LEMKEN
The Agrovision Company

SEMI-MOUNTED REVERSIBLE PLOUGHS
DIAMANT

Diamant semi-mounted plough

The demands placed on modern semi-mounted reversible ploughs are becoming ever more stringent as growing farms continue to increase in size. LEMKEN has developed the two semi-mounted ploughs Diamant 11 and Diamant 12 to meet these high demands comprehensively, particularly in terms of handling, quality of work and productivity increases.

These ploughs are exceptionally manoeuvrable for rapid turning on narrow headlands and maximum acreage performance.

Varying soil and weather conditions call for an easy-to-operate cutting width adjustment, which the V models deliver to make a significant contribution to arable farming that is both environmentally friendly and economic.

The ploughs' superior stability is in keeping with increasing tractive outputs on tractors and larger working widths.

Their design allows operators to plough right up to fences, ditches and field edges, despite large working widths.

The skimmers can be easily and quickly adjusted without tools.

The new generation of DuraMaxx plough bodies provides longer service life, less clogging and lower traction requirements, resulting in cost savings when using the plough.

The Hydromatic-T overload protection allows plough bodies to be deflected in three dimensions.

Traction enhancement reduces slip and increases the load applying to the rear tractor axle, resulting in lower fuel consumption.

The ploughs can be transported safely on roads, even at high speeds, without placing excessive loads on tractors.

A Diamant 11 means tradition

Tilt adjustment

The tilt adjustment is made via one screw per side.

- The tilt adjustment is made separately for each side by a simple mechanical device.
- The screw serves as a stop for the reversing cylinder.

On-land version

On-land ploughing with the Diamant 11 OF is particularly gentle to soils, as there is no tractor wheel running in the furrow.

- On slopes, operators can even plough downhill, and ploughing close to field edges is possible both on-land and in the furrow.
- The plough can be quickly switched from on-land ploughing to ploughing in the furrow via a hydraulic swivel mechanism, e.g. when ploughing the last furrow.

Optional traction enhancement

Diamant 11 ploughs can be fitted with optional traction enhancement.

- An additional hydraulic cylinder transfers weight to the tractor's rear axle to boost its traction.
- This "smart ballasting" system reduces slip and therefore saves fuel.
- As soon as the hydraulic system raises the plough frame, the pressure in the traction enhancer is automatically reduced to ensure that full tractor stability is maintained at all times. As soon as the transport wheel is lowered, pressure is automatically increased again.

A Diamant 12 means value

Reduced operator fatigue

The TurnControl electronic control allows all important plough functions such as plough tilt, plough rotation and traction enhancement pressure to be set from the tractor cabin.

- The plough tilt is set and saved by simply pressing a button on the operating terminal without any need for mechanical stops. The two double-acting cylinders of the reversing mechanism keep the plough precisely in the pre-set position even without mechanical rotation angle stops.
- The set tilt can also be temporarily changed for ploughing the first or last, shallower furrow.

Headlands management with TurnControl

TurnControl automatically reduces the pressure delivered by the traction enhancer during the turning process to increase tractor stability.

- A sensor on the headstock measures the steering angle between the tractor and the plough. As soon as the angle exceeds 60°, the cylinder load is automatically reduced. This delivers the required stability even on slopes.

Regulated traction enhancement as standard

The hydraulic pre-load pressure can be set to the optimal level in keeping with soil conditions, tractor and ballast loads.

- A substantial increase in rear axle loads reduces slip and therefore saves fuel.
- The system allows more ballast to be applied to the front tractor axle, as loads are also transferred from the front to the rear axle during road transport. This optimises the use of the traction enhancer during ploughing.

Mounting, parking and rotation

Strong headstock

The continuous, elastic Cat. 3 and 4 drawbar absorbs major impact loads to protect both tractor and headstock.

- The plough axle is surface hardened, mounted on tapered rollers and easy to lubricate. This means high strength and a long service life.

Reliable reversing mechanism

Two reversing cylinders ensure that the plough can be rotated powerfully and smoothly by 180 degrees.

- Diamant 11:
  Single-acting reversing mechanism via telescope cylinder with mechanical tilt adjustment.
- Diamant 12:
  Double-acting reversing mechanism with hydraulic tilt adjustment.

Height-adjustable stand

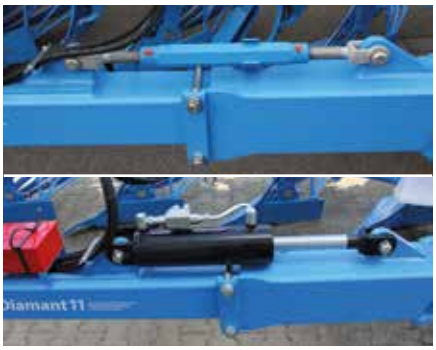
The stand height can be adjusted to various levels to ensure that the headstock is ideally positioned for coupling to and decoupling from the tractor.

- The stand is easily moved from the parking to the transport or working position by simply repositioning a spring-loaded bolt.

Straightforward uncoupling

The plough can be positioned vertically before uncoupling by removing the relevant tilt adjustment screw.

- This straightens the headstock to make the uncoupling process easier.



Front furrow adjustment

The front furrow width is set via a spindle. This adjustment can optionally also be made hydraulically from the tractor cabin.

- With on-land ploughing, this setting adjusts the distance between the tractor and the furrow.

Tool box

All LEMKEN ploughs are easy to maintain. Tools, shear bolts and other small parts are stored in the toolbox to be always at hand.

Turning procedure

The large clearance between the plough headstock and tractor permits a steering angle of up to 90 degrees. The transport wheel is automatically

controlled during plough rotation. The optimal interaction between the reversing mechanism and transport wheel allows easy, rapid turning even

on narrow headlands and in hilly or difficult terrain.

Quality and safety on fields and roads

Road transport

The semi-mounted reversible plough is rotated into its centre position and locked via two stop valves for quick and safe road transport.

- It can then be safely towed behind the tractor just like any single-axle trailer.

- All Diamant ploughs feature a transport wheel damper as standard to protect both tractor and plough effectively against excessive loads.

Ploughing along edges

The transport wheel is positioned on the side to reduce the load applying to the plough frame and shorten the distance between the tractor wheels and transport wheel. This ensures that the tractor/plough combination remains very agile on headlands.

- In ploughs featuring an attachment, the wheel position allows ploughing directly to the edge of the adjacent plot.

Large transport wheel

The large transport wheel minimises soil compaction during ploughing and ensures the required safety for road transport.

- The plough's working depth is set hydraulically via the three-point linkage at the front and via the hydraulically adjustable transport wheel at the rear.

- A pin serves to limit the depth. A stop on the transport wheel prevents the plough from sinking too deeply into the soil to ensure that sufficient clearance between the stabiliser and ground is maintained at all times.

- The hydro-pneumatic suspension absorbs major impact loads.

- 1 400/55-22.5, 1020 x 400 mm Diamant 11 standard equipment
  2 500/45-22.5, 1020 x 500 mm Diamant 12 series, optionally also available for Diamant 11

Always the right working width

Adjustment brackets

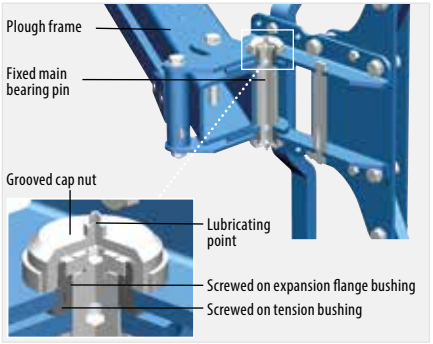
The fixed screw connection between the adjustment brackets and frame provides outstanding stability, reliable durability and a high degree of engineering precision.

- Once the central screw has been loosened, four working widths between 33 and 60 cm can be set (depending on interbody clearance).
- Skimmers and disc coulters are adjusted automatically.

Continuously adjustable working width

The frame plates supporting the swivel brackets are screwed to the frame. This provides outstanding stability, increased durability and a high degree of engineering precision.

- The pivots for the swivel brackets, which are supported next to the frame, are located close to the plough body. This reduces strain on the bearings and other components.
- The working width is continuously adjustable via a double-acting hydraulic cylinder.



Variable bearing

The main bearing bolt of the swivel bracket is equipped with tension bushes and locked against rotation with the frame plates.

- The swivel bracket has crimped flange bushings. The two bushes of the cutting width adjustment run within each other for a long service life.
- Each component can be replaced separately if worn.

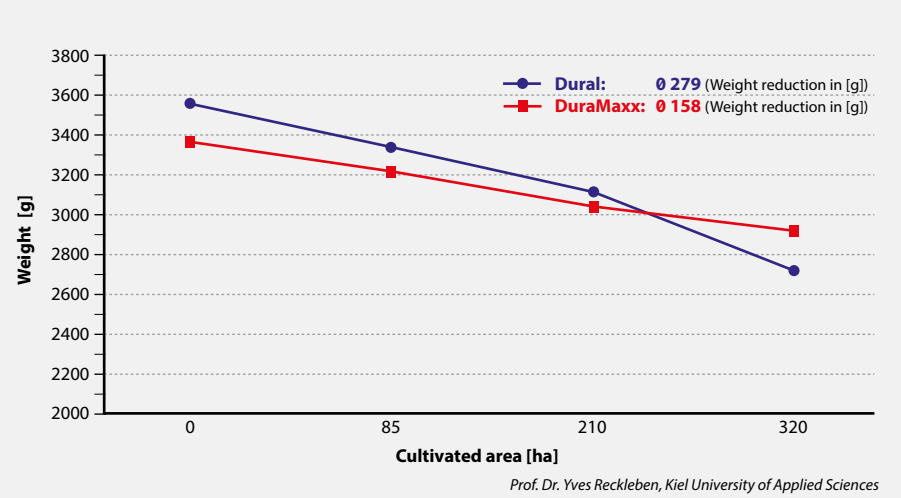
Furrow

The individual selection of the cutting width allows optimal results to be achieved:

Narrow seed furrow
– Better crumbling
– Easy seedbed preparation
– Fewer passes

Wide winter furrow
– Coarse clods
– Greater acreage performance
– Good frost crumbling of soil

Reliable and cost-effective on all soils



Prof. Dr. Yves Reckleben, Kiel University of Applied Sciences

DuraMaxx – the perfect plough body

The DuraMaxx plough body represents a radically new approach that increases service life by up to 150% whilst reducing set-up times by up to 80%.

- All DuraMaxx components are manufactured from much harder steel than previous bodies. This was possible as the material is no longer weakened by drilled or punched holes.
- DuraMaxx plough bodies offer a longer service life, less clogging and low traction requirements.
- Mouldboards and slats are fully supported by the frog. They are no longer a load-bearing part of the plough body With these bodies, almost the full part length is available for use, as no worn screw heads require slats and mouldboards to be replaced early.

Quick, tool-less change

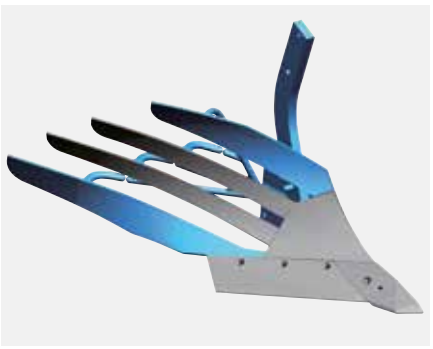
DuraMaxx plough bodies are designed to allow mouldboards, slats and mouldboard shins to be changed quickly and without requiring tools.

- The mouldboard shin, which can be easily detached after removing a linch pin, also serves to keep the other components securely locked in place. The mouldboard or slats can then be simply pulled out of their connectors.
- The share point is attached with only a single screw, making a change much quicker than with conventional systems.

Body assembly

The DuraMaxx plough body is available with mouldboards or slats.

- The mouldboard and slats are attached with no more than two hooks.
- On the slat bodies, the clearance between the slats and their support has been considerably increased. The support is aligned with the slats, which allows the plough to work without blockages even in difficult conditions.

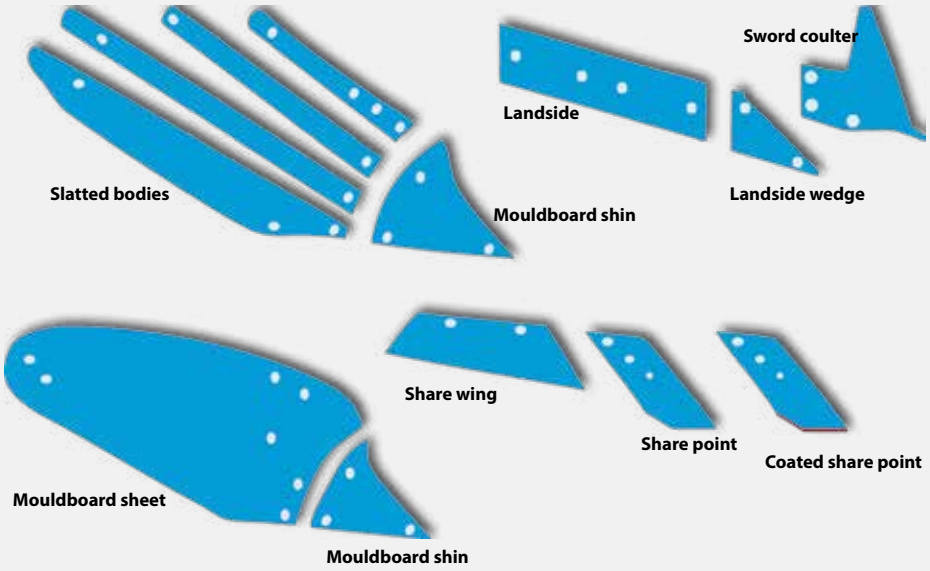


DuraMaxx Hybrid for sticky soils

The DuraMaxx plough body can also be configured with plastic slats. These are ideal for use on extremely sticky soils and in soil conditions where only little pressure applies on the mouldboard.

- Optimal sliding properties are achieved by using plastic slats at the top and bottom areas of the plough body, which are most susceptible to adhesion.
- This ensures that the DuraMaxx body works without any adhesion even in extreme conditions.

Cost-effective plough bodies



Dural slatted bodies

The slats of the slatted bodies are made of thick, fully hardened special steel and can be individually replaced.

- The attachment screws are deeply sunk to ensure that the slats remain firmly in place throughout their extremely long service life.
- Slatted bodies and conventional mouldboards are based on the same basic body.
- The shares are divided and made of micro-alloyed boron steel.
- The overlapping design prevents roots or foreign objects from catching.
- High material density and firm attachment provide for resistance to wear and breakage.
- The wear zones of the share wings are significantly larger than with conventional shares.

Dural mouldboard

The frog of the Dural body is tempered and extremely strong.

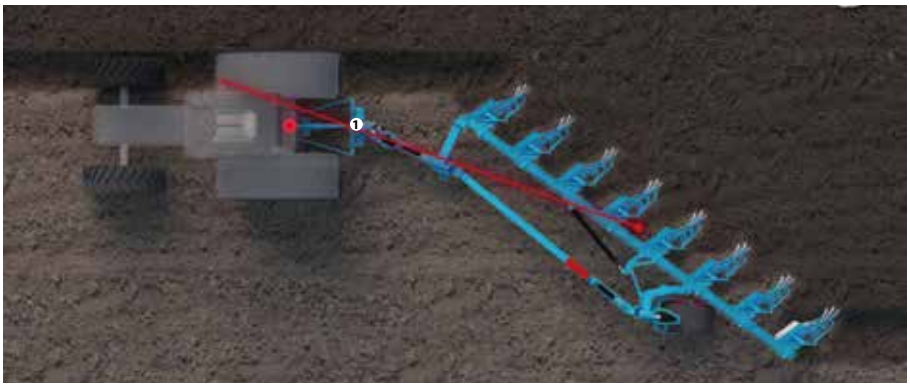
- The pitch of the plough bodies is adjustable to ensure consistently good penetration of the plough into the soil.
- The smooth transition from the share to the mouldboard and the low-resistance shape make the plough even easier to tow.
- The mouldboards made of hardened special steel are designed for low wear without screws or bolts in the main wearing zone.
- The extra large mouldboard shin can be replaced individually for greater cost-effectiveness.

OptiLine adjustment system

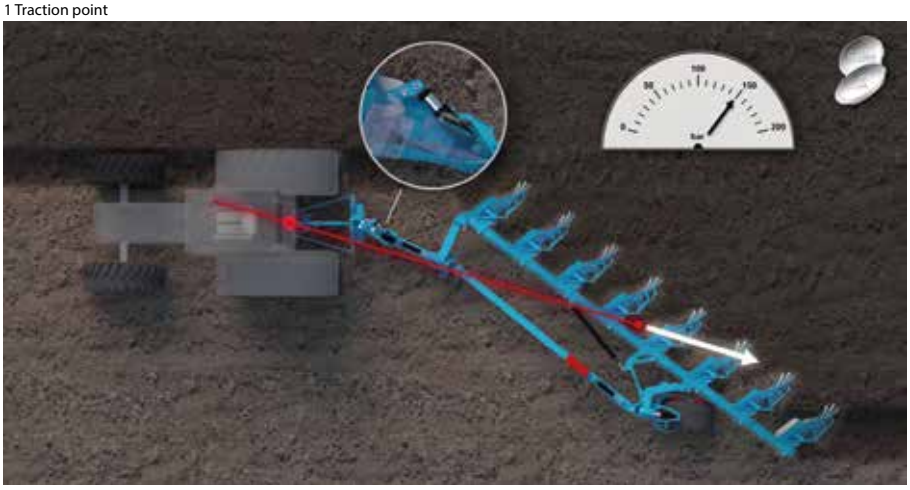
The traction point of the Diamant lies in front of the lower link connection. This position far to the front optimises the tractor/plough traction line. Yet there is some lateral pull because the tractor/plough traction line does not extend through the centre of the rear axle.

An additional, pressure-controlled cylinder serves to transfer torque to the tractor to compensate for lateral pull. This shifts the tractor/plough traction line further towards the centre of the rear axle and thus reduces lateral pull in the Diamant.

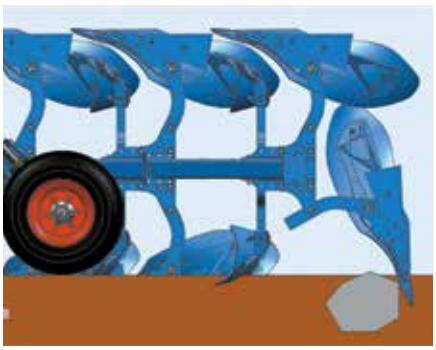
- Fuel savings of up to 10%
- No need for operators to counter-steer, resulting in considerably less operator strain
- Set hydraulic pressure for optimal landside pressure and lateral pull in the tractor
- Optimal landside pressure for even front furrow widths and consistent results
- Available from 2017



1 Traction point



Disruption-free ploughing in any conditions



Overload protection to prevent damage

All LEMKEN overload protection systems protect against damage from the share point impacting on obstacles.

- The Diamant features double-cut shear-off protection with a shear-bolt as standard. In ploughs with automatic overload protection, the shear bolt protects the plough against damage due to the system becoming trapped under rocks or roots.
- The Diamant T version features the Hydromatic overload protection. The trigger force is set via a stop-cock below the pressure gauge. The trigger force should be set as low as possible to protect the tractor and plough.

Individual adjustment

Minimum and maximum trigger force values can be individually set between 120 and 200 bar via the hand wheel on the (optional) control valve, e.g. for shallow sections or sections with heavy soils.

- These limits can then be actuated via the control unit on the tractor.
- No readjustments based on pressure gauge readings are necessary.
- The fixed connection between the beam and frame permits low system pressures.

Hydromatic overload protection – simultaneous vertical and horizontal deflection

The innovative LEMKEN Hydromatic overload protection comprises a steering system that maintains a firm connection between the plough body and bearing point in any position.

- The high trigger and re-entry forces of the Hydromatic ensure that the system is triggered softly and smoothly when an obstacle is encountered.
- The plough bodies are kept stable at all times and cannot unlatch or tear off.
- The Hydromatic hydraulic overload device is easily able to deflect vertically up to 38 cm and horizontally up to 20 cm at the same time, even when obstacles are hit from the side.
- This provides for a sufficiently large range of deflection to ensure consistently disruption-free work, even with deep ploughing.
- High trigger forces can be comfortably adjusted from the tractor cabin.

Always well prepared

Tool-less skimmer adjustment

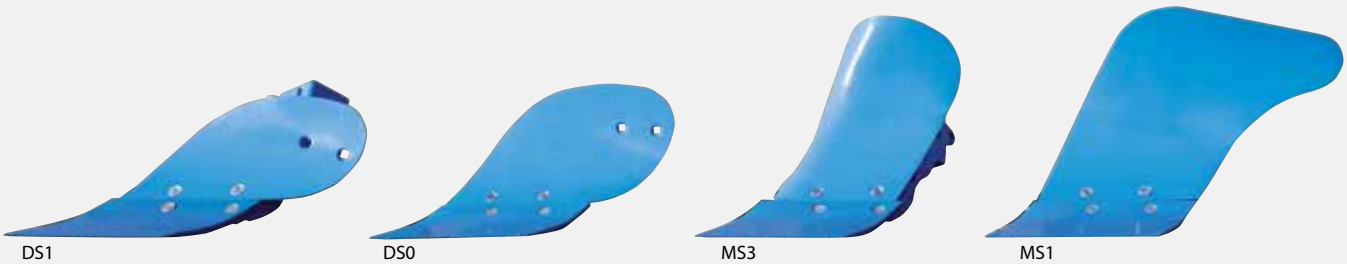
The working depth can be continuously adjusted via a bolt on the flat stalk. This requires no tools.

This allows all skimmers on the plough to be adjusted evenly without repeated checks and readjustments.

Flat leg

The Diamant version with skimmers features robust flat stalks that are connected to the frame via two screws.

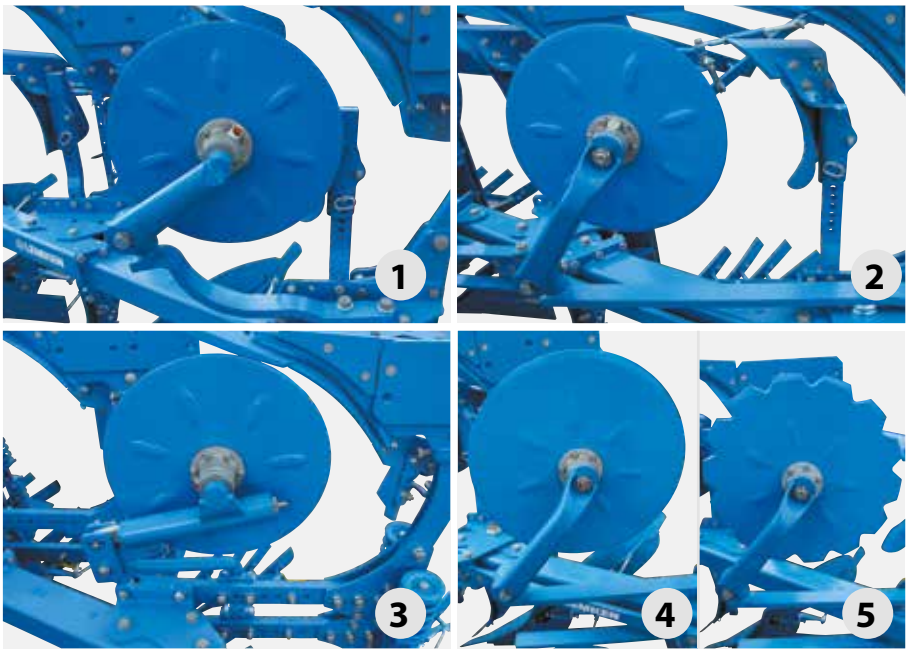
- The flat stalk prevents skimmer distortion.
- It can be easily removed for ploughing without skimmers.

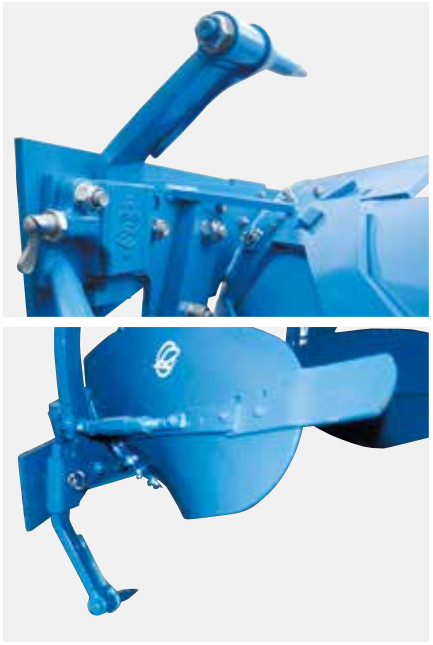


Skimmers for blockage-free ploughing

New skimmers with different share lengths reliably prevent blockages during ploughing even in difficult conditions.

- The special share shape minimises wear and increases service life while creating excellent soil flow.
- The specially shaped mouldboard separates the organic matter and neatly deposits it.
- Plastic mouldboards are available for sticky soils and in soil conditions where only little pressure applies on the skimmer.





Disc coulters

The smooth disc coulter is corrugated at the sides to provide a positive drive even when breaking up large amounts of organic material.

- The disc coulter arms are swivelled vertically for depth adjustment and can be fixed in position with a screw when engaged with the gears.
- The smooth bearings on the unploughed side are double-sealed against dirt ingress.
- The disc coulters are available in a range of versions and mounting positions:
  1) Ø 500 mm, next to skimmers
  2) Ø 500 mm, in front of skimmers
  3) Ø 450/500 mm, suspended
  4) Ø 590 mm, next to skimmers
  5) all diameters alternatively available serrated

Subsoiler for effective loosening

The specially shaped subsoiler delivers a particularly good loosening effect.

- The subsoiler depth can be adjusted without tools, and the subsoiler can also simply be removed without requiring tools, if necessary.
- All wear parts can be individually replaced. The stalk guard prevents wear on the stalk.

Technical data

Description	Working width per furrow [approx. cm]		Interbody clearance [cm]	Number of furrows	Weight [approx. kg]	
	Diamant	Diamant V			Diamant	Diamant V
With double-cut shear-off protection						
Diamant (V) 11 5 L 100	33,38,44,50	30 - 55	100	5	2.580	3.755
Diamant (V) 11 5+1 L 100	33,38,44,50	30 - 55	100	5+1	2.830	3.065
Diamant (V) 11 6 L 100	33,38,44,50	30 - 55	100	6	2.826	2.036
Diamant (V) 11 6+1 L 100	33,38,44,50	30 - 55	100	6+1	3.076	3.346
Diamant (V) 11 7 L 100	33,38,44,50	30 - 55	100	7	3.072	3.317
Diamant (V) 11 7+1 L 100	33,38,44,50	30 - 55	100	7+1	3.322	3.627
Diamant (V) 11 8 L 100	33,38,44,50	30 - 55	100	8	3.318	2.598
Diamant (V) 11 8+1 L 100	33,38,44,50	30 - 55	100	8+1	3.568	3.908
Diamant (V) 11 5 L 120	40,45,53,60	30 - 60	120	5	2.630	3.825
Diamant (V) 11 5+1 L 120	40,45,53,60	30 - 60	120	5+1	2.892	3.149
Diamant (V) 11 6 L 120	40,45,53,60	30 - 60	120	6	2.888	3.120
Diamant (V) 11 6+1 L 120	40,45,53,60	30 - 60	120	6+1	3.150	3.444
Diamant 11 7 L 120	40,45,53,60	30 - 60	120	7	3.146	
Diamant 11 7+1 L 120	40,45,53,60	30 - 60	120	7+1	3.408	
With additional Hydromatic hydraulic overload protection						
Diamant 11 (V) T 5 L 100	33,38,44,50	30 - 55	100	5	2.800	2.975
Diamant 11 (V) T 5+1 L 100	33,38,44,50	30 - 55	100	5+1	3.099	3.334
Diamant 11 (V) T 6 L 100	33,38,44,50	30 - 55	100	6	3.090	3.300
Diamant 11 (V) T 6+1 L 100	33,38,44,50	30 - 55	100	6+1	3.389	3.659
Diamant 11 (V) T 7 L 100	33,38,44,50	30 - 55	100	7	3.380	3.625
Diamant 11 (V) T 7+1 L 100	33,38,44,50	30 - 55	100	7+1	3.679	4.984
Diamant 11 V T 5 L 120	40,45,53,60	30 - 60	120	5		3.045
Diamant 11 V T 5+1 L 120	40,45,53,60	30 - 60	120	5+1		3.418
Diamant 11 V T 6 L 120	40,45,53,60	30 - 60	120	6		3.384
Diamant 11 V T 6+1 L 120	40,45,53,60	30 - 60	120	6+1		3.757
With double-cut shear-off protection						
Diamant 12 V 7 L 100		30 - 55	100	7		3.433
Diamant 12 V 7+1 L 100		30 - 55	100	7+1		3.727
Diamant 12 V 8 L 100		30 - 55	100	8		3.698
Diamant 12 V 8+1 L 100		30 - 55	100	8+1		3.994
With additional Hydromatic hydraulic overload protection						
Diamant 12 V T 7 L 100		30 - 55	100	7		3.881
Diamant 12 V T 7+1 L 100		30 - 55	100	7+1		4.239
Diamant 12 V T 8 L 100		30 - 55	100	8		4.210
Diamant 12 V T 8+1 L 100		30 - 55	100	8+1		4.570

	Diamant 11				Diamant 12	
Number of furrows	Four-level working width	Vari version	T element	OF version	Vari version	T element
5+1	x	x	x	x		
6+1	x	x	x	x	x	x
7+1	x	x	x	x	x	x
8+1	x			x	x	x

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.

LEMKEN GmbH & Co. KG
Weseler Straße 5
46519 Alpen, Germany
Phone +49 2802 81-0
info@lemken.com
lemken.com

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