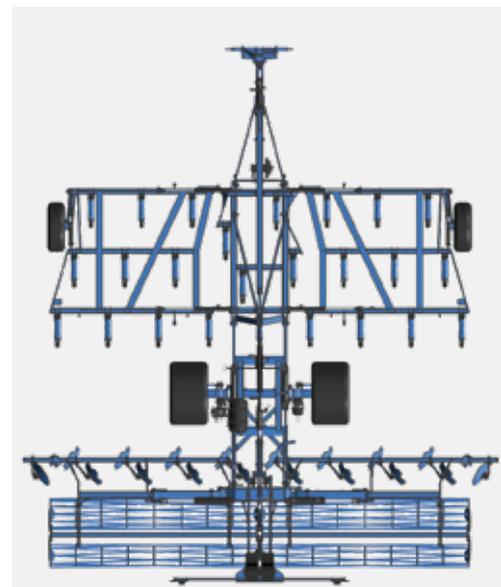
Thanks to the variety of share designs available, the intensity of cultivation can be optimally adapted to individual conditions and requirements. Wing shares work at a shallow depth over the full surface during the first pass, while the second pass can be performed with or without wings at a depth of 10 to 15 cm. The third pass, at a working depth of up to 30 cm, can be completed with narrow shares, which cultivate intensively without increasing traction requirements unnecessarily. A user-friendly quick change system allows the earth wearing parts, which are attached to a foot assembly, to be replaced quickly and easily without requiring tools.

Concave discs behind the tines mix straw and soil once more and ensure that surfaces are level. A trailing roller produces excellent soil reconsolidation to the required degree. The range of LEMKEN rollers includes the optimal trailing unit for any soil conditions.

The LEMKEN Karat intensive cultivator is available in a range of working widths and equipment options:

- 3, 3.5 and 4 metres working width, mounted, rigid
- 4 and 5 metres working width, mounted, with hydraulic folding to a transport width below 3 metres
- 4 and 5 metres working width, with transport carriage and hydraulic folding to a transport width below 3 metres

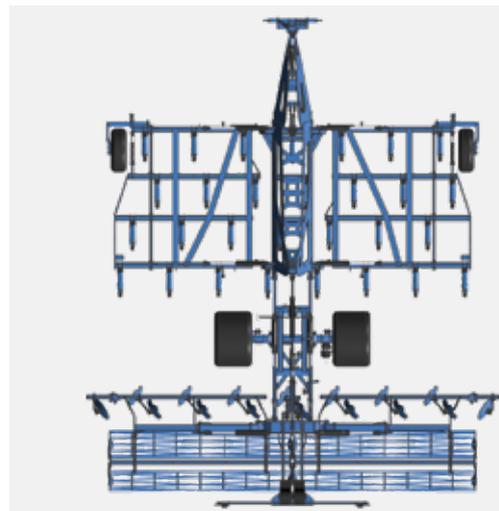
- 4, 5, 6 or 7 metres working width, semi-mounted, with hydraulic folding to a transport width below 3 metres The implement is coupled to the lower link on the tractor. The transport height for all implements in this range is below 4 metres.
- All variants of the Karat intensive cultivator are available with shear bolt stone protection or automatic overload protection.



Karat 12 – even more intensive cultivation

The Karat 12 cultivator is particularly well suited for heavy soils and no-tillage cultivation methods for both shallow and deep cultivation. Its bars are arranged at 90–80–90 cm distances to provide sufficient clearance for clogging-free operation even with 4 rows of tines and a line distance of 23.4 cm. The symmetrical tine arrangement effectively minimises lateral pull, prevents unilateral dipping of the

implement into the soil and optimises pass alignment. The depth control wheels positioned next to the first row of tines ensure that the cultivator is optimally guided.



Shallow to deep in no time



Quick and easy tool changes

Being able to perform stubble cultivation at both shallow and medium depths as well as topsoil seedbed preparation for mulch sowing with a single implement saves investment and operating costs.

- The Karat is equipped with a quick-change system as standard to deliver this versatility.
- The entire interchangeable share foot with wing shares can be easily removed using just a linchpin, without tools, and replaced by an interchangeable share foot with narrow shares for deep loosening.
- The replacement of worn parts at the workshop is just as straightforward, without requiring any additional effort for securing the implement. This significantly reduces set-up times.

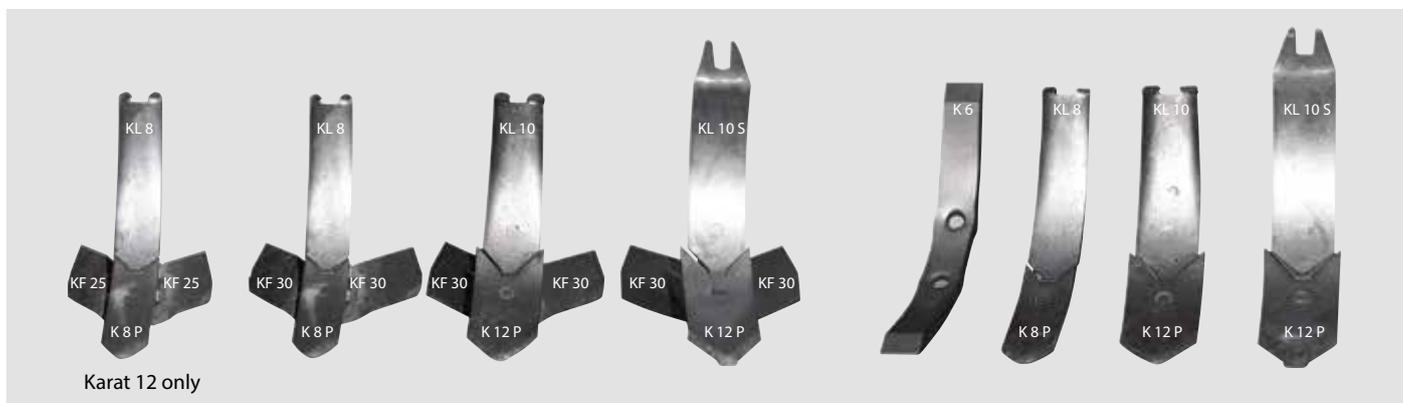


First pass for full-surface shallow stubble cultivation

Fitted with wing shares, the Karat is ideal for the first pass of shallow stubble cultivation.

- A line distance of 23.4 cm (Karat 12) or 28 cm (Karat 9) ensures that straw is incorporated intensively across the full surface even at shallow working depths.
- Moisture loss from the soil is effectively prevented, as all capillary action is disrupted.
- The share point design is optimised for mixing quality and traction requirements. Both share points and guide plates are attached with a single bolt only.

Wing shares for the first, shallow pass – narrow shares for intensive mixing and deep cultivation



LEMKEN cultivator shares are available in eight different configurations for a wide range of operating conditions and working depths between 5 and 30 cm. They also feature new

carbide-coated share points and wing shares for outstanding service life.

- In the basic version, the share points are hard-faced to maximise the

service life of wearing parts. As an optional extra, the points are also available with extremely hard carbide coating.



Four soldered carbide plates ensure an extremely long service life of share points.

- A reinforced carrier material delivers an optimal balance between carbide and steel wear.
- The smart use of materials on the cones and overlap sections of the share points protects the attachment bolt against wear.

Operating comfort included



High trigger forces with maintenance-free non-stop overload device

The tines automatically respond to obstacles with upward and rearward deflection and are then immediately returned to their working position as soon as the obstacle has been passed. This overload protection system is maintenance free.

- A large deflection distance and high trigger forces of 5,500 N (550 kg) per tine ensure disruption-free work even at great working depths.
- An additional shear bolt protects the implement if a tine becomes caught underneath a rock or root.
- Robust, welded beams and strong compression springs easily resist high continuous loads.



Automatically adapting concave discs at any working depth

Whenever the working depth of the Karat intensive cultivator is changed, the concave discs automatically adapt to the new working depth.

- A parallelogram system ensures that the concave discs and trailing rollers are kept in the right position at all times.
- In the folding Karat versions, each roller/concave disc unit is equipped with a self-levelling system for smooth operation and precise, constant depth control.



Easily accessible depth adjustment

All mounted versions of the Karat intensive cultivator can be easily and accurately adjusted between working depths of 5 to 30 cm without requiring tools.

- In the versions with working widths of 3 and 3.5 metres, this adjustment is made via pins and perforated plates which are located at the rear of the implement and can be adjusted from either side.
- In the rigid 4 metre and folding mounted versions, the working depth can be altered via two adjustment mechanisms located at the front of the implement on either side.





Easy handling with hydraulic depth adjustment

The semi-mounted Karat intensive cultivator is equipped with hydraulic depth adjustment as standard. This allows operators to adjust the working depth continuously via the trailing rollers, all from the comfort of the tractor cabin, during operation.

- As always, LEMKEN delivers optimal operating quality: there is no need to readjust the concave disc setting after any changes in working depth.
- Each roller/concave disc unit is equipped with a self-levelling system for precise and constant depth control and smooth operation.



Good reconsolidation even with large working depths

Deep cultivation to a depth of 30 cm intensively loosens the soil, which then needs to be reconsolidated.

- The furrow press roller for the semi-mounted Karat is specially designed for this purpose. The furrow press profile of the front roller reconsolidates the soil, while the W profile of the rear roller prepares an optimal seedbed.
- Large diameters of up to 600 mm considerably reduce traction requirements.



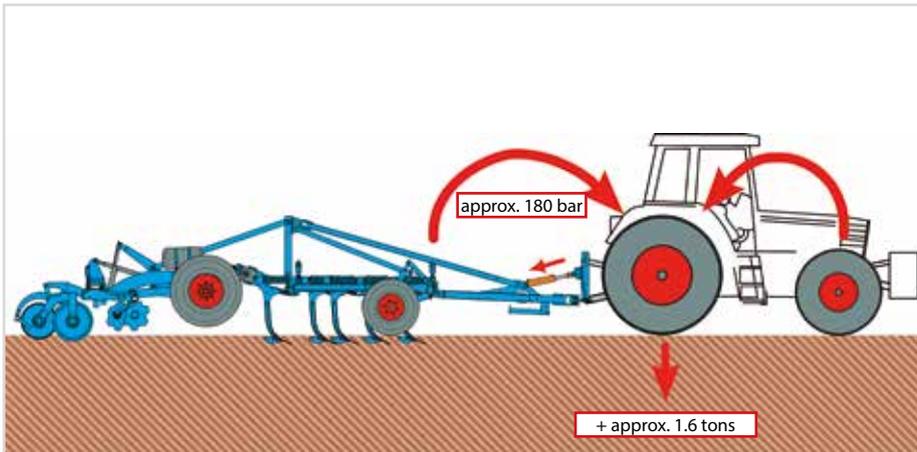
Operation without a roller

If reconsolidation is not desired, the Karat cultivators can also be used without a roller. In this case, depth control is provided via the chassis. The Karat can also be equipped with optional tines to loosen wheelmark tracks.

- Frost crumbling can also be used for mulch seeding.
- Fields dry out more quickly in spring.



Optimal traction transmission



Hydraulic traction booster for reduced slip

The semi-mounted versions of the Karat intensive cultivator feature a hydraulic traction booster as standard (Karat 9) or as an option (Karat 12).

- This welcome feature is achieved by an additional hydraulic cylinder, which is pre-loaded via a gas accumulator. Once the tractor is coupled to the implement, the hydraulic cylinder links to the coupling point on the upper link and the cultivator

drawbar. When it is pre-loaded to 160 bar, an additional weight of 1.5 to 2 tons is applied to the rear tractor axle. The length of the cylinder allows travel to be absorbed and ensures that the cultivator always maintains its correct working depth even when it is driven across uneven ground. The hydraulic traction booster therefore acts as a smart ballasting system: the optimised distribution of forces reduces slip and

therefore saves fuel. This ensures that tractors with less powerful output or less wheel ballast can also be used for cultivating heavy soils.

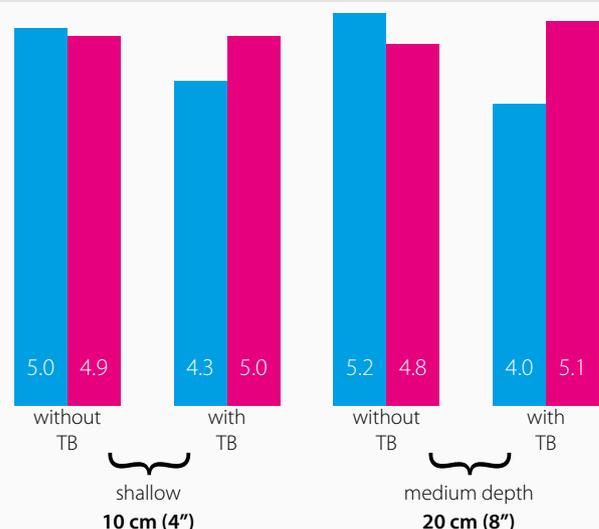
Comparison: active and inactive traction booster

2% greater acreage performance and 14% less fuel consumption at 10 cm (4") working depth

6% greater acreage performance and 22% less fuel consumption at 20 cm (8") working depth

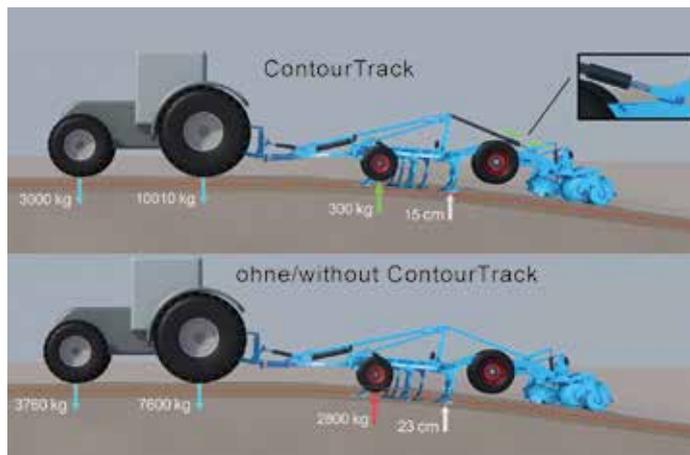
- LEMKEN Karat 9/500 KUA
- K8P + KF 30 shares
- Light to medium soils
- 10 km/h working speed

■ Fuel consumption (l/ha)
■ Acreage performance (ha/h)

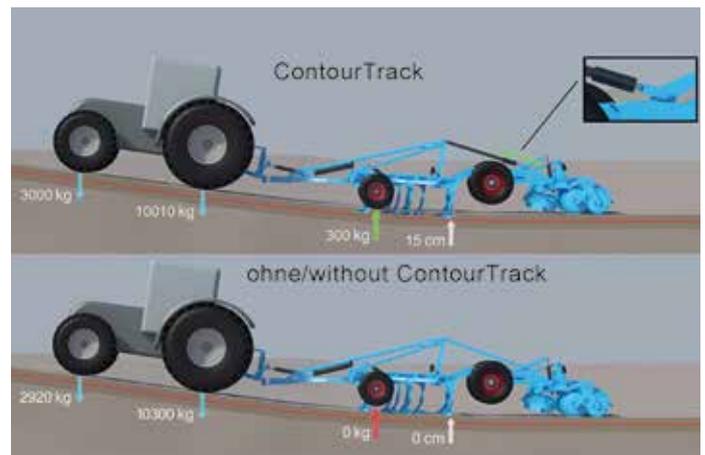


Source: "traction" magazine, May/June 2015 issue
 "More traction, greater effect?" (in German)

ContourTrack for consistent working depths



**ContourTrack –
depth control on hills**



**ContourTrack –
depth control in troughs**

Farmers operating in hilly terrain are often confronted with the problem that their semi-mounted cultivators work at depths that are too shallow in troughs and too deep on hills. Manual readjustments are difficult for operators and require a lot of dexterity. The semi-mounted Karat 9 and 12 cultivators feature a pivot point on the frame, behind the working section, and an additional hydraulic cylinder to adjust the working depth automatically.

- Assuming that a certain load on the depth control wheels corresponds to the desired working depth in flat terrain, this depth control wheel load then needs to be consistently main-

tained in undulating terrain. Previously it was not possible to maintain a consistent working depth automatically when travelling across troughs or hills, as a semi-mounted Karat is about 8 metres long. As a result, cultivation was shallower in troughs and deeper on hills, unless manual adjustments were made, and tractor loads varied and traction requirements increased strongly.

- An additional hydraulic cylinder on the trailer frame behind the tine section controls the position of the roller/concave disc unit via a pivot point to ensure that the unit consistently follows surface contours. As a

result, loads on the depth control wheels immediately next to the working section, and with it the working depth, are kept constant.

- This simple, yet effective system is available as an option for the semi-mounted Karat cultivators. Farmers benefit in two ways from this solution: they save fuel due to the traction booster on the Karat, and the optimal surface adaptation of the tractor/implement unit delivers outstanding results in hilly terrain.



Karat KA and KTA – technology from the trend-setter



Integrated carriage for better agility

In the semi-mounted Karat intensive cultivator, the chassis is integrated with the cultivator frame, making the cultivator extremely compact, stable and agile.

- A favourable weight distribution allows the use of heavy trailing rollers to achieve good reconsolidation.
- The short distance between the coupling points and transport wheels makes for very easy manoeuvring of the semi-mounted Karat at the headlands.
- If no (optional) trailing roller is used for cultivation, depth control is provided via the integrated chassis.



Cost-effective and safe transport

The selection of implement rollers has, among other reasons, depended on the lifting capacity of the tractor and the required wheel load applying on the front axle during transport. As a consequence, it was not possible to fit long mounted implements with a heavy roller for better reconsolidation.

- Compact design for safe transport
- Straightforward, cost-effective trailer



- A favourable weight distribution allows the use of heavy trailing rollers to achieve optimum reconsolidation.
- This semi-mounting technology requires no brake system.
- A traction booster and hydraulic working depth adjustment are available as options.





Technical data

Description	Tines / disc pairs + single disc	Line distance (cm)	Beam spacing (cm)	Working width (m)	Transport width (m)	Max. length (double roller) (m)	Weight without roller (approx. kg)	Tractor output	
								kW	hp
Mounted, rigid									
Karat 9/300	11/3	27	70	3	3	3.85 ¹	850	77-110	105-150
Karat 9/350	12/3+1	29	70	3.5	3.5 ⁴	3.85 ¹	950	90-129	122-175
Karat 9/400	14/4	28	70	4	4 ⁴	3.85 ¹	1,050	103-147	140-200
Mounted, rigid, with automatic overload protection									
Karat 9/300 (U)	11/3	27	70	3	3	4.15 ¹	1,150	77-110	105-150
Karat 9/350 U	12/3+1	29	70	3.5	3.5 ⁴	4.15 ¹	1,315	90-129	122-175
Karat 9/400 U	14/4	28	70	4	4 ⁴	4.15 ¹	1,480	103-147	140-200
Mounted, hydraulic folding									
Karat 9/400 K	14/4	28	70	4	3	3.85 ¹	1,665	103-147	140-200
Karat 9/500 K	17/5	29	70	5	3	3.85 ¹	1,855	129-184	175-250
Mounted, hydraulic folding, with automatic overload protection									
Karat 9/400 KU	14/4	28	70	4	3	4.15 ¹	2,125	103-147	140-200
Karat 9/500 KU	17/5	29	70	5	3	4.15 ¹	2,465	129-184	175-250
Tines with shear-off protection									
Karat 9/400 KTA	14/4	28	70	4	3	8.35	3,165	103-176	140-240
Karat 9/500 KTA	17/5	29	70	5	3	8.35	3,355	129-221	175-300
Tines with automatic overload protection and shear-off protection									
Karat 9/400 KUTA	14/4	28	70	4	3	8.35	3,625	103-176	140-240
Karat 9/500 KUTA	17/5	29	70	5	3	8.35	3,965	129-221	175-300
Semi-mounted, hydraulic folding									
Karat 9/400 KA	14/4+1	28	100	4	3	8.7 ^{2,3}	3,747	103-206	140-280
Karat 9/500 KA	18/6	28	100	5	3	8.7 ^{2,3}	4,157	129-257	175-350
Karat 9/600 KA	21/7	29	100	6	3	8.7 ^{2,3}	4,557	154-309	210-420
Karat 9/700 KA	25/8	28	100	7	3	8.7 ^{2,3}	5,067	180-360	245-490
Semi-mounted, hydraulic folding, with automatic overload protection									
Karat 9/400 KUA	14/4+1	28	100	4	3	8.7 ^{2,3}	4,167	103-206	140-280
Karat 9/500 KUA	18/6	28	100	5	3	8.7 ^{2,3}	4,697	129-257	175-350
Karat 9/600 KUA	21/7	29	100	6	3	8.7 ^{2,3}	5,177	154-309	210-420
Karat 9/700 KUA	25/8	28	100	7	3	8.7 ^{2,3}	5,567	180-360	245-490
Karat 12/400 KUA	17/4	23.4	90/80/90	4	3	9.0 ^{1,2}	5,330	132-252	180-340
Karat 12/500 KUA	21/5	23.4	90/80/90	4.93	3	9.0 ^{1,2}	5,590	165-315	224-425
Karat 12/600 KUA	25/6	23.4	90/80/90	5.87	3	9.0 ^{1,2}	6,520	198-378	270-510
Karat 12/700 KUA	29/7	23.4	90/80/90	6.80	3	9.0 ^{1,2}	7,270	231-441	314-595

¹ with DRF 400/400

² with PPW 600/540

³ plus 0.5 m with long drawbar

⁴ Exceeds the permitted transport width for traffic on public roads in several countries

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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