



MOUNTED REVERSIBLE PLOUGHS

PROFITABLE PLOUGHING

WHEN FARMING MEANS BUSINESS

Realising the full potential of farming is about growing and developing your business, not only your crop or livestock, but also your profit. Improve productivity and profitability by focusing on the positives and minimising disadvantageous aspects, through strong, dedicated management.

Success springs from determination and clear targets, from laying down the appropriate strategy and allocating correct investments for the future. Quality results require the right ideas and equipment. When there is work to be done, you need the optimal setup and smart solutions that support you towards an easier, more profitable way of working. You need solutions that make tough and demanding conditions less complicated.





TILLAGE

Preparing and cultivating your soil in order to achieve the highest possible yield is about choosing the correct tillage system

YOUR KVERNELAND INTELLIGENT FARMING SOLUTIONS



Choose the best farming solution for you and your land. Combine the highest possible yields with sustainability. This will start with the correct tillage. The choices you make depend on various factors and has to match your specific circumstances, like soil structure, crop rotation, residue management, economic and ecological viabilities.

The choice is yours!

You must consider environmental and legal issues. From conventional methods to conservation tillage: the balance of operations at the right time has to be found to achieve high yields with the best soil condition (air, moisture, biological activity, etc.) with a minimum amount of energy, time and investment. For this, Kverneland offers a full range of intelligent farming solutions.



Kverneland Group

Kverneland Group is a leading international company developing, producing and distributing agricultural machinery and services.

Strong focus on innovation allows us to provide a unique and broad product range with high quality. Kverneland Group offers an extensive package aimed at the professional farming community, covering the areas of soil preparation, seeding, forage and bale equipment, spreading, spraying and electronic solutions for agricultural tractors and machinery.

INTELLIGENT FARMING SOLUTIONS

CONVENTIONAL AND CONSERVATION TILLAGE

CONVENTIONAL TILLAGE

Conventional Tillage

- **Intensive** method of cultivation
- Complete soil inversion e.g. by a plough
- Less than 15-30% crop residues left on soil surface
- Seedbed preparation done by an active tool or special seedbed harrow
- High phytosanitary effect by reduced pressure of weed and fungi diseases - fewer herbicides and fungicides needed
- Better dry-off and faster increase of soil temperature for better nutrients absorption

CONSERVATION TILLAGE

Mulch Tillage













- **Reduced** intensively in terms of depth and frequency.
- More than 30% of residues are left on soil surface
- Extended repose period of the soil
- Cultivator and/or discs incorporate the crop residues within the top 10cm of soil for stable bearing soil
- Full-width tillage - seedbed preparation and seeding in one pass
- Protection against soil erosions with reduced loss of soil and water
- Improvement of soil moisture retention

Strip Tillage

- **Strip-wise** loosening before or during seeding of up to 1/3 of the row width (Loibl, 2006). Up to 70% of the soil surface remains untouched.
- Strip-till combines the soil drying and warming benefits of conventional tillage with the soil-protecting advantages of no-till by disturbing only the area of the soil where the seeds are placed.
- Exact fertilising deposit
- Soil protection against erosion and drought

Vertical Tillage / No-Till

- **Extensive** method
- Working soil vertically avoids additional horizontal layers or density changes
- Increasing water infiltration, root development and nutrient take-up
- Plants' roots dictate the overall health of the plant, as they deliver nutrients and water throughout, contributing to a higher yield
- A strong set of roots make plants more resistant to wind and drought
- Indirect energy input

KVERNELAND'S INTELLIGENT FARMING SOLUTION			Deep Tillage (not a must)	Basic Tillage	Seedbed Preparation	Seeding	Spreading	Spraying	
CROP ESTABLISHMENT SYSTEMS	CONVENTIONAL		<p>Method</p> <p>up to 15% Conventional with soil inversion</p> <p>15 - 30% Reduced Till without soil inversion</p> <p>Soil coverage after Seeding</p> <p>Mulch Seeding without soil inversion</p>						
	CONSERVATION								
CONVENTIONAL		<p>intensive</p> <p>up to 15% Conventional with soil inversion</p>							
CONSERVATION									<p>extensive</p> <p>shallow tillage</p>

CLASSIFICATION OF TILLAGE METHODS KVERNELAND (Source: adapted from KTBL)

PERFORMANCE DRIVEN FOR THE FARMERS SATISFACTION



Ole Gabriel Kverneland

Kverneland is world renowned and unequalled in producing robust & light ploughs for high performance with low operating costs.

Innovation from the start

In 1879 at the age of 25, Ole Gabriel Kverneland founded his smithy business in a small village south of Stavanger, Norway. Brought up on a farm and educated in agriculture, he subsequently understood all the machinery requirements of farmers. He strongly believed in innovation and manage to produce a mouldboard plough able to withstand the very tough stony soil conditions of Norway.

Over the years, he together with his team of engineers developed **special steel heat treatment processes** to allow his ploughs to work in the toughest of soil. Using these new **steels of unique strength**, Kverneland succeeded in manufacturing robust ploughs thus gaining a strong reputation for quality. Today, Kverneland is the leading manufacturer of ploughs with a very strong market position throughout the world.



Ole Gabriel Kverneland: black smith & ploughman. Here demonstrating how well balanced his ploughs are. Even today Kverneland R&D employees are ploughmen.

THE CONTEXT

typical arable land in Norway



PERFORMANCE DRIVEN FOR THE FARMERS SATISFACTION

Customer orientated

The tradition of customer orientated product development has resulted in the long record of innovations and in becoming a **leading plough brand in the industry**. High priority is given to building close relationships with end users. Systematic follow up of individual customer experience helps Kverneland to adapt products to better match **farmer's requirements**.



Kverneland plough factory (Norway)



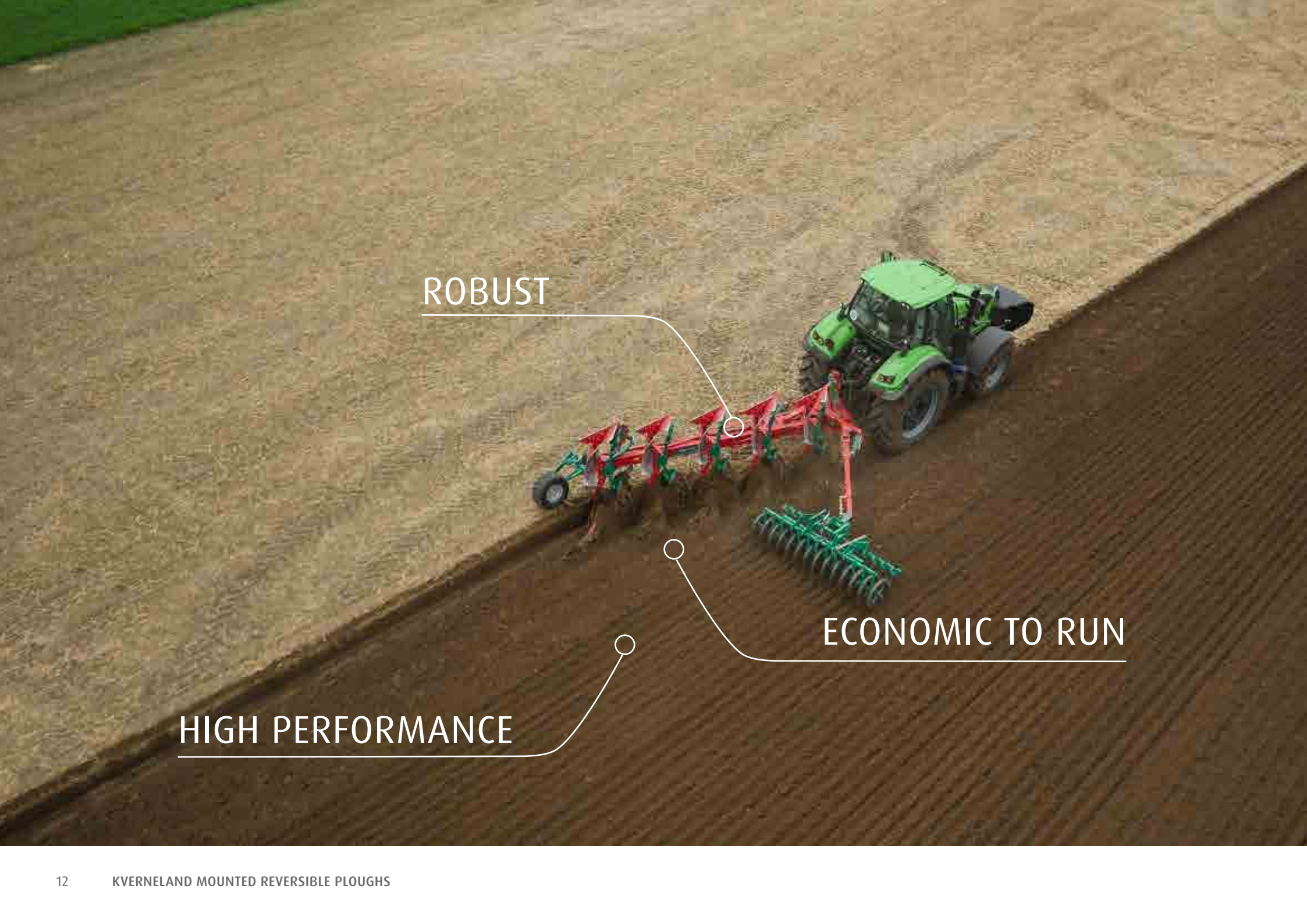
Forge (1879)



THE RESULT

high performance ploughing





ROBUST

ECONOMIC TO RUN

HIGH PERFORMANCE

OPTIMISED ROBUSTNESS TO MAXIMISE PROFITABILITY

Robust

Developed over 140 years, the Kverneland Steel Technology remains unsurpassed within the plough industry. It guarantees extra robustness *for extra life time* to the plough.

Economic to run

The design of a Kverneland plough combined to the specific heat treatments of each and every part ensures low running cost. *Easy to lift, easy to pull* for a low fuel consumption; optimised *low wearing of parts...*

High performance

Kverneland innovations and design of parts enable a quick set up and adjustments for the *perfect ploughed field*.

Kverneland ploughs adapt to any tractor brands!

SMART INNOVATIONS

CONTRIBUTING TO PROFITABILITY



Kverneland Knock-on®

Variomat®, Auto-reset, Knock-on®... Innovations that facilitate the daily work.

A reliable plough is a must for Kverneland. Due to increasingly changing weather conditions, the window to be able to plough is sometimes very short. Kverneland ploughs are known for being **easy to set and to adjust**. Start working efficiently immediately.

Variomat®

The Kverneland Variomat® has a lot of benefits. By adjusting the ploughing width from the tractor cabin, you do not waste time stopping to make the working width adjustments. Variomat® allows the optimal match between the soil conditions, the plough and the tractor **for the optimal output**.

Variomat® ensures the correct parallel linkage along the whole plough. The **pulling line adjustments are hence automatic**. Consequently, low draft requirements, low wear and tear, keep running costs low while the field is remarkably ploughed. The following operations are then eased.

Auto-reset

The Kverneland Auto-reset guarantees a quality ploughing. The legs release independently one from another. Once the obstruction is passed, the plough body automatically returns to the correct ploughing depth. No downtime. The simple multi-leaf spring system does not require any maintenance either. In addition, the Kverneland Auto-reset system works by **decompression**, which **reduces the stress on the tractor** and guarantees its life time. When considering the price of a new tractor, these substantial savings are real contributors to your profitability.

Knock-on®

Kverneland Knock-on® points are changed in a few seconds. It makes sense to **save 90% of your time** in changing points when working in abrasive soils or when having a 5+ furrow plough.



"A Kverneland plough is strong, light and easy to adjust. You adjust once and you're done."
Bjarne Strøm, Denmark

KVERNELAND STEEL TECHNOLOGY FOR THE COMPLETE PLOUGH

Kverneland's unique steel

More than 140 years of experience in developing special steels and heat treatment processes have resulted in an unsurpassed quality and wear resistance.

The heat treatment processes are carried out and adapted not only to a few selected parts but to the complete plough. This results in ploughs lighter than competitors' and extremely robust while delivering outstanding performance.

Induction hardened frame

To guarantee the durability of the plough, Kverneland heat treats the frame as well. Most competitors do not. The induction process allows using lesser steel than competitors, therefore less weight to pull and lift while ensuring a higher resistance.



HARD

as a diamond for optimum wear resistance

FLEXIBLE

to absorb shocks



Kverneland 12 hours carburising process results in creating 2 steels in 1 sole mouldboard.

For the highest ploughing performance, Kverneland also grinds the body to ensure a uniform surface for an even furrow.

HEADSTOCKS



Headstock N° 150

Designed for the Kverneland 150 plough series. Cross shaft Cat. II and III.

Robust 110 mm heat treated hollow shaft forged of one piece.



Headstock N° 200

For trouble free ploughing for the plough series: ED/LD, ES/LS, EG/LB, Ecomat. 120 mm heat treated monoblock hollow shaft. Cross shaft Cat. II and III.



Headstock N° 300

Built for heavy duty for the plough series: ED/LD(HD), EG/LB(HD), LO.

High quality 150 mm heat treated hollow shaft made from only one piece.

ROBUST HEADSTOCKS

FOR MAXIMUM DURABILITY

Three different headstocks

The Kverneland program has three different headstocks. All of them are constructed from the highest quality steel and are subject to the special Kverneland heat treatment processes which infuse additional properties such as strength and hardness. Strong sealed roller bearings are used for years of trouble-free and **maintenance free service**.

Smooth and safe turnover

The headstocks employ a strong 80 mm turnover cylinder, positioned at the rear of the headstock mast to give correct and safe turnover, **even for the largest ploughs**. The design retains the proven Kverneland concept of having the centre of gravity close to the tractor in order to minimise lift requirement and to improve stability.

Clever layout of hoses

To avoid the risk of hose damage during the turnover operation, no hoses pass over the turning point of the headstock. Even the valve block is integrated.

Transport lock

The headstocks are equipped with an integrated transport lock to transport the plough in the **"butterfly" position**.

Front furrow width adjustment

The width of the front furrow is adjusted separately, either with a turnbuckle or with a cylinder.

Sequence valve

The sequence valve controls the reversing cycle of the plough. It automatically activates an alignment valve which "narrows" the plough prior to reversal. After reversal, the plough returns to its working position. This system gives a **smoother reversal** of the plough bodies and is supplied as standard on all five and six furrow ED/LD ploughs.

Memory valve

The memory valve together with the memory-sequence valve, which is used on the large Variomat® ploughs, is also activated during reversal. It closes the plough down to the narrowest ploughing width of 12" (30 cm) before reversing.

Once the cycle is completed, it returns automatically to the pre-set furrow width. The memory valve is fitted to all five and six furrow EG/LB models. Also available for 4 furrow EG/LB and 4, 5, 6 furrow ES/LS models.

Quick coupling

All headstocks can be fitted with quick coupling cross shaft.

Cross shaft

The Kverneland cross shafts are supplied cat. II, III and IV.

VARIOMAT®

OPTIMISED PRODUCTIVITY

Efficient

The patented Kverneland Variomat® is the most reliable system on the market. It allows the **optimal match** between the soil conditions, the plough and the tractor for the **optimal output**. By varying the furrow width, the work can be kept **straighter**. It is also **easier to work up** to the hedges and **around obstacles**.

By being able to adapt not only the depth but also the width of the furrows, **the best results can hence be achieved**.

Two different systems

Kverneland Variomat® is available in two variants: with hydraulic or mechanical adjustment of the furrow width. The hydraulic variant allows adjustments of the furrow width easily from the driver's seat **"On the Move"**.

The **pulling line adjusts automatically** thanks to the auto-line.

Reliable Auto-Line

Kverneland Auto-line is a standard system which guarantees the correct pulling line at any time. When changing the working width, both front furrow width and pulling line adjust accordingly. Kverneland Auto-line system makes these adjustments automatically. No time spent on correcting/adjusting the pulling line when changing the working width.

The position of the headstock remains in the center of the tractor, all the time, ensuring a favorable and an even geometry of the three point linkage. Side pull and unnecessary high landside pressure are therefore avoided. Consequently, the Kverneland Auto-line system ensures an efficient ploughing **with less fuel consumption**.

Maintenance free

The Kverneland Variomat® system is maintenance free thanks to a **unique non wearing linkage joint** between the beams and the mainframe section. The system consists of a robust 24 mm bolt, a distance tube, two special heat-treated cones and replaceable bushes. No need to spend time on lubrications.

The heat-treatment of **high quality steels** and exacting manufacturing accuracy guarantee perfect beam and body alignment with minimum wear.

Optimise fuel consumption

By adapting the working width to the soil conditions, the fuel consumption is optimised. Furthermore, when increasing the ploughing width, the fuel consumption per Ha gets reduced and hence **profits are maximised**.



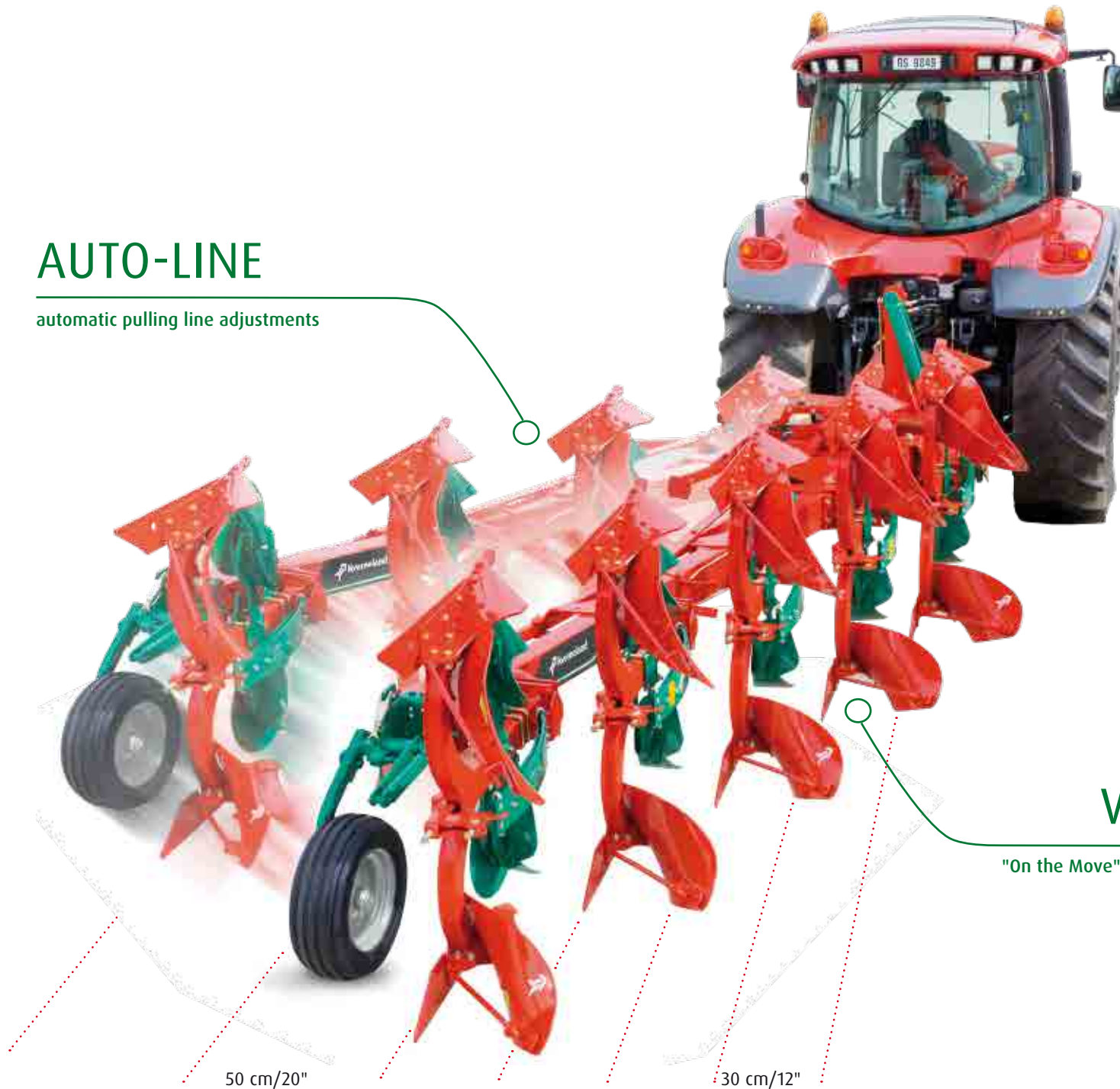
Auto-line system



Maintenance free

AUTO-LINE

automatic pulling line adjustments



VARIOMAT®

"On the Move" working width adjustments

KVERNELAND AUTO-RESET SYSTEM

EFFICIENT AND MAINTENANCE FREE

Release characteristics

The diagram shows the differences between three different Auto-reset systems, and how the pressure varies as the body rises (1 cm).

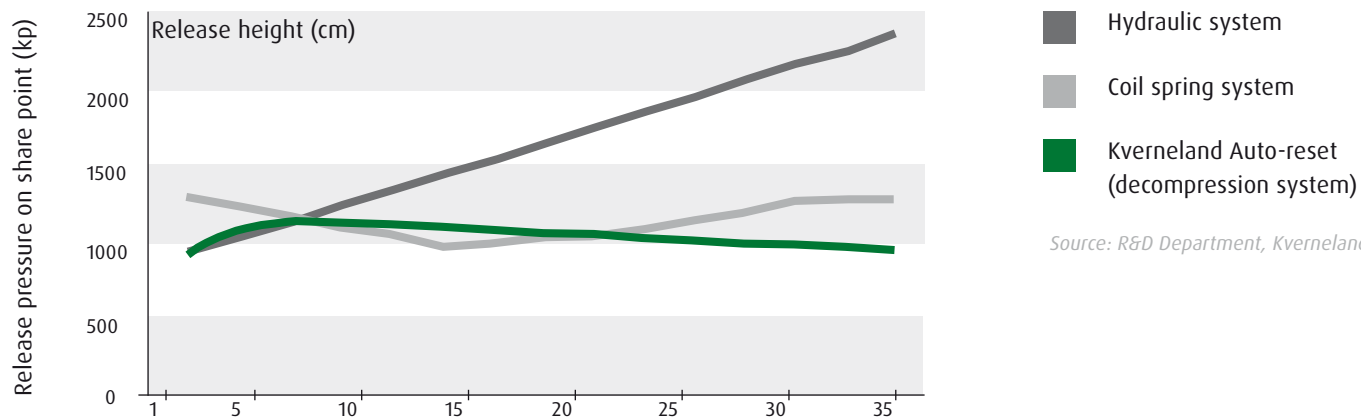
Conclusion

The unique Kverneland leaf spring Auto-reset system is highly recommended.

Benefits from Kverneland Auto-reset

When hitting an obstacle, the pressure on the point, frame, plough parts, decreases. The stress on the plough is therefore reduced which **guarantees a longer life** to the plough.

Each body releases independently one from another to come back to the correct ploughing depth once the obstacle passed. This ensures a **quality ploughing**.



Source: R&D Department, Kverneland Group, Klepp 2002



KVERNELAND BODIES FOR HIGH PERFORMANCE

Designed for high performance

Kverneland bodies benefit from an outstanding reputation worldwide: **high agronomic performance** and low wearing.

Low pull requirement

Recent university studies, FH Cologne and Wilsmann 2012, have revealed that the design of Kverneland bodies offer some of the lowest pulling forces on the market: from -20% to -42% when ploughing at 20 cm working depth and -11% to -24% at 30 cm.

Optimise profitability

It is therefore possible to plough with **one extra Kverneland body** and gain in output compared to competition **for the equivalent pulling forces**. As regard to fuel consumption, it is reduced by 19% to 28% when using a Kverneland plough.

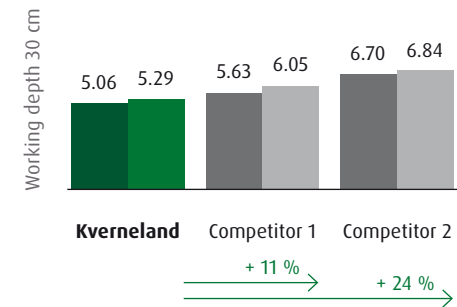
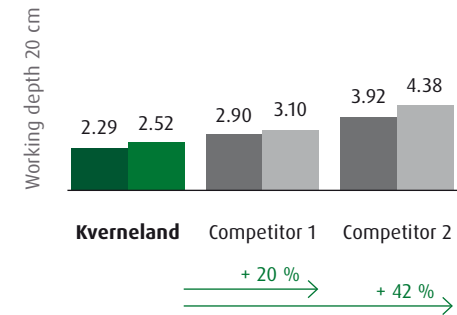
Wide choice of bodies

Over the years, Kverneland has designed bodies which are **adapted to any soils conditions**.

PULLING FORCE (KN)*

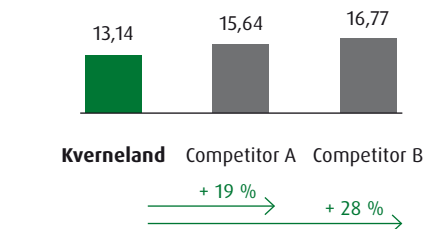
at working-depth 20 and 30 cm

■ second body ■ third body



Source: FH Cologne and Wilsmann, 2012

FUEL CONSUMPTION (L/HA)*



Source: FH Cologne, 2014

* The reference body is Kverneland No. 28 and the equivalent from competitors.



BODIES



Body No. 8

- general purpose body
- for light to heavy soils
- working depth: 15-28 cm
- working width: 30-50 cm
- landside / mouldboard: 40°



Body No. 9

- universal body
- for light and medium soil
- easy to pull
- working depth: 18-30 cm
- working width: 30-50 cm
- landside / mouldboard: 40°



Body No. 30

- finger mouldboard with 4 exchangeable strips
- plastic spacers
- shape of body no.19
- for any soil conditions
- intensive crumbling
- working depth: 18-35 cm
- working width: 30-55 cm
- landside / mouldboard: 46°



Body No. 34

- plastic mouldboard
- long and slim shape (similar to body No. 28)
- for soils with high humus content without stones
- advised for tractors with large tyres
- easy pulling
- working depth: 12-35 cm
- working width: 30-55 cm
- landside / mouldboard: 40°



Body No. 38

- universal body – easy to pull
- for any soil conditions
- recommended for tractors with large tyres
- from deep to shallow ploughing
- perfect turning of the furrow slice
- working depth: 12-35 cm
- working width: 30-55 cm
- landside / mouldboard: 40°



Body Ecomat

- plastic or steel mouldboard
- specifically designed for the Ecomat
- shallow ploughing
- working depth: 6-18 cm
- working width: 30-50 cm

BODY NO. 28 AND BODY NO. 38

THE ANSWER FOR PLOUGHING WITH WIDE TYRES

Bodies No. 28 and No. 38 are Kverneland's answer to ploughing with modern farm tractors equipped with wide tyres.

Wide empty furrow

Bodies No. 28 and No. 38 shape and action move the soil further away from the landside, increase the furrow bottom width by as much as 25% compared to body No. 9. This allows wide tractor tyres, like a 710 serie type, to work in the furrow **without rolling down the previous furrow**. Body No. 38 enables ploughing from shallow to deeper than body No. 28.

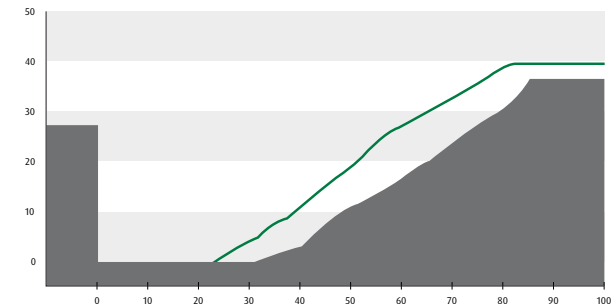
Low pulling forces

Body No. 28 is suitable for depths from 12 to 30 cm (5 to 12 inches) and widths from 30 to 55 cm (12 to 22 inches). Longer than body No. 8, it creates a flatter profile for an improved tilth. The furrow is well turned and packed. Bodies No. 28 & No. 38 clever design will require **as little pulling force as body No. 8 or 9**.



Body No. 28

- universal body – easy to pull
- for any soil conditions
- **recommended for tractors with large tyres**
- creates a flatter profile for improved tilth
- perfect turning of the furrow slice
- working depth: 12-30 cm
- working width: 30-55 cm
- landside / mouldboard: 40°



furrow profile body No. 28
working depth: 26 cm, bottom: 30 cm, width 73 cm





EASY

EFFICIENT

KVERNELAND 150 B/S

A ROBUST PLOUGH FOR LIGHT TO MEDIUM SOILS

Kverneland 150 B/S are light and robust mounted reversible ploughs with step wise width adjustments.

Their specific design guarantees **low lift requirements** and an **easy pulling** for high performance in light to medium soils. The Kverneland 150 B/S are easy to operate and economic to run.

Differences between models

Kverneland 150 S is equipped with the renown Kverneland leaf spring Auto-reset system (efficient and no maintenance!).

Kverneland 150 B benefits from the reliable shear Bolt leg protection: 3.400 kp.

Strong legs for the 150 B

The Kverneland **heat treatment technology** applies to the legs of the Kv 150 B as on any other parts. Not only strong, the specific design of the shearbolt leg offers a valuable agronomic benefit: improved crumbling.

The leg shape and the high under beam clearance enable the plough to **handle big amounts of straw and residues**.

Robust frame section

The main frame is an induction heat treated one box section 150 x 150 mm. Hence, the necessary strength and support are achieved for the toughest conditions. No welding in order to avoid weaknesses.

Kverneland 150 S: 150 x 150 mm for 3-5 furrows (depending on the interbody clearance).

Kverneland 150 B: 100 x 150 mm for 3-4 furrows or 150 x 150 mm for 3-5 furrows.

Headstock serie 150

The Kv 150 plough series headstock is **designed for maximum strength** thanks to its "one piece concept" and its specially heat treated 100 Ø main shaft. Choice of cross shafts, category II an III or optional quick coupling.



Strong leg: shear bolt protections



Easy: independent right/left adjustments

Easy to operate

The furrow width adjustment not only increases ploughing output but reduces fuel consumption in relation to output.

Simple step-wise ploughing width adjustments for Kverneland 150 B/S:
only 1 bolt to reposition.

30, 35, 40, 45 cm (12, 14, 16, 18") for 85 cm interbody clearance.

35, 40, 45, 50 cm (14, 16, 18, 20") for 100 cm interbody clearance.



KVERNELAND 150 B/S VARIOMAT®

FOR ANY SOILS CONDITIONS AND FIELD SHAPES

Easy to lift and to pull

The models 150 B/S Variomat® offer the same **compact design** as the models 150 B/S. The only difference is the Variomat® for easy and **quick working width adjustments** "On the Move". **Maximise your productivity** regardless soil conditions or field shapes.

Several possibilities are offered to easily change the working width:

- manual adjustment of the working width and of the front furrow with a turnbuckle
- hydraulic adjustment of the working width and manual adjustment of the front furrow with a turnbuckle
- hydraulic adjustment of the working width and automatic hydraulic adjustment of the front furrow

For the models Kverneland 150 B/S Variomat®, easy adjustments "On the Move" from 30 to 50 cm (12-20").

Easy adjustments

The front furrow can easily be adapted to any tractor brands and wheel width settings. This is done via a parallelogram, manually adjusted by a turnbuckle or with an optional hydraulic cylinder. A memory or hydraulic alignment of the frame is available.

The Kverneland auto-line system always provides **the correct pull line**.

All models are available with an interbody clearance of 85 cm or 100 cm. The Kverneland 150 serie offers 3-5 furrow ploughs with the exception of the 150 S/150 S Variomat® 100 cm interbody clearance, which are available as 3-4 furrow ploughs. Most models are extendable by 1 body to the limits above mentioned.





STEPWISE

COST EFFICIENT

KVERNELAND ED/LD

OPTIMISED FOR HEAVY TO EXTREME CONDITIONS

The ED/LD models are strongly built for efficient low cost ploughing in medium to heavy conditions. Still a fairly low weight plough compared to its robustness.

Models differences

The Kverneland ED is equipped with the unique Kverneland Auto-reset system whereas the LD has replaceable shearbolt protections.

Vibromat

The Kverneland LD plough can be equipped with the Vibromat for **extremely dry and heavy conditions**.
Extra information page 46.

2 versions:

Kverneland ED/LD ploughs are built around a **strong induction heat treated one box frame**. Hence avoiding welding that would weaken the frame.

The standard ED/LD is equipped with the headstock 200 and a 100 x 200 mm frame.

When working in **extra heavy conditions**, the ED/LD HD (Heavy Duty) is recommended: 120 x 200 mm mainframe, heavier front support and headstock N° 300.

Smooth turnover

Generally, large ploughs impose high forces on the tractor transmission and rear linkage, especially during turnover. To avoid this potential problem, Kverneland offers a frame alignment cylinder, which automatically **narrows the plough prior to turnover**. It centralises the mainframe to reduce the stress on both tractor and plough. Available for 5 and 6 furrow models.

Front furrow adjustment

The ED/LD is fitted with the N° 200 or N° 300 headstock depending on the size of the plough. As with all Kverneland reversible ploughs, manual front furrow width adjustment is standard. An optional hydraulic cylinder for **"On the Move" adjustment is available**.

Easy working width changes

Optimise the ploughing output to soil conditions and tractor size by changing the working width. **Just reposition 1 bolt** (5 cm steps).

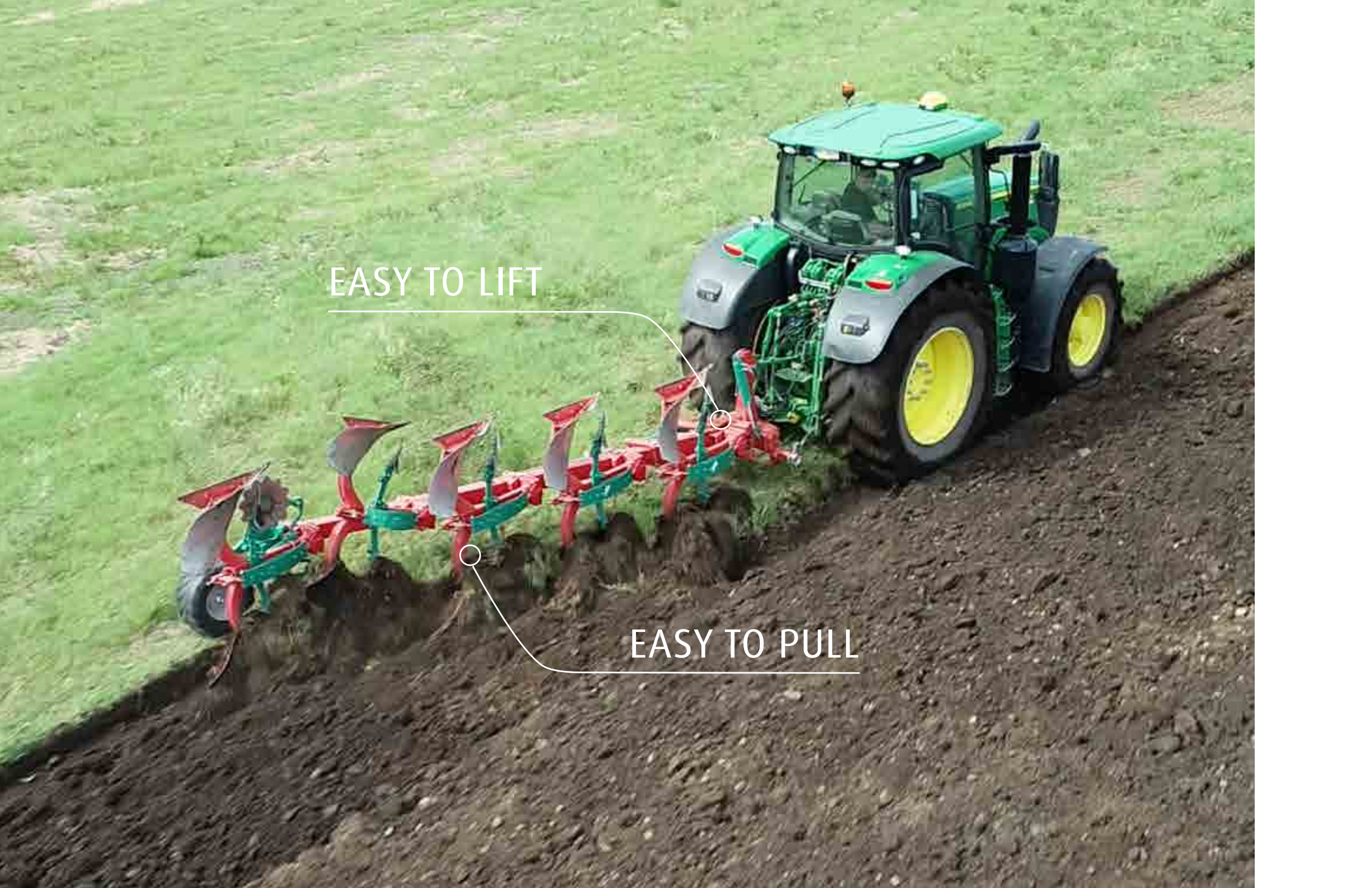
Different ploughing widths

For 85 cm interbody clearance: 30-35-40-45 cm (12-18")
For 100 cm interbody clearance: 30-35-40-45-50 cm (12-20")
For 115 cm interbody clearance: 35-40-45-50-55 cm (14-22")

The ED/LD models are extendable with one body from 2 to 6 furrow ploughs max.

Both models can be equipped with Kverneland Packomat.





EASY TO LIFT

EASY TO PULL

KVERNELAND ES/LS

ADAPTS TO ANY SOILS AND TRACTORS

Best Sellers

The ES/LS models are Kverneland Best Sellers for decades. These are compact ploughs, easy to lift, equipped with the Variomat® system to work in any soil conditions.

Variomat® ploughs

The ES/LS are fitted with the Variomat® for easy furrow width adjustments. This system helps you save time, optimise the output to the field conditions and save fuel consumption per Ha.

Variations "On the Move"

The Variomat® is simply operated via a turnbuckle or a hydraulic cylinder. The front furrow is adjusted separately in the same manner. With the hydraulic version, the working width can be adjusted "On the Move".

For extra comfort while reversing, the ES/LS can be fitted with a sequence hydraulic automatically bringing the plough to the narrowest working width before turning.

Model differences

The ES is fitted with the well proven Kverneland Auto-reset system for stony conditions whilst the LS has shearbolt protections (4.200 kg release pressure).

Low lift requirements & more stability

The first assembly mounted to the main support allows the plough to be as close as possible to the tractor. Therefore the lift requirements are significantly reduced compared to other brands. This smart design also contributes to a greater tractor and plough stability, particularly appreciated on hilly grounds.

Constructed for year in, year out performance

For maximum strength and durability, the mainframe of the plough is constructed from only one induction heat-treated box section 150 x 150 mm (no welding that would weaken the frame robustness).

The reliability and service life of a reversible plough mainly depends on the headstock. During both work and transport, this critical part of the plough is exposed to enormous stresses. The ES/LS are therefore fitted with the robust Kverneland headstock N° 200.

Suits all tractor models

The smart design of the headstock N° 200 allows easy adaptations to suit any tractors irrespectively of wheel widths or linkage geometry constraints.

Any 3, 4 and 5 furrow models can be extended by one body, max. 6 furrow plough.

Packomat is available for up to five furrow ES/LS ploughs. These ploughs feature a rear or a frame mounted wheel.





HIGH PRODUCTIVITY

EASY

KVERNELAND EG/LB VARIOMAT®

FOR EASY ADJUSTMENTS IN TOUGHER CONDITIONS

The Kverneland EG/LB: highly efficient reversible ploughs for medium to heavy soil conditions. Make soil preparation even more profitable.

Robust frame

The EG/LB ploughs are built around an induction heat-treated one box section frame, giving the necessary strength and **durability when working in arduous conditions**. No welding in order to avoid weaknesses.

Available in 2 versions:

Standard: 3-4 furrow EG/LB with a 100 x 200 mm mainframe and the headstock N° 200. Heavy duty: 5-6 furrow ploughs with a 120 x 200 mm mainframe, a reinforced front section and the robust headstock N° 300. The interbody clearance is 85, 100 or 115 cm.

EG/LB main differences

The LB plough is equipped with fixed legs protected by individual shearbolts, while the EG model is fitted with the well proven Kverneland Auto-reset system; maintenance free.

Variomat® benefits

The Kverneland EG/LB feature the Variomat® system, which not only **increases output but also saves time, fuel and money**. Ploughing and trash burying performance improve too.

The Variomat® allows easy adjustments to the preferred working widths. This is easily done either mechanically or hydraulically. Depending on models, it can be adjusted from 30 to 55 cm.

Automatic front furrow adjustment

The Variomat® system on the EG/LB allows the front furrow to be automatically repositioned. Therefore, the working width is kept equal from first to last body. It guarantees the **precision of the overall ploughing performance**.

Comfort and quality

A wide choice of setting options is offered and yet the EG/LB remain easy to use. For instance, the **Auto-line system** corrects the pulling line automatically.

As with other Kverneland heavy duty mounted reversible ploughs, an alignment cylinder is incorporated within the mainframe to **reduce stress on both tractor and plough during turnover**. This, together with a unique memory system, ensures that the desired furrow width setting is maintained following the plough reversing cycle.

Mechanical front furrow width adjustment is standard. However, a hydraulic cylinder is available and is recommended for **ploughing on side slopes** to control the front furrow width "On the Move".

The Kverneland EG/LB can be equipped with Kverneland **Packomat**. Any models can be extended by one body, max. 6 furrow plough.





COMFORT

On-land ploughing

EASY

KVERNELAND LO VARIOMAT®

HIGH PERFORMANCE FOR ON-LAND AND IN-FURROW OPERATIONS

Maximise comfort

The LO plough is **easy to manoeuvre** despite its size. The same plough offers In-furrow & On-land ploughing in a very easy manner: the driver has **fingertip control**. The main frame is hydraulically moved to the desired position.

In-furrow or On-land operations depend on soil conditions, weather and tractor type.

Thanks to the tractor Auto-steer, it is possible to plough On-land combining high performance with **extra comfort for the driver**.

Robust plough

The LO model is extendable by one body from 4 to 7 furrow max. The Kverneland steel, heat treatments and design enable **trouble free operations in the toughest conditions**. The 120 x 200 mm single box section frame is induction heat treated. Weldings would weaken the frame. In addition, the heavy duty headstock N° 300 provides the necessary strength for tractors having dual wheels or rubber tracks (up to 3,7 m outer track width).

Easy turnover

Despite its large size, the LO plough remains easy to manoeuvre. The unique **Kverneland steel reduces the weight of ploughs by 10-20%** compared to competitors and hence lifting capacity requirements.

The turnover is actually very smooth. This is enabled by the robust headstock N° 300 and the smart plough design: during on-land operations, the plough turns straight away from the on-land position.

During in-furrow operations, the plough easily changes to on-land position before turning. The main frame is moved to the tractor via a parallelogram. The plough is placed in a balanced position with its gravity center close to the tractor for a smooth turnover.

This alignment function prevents vibrations and extra tractor linkage loading. An optional sequence valve is required for this operation. The turning efforts of a 7 furrow LO plough becomes as limited as those a smaller Kverneland plough.

Easy working width changes

Kverneland LO offers either manual or hydraulic working width adjustments: Variomat® system. The latter enables quick and easy working width changes from 35 to 55 cm (14-22") from the tractor cabin. Manual furrow width adjustments are possible from 30 to 50 cm (12-20") in steps of 5 cm by repositioning only one bolt.

LO model leg protections

The LO plough is equipped with the shearbolt leg protections.



KVERNELAND 2500 i-PLOUGH®

INNOVATIONS THAT COUNT

The Kverneland 2500 i-plough® is recommended for tractors around 206kW/280hp. Each and every developed innovation benefit the users working life: reach the perfect ploughed field in the most efficient and easy manner.

1

ISOBUS controlled operations

Four essential functions are covered by the ISOBUS: **Ploughing, Transport, Marking and Connecting**. The most important plough settings are enabled for the perfect ploughed field.

2

Hinged headstock

Changing from transport to ploughing position can be done from the tractor cabin.

3

Trailer transport concept

The plough actually behaves like a trailer. **Optimised safety** for the driver and for anything/anyone around.

4

Aero-profile legs

This new design prevents potential blokages when ploughing in high residue fields.

5

Central adjustment of skimmers

Save time for the perfect ploughing. The 2 skimmers adjust simultaneously.

6

Swivel depth wheel mechanism

This principle increases the **driver's comfort** at headlands.

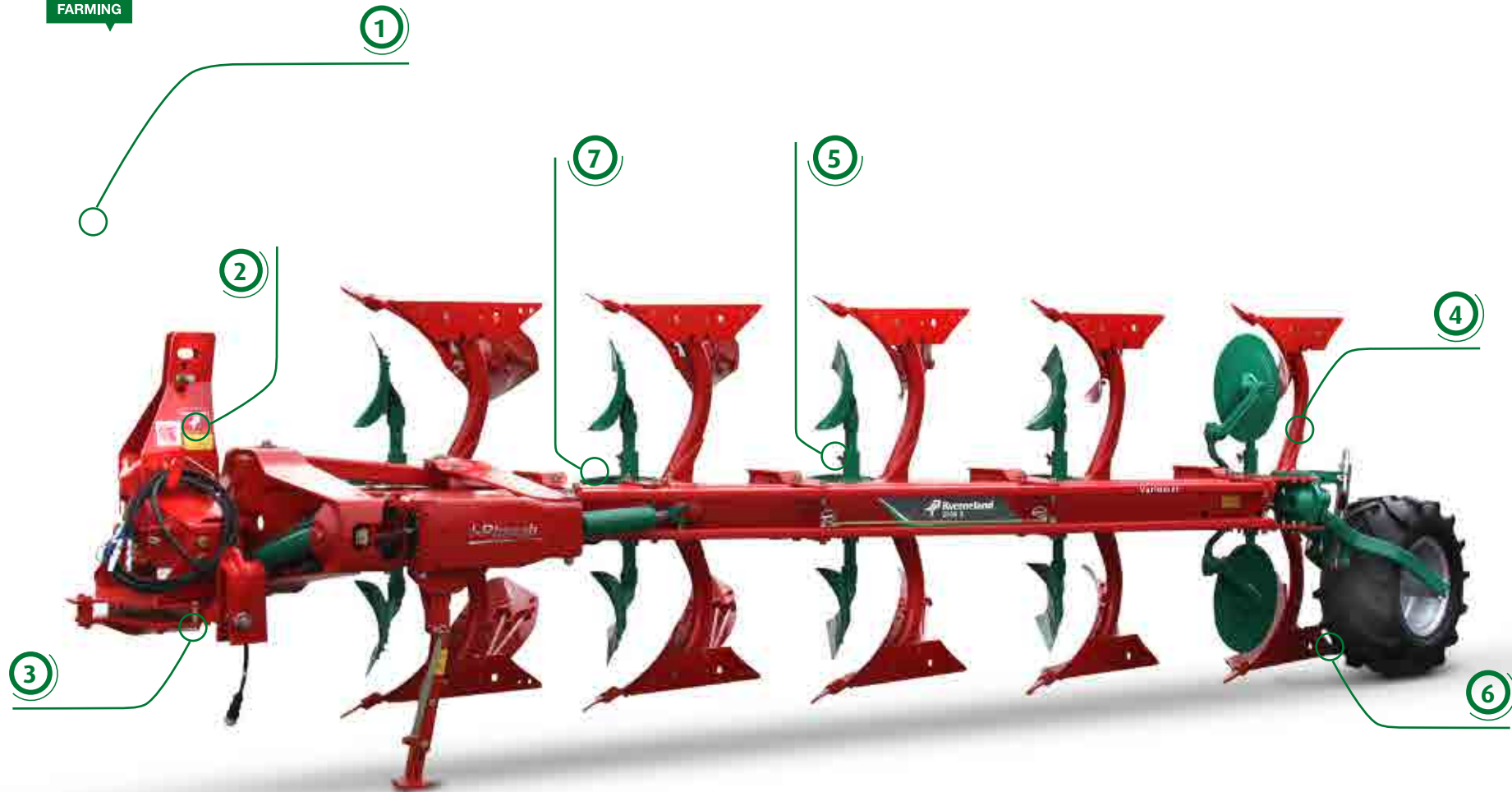
7

Add on leaf spring system

Easy adjustment of the leg releasing forces.

Maximise productivity

More information in the Kverneland 2500 i-Plough® specific brochure





EFFICIENT

SHALLOW PLOUGHING

180 ° soil turning

KVERNELAND ECOMAT VARIOMAT®

EFFICIENT SHALLOW PLOUGHING FOR EXTRA BENEFITS

Efficient shallow ploughing

Research shows evidence that in some particular soil conditions, shallow ploughing is recommended. The Kverneland Ecomat enables a very efficient shallow ploughing from 10-18 cm. It handles well light to medium soils and shows good results in heavy soils.

“Waste grain, plant remains and weeds are mixed into a smaller volume of soil which leads to a higher content of organic materials in the upper soil layer.

Water management is improved. The soil is hence easier to work and the risk of crust formation is reduced. This results in **good growing conditions**”. (T. Ryberg, Professor at the University of Agricultural Sciences, Uppsala, Sweden).

Ecomat bodies

The design of the Ecomat parts is quite specific to achieve the best performance in shallow ploughing. For instance, the Ecomat bodies are shorter and lower than Kverneland plough bodies. Their cylindrical shape **turns the soil fast to 180°**. Straw and other residues are well mixed, placed at the bottom of the furrow while leaving a trash free surface.

Ecomat bodies are available as **steel or plastic** for sticky, non-stony conditions. Additional Kverneland accessories help achieve perfect results: skimmer knives slice the top

of the furrow or alternatively landside knives for light sticky soils. Trashboard fingers can be fitted either on the top of the mouldboards or onto the skimmer knives. Plastic leg covers prevent straw and trash from sticking to the legs.

Better than reduced tillage

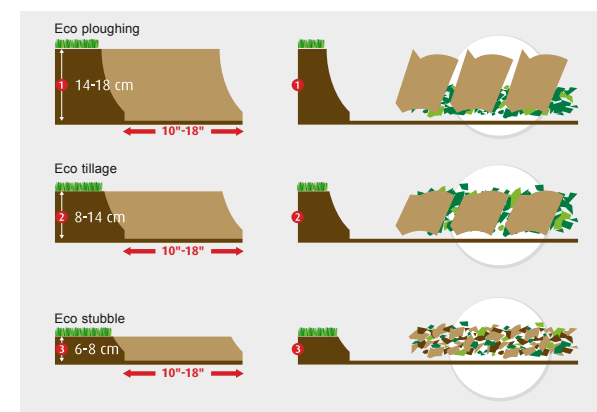
Compared to a reduced tillage system, the Ecomat buries plant residues more efficiently. The Ecomat also **improves the mix of trash to soil** which ensures that the seeds get in contact with the soil. Lesser trash concentration reduces the risk for fungal attack on the following crop. The soil structure is improved. Chemical usage is reduced. Plants grow quicker. Therefore, the Ecomat ensures a **more secure and stable cultivation method with better results**.

Better than conventional tillage

Compared to a conventional tillage, 20-30 cm working depth for well buried weeds, the Ecomat enables ploughing from 10 cm up to 18 cm (once fitted with the Ecomat Ecoshare). In principle, the deeper ploughing, the higher pulling force requirements. With the Ecomat, the shallow ploughing only requires a **light weight tractor**, and hence **lesser fuel consumption and soil compaction**. The **soil structure being less disturbed** and water drainage improved, the **plants grow quicker and better**.

High working capacity

The Ecomat is available from 5 to 8 furrows for **up to 4 m working width**. The design of the Ecomat and the Kverneland steel heat treatment technology guarantee **low lifting capacities and low pulling forces**. For stubble, 3-4 Ha/hour can be achieved at 12 km/hour.



Kverneland Ecomat for 3 different working methods:
Multipurpose implement for proven savings

EASY

handling from tractor cab

100% INTEGRATED

from work to transport

ECONOMIC

No need for additional pulling forces

OPTIMISED

levelling with front harrow

EFFICIENT

soil preparation up to seedbed

KVERNELAND PACKOMAT

EFFICIENT SOIL PREPARATION

100% integrated Packer

Packomat follows the plough from transport to work. Compared to other packers, the Packomat offers **high productivity gains**.

Easy handling

From the tractor cabin, it is **easy to position** the Packomat for transport or work or even lifted for ploughing on field boundaries.

Optimised levelling

Choice of front harrows to crush clods and ring diameters to re-consolidate the soil.

Maximised profits

Packomat contributes to the balance of the plough in work. **No extra pulling forces** are needed and hence no extra fuel. The landside pressure is actually reduced and therefore the wear of the landsides.

Ploughing and re-consolidating are two operations carried out in **only one pass with no extra cost**. Packomat contributes to maximise profitability.

Efficient

Packomat **works in any ploughing conditions**. Soil preparation can be extended to seedbed. Available from 4 to 12 furrow Kverneland ploughs, Packomat is an efficient tool. No need for extra manpower for a safe transport.

Agronomic benefits

The combination of ploughing and re-consolidating is both **efficient and environmentally friendly**. Soils are loosened, organic matters are incorporated to enrich the soils. Weeds are controlled mechanically.

The elevation of temperature of the ploughed soil is actually positive. The associated water evaporation is limited by the immediate re-consolidation by the Packomat rings. **Water capilarity is hence re-established** for the benefit of the soil life.

Packomat is a Kverneland invention





SMOOTH

with shock absorber

PACKER ARM

STRONG AND RELIABLE



Packer arm connecting to the packer



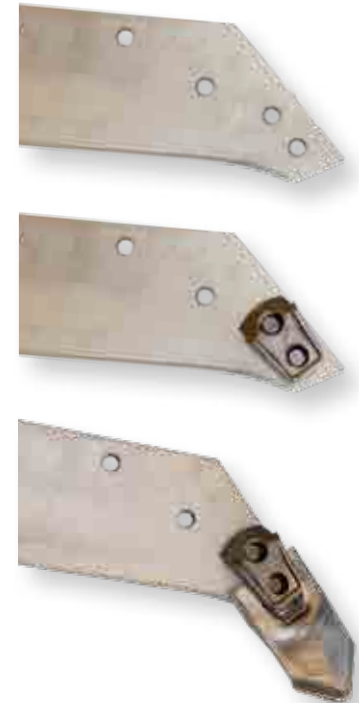
Spring system

The Kverneland packer arm is available for all Kverneland mounted reversible ploughs and for all packers.

Economic

Packer arms are connected to the headstock on most of the Kverneland plough models in order to minimise additional side forces during ploughing.

The operations are quick, easy and smooth thanks to the hydraulic release system and to the spring system which absorbs shocks. Simple manual handling for transport position.



KVERNELAND KNOCK-ON®

QUICK & EASY

Smart

The Knock-on® system consists of **only 2 parts**: a holder fixed to a regular Kverneland share and a Knock-on® point.

Clever

Kverneland Knock-on® is a **universal system**. Plough Knock-on® points can also be used for cultivators.

Long lasting

Knock-on® benefits from the **Kverneland steel technology** (quality steels + Kverneland heat treatments). The quality of the steel combined with a clever design ensure a long life to the Knock-on® system. Therefore, Knock-on® points can be used **in any soil conditions**.

Quick

Knock-on® points are **changed in a few seconds**. It makes sense to save 90% of your time in changing points when working in abrasive soils (points wear quicker) or when having a 5+ furrow plough.

Easy

The only tools needed are a chisel and a hammer (2 kg). Field tests reveal that, as an average, 3 points can be mounted on the same Knock-on® holder. **No bolt to unscrew** helps save time. In addition, when the holder is worn out, it is normally also time to change the share, without unscrewing the holder. **Very handy!**

Agronomic benefits

Good soil penetration & Stable in work

Knock-on® has been tested in several soil conditions. Even in the hardest soils, the points ensure a **good penetration**.

Low pulling forces

Kverneland bodies are renowned for their unrivalled low pulling forces. With Knock-on® points, the pulling forces remain **low** and hence the **fuel consumption**.

Soil flow protection

The clever design of Knock-on® actually protects the other parts of the body while allowing an **efficient soil flow**.



Soil flow protects other parts.

KVERNELAND QUICK-FIT FOR TOUGH CONDITIONS

High quality for low wear

The patented Quick-Fit system consists of a share, a special holder and a very unique point. All parts are made of **Kverneland Top Quality Steel** which benefit from a unique Kverneland heat treatment to guaranty their robustness and low wear for an **optimal life time**.

The share and holder are bolted to the body, while the Quick-Fit point is fitted to the holder by a **unique locking system**. It fits just by a few sharp taps with a hammer. Not least, when the points need to be changed, it is simply removed by means of a taper drift and a hammer.

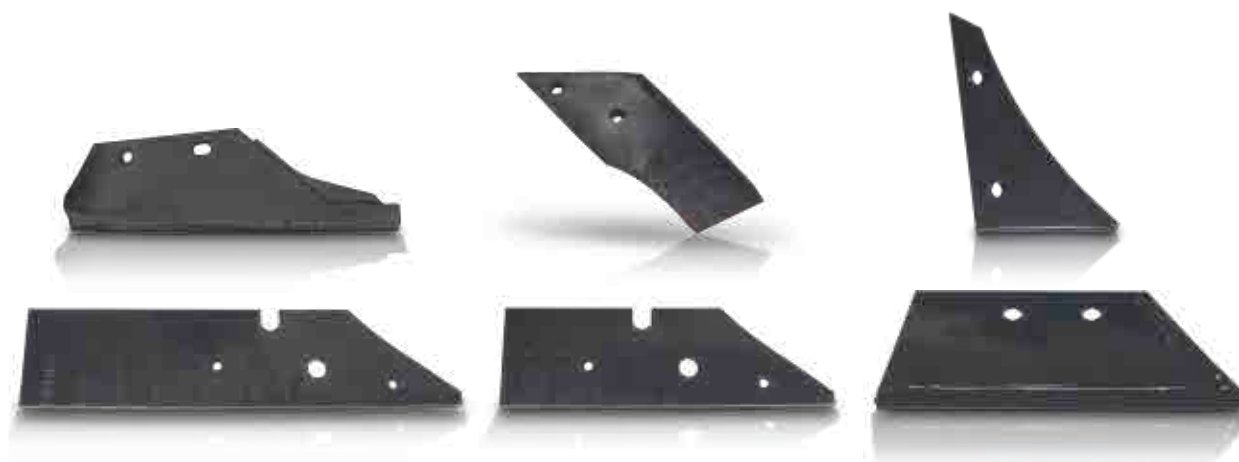
Maximise productivity

The Quick-Fit points take far less time to change than conventional equivalents. Hence the machine is back in work **much quicker**.

One farmer from North Yorkshire, UK, comments “We have reduced downtime from about 30 minutes to five minutes when changing points on our 8 furrow reversible plough... the Quick-Fit system is also quite versatile. If we are in some very hard, dry conditions and are struggling for penetration, we can simply knock-off a set of partly worn points and put on new ones while in the field to get the plough in the ground.”



XHD CARBIDE REINFORCED PARTS STRONGER THAN EVER



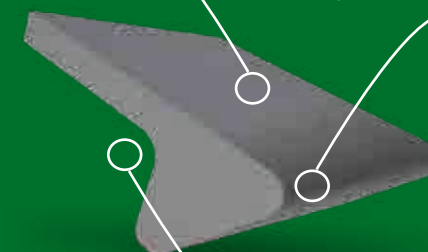
Kverneland's XHD Carbide reinforced parts are designed with the most extreme conditions in mind. With a lifetime up to 8 to 10 times the life* of the standard parts, they keep costs and downtime to a minimum. Kverneland's tried and proved heat treatment processes paired with groundbreaking new designed Tungsten Carbide tiles will provide the best weapon against abrasive soils.

**Based on average test conditions. Depending on soil type, moisture content, machine type, working speed, working depth, machine width and mounting position.*



Additional protection of steel body

Extremely shock resistant



Avoids wearing the steel point

Corner Tiles make the difference

The traditional method of reinforcing steel parts is to apply flat tungsten carbide tiles to the surface of the cutting edge. However, these only protect the surface - not the cutting edge.

All cutting edges of the Kverneland XHD range are equipped with Corner Tiles. These specially designed tiles wrap around the leading edge, protecting both the surface and edge from wear and damage. The result is a sharper, long lasting edge - that remains resistant to shocks and breakages from hard impacts.

ACCESSORIES TO MAXIMISE EFFICIENCY



Easy adjustable skimmers

To ensure optimum positioning of the skimmer, a quick adjusting system is incorporated on all plough models. The skimmers are available in two versions: standard manure and maize skimmers for those difficult conditions with large amounts of trash.



Trashboards

Particularly useful when large quantities of surface trash are present (manure, straw etc.)



Shares

Shares with Reversible Points:

The most cost efficient system to plough in difficult conditions like hard or abrasive soils.

Shares with Flush Fit Points:

Recommended for ploughing in sticky soil conditions. The point is fixed by means of a single bolt and is therefore quickly replaced.



Plain disk coultter

Notched disc coultter

Disc Coulters

Available in sizes 45, 50 and 55 cm (18, 20 or 22") diameter, plain or notched. Disc coulters are mounted on single arms. Easy to adjust to suit all conditions.



Sword Share Knives

These are an alternative to disc coulters, either to reduce weight or to avoid blockage from trash and stones. It can only be used on ploughs fitted with reversible points.



Landside Knives

A very good alternative to disc coulters, either to reduce weight or to avoid blockage from trash and stones. A good combination with skimmers.



Eco share

Designed to 10 cm below the normal ploughing depth. Also an alternative for up to 10 cm narrower ploughing depth.



Furrow Opener

For use on the rear body to increase the width of the furrow bottom in order to accept tractors with larger tyres: up to 30" wide for example.



Furrow Splitter

Bolted to any parts of the mouldboard or share, the furrow splitter is designed to cut through heavy soils making it easier for the following operations.

LEG PROTECTIONS

LINGER THE EQUIPMENT LIFE TIME



HD package
with 9 leaves (900 kp)



Double spring package
with 14 leaves (1400 kp)

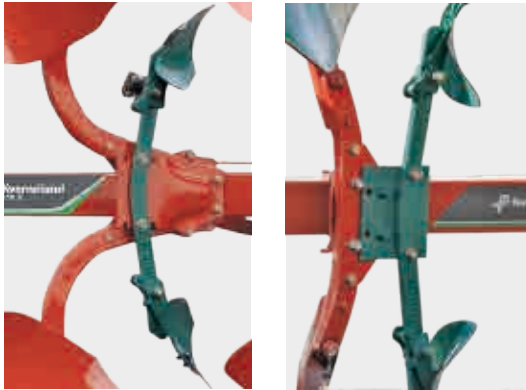
Auto-reset protection: add extra leaves when needed

The standard Auto-reset system includes 7 Kverneland heat treated springs (640 kp). For heavier to extreme soil conditions, extra leaf springs are added for up to 1400 kp. Extra springs are normally recommended for the first body.
Models: 150 S, 150 S Variomat®, ED, ES and EG.



Hydraulic stone protection

- adjustable release pressure from 600 to 2100 kg
- models: ED, ES and EG.



Shear bolt legs

Left picture: 3400 kg release pressure

models: 150 B & 150 B Variomat®

Right picture: 4200 kg release pressure

models: LD, LS, LB, LO



ACCESSORIES

WHEEL RANGE



Steel wheel:
165 x 500



Rubber wheels:
6.00 x 9



200 x 14,5



320/60 x 12



Easy and fast adjustment of the working depth with Y-screws

Transport position.
Rear mounted depth and transport wheel

DEPTH WHEELS



Rear mounted depth wheels

- rubber or steel wheels: 6.00 x 9
- designed for small plough models



Rear mounted depth wheels with telescopic arm

- also available as frame mounted depth wheel
- steel wheel: 165 x 500
- rubber wheels: 6.00 x 9 | 200 x 14,5 | 320/60 x 12
- option: scrapers



Rear mounted depth wheels

- rubber wheels: 200 x 14,5 | 320/60 x 12
- mechanical or hydraulic shock absorber included
- option: scrapers

COMBI WHEELS



Rear mounted depth and transport wheels

- rubber wheels: 200 x 14,5 | 320/60 x 12
- option: scrapers



Rear mounted depth and transport double wheels

- rubber wheels: 200 x 14,5 | 320/60 x 12
- recommended for large ploughs
- option: scrapers



Rear mounted depth and transport wheels with hydraulic depth adjustment

- rubber wheels: 200 x 14,5 | 320/60 x 12
- ideal for a shallow finish on headlands
- option: scrapers

FRAME WHEELS

**Frame mounted depth wheels**

- rubber wheels: 200 x 14,5 | 320/60 x 12
- option: scrapers

**Frame mounted depth and transport wheels**

- rubber wheels: 200 x 14,5 | 320/60 x 12
- option: scrapers

**Frame mounted double wheels**

- steel wheel: 400 x 250
- rubber wheel: 18 x 8.50-8
- available for Kv 150 B and B Variomat®, Kv 150 S, ES & LS
- higher output from 16" onwards

ORIGINAL PARTS & SERVICE

LET'S FOCUS ON YOUR BUSINESS

ORIGINAL
PARTS

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TECHNICAL DATA

Model	Interbody clearance cm	Head-stock	Type of beam	Working width cm	Underbeam clearance cm	No. of furrows	Weight (kg)						Lift requirement (kg)					
							3	4	5	6	7	8	3	4	5	6	7	8
150 B	85/100	N° 150	Shearbolt	30-45/35-50*	80	3-5	820	1050	1165	-	-	-	1700	3100	3700	-	-	-
150 S	85/100	N° 150	Autom.	30-45/35-50*	70/75	3-5	990	1185	1390*	-	-	-	1850	3250	3900	-	-	-
150 B V	85/100	N° 150	Shearbolt	35-50	80	3-5	890	1120	1235	-	-	-	1800	3250	3850	-	-	-
150 S V	85/100	N° 150	Autom.	35-50	70/75	3-5	1050	1275	1500*	-	-	-	2800	3650	4200	-	-	-
LD	85/100	N° 200	Shearbolt	35-45/30-50*	70/80	3-5	1020	1200	1460	-	-	-	2500	2900	4400	-	-	-
LD	115	N° 200	Shearbolt	35-55*	70/80	3-5	1110	1290	-	-	-	-	2900	3600	-	-	-	-
LD	85/100	N° 300	Shearbolt	35-45/30-50*	70/80	4-6	-	1350	1550	2000	-	-	-	3300	4600	5600	-	-
LD	115	N° 300	Shearbolt	35-55*	70/80	4-5	-	1660	1980	-	-	-	-	3900	5900	-	-	-
ED	85/100	N° 200	Autom.	30-45/30-50*	70/75	3-5	1050	1220	1720	-	-	-	2600	3600	5400	-	-	-
ED	115	N° 200	Autom.	35-55*	70/75	3-4	1200	1490	-	-	-	-	2800	4200	-	-	-	-
ED	85/100	N° 300	Autom.	30-45/30-50*	70/75	4-6	-	1650	1900	2200	-	-	-	4600	6000	8000	-	-
ED	115	N° 300	Autom.	35-55*	70/75	4-5	-	1900	2100	-	-	-	-	4800	6600	-	-	-
LS V	85/100	N° 200	Shearbolt	30-50	70/80	3-6	1060	1200	1570	1800	-	-	2260	3300	4200	6000	-	-
LS V	115	N° 200	Shearbolt	35-55	70/80	3-4	1100	1340	-	-	-	-	3200	4200	-	-	-	-
ES V	85/100	N° 200	Autom.	30-50	70/75	3-6	1200	1360	1700	1950	-	-	2700	3900	5200	6500	-	-
LB V	85/100	N° 200	Shearbolt	30-45/35-50	70/80	3-5	1120	1290	1450	-	-	-	2500	3700	4800	-	-	-
LB V	115	N° 200	Shearbolt	40-55	70/80	3-4	1180	1380	-	-	-	-	2900	3800	-	-	-	-
LB V	85/100	N° 300	Shearbolt	30-50/35-55	70/80	4-6	-	1650	1850	2050	-	-	-	3900	5800	6700	-	-
EG V	85/100	N° 200	Autom.	30-50/35-55	70/75	3-5	1180	1470	1630	-	-	-	3100	4300	5100	-	-	-
EG V	115	N° 200	Autom.	35-55	70/75	3-4	1250	1570	-	-	-	-	3600	4600	-	-	-	-
EG V	85/100	N° 300	Autom.	30-50/35-55	70/75	4-6	-	1700	2000	2300	-	-	-	4900	6300	8200	-	-
LO	85/100	N° 300	Shearbolt	30-50*	70/80	5-7 (6+1)	-	-	1900	2080	2220	-	-	-	5900	6750	6950	-
LO V	85/100	N° 300	Shearbolt	35-55	70/80	5-7 (6+1)	-	-	2000	2200	2400	-	-	-	6100	7000	8500	-
2500B i-Plough®	85	N° 250	Shearbolt	30-60	80	4-6	-	1830	2130	2470	-	-	-	4800	6425	8350	-	-
2500B i-Plough®	100	N° 250	Shearbolt	30-60	80	4-6	-	1890	2205	2630	-	-	-	5050	6675	8750	-	-
2500S i-Plough®	85	N° 250	Autom.	30-60	80	4-6	-	1950	2280	2650	-	-	-	5100	6800	8800	-	-
2500S i-Plough®	100	N° 250	Autom.	30-60	80	4-6	-	2010	2355	2810	-	-	-	5350	7050	9200	-	-
Ecomat	65	N° 200	Autom.	30-50	72	6-8	-	-	-	1570	1680	1810	-	-	-	3300	4000	4780

* = 5 cm steps

* only 85 cm Interbody clearance

Most models can be extended by one body. All weights are given without optional equipment (net weights).

The lift-requirements are given with the following equipment: depth wheel, one coulter and skimmers for all furrows.

Weights and lifting requirements are given for ploughs with 85 cm 'interbody clearance'. For ploughs with 100 cm clearance, please adjust according to the following:

Weight + 15 kg/body, lifting requirement + 50 kg/body.

Most ploughs with stepless ploughing width and interbody clearance of 85 cm have a working width between 30-45 cm, while ploughs with 100 cm have a working width between 35-50 cm.

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