The semi-mounted reversible ploughs

Diamant 16
Diamant 18

LEMKEN THE AGROVISION COMPANY

The best – **perfectly combined**

Depth adjustment

The working depth is set at the front via the rear lift and at the rear via the transport wheel.

Steering

The steering is passive mechanical (Diamant 16 + 18) and, in the case of the Diamant 18, also offers the option of manually steering the transport wheel hydraulically with an **increased steering angle**.

Overload protection

Shear-bolt' protection or OptiStone hydraulic overload protection – both systems provide **protection against damage** when the body hits rocks, for example.

Reconsolidation

Furrow press and plough – a combination that enables direct reconsolidation after tillage. To **minimise moisture loss** and achieve an **optimum seedbed** in a single pass.

Plough bodies and skimmers

The plough bodies are available in many different body shapes for all conditions and requirements. The range of skimmers ensures a **clean working result**.

Plough version

Two ploughing methods are available, depending on the operating conditions: **conventional in-furrow ploughing** or **on-land ploughing** and in-furrow ploughing with the OF version.

Traction booster

An additional hydraulic cylinder transfers weight to the tractor's rear axle. The OptiTrac "smart ballasting" system **reduces slip and therefore saves fuel.**

Optimised traction point

The OptiLine hydraulic traction point adjustment ensures **reduced side draft**. The result: significant fuel savings.

Diamant 16 for **high demands**

The demands placed on modern semi-mounted reversible ploughs are becoming ever more stringent as farms continue to increase in size and conditions change. The Diamant 16 is available in 5- to 9-furrow versions and has a box section profile frame measuring 160 x 160 x 10 mm.

The Diamant 16 meets the requirements in terms of handling, work quality and increased productivity in many respects. The combination of passive mechanical steering and wheels positioned within the working width makes this plough **particularly easy to manoeuvre**. As a result, **boundary ploughing** is straightforward, even with large working widths: fences, ditches and field boundaries pose no obstacles and no arable land is left untilled. Shifting the implement's centre of gravity to the inside of the arc automatically ensures that the transport wheel is steered passively and mechanically. This enables drivers to make sharp turns on narrow headlands, for example.

"The use of LEMKEN Diamant 16 does not disturb the soil structure. The prerequisite is that it is used at the right rate, at the right time and in accordance with the previous or main crop."

Benedikt Ley,
Operations manager and owner Mühlenhof Zepelin | Tarnow | Witzin

When cultivating his organic land, Benedikt Ley attaches great importance to building and maintaining healthy, vital soil. At Mühlenhof Zepelin in Mecklenburg-Western Pomerania, all types of grain, peas, beans and lupins, maize, clover grass and potatoes are grown on approximately 1600 hectares of land. Dealing with organic waste is essential and a clean flat surface to work on is often indispensable. Benedikt Ley is not dogmatic in his approach, he uses the Diamant 16 with a sense of proportion and utilises it as an important tool on the farm. He uses onland ploughing to protect the soil.

Specifications

Diamant 16	Working width per body [cm]		Number of bodies [Pairs]	Interbody clearance [cm]	Weight [kg]			
	Diamant	Diamant V			Diamant	Diamant V	Diamant U	Diamant VU
5 / 100 cm	33, 38, 44, 50	30 - 55	5	100	2,584	2,759	2,844	3,019
5+1 / 100 cm	33, 38, 44, 50	30 - 55	6	100	2,834	3,069	3,151	3,386
6 / 100 cm	33, 38, 44, 50	30 - 55	6	100	2,830	3,040	3,142	3,352
6+1 / 100 cm	33, 38, 44, 50	30 - 55	7	100	3,080	3,350	3,449	3,719
7 / 100 cm	33, 38, 44, 50	30 - 55	7	100	3,076	3,321	3,440	3,685
7+1 / 100 cm	33, 38, 44, 50	30 - 55	8	100	3,326	3,631	3,747	4,052
8 / 100 cm	33, 38, 44, 50	30 - 55	8	100	3,322	3,602	not avail.	not avail.
8+1 / 100 cm	33, 38, 44, 50	30 - 55	9	100	3,572	3,912	not avail.	not avail.
5 / 120 cm	40 45, 53, 60	30 - 60	5	120	2,634	2,829	not avail.	3,089
5+1 / 120 cm	40 45, 53, 60	30 - 60	6	120	2,896	3,153	not avail.	3,470
6 / 120 cm	40 45, 53, 60	30 - 60	6	120	2,892	3,124	not avail.	3,436
6+1 / 120m	40 45, 53, 60	30 - 60	7	120	3,154	3,448	not avail.	3,817
7 / 120 cm	40 45, 53, 60	30 - 60	7	120	3,150	not avail.	not avail.	not avail.
7+1 / 120 cm	40 45, 53, 60	30 - 60	8	120	3,412	not avail.	not avail.	not avail.

not avail. = not available

Diamant 18 for **extreme operating conditions**

With 6 to 8 furrows and a solid 180 x 180 x 12.5 mm box section frame, the robust Diamant 18 is specially designed for large tractors with up to 600 hp and for use in extreme conditions.

Optimal balance

The Diamant 18 performs particularly well in dry soils thanks to its **optimum soil penetration** and stable design. This is not only due to its increased weight, but also to the updated wheel position.To make the best possible use of the extra frame weight for optimum soil penetration, the transport wheel is now located behind the base frame. As a result, the plough bodies penetrate the soil reliably and maintain the **desired working depth consistently**.

The new wheel position results in a significantly lower centre of gravity so that the plough is subjected to lower rotational forces and there is **less strain on the rear lift**. This not only protects the plough components, but also ensures **high tipping stability** of the tractor/plough combination and a **smooth ride**. Even with an extended wheelbase, the Diamant 18 impresses with its optimised handling thanks to an innovative system for steering the transport wheel.

'The seedbed is crucial for the perfect product. The plough is one of the essential tools for this.'

Felix Wartenburger,
Farm Manager, Gemüsering Jessen

Gemüsering Jessen grows carrots all year round on 370 hectares of arable land in Saxony-Anhalt. For farm manager Felix Wartenburger, growing carrots without a plough or roller is inconceivable. The Diamant 18 semi-mounted reversible plough ensures a clean table in the first step and promotes water permeability and aeration of the soil. This significantly reduces the use of pesticides when conventional carrots are planted afterwards. The lightweight FlexPack integrated furrow press guarantees immediate reconsolidation on sandy soils to reduce drying out of the soil surface and wind erosion.

Always on track

The steering of the transport wheel automatically adapts the steering angle to the turning manoeuvre and, in combination with the 90-degree steering angle on the plough headstock, enables the **smallest possible turning radii** at the headland.
The transport wheel can also be **actively hydraulically controlled** and manually steered to manoeuvre around field corners and narrow headlands. After a steering intervention, the steering angle of the transport wheel can be returned to the centre position by actuating the lift. This ensures that the transport wheel is aligned parallel to the plough bodies.

Specifications

Diamant 18	Working width per body [cm]		Number of bodies [Pairs]	Interbody clearance [cm]	Weight [kg]		
	Diamant	Diamant V			Diamant	Diamant V	Diamant VU
6 / 100 cm	33, 38, 44, 50	30 - 55	6	100	3,055	3,315	3,632
7 / 100 cm	33, 38, 44, 50	30 - 55	7	100	3,321	3,616	3,985
8 / 100 cm	33, 38, 44, 50	30 - 55	8	100	3,587	3,917	4,372
6 / 120 cm	40, 45, 53, 60	36 - 60	6	120	3,117	3,399	3,716
7 / 120 cm	40, 45, 53, 60	36 - 60	7	120	3,395	3,714	4,083

The basics set the bar high

Plough bodies for every application

LEMKEN offers the right plough body for every requirement and all soil conditions. Dural bodies are available as standard, while DuraMaxx bodies made of specially hardened steel are optionally available for a particularly long service life.

Dural plough bodies come in a variety of shapes to suit a range of operating conditions. The right plough body ensures optimum ploughing quality and low fuel consumption. The share point and wing are made of micro-alloyed boron steel.

The **DuraMaxx plough bodies** are manufactured from particularly hard steel without drilling, punching or welding. Slats or mouldboards are not part of the load-bearing structure, so they can be used throughout without any loss of quality. DuraMaxx bodies are optionally available for all ploughs and have a **service life that is up to 150% longer**.

The best preparation

Skimmers ensure a **clean, well-prepared soil**, particularly when there is a lot of organic material on the surface. The surface remains free of organic material and is ready for the crop. Straw, root residues and catch crops are evenly incorporated, which **reduces the risk of disease transmission** and facilitates subsequent sowing.

Skimmers can be equipped with an optional **angle adjustment** feature to ensure that organic matter is always deposited in the correct location, even under variable operating conditions.

Alternatively, the plough can be fitted with **trashboards** to increase the clearance between the bodies and minimise the susceptibility to blockages.

For a clean cut

Disc coulters – whether plain or notched – cut the soil in front of the plough body to create a dividing line along which the **soil is turned cleanly**.

Disc coulters ensure a precise cut and reduce the susceptibility to blockages, which is particularly important when there is a high proportion of organic matter, such as maize straw. They create a smooth furrow edge and prevent soil from dropping back into the furrow. This ensures **effective furrow clearing**. When there are only small amounts of organic material, the same result can be achieved with a sword coulter.

Even deeper

The subsoiler works below the actual ploughing depth. It fulfils several important functions that can **improve soil structure and increase yield capacity** by loosening subsoil compaction. Subsoilers break up compacted subsoil, reducing the risk of waterlogging and enabling plant roots to access deeper reserves of moisture and nutrients – a game changer, especially in dry years.

Subsoilers also work at shallow plough working depths. This combines the positive effects of both tools to produce **clean, well-prepared soil at the surface** with **loosened subsoil**.

A very tough performer

Carbide-reinforced wear parts are used for ploughing in situations where particularly high wear resistance is required. These are available for share points and wings, offering the following advantages:

1. **Longer service life** even on dry, wear-intensive soils and with intensive tillage.
2. **Consistent lateral cut and undercut**: carbide wear parts do not wear down in their length. The plough consistently penetrates the soil throughout the entire service life of the parts.
3. **Reduced set-up time**: wear parts can be replaced in minimal time. This allows valuable time to be spent on the field, especially during peak work periods.

Wear after 1400 ha with an 8-furrow Diamant 16 on loamy to sandy soil

Soldered-on carbide plates in LEMKEN machines ensure an extremely long service life for wear parts. In addition, a reinforced carrier material delivers an optimal balance between carbide and steel wear.
Carbide brackets, which firmly attach the carbide plate to the carrier material, prevent the plates from coming loose.

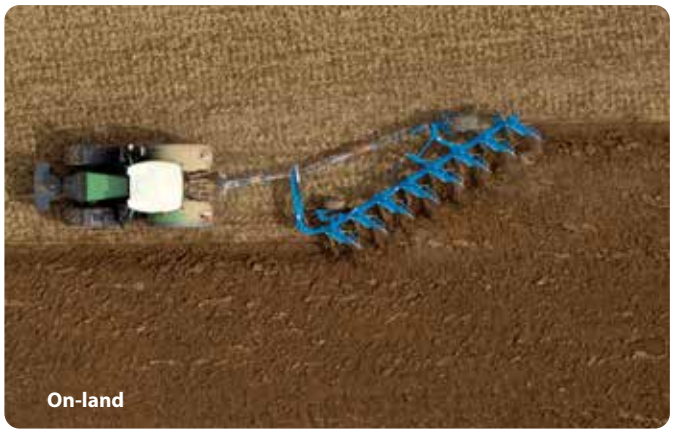
The extra that makes the **Diamant optimal**

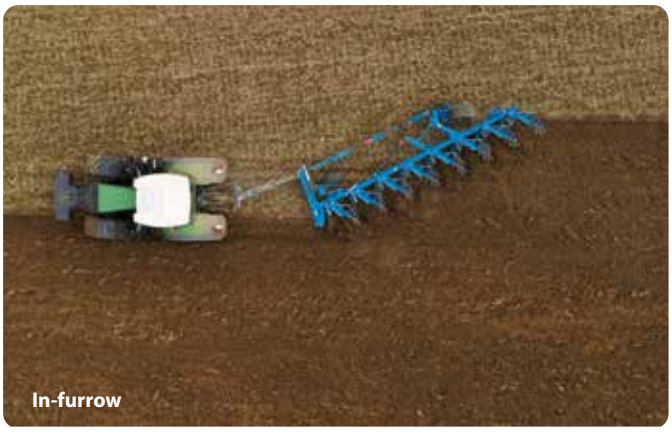
In-furrow and on-land

Whether on-land or in-furrow ploughing is the better approach depends on a number of factors, including soil condition, the tractor used and personal or farm preferences. Both methods have their advantages.

On-land ploughing results in less ground pressure due to the more evenly distributed wheel load, which **positively affects the soil structure**. Additionally, the tractor can be fitted with large-volume tyres or dual tyres with an external width of up to 4 m to reduce ground pressure even further. To maintain a sufficient distance from the edge of the furrow and ensure an optimum traction point, the plough frame can be swivelled into two different on-land positions with different offsets when ploughing on-land. Combining on-land ploughing with a GPS track guidance system enables parallel furrows and consistently good alignment, while simultaneously relieving driver strain.

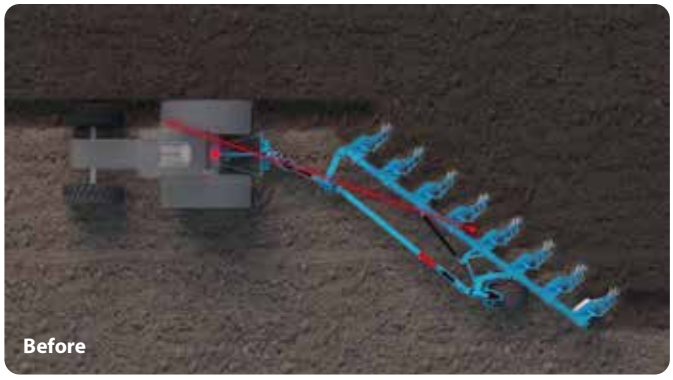
Classic in-furrow ploughing is particularly suitable for **slopes and damp conditions**, when the traction of the tractor is limited.

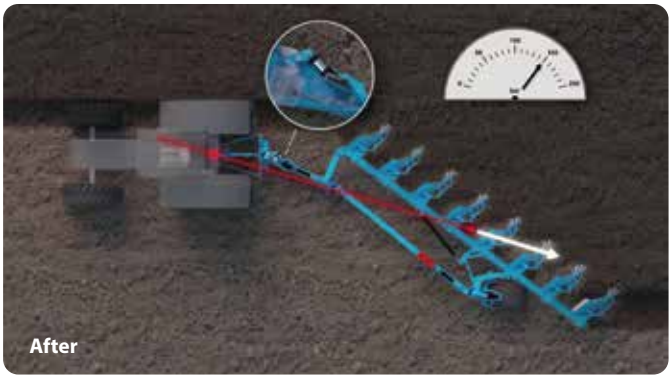

On-land


In-furrow

Smart ballasting for more grip

To **reduce slippage** and **save fuel,** Diamant ploughs can be equipped with the OptiTrac traction booster. With this system, an additional hydraulic cylinder transfers weight to the tractor's rear axle to increase traction. When the plough is rotated, the cylinder is automatically depressurised to improve the stability of the tractor.





No need for counter-steering

When using the in-furrow version with larger working widths, the plough protrudes further to the sides of the tractor. This generates asymmetrical forces that lead to side draught. The optional OptiLine equipment can be used to **compensate for the resulting side draught**, thus increasing the **tractor's tractive power**. To achieve this, OptiLine transmits additional torque to the tractor via a pressure-controlled hydraulic cylinder to balance the lateral forces.

Disruption-free ploughing in all conditions

All LEMKEN ploughs are equipped with an overload protection to **prevent damage to the plough body if it hits an obstacle**. In the standard version, this system comes in the form of double-cut shear-off protection with shear bolts.

The OptiStone hydraulic overload protection system offers maximum operational reliability. This system is based on a swivel bracket with high, hydraulically adjustable trigger and retraction forces to ensure that the system is triggered softly and smoothly when an obstacle is encountered. The plough body is easily able to deflect vertically up to 37 cm and horizontally up to 20 cm at the same time.The overload element remains permanently connected to the plough frame, even when it has been triggered. In addition to the hydraulic overload protection, the shear bolt provides protection against damage if the system becomes trapped under rocks or roots. This **protects both tractor and plough**.

Loosened **yet firm**

A furrow press and plough make a perfect team for reconsolidation and seedbed preparation at the optimum time. For optimum results, LEMKEN offers a range of furrow presses that can be used during ploughing depending on the soil type, field structure and distance between the farm and field. Furrow presses work directly behind the plough, where they reconsolidate the soil and break down large clumps at the optimal moment and moisture level. This **helps the soil to settle and reduces evaporation**.

A tried-and-tested duo

VarioPack furrow presses are available for all Diamant ploughs. Various ring profiles and diameters are available to customise the presses for different conditions. The furrow press design without a central axle **prevents interior blockages** and provides plenty of wear material in the area that gets the most use – the ring itself. This ensures a long service life for the furrow press.

Thanks to the ring construction without individual hubs, the working width of LEMKEN furrow presses can be easily increased or decreased by adding or removing rings, meaning that the presses can be **precisely fitted to any plough**. Thanks to a trailer device, even working widths of more than three metres are not a problem when it comes to transport – with EU type approval for speeds of up to 40 km/h, the furrow presses can always be driven legally on the road.

A unique combination

Thanks to its design with a transport wheel behind the base frame and a low centre of gravity, the Diamant 18 can now also be fitted with an integrated FlexPack furrow press. Integrated furrow presses are permanently connected to the plough. This makes them an **effective and time-saving solution for good reconsolidation** as they do not need to be transported to the field separately. The FlexPack runs parallel to the plough frame and therefore adapts flexibly to the plough's variable working width. The result: **even reconsolidation without overlaps or gaps**. To adapt to changes in soil and operating conditions, the FlexPack can be pressurised hydraulically, in addition to its own weight. The furrow press rings are arranged in staggered pairs, making them less susceptible to blockages. Their V-shaped profile ensures an efficient pressing effect and prevents the implement from sinking in too deeply in light soils.

A question of **adjustment**

Mounting, turning and parking

The Diamant series features a stable headstock that connects the plough to the tractor via a continuous, robust cross shaft. This enables a **90-degree steering angle** and therefore allows drivers to work even at small headlands.

The swing gear enables the plough to rotate powerfully and smoothly through 180 degrees with every turn. This process is supported by two single-acting telescopic cylinders with mechanical tilt adjustment. The tilt is adjusted via one screw per side, which serves as a stop for the turning cylinders.The end stops can be removed for smooth attachment and detachment, enabling the **plough to be detached without tension**.

Depth adjustment

The plough's working depth is set at the front using the rear lift of the tractor and at the rear using the transport wheel. As standard, it is mechanically adjusted via the transport wheel; mechanical-hydraulic or electro-hydraulic adjustment is available as an optional extra. The relevant shut-off valve is operated manually or remotely. A **clear scale** facilitates working depth adjustments.

The right connection

The front furrow width is essential for a **clean ploughing result**. The optional hydraulic front furrow adjustment allows for precise alignment in changing conditions, even while driving.

Transport

For safe road transport, the plough is turned to the centre position and the swing gear is locked via stopcocks. This ensures that the transport wheel runs parallel to the base frame for **straight towing behind the tractor**. The transport wheel is dampened via an accumulator to **absorb larger shock loads** and ensure smooth running.

Proven technology made smart

The plough is the oldest tillage implement. It has been increasingly modernised over the past few decades to meet the demands of contemporary arable farming systems. A wide range of equipment options are available. Fully featured ploughs, which offer everything from variable cutting width adjustment to hydraulic overload protection, place high demands on both tractors and operators.

It's in the connection

iQblue connect makes ploughing much easier and more efficient. This system provides support in many ways for the best possible results. It not only ensures **greater ease of use**, but also offers **comprehensive data management** and the **documentation of working parameters**.

With iQblue connect, both new and existing implements can be subsequently digitalised and integrated into the smart world of intelligent technology. Thanks to the interplay between the job computer, sensor kit and GPS technology, the system enables **precise, automated control of your tillage operations**, resulting in a noticeable increase in efficiency in the field:

- Creation of precise, straight furrows
- Automatic adaptation to the target furrow
- Centimetre-accurate display of the current working width

Communication between the implement and tractor is handled via the ISOBUS TIM (Tractor Implement Management) standard, enabling iQblue connect to control a tractor's hydraulic functions directly. As a result, the implement is actively integrated into the control process – the **implement controls the tractor**.

As an added bonus, the job computer can be easily transferred to other machines in just a few simple steps. This **makes the system highly flexible and cost-effective** – ideal for a wide range of applications and farm sizes.

Ready for the next step

Control units can become a limiting factor, given the large number of hydraulic functions. The **LET 24**, an additional operating terminal for **bundling hydraulic functions**. solves this problem. With this terminal, up to four hydraulic functions on the plough can be mapped to two control units on the tractor: The steering and front furrow width adjustment, and the lift and depth adjustment are each operated via a separate control unit. All hydraulic functions are shown on the 2.4" colour display and operators can easily switch between the functions to be controlled at the touch of a button.

A WELL-ROUNDED SOLUTION.

At LEMKEN, we don't think in terms of isolated work steps – instead we look at the full cycle including all facets of agricultural engineering. The result is comprehensive solutions that intermesh perfectly. For you, this means high-quality, future-oriented, efficient technology for an agriculture that is both profitable and sustainable.

iQ blue

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