LEMKEN

Smaragd
Disc Cultivator

LEMKEN Disc Cultivator Smaragd

Stubble cultivation today

The expectations of stubble cultivation have changed. In the past the stubble cultivation was used with priority for weed control and soil loosening. Today most fields are free of weeds due to the use of herbicides. Therefore only a few weeds germinate.

Today volunteer cereals and large quantities of trash are the most important reasons for the stubble cultivation. Combine harvesters with wide cutting widths up to 9 metres create a big quantity of straw and the available choppers are often not able to cut it up and spread it evenly. The more important it is to use a stubble cultivation method suitable to these conditions.

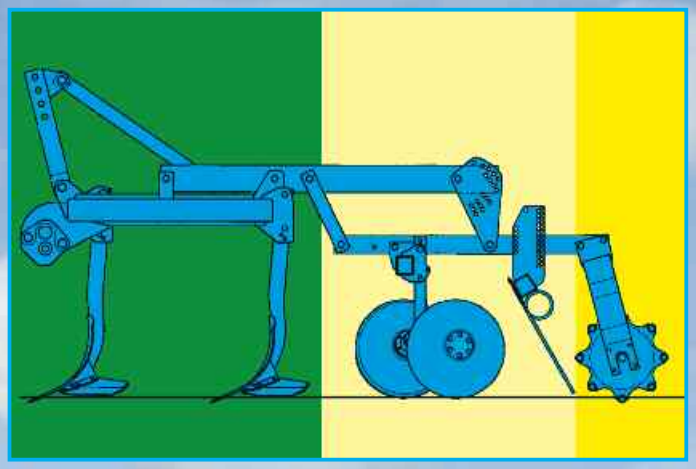
With shallow cultivation with special designed wing shares in the first pass, failure grain and trash will be incorporated into the ground close beneath the soil surface. The volunteer cereals stay in the top soil layer and can germinate immediately. When it is buried deeper, it germinates one season later.

The second pass will be done approximately 2 weeks later. Now the working depth is 10 – 15 cm deep. The germinated crops will be cut and uprooted.

The Smaragd incorporates the organic matter deep and even in the ground.

The basis for the next harvest

Cultivation concept and operation



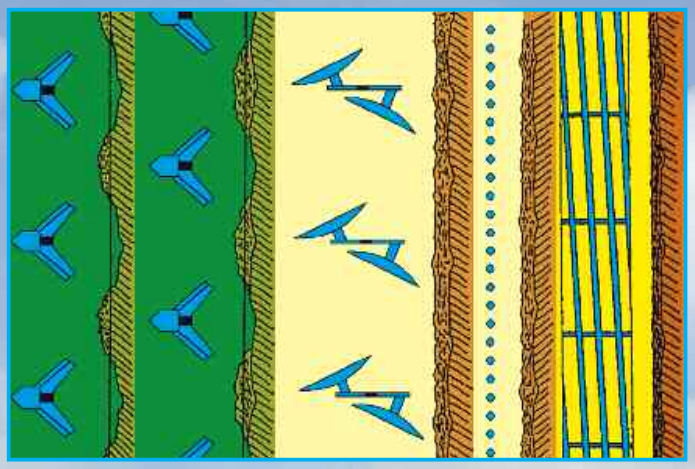
First row wide wing shares

Second row wide wing shares

Strategically positioned, angled and hollow discs in staggered formation

Straw harrow with 10 tines per metre

Tube bar roller with 400 mm diameter with scrolled tubes.



Full width cutting, loosening and intensive crumbling even in low working depth. Clog free working due to large row distance and underframe clearance.

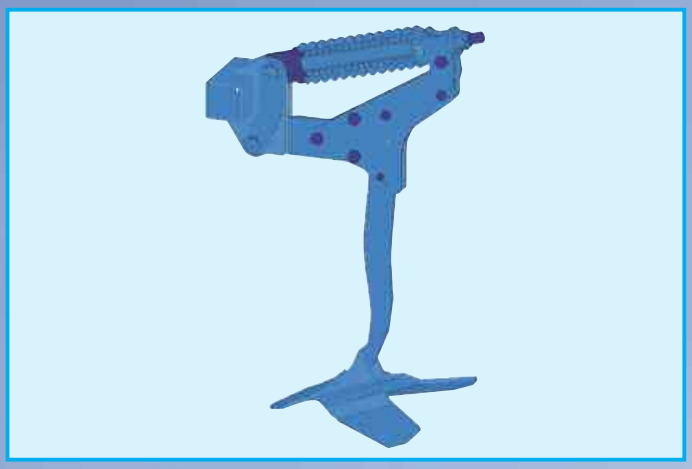
Levelling and another mixing and crumbling of soil and plant material.

Levelling and improvement of straw distribution

Optimal re-consolidation with exact depth control

LEMKEN Smaragd and Smaragd Ü (Non-Stop)

The auto reset overload safety device



Damage from large stones and sub-surface rock is prevented by the Non-Stop mechanism which smoothly trips back, once beyond the obstruction it powers the tine back into the soil. The system protects the tines, shares, discs and frame. The high release height ensures a free flow of trash and problem free operation even when set at maximum operating depth. The coil spring design is robust and withstands the highest shock and permanent loads. Due to the design of the bolted overload safety device units the point easily penetrates.

A vibration effect is produced by the Non-Stop mechanism which assists in loosening and fracturing the soil. The system is recommended for consistently dry and hard soils.

All Smaragd cultivators are fitted as standard with additional shearbolts including the Non-Stop models. Standard models may be updated on the Non-Stop specification.

For especially high hectare performance the overload safety device units of the Smaragd cultivators with working widths of 6, 8 or 10 metres can be delivered with a central greasing as option. Maintenance time is reduced.

Easy working depth adjustment

The frame consists of two bars in connection with a parallel suspension system which carries both the disc assembly and the rear roller. This enables a quick depth adjustment, by means of pins, and an exact depth control of the Smaragd cultivator.

Due to the parallel arrangement of the roller/ disc unit there is no need to adjust the individual disc while adjusting the working depth of the cultivator.

The simple change of the depth limit pin's position enables the roller to be quickly moved forward, providing better weight distribution for transport purposes.

The box section frame is manufactured from micro alloyed fine grain steel for low weight, high strength and durability.

High underframe clearance and row distance guarantee blockage free operation in heavy trash conditions.

To prevent ridges forming between working passes, outer disc assemblies are recommended. They are easily fitted and designed to fold inboard for transport.

Versatile and simple adjustment

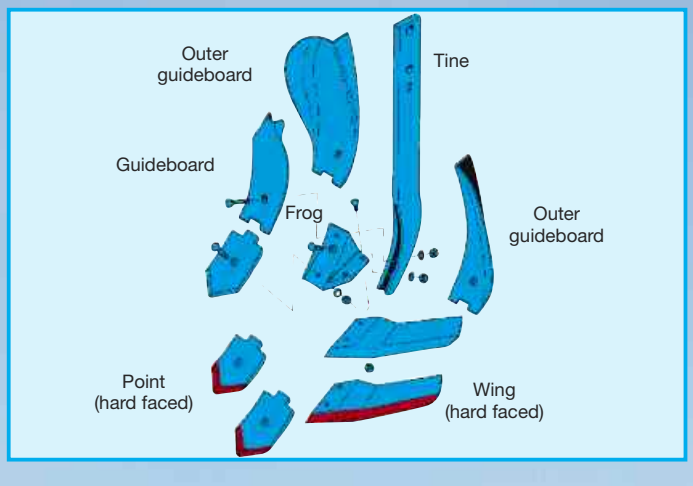
Full-width cultivation in spite of low working depth

Point
It is designed to provide ease of penetration whilst maintaining its working width throughout a long working life.

Wings
The broad cranked two piece wings cut the sub surface across the full width of the Smaragd. They lift the soil and are equally effective when set at a shallow depth.

Frog
All wearing parts are bolted to the frog which provides the optimum operating angle of the point. It is bolted to the bottom of the tine and all parts may be replaced individually.

Optimal tool design saves wear costs



Guideboard
The tapered guideboard assists incorporation and avoids building up around the tine. It also protects the tine from wear.

Angle adjustment
A facility to adjust the angle of penetration of the point is built into all models of the Smaragd. Simply change the position of the shearbolt on the fixed tine model or by turning an eccentric bolt on the Non-Stop version.

Hard-facing
Special hard faced points and wings ensure an unequalled long working life and real cost savings. They are standard on the folding models. The points and wings are hard faced on the underside which provides a self sharpening effect and consistent penetration.

LEMKEN Smaragd and Solitair

The combination

After stubble cultivation the LEMKEN combination of Smaragd and Solitair 9 KA is ideal for minimum tillage work. The lifting of the Smaragd disc cultivator is independent from the Solitair 9 KA seed drill and guarantees problem free setting-in and lifting on the headland. When changing the working depth of the disc cultivator the seeding depth keeps constant. With the adjustable trailer unloading the weight can be transferred optimally to the semi-mounted implement. So a perfect working quality – even with different seed rate levels of the Solitair – is ensured.

The trailer

The air brake trailer axle with large depth wheels guarantees high working and driving security with maximum track width (admitted for 8 t total weight and 50 km/h). This means that the soil is protected when in work and ensures safety when travelling on roads.

Forward-looking mulch seeding technique

The hydraulic

Due to the individual adaptation, the use of the hydraulic system is possible with tractors that have different hydraulic requirements. The operation of the Smaragd and Solitair 9 KA requires four double acting and one single acting spool valves. When using a 6/2 valve one double acting spool valve will be saved. With an electronic control box all functions of the Smaragd and Solitair 9 KA can be operated by two double acting spool valves, only.

The attachment points

Because the drill attachment points with all LEMKEN semi-mounted implements are the same, the Solitair 9 KA pneumatic seed drill can be very simply combined with all of them. The Smaragd disc cultivator is also available with hydraulic lift linkage, which enables the combination with other seed drills or following implements.

Multiple use

The double rollers

The Tandem double roller, which consists of a scrolled tube bar roller and a flat bar roller each of 400 mm diameter is very well suitable for optimum crumbling and reconsolidation. The intensive crumbling produces a fine shallow surface tilth which is ideal for volunteer and weed seed germination.

Especially for minimum tillage use, the use of the double roller as following implement is recommended.

Due to the special position of the double roller when rolling over stones it moves independently from the Smaragd without lifting the cultivator, so the working depth is maintained.

On light soils also a tube bar roller of 540 mm diameter may be used.

The toothed packer roller

In addition to tube bar- and double rollers there is a toothed packer roller available for the Smaragd 9 in difficult working conditions. Due to the simple scraper adjustment a perfect work without sticking even in humid and heavy soils is possible.

The use of the toothed packer roller provides a high bearing capacity and an optimal reconsolidation.

Seeding of intermediate crops

For direct seeding of intermediate crops during cultivation the Smaragd disc cultivator can be combined with suitable seed units. The seed is broadcasted by means of tubes. The following implement ensures a good crumbling and reconsolidation and the intermediate crops can germinate immediately and evenly.

Efficient and universal

Incorporation of intermediate crops

Also for the incorporation of intermediate crops the Smaragd disc cultivator can be used efficiently and cost saving. Even in fields with a high rate of intermediate crops the Smaragd works clog free with excellent working quality. Trash will be mixed optimally with soil and can therefore rot immediately.

Direct injury of slurry

The Smaragd is an ideal cultivator for the direct injection of slurry without emission. The slurry is full width injected directly behind the tines. The slurry will be covered with soil at the same time.

The straw harrow

The fully integrated straw harrow enables a perfect straw management through precise distribution of straw and organic matter. When working diagonally to the combining direction the straw is collected and fed back gradually. This facilitates a careful and exact dealing with straw as basis for successful mulch seeding.

The harrow with its strong 12 mm thick tines is positioned between the concave discs and following rollers. Working depth, angle setting and the range of giving are adjustable without tools via pin adjusters.

Comfortable operation

The depth control

Smaragd disc cultivators with a working width of 4 m and above are fitted with two separate rear rollers. A special feature of the wider 5 and 6 metre models is a pendulum suspension system which provides precise depth control and even surface consolidation. So even wider implements will work at a constant depth in uneven soil conditions.

The outer tines are always positioned on the second row of the Smaragd ensuring an equal guiding of the implement. Therefore no support wheels are required even with wide working width models.

The transport

For driving on public roads the sections will be simply and fast hydraulically folded and automatically locked.

This ensures a safe road transport even with wide working width and the adherence of the transport heights and widths. The vertical position of the folded sections with implements creates clearance for the fitting of intermediate crop- or granules distributors.

High hectare performance

System carrier Gigant

For especially high hectare performances LEMKEN offers the system carriers Gigant and Gigant 12. With these two Gigant variants working widths from 8 to 12 metres can be realised for the Rubin, Heliodor or Kompaktor as well. Two rigid working units can be attached to its 3 point linkages. This saves the purchase costs for another system carrier and the mounted implements can be used individually with smaller tractors.

The working units are folded hydraulically from working to transport position and vice versa with only one double acting spool valve. Large diameter wheels minimise the ground pressure and ensure safe transport on public roads.

The linkage

The pendulum compensation of the lower links enables an optimum adaptation to ground conditions of the independently working sections. Due to the newly designed lower links the implement units rest on the carrier frame without swinging in transport position. The two sided top link bearing reduces wearing and significantly increases endurance.

The Gigant 12 system carrier

The Gigant 12 is based on the same trailer concept as the Gigant, but additionally has a third wheel which reduces rear axle relief while driving on headlands. At the headlands the working units are simply lifted by a spool valve and the following support wheel is pressed down at the same time. Thus the manoeuvrability is excellently maintained even with the large working width from up to 12 metres.

With this new Gigant 12 offers the possibility to enlarge the maximum working width for the Kompaktor from 10 to 12, for the Rubin from 8 to 12 and for the Smaragd from 10 to 12 metres.

Technical data

up to kW	(hp)	Description	Tines/ Pairs of discs	Working width (approx. cm)	Weight without roller (approx. kg)	Underframe clearance/ Row distance (cm)
88	(120)	Smaragd 9/260 (Ü)	6/2+1 disc	260	679 (891)	80/80
110	(150)	Smaragd 9/300 (Ü)	7/3	300	730 (973)	80/80
132	(180)	Smaragd 9/400 (Ü**)	9/4	400	970 (1,345)	80/80
hydraulic folding						
132	(180)	Smaragd 9/400 K (Ü)	9/4	400	1,453 (1,785)	80/80
162	(220)	Smaragd 9/500 K (Ü)	11/5	500	1,555 (1,914)	80/80
191	(260)	Smaragd 9/600 K (Ü)	13/6	600	1,868 (2,335)	80/80
hydraulic folding, semi-mounted						
132	(180)	Smaragd 9/400 KA (Ü)	9/4	400	3,233 (3,565)	80/80
162	(220)	Smaragd 9/500 KA (Ü)	11/5	500	3,325 (3,694)	80/80
191	(260)	Smaragd 9/600 KA (Ü)	13/6	600	3,648 (4,015)	80/80
System Carrier ›Gigant‹ – hydraulic folding, semi-mounted						
up to kW	**(hp)**	**Description**	**Tines/ Pairs of discs**	**Working width (approx. cm)**	**Weight (approx. kg)**	**Underframe clearance/ Row distance (cm)**
270	(367)	System carrier Gigant 800* 2 Smaragd working units for Gigant 800 (Ü)	18/8+1 disc	800 800	2,645 2,039 (2,789)	80/80
331	(450)	System carrier Gigant 1000* 2 Smaragd Ü working units for Gigant 1000	22/10+1 disc	1,000 1,000	2,845 4,145	80/80
370	(500)	System carrier Gigant 12/1000* 2 Smaragd Ü working units for Gigant 12/1000	22/10+1 disc	1,000 1,000	5,560 4,145	80/80
441	(600)	System carrier Gigant 12/1200* 2 Smaragd Ü working units for Gigant 12/1200	26/12+1 disc	1,200 1,200	5,920 4,674	80/80

* With straw harrow or twin wheels the allowed transport width respectively height is exceeded in some countries.
** Exceeds the allowed transport width in some countries

All information, sizes and weights are liable to continued technical development and are therefore not guaranteed. The information regarding weight always applies to basic models. The right to make alterations is reserved.

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