

Cultivators for Effective Stubble Incorporation



Kverneland Cultivators

Whatever the Soil, there will always be a CLC!



CLC Evo



CLC Evo Wings





CLC pro



CLC pro Classic



The Right Base

Frame Structure up to 350 HP

Enhanced Power

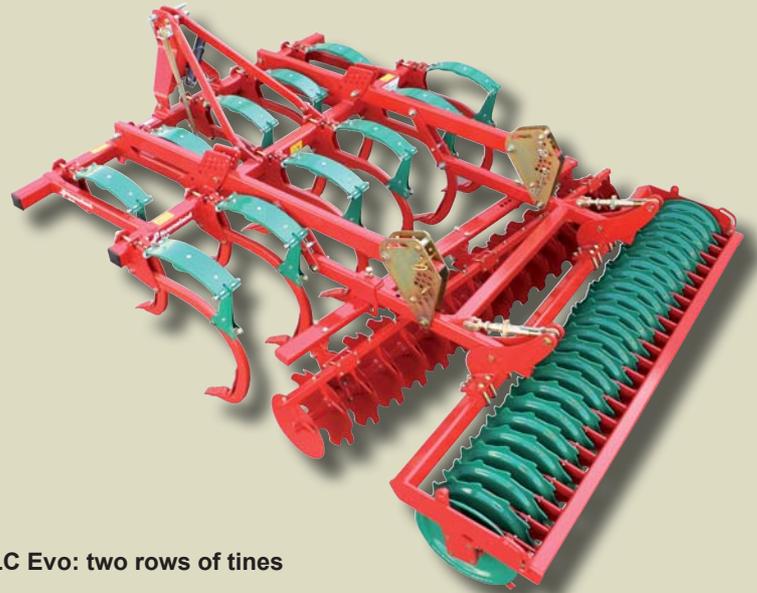
The very versatile CLC is prepared to comply with many requirements and can be used to work at important depths as subsoiler (40cm solo) or with heavy accessories. Apart from this large range of application, the extension of the power available caused Kverneland to re-design the frame, the master piece of this implement. Based on the theory "who has most power - has the least" we have developed a new range of frames which can absorb for example 240hp with 3.00m and up to 350hp for the folding implements with 5.00m. Kverneland sets a new standard regarding the power accepted for mounted cultivators.

Material treatment

The material choice is decisive for the lifetime of a machine. Like with a plough, the weakness of a mounted cultivator becomes noticeable not only in field but also during transport and on headlands. Since the beginning of the conception stage, various tests have shown us the stress points of the machine very precisely. The material used can be calibrated effectively therefore the ratio between reliability and weight can be optimised. That's why, just like with our ploughs, we use tubes that are heat treated. By this the material is able to bear significant loads, while staying reliable and the light. The weight carried by the tractor is thus reduced and helps saving fuel.

Security

An automatic locking hook offers maximum safety for the complete range of folding models during transport and in the park position. Parking legs are also part of the standard equipment.



CLC Evo: two rows of tines



CLC pro - three rows of tines foldable with main frame 200 x 200mm

Kverneland Cultivators

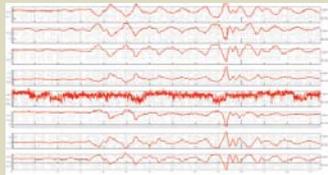
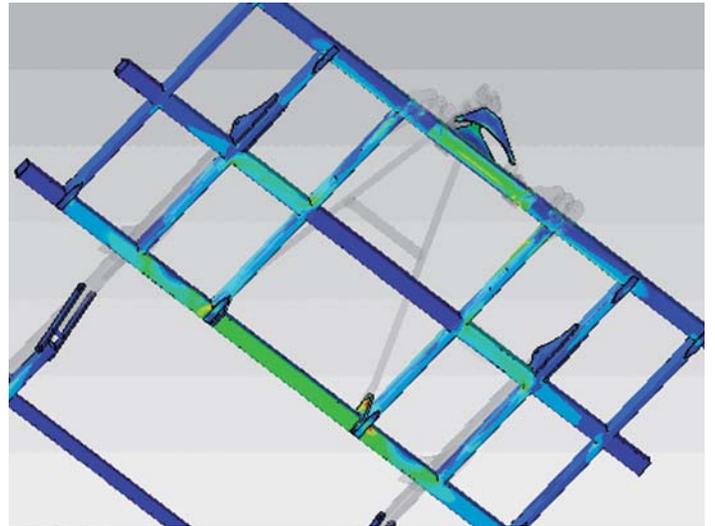
The Three Critical Phases of the Frame Development

A mounted cultivator has to cope with a lot of force during work but also during transport.

The high forces reported to the structure can be managed and dispatched around the structure. Various tests can determine this.

FEM calculation

The FEM calculation is done in parallel to the shaking test to report and confirm what can be done physically on the robot shaking the machine. It analyses the data, the factors checked and confirms the power ability of each structure. This enables Kverneland to rate a 3.0m cultivator at 240 hp.



Shaking test

The cultivator is attached to a robot which shakes the machine over a given period and is able to replicate stress during transport and work for the lifetime of the product. The stress test is conducted over a period of weeks and provides information about the reliability of any structure. It is the best way of securing the launch of new products and to be sure about the reliability of our machines.

Strain gauge test

Gauges are placed in strategic points of the structure. Forces registered are sent to a computer which can report data and inform what is the stress at those points. The basic data will also be used to prepare the next test phases.

This know how is now used for all new developments and has proven to be very efficient on our cultivator range. We are investing a lot to allow our customers to make the best profit with our equipment.



High Tech Hollow Tine Technology

High Flexibility

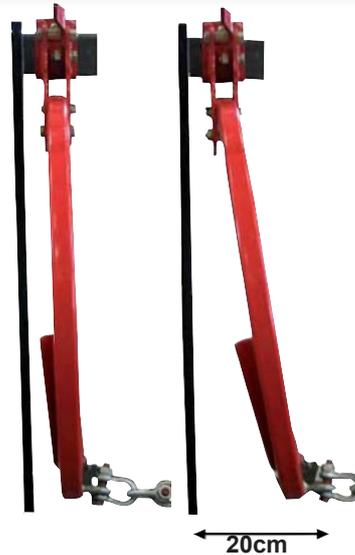
One of the main advantages of the hollow tine technology is the ability to flex sideways by up to 14 to 20cm helping to bypass obstacles below the field surface. Fields are rarely 100% square and the sideways forces for standard forged and full material tines produce a lot of stress to the tine holder system and consequently to the frame structure. To avoid this stress on all components Kverneland think strong rather than big: The natural quality of fine grain steel and the use of our proven heat treatment process can provide immense strength to a simple piece of tube. Being flexible this tube can then "flex around" obstacles and erase stress peaks by dispersing it throughout the implement.

Maintenance-free Zone

The CLC tine is maintenance-free zone. All components being heat treated and produced from a very high quality hardened steel. These parts are then able to sustain high pressure and friction without the need for any greasing. Greasing is both costly and time consuming and in some cases greasing parts can cause even more damage (at its worst grease attracts fine dust and encourages wear). Therefore Kverneland always minimises the need for greasing points when designing their machines.

A Special Angle

The tine shape with two working angles guarantees an efficient penetration. The first zone lifts the soil for a good loosening. The second zone with little power requirement ensures an efficient and homogeneous mixing.



F = 640kg



Kverneland offer a wide selection of shares including the new Knock-on patented system. The CTC is now using a unique "C" tine design and can be equipped to suit all your needs in all crops every season, every year!

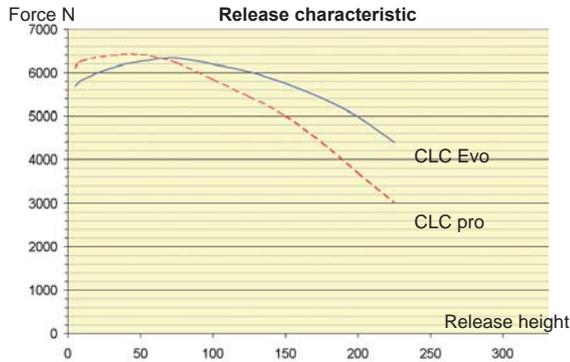
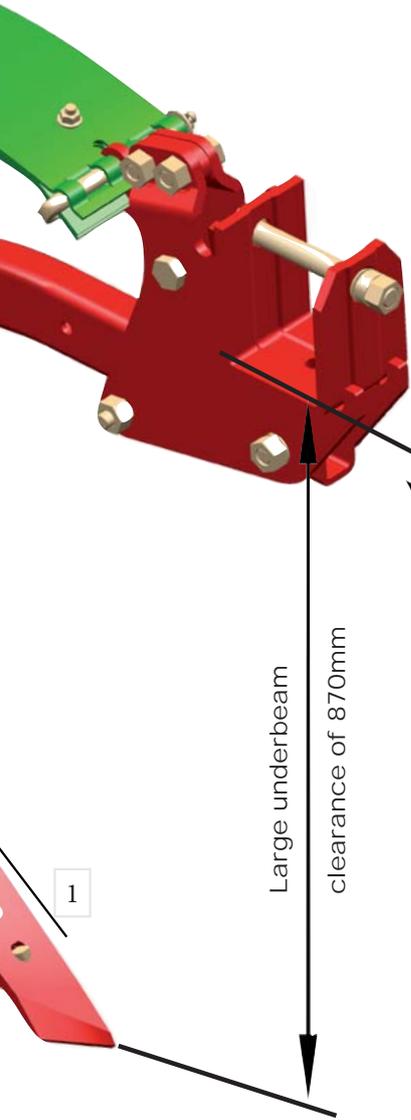


„C" Tine with standard reversible plough point.



Standard reversible point in combination with 30cm wing share for shallow working.

A New Jack Hammer



The systems' kinematics describe a descent of force beyond a release height of 10cm to avoid a transmission of stress onto the frame structure.



Hollow tine 70x40mm

Leaf spring

The renowned Kverneland Auto-reset leaf spring system (same as on the ploughs) guarantees highest reliability as well as low maintenance costs. Being a real 3D safety system, the Kverneland leaf spring system allows movements up to 35cm and thus supports perfect cultivation results even at a deep working depth.

With 640kg a stable position of the tine is ensured under all soil conditions for a constant depth control. The piano effect is minimized and the fuel consumption reduced to a minimum.

Vibromat shear bolt system

A unique shear bolted system is also available which is based on the same components. The leaf spring is replaced by a plate holding a standard 12mm shear bolt through the leg. With the tine being so flexible the leg can flex backwards 10cm and reach up to 2 tons pressure at the point before the bolt shears. This effect is named Vibromat®, and anticipates untimely breaking of bolts and therefore helps to reduce down time.



Patented Tine Holder

This tine holder system consists of squeezing a U-shaped plate onto the frame beam by means of a single bolt. This U-plate is 100mm wide and enables the tine to be located deep onto the main frame.

One of the many advantages of bolted tine carriers is the reduction in frame weakening when welding is required. With the tines being light (35kg) and fitted with a single bolt, it is very easy to take them off to adapt the cultivator to the working conditions and the tractor available.



Coulter width (mm)	360/470	320	250	150	80
Working depth (mm)	3-18	3-15	3-15	8-25	10-35

Kverneland Cultivators

Fast and Easy Metal Change with



With Knock-on minutes become seconds!

To change the points on a 3.00m unit with 10 tines it takes 1.30 minutes - while 20 minutes are necessary with bolted reversible shares.

Soil friendly

The Knock-on range is full of possibilities offering 6 width of cutting with 80, 150, 250, 320mm shares and 360/470mm wing shares to match with various tine spacing and depth requested.

The combination of the 150mm point and the wing shares 360/470mm is mostly used for shallow cultivation with 2 row machines. The wings can be removed quickly by removing 2 bolts when deeper operations are necessary. It is not easy to perform cultivation in ideal soil conditions every year. When work has to be done the machine should provide the best possible effect and cause the least damage to soil structure. Therefore, the Knock-on system offers a wide range of deflectors and tine protections which can be more or less active in boiling and breaking down aggregates.

In wet soil a wide deflector should not be used. a narrow protection plate will produce smaller aggregate maintaining soil structure. This in addition will save fuel. However in optimum conditions a good boiling effect will be possible with the wide deflector.

In order to make it easy and fast, the deflectors are locked by a single bolt.



90% Down Time Saving!

Cost Effective and Eco-Friendly

Knock-on is a patented system* and the easiest way of changing parts on a cultivator, either to adapt the machine to the job to be done or to change wearing parts. This user friendly system is able to work from 3 down to 35cm in a very economic way in regards to the low pulling requirement and the cost of the parts which is at same level as the standard points.

Kverneland always use the highest quality steels. This enables the Knock-on to use a simple locking system. The Knock-on system fits easily to the tine, requesting only a hammer to knock the parts in and out in seconds.

**Patent pending*



Economic...

The bulb shape on the shares protects the holder system by decreasing the soil pressure on it. The holder can take several shares before it has to be changed, reducing the downtime dramatically.

If the soil is wet or dry the shares will not behave the same way:

1. In dry soil, the point wears down to the end, the bulb continues to protect the holder.
2. In humid soil, the point wears thin but will not lose its shape. when a hole appears its time to consider changing the point.

...and Ecologic

As a comparison, a standard reversible point (1300.g) worn out after having done the same number of hectares (been reversed half way) as the Knock-on parts above. Knock-on allows to use up to 75% of the original part, when only 60% with standard points, thus saving more than 200.g of steel each time a point is changed.

Thousands of Kverneland tines will contribute to save a lot of steel and energy!



1000g



250g



280g



500g



“I was using carbide tips on our CLC, but the Knock-on system is taking less power and keeps the best possible penetration capacity. I’m carrying a set of shares in the tractor cab and we can quickly change them in the field when worn-out or fit the wider shares for shallow cultivation to optimise fuel consumption. In our soils we can use 6 to 7 points per holder in a season, which makes it very economic when considering fuel and time savings.”
Ludovic Chaillou, SCEA les grives aux loups, farming 300ha (France, Boufféré 85).

Kverneland Cultivators

We Make the Difference!





The weather conditions may differ quite considerably from year to year and also various crop rotations make it difficult to have just one implement to meet all requirements. This is why Kverneland offers a wide range of cultivators and accessories in order to provide the right implement for all the different requirements and various conditions.

This large variety together with the demand for an economic solution require a flexible and versatile implement. The CLC has within 20 years become an implement very much appreciated because of its working quality, its reliability and its great versatility.

2 or 3 rows of tines?

The choice between 2 or 3 rows of tines depends on the soil conditions, on the pulling power available and on the specific application. To cope best with all these requirements, Kverneland offers these two configurations in their portfolio.

	2 rows	3 rows
Lifting performance	✓✓✓	✓
Traction performance	✓	✓✓
Heavy accessories	✓✓✓	✓
Incorporation in solo operation	✓	✓✓
Incorporation with accessories	✓✓	✓✓✓
Soil flow	✓	✓✓✓

- ✓ = good
- ✓✓ = very good
- ✓✓✓ = excellent

For Stubble Cultivation or general Soil Loosening



The CLC Evo has been developed based on the CLC which has been well-proven for 20 years. The CLC offers the user the right solution for the changing technology and the increased traction performance.

The CLC Evo is equipped with the technical features of the CLC pro with 3 rows. It is based on the same design of the frame and the parallelograms supporting the accessories.

The CLC Evo, therefore, matches its 3-row equivalent. It can be combined with the heaviest rollers and accessories for a good re-compaction and a reduced overall length. This compact design reduces the power requirement of the CLC Evo and

optimizes the connection between tractor and implement.

The tines are fixed by a single bolt at the frame and can be easily taken off or replaced in order to adjust to the power available or to prepare the machine for loosening the sprayer tracks in solo operation.

CLC Evo at a glance:

- **Frame: 2-bar**
- **Tine: long CLC**
- **Levelling: disc gang only**
- **Rollers: full range**

KNOCK-ON

Easy and fast share chngement



Bolted shares



The CLC tine is the best possible combination to go with single and double disc sections. Due to its rather small size, the lifting and intensive breaking of the soil into smaller clods supports a good mixing of the plant residues with the soil by the following disc section.

For shallow stubble cultivation, there is the option of the wing share of 300mm operating over the entire working width of the machine.



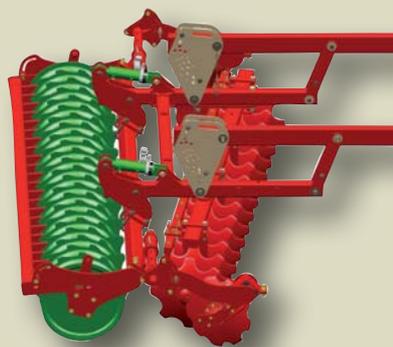
Gauge wheels

When equipped with a double disc gang or in solo operation at a deeper working depth, the gauge wheels give the CLC Evo more stability and help control the working depth. (Gauge wheels 600x9 for rigid models, 700x15 for folding models).

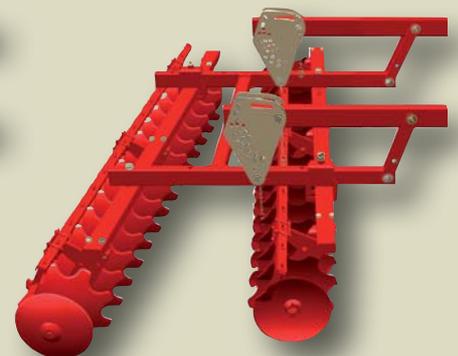


CLC Evo: Rear Accessories

With the narrow tine spacing of 280mm, the best combination is the use of a disc gang. As the CLC tine is designed to work some depth, the disc gang is handling the top layer by incorporating the straw and crumbling. It can be either a single one which is then used in combination with a roller, or a double disc gang for intensive mixing and crumbling.



Combidisc + roller of choice



Double disc gang

Kverneland CLC Evo Wings

CLC State of the Art Stubble Cultivator



The CLC EVO Wings is the state of the art stubble cultivator. The CLC standard frame is equipped with less tines and a tine distance of 420mm with the rigid version or 370mm with the folding version.

This design with high underbeam clearance allows the operation also with large quantities of plant residues. The wide wing shares of 440mm are the optimum choice for shallow stubble cultivation.

For operation in rather abrasive soil and in order to avoid loss of time with the exchange of wearing parts, Kverneland offers the option of carbid faced shares and wing shares (not recommended for stony soil). This variant is very beneficial, since depending on the type of soil and the work carried out, the carbid faced parts last 5 to 12 times longer than the standard ones.

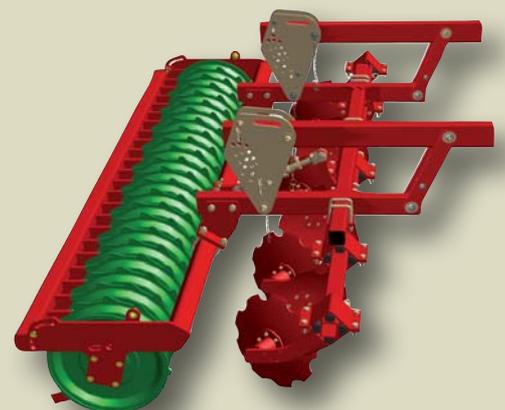
The CLC Evo Wings is still a very versatile implement. The wings can be removed to work with just the reversible tines allowing operation at a deeper working depth. This applies especially for the folding models with a reduced tine distance of 370mm offering an interesting compromise between the state of the art stubble cultivator and the original CLC Evo.

This new range offers manifold combinations keeping the unique module character.

CLC Evo Wings – Rear Accessories

The model CLC Evo Wings is based on the wide tine spacing which allows the use of independent levelling discs. This is the only possible combination with this type of configuration of the CLC Evo Wings stubble cultivator.

As with the other models of the CLC, these discs are protected by 4 rubber springs. Fitted on parallelogram, the changing of the working depth has no effect on their adjustment which is very easily done via a central turnbuckle.



Levelling discs

Easy and fast share chngement

KNOCK-ON



360 mm



470 mm



CLC Evo - CLC Evo Wings: Technical data

	Rigid				Fold		
Models	CLC Evo 250	CLC Evo 300	CLC Evo 350	CLC Evo 400	CLC Evo 400F	CLC Evo 450F	CLC Evo 500F
Number of tines / Working width (m) CLC Evo	9 / 2.50	11 / 3.00	13 / 3.50	15 / 4.00	13 / 3.80	13 / 4.40	17 / 4.90
Number of tines / Working width (m) CLC Evo Wings	-	7 / 3.00	9 / 3.50	11 / 4.00	11 / 4.00	-	13 / 5.00
Transport width (m)	2.50	3.00	3.50	4.00	2.85		
Row spacing (mm)	900						
Frame box section (mm)	100 x 100 x 8mm				Central 200 x 200 - ext. 100 x 100		
Linkage	Cat II & III				Cat III & IV		
Underbeam clearance (mm)	870						
Average tine spacing (mm) Evo	265	265	265	265	280	340	280
Average tine spacing (mm) Evo Wings	-	420	390	360	360	-	370
Min. / Max. HP	65/210	80/240	95/270	110/300	105/300	105/300	135/350
Weight (kg) CLC Evo AR* / Combidisc + Actiring	1554	1805	1977	2283	3015	3108	3438
Weight (kg) CLC Evo Wings AR* / levelling disc + Actiring	-	1630	1877	2135	2902	-	3237
Lifting capacity (t) with Combidisc + Actiring**	4.4	4.8	5.4	6.2	7.4	7.9	8.9

* AR=Auto Reset, SB=Shear bolt ** consider -15% if cage roller and +15% if Actipack or double disc

Kverneland CLC *pro*

The Most Versatile Model of the CLC



The CLC pro has been especially designed to work with the most powerful tractors. With 240HP maximum for 3.00m and up to 350HP for the 5.00m folding model, the CLC has become the benchmark regarding admissible power. It can, therefore, be combined with any type of roller and accessories which makes it extremely versatile. This quality to absorb the strongest forces also ensures a very long durability.

The CLC range can be equipped with two types of tines and a wide selection of shares. According to the operation requested and the type of soil, the large choice of following implements allows to carry out all sorts of cultivation: from stubble cultivation at 5cm to deep loosening at 30cm working depth.

The great versatility of the CLC pro makes it the ideal implement to meet all your requirements.

KNOCK-ON

Easy and fast share chngement



Bolted shares



Mixing and intensive cutting

The quality of the incorporation of vegetable residues and the capacity to loosen the soil characterize the main features of a cultivator.

As a matter of fact 1.5 to 2cm working depth are needed to incorporate 1 tonne of straw per hectare and to optimize the mixing of the soil with the plant residues. The 3-row design supports the intensive mixing and ensures a good distribution of the straw over the whole working width.

This allocation of the tines together with the high underbeam clearance of 870mm allows the free flow of material without the risk of blockage even in case of long and fibred residues such as maize, etc...

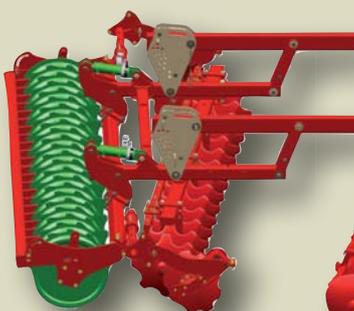
The easy material flow with the 3-row frame also reduces the power requirements and the fuel consumption by ensuring at the same time a very good cutting quality.

In transport position the CLC pro does not exceed 2.85m.

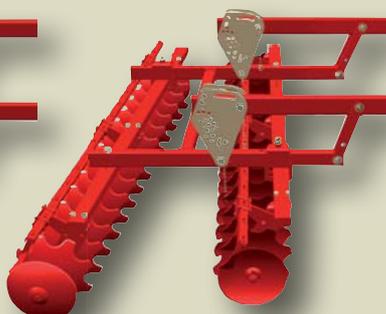


CLC pro – Rear Accessories

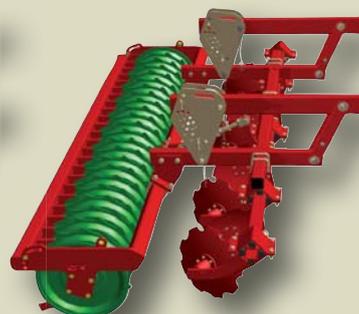
The CLC pro is the model which can be equipped with the full range of following implements. The 3-row configuration in fact allows all combinations via the parallelogram of the machine. The various levelling devices are available on a H-frame which also receives the rollers. This H frame is fixed by 4 bolts and allows the combination of all sorts of equipment with the same implement in order to adjust the machine to the season or the operation requested - thus making it completely versatile.



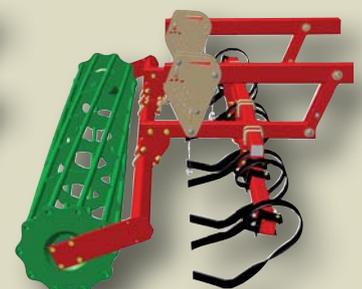
Combidisc



Double disc section



Levelling discs



Levelling tines

Kverneland CLC *pro* Classic

A „pro“ for Smaller Tractors



CLC pro Classic – Rear Accessories

To make the CLC pro Classic very compact and to reduce the weight as much as possible, the parallelogram carries two curved arms that reduce the overhang of the machine. A section of levelling tines is directly connected to the roller frame. Lighter than discs, the tines ensure an excellent levelling result in all conditions. The working depth and aggressiveness of the levelling tines is infinitely adjustable.

Therefore the CLC pro Classic is 50cm shorter than the CLC pro; this shifts the centre of gravity closer to the tractor. The aim of developing a „pro“ for smaller tractors is thus achieved.



Levelling tines

KNOCK-ON

Easy and fast share chngement



Bolted shares



A Clever Concept

For tractors with low or medium power, the CLC pro product range has been extended to the new CLC pro Classic.

The result is impressive both regarding the level of lifting capacity and regarding the quality.

A tractor of 90 HP can operate a 3.0m model and 3.8m folding model can be operated by a tractor from 130 HP.

The CLC pro Classic is a very compact, simple and efficient implement which can work down to a depth of 30cm. It is especially suited to mixed arable farming.



CLC pro - CLC pro Classic: Technical data

Models	Rigid			Fold	
	CLCpro 300 (+ Classic)	CLCpro 350 (+ Classic)	CLCpro 400	CLCpro 400F (+ Classic)	CLCpro 500F
Number of tines	10	12	14	13	17
Working width (m)	3.00	3.50	4.00	3.80	4.90
Transport width (m)	3.00	3.50	4.00	2.85	
Row spacing (mm)	810				
Frame box section (mm)	100 x 100 mm			Central 200x200 - ext. 100x100	
Linkage	Cat II & III			Cat III & IV	
Underbeam clearance (mm)	870				
Average tine spacing (mm)	280	280	280	290	290
Min./Max. HP CLCpro	120 / 240	135 / 270	165 / 300	185 / 300	200 / 350
Weight (kg) CLCpro AR* + levelling disc + Actiring	1780	1980	2210	2980	3600
Lifting capacity (t) CLCpro AR* + levelling disc + Actiring**	5,2	5,8	6,7	7,9	9,5
Min./Max. HP CLCpro Classic	85 / 160	100 / 200	-	130 / 230	-
Weight (kg) CLCpro Classic SB* + levelling tines + Actiring	1420	1640	-	2400	-
Lifting cap. (t) CLCpro Classic SB* + level. tines + Actiring**	3,9	4,3	-	5,9	-

* AR=Auto Reset, SB=Shear bolt ** consider -15% if cage roller and +15% if Actipack or Double disc





Rollers and Rear Accessories

Perfection until the End



Levelling discs:

- Rubber spring loaded, to follow the ground and protect
- Border discs as standard
- Disc linked to the roller via a parallelogram, so that when changing working depth with the roller the disc will stay at same optimum position for levelling
- Easy adjustment via turnbuckle to set up disc position



Levelling tines:

- Good levelling capacity
- Good following of the ground contour
- No risk of soil blockage
- Easy to adjust
- Very low loading capacity



Combidisc:

- Combination of a single disc gang with all roller type
- Intensive mixing and incorporation, well adapted to high amount of residues
- Very good levelling capacity



Double disc gang Ø 510 mm:

- Position controlled with pins
- Easy angle adjustment with bolts
- Does a good mixing and incorporation
- Leaves a rough surface with aggregates ready for wintering, interesting at the end of autumn season for preparing spring fields and crops



Flexline Ø 585mm

220kg/m

- Good reconsolidation of light soil
- Individual scraper adjustment to avoid blockages
- Universal and suitable for all soil types
- Good load capacity



Cage roller Ø 550mm

90kg/m

- 10 bars for a good loading capacity and operation in wet conditions
- Effective crumbling action



Double cage roller 400mm (tube/flat)

140kg/m

- Good crumbling
- Precise depth control
- Good levelling effect
- Good carrying capacity

Our Active Rollers - A Second Soil Preparation Tool!



210kg/m

Actipack: A second preparation tool!

The Kverneland Actipack roller displays its superb working qualities especially on medium to heavy soils. The integrated cutting discs break the larger clods whilst the adjustable knives cut the remaining clods resulting in optimal clod breakdown. The pressure on knives can be set as high as that of the disc to provide equal firming on the entire working width. An "Off" position allows the knives to be lifted completely to leave a rougher surface and help protect the top layer of soil from capping and erosion.



150kg/m

Actiring: Strong and light!

The Actiring roller is a lighter variant of the Actipack, using the same frame structure and knife system. The discs have been replaced by a "V" profile ring, this is saving 50kg/m, which is of critical importance for reducing lifting requirements for mounted equipment. This new design will also provide a lower cost alternative to the Actipack especially in lighter soil conditions where the additional features of the Actipack are not required. The wider shallow angle of the V profile is less aggressive than that of the Actipack disc design resulting in a better load carrying in medium to light soil conditions.

The springs and knives have been especially designed to prevent stones getting into the rotor and causing blockages. Therefore, the Actiring can also be very effective in light and stony conditions.



OFF



1



2



3

4 different pressures can be applied on the skids depending of the soil nature and the required finish.

Skids up
(not active)

Skids down
(active)



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 of systems and solutions to the professional farming community. The offering covers soil preparation, seeding, forage- and bale equipment, spreading and spraying.



Original Spare Parts

Kverneland Group spare parts are designed to give reliable, safe and optimal machinery performance - whilst ensuring a low cost life-cycle. High quality standards are achieved by using innovative production methods and patented processes in all our production sites.

Kverneland Group has a very professional network of partners to support you with service, technical knowledge and genuine parts. To assist our partners, we provide high quality spare parts and an efficient spare parts distribution worldwide.

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