



**F-DRILL**

FRONT HOPPER

# 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.





The iM Farming logo appears when the implement can be connected to our smart farming systems and accessories, essential for managing your business.



Effective sowing means speed up when the soil is exactly right, in order to give your crop a head start.

# 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 should 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.

## 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** intensity 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 erosion; reduce soil loss by run-off and improve water storage capacity.
- Improvement of soil moisture retention

### Strip Tillage

- **Zonal strip 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 the season, contributing to a higher yield
- A strong set of roots make plants more resistant to wind and drought.
- Lower energy input required





EFFICIENCY

SUSTAINABILITY

 Kverneland

FLEXIBILITY

INTELLIGENCE

## EFFECTIVE SOWING WITH FLEXIBILITY READY FOR THE FUTURE

### Flexibility

You want a machine that is flexible in use: ready to be combined with different implements, ready for multi-crop application, ready for operation in different working widths, ready for all kinds of different farming systems, ready for a wide range of seeds (from fine to large) and fertilisers, ready for the combined application of fertiliser and seeds, ready for the combined application of seeds and companion crops and ready for future challenges.

### Intelligent

You want an implement that is very precise in application, easy to calibrate, steer and monitor. You want a machine that is ready for farming 4.0. You can rely on the Kverneland ISOBUS systems – and concentrate on your business.



### Sustainability

Soil is your most valuable asset. A good soil structure is key for optimum plant development. An even seedbed will ensure consistent field emergence. Therefore, good weight balance, reduced passes and the right timing are key to avoid any soil compaction and wheeling. In addition, multi-cropping is supporting biodiversity and protecting the soil. A defined and precise application of fertiliser have been and will be one additional important aspect of your future farming practices.

### Efficiency

You invest in the best equipment for seeding and fertilising. In return, you want the best results and low cost of operation. The f-drill has been developed with a positive load balance to reduce axle loads. The proven venturi system keeps it easy and always in functionality. Increased manoeuvrability and the flexibility to combine the f-drill with different implements makes the machine highly efficient.

*In short, it's effective*

## F-DRILL - FOR EXTRA FLEXIBILITY READY FOR THE FUTURE



The range of Kverneland f-drill front hoppers are available in two sizes and each volume in two versions. The f-drill compact has a capacity of 1600 litres and the f-drill maxi up to 2200 litres. The standard version is equipped with one ELDOS metering unit. Either seeds or fertiliser can be filled into the hopper. Higher application rates can be achieved with the duo version, as two ELDOS units distribute two times up to 400kg/ha of one type of fertiliser or seeds.

The modern hopper design made from special plastic is lightweight but enables to take big volumes to distribute the weight and ensure good balance. The material is corrosion resistant and ensures a long lifetime. With the f-drill, it is possible to combine several jobs in one pass, which is saving time and money while protecting the soil.

### *Taking care of the environment*

In **spring**, the Kverneland f-drill can be used as a fertiliser hopper with the Optima F or in combination with the Kultistrip for strip tillage. In combination with a power harrow/drill combination, such as the Kverneland e-drill, the f-drill can be used as an additional seed hopper for sowing companion or spring crops.

In **summer and autumn**, the hopper can be combined with the Kverneland power harrow range and the well-known coulter bars to have a compact combination from 3.0 up to 6.0m working width. In combination with a stubble cultivator and a distribution system, the f-drill can be used for cover crop seeding and reduce one pass of operation. For precision rape seeding in rows the Optima F is the ideal partner for the f-drill range as fertiliser hopper.

Precise application at the right time is the basis for a good start. A quick vegetation through the simultaneous use of different crops at the same time e.g. companion crops, avoids the risk of erosion and ensures that weeds do not go out of control. It also enhances biodiversity. A healthy plant with good rooting is able to use the fertiliser and water efficiently, reduce leaching and increase humus and CO<sub>2</sub> storage.

Model	Liter	No. of ELDOS
f-drill compact	1,600	1
f-drill compact duo	1,600	2
f-drill maxi	2,200	1
f-drill maxi duo	2,200	2



Strip-Tillage: Defined seedbed preparation and fertiliser application in one pass.



Fertiliser and seeds in one pass in combination with a precision drill, seed drill or power harrow coulter bar.



Different seeds in one pass as main and companion crop (in picture sunflowers and clover).



Stubble cultivation and sowing of cover crops in one pass.



## TWO HOPPER SIZES AND SYSTEMS ONE PASS IN COMBINATION

The f-drill has been designed to give farmers and contractors additional flexibility as it adapts to all kind of farming systems. The f-drill is available with capacities of 1,600l as compact and 2,200l as maxi implement. The standard version is equipped with one ELDOS metering unit. Either one item seeds or fertiliser can be filled into the hopper. Higher application rates are obtained with the duo version, as two ELDOS distribute two times up to 400kg/ha of one sort of fertiliser or seeds. The hopper of the f-drill maxi plus model is divided. Either two types of seeds or seeds and fertiliser can be applied in one pass. The ratio of the hopper split is 60:40. The f-drill models are ISOBUS implements and can work as a stand alone seed drill or can be combined with other implements like planters, hoes, strip-tiller, cultivators and more.

*One concept from one hand - That's fits together!*

1

### Easy filling and lifting

The f-drill has the complete seeder functionality "without" distribution system: integrated electronics, fan and metering device. The hopper made from plastic can easily be filled using e.g. big bags, a front loader or a telescopic handler. The large hopper capacity of up to 2,200 litres reduces the set-up time. The hopper covers open sidewise and lock automatically supported by gas cylinder.

The hopper is resistant against corrosion, especially important by fertiliser. Parking wheels are available for quick and easy storage. The f-drill can easily be hitched as there is no PTO shaft needed. Pipes installed on the side of the cab convey the seed or fertiliser to the coulters by an air stream.

2

### ISOBUS electronics and ELDOS

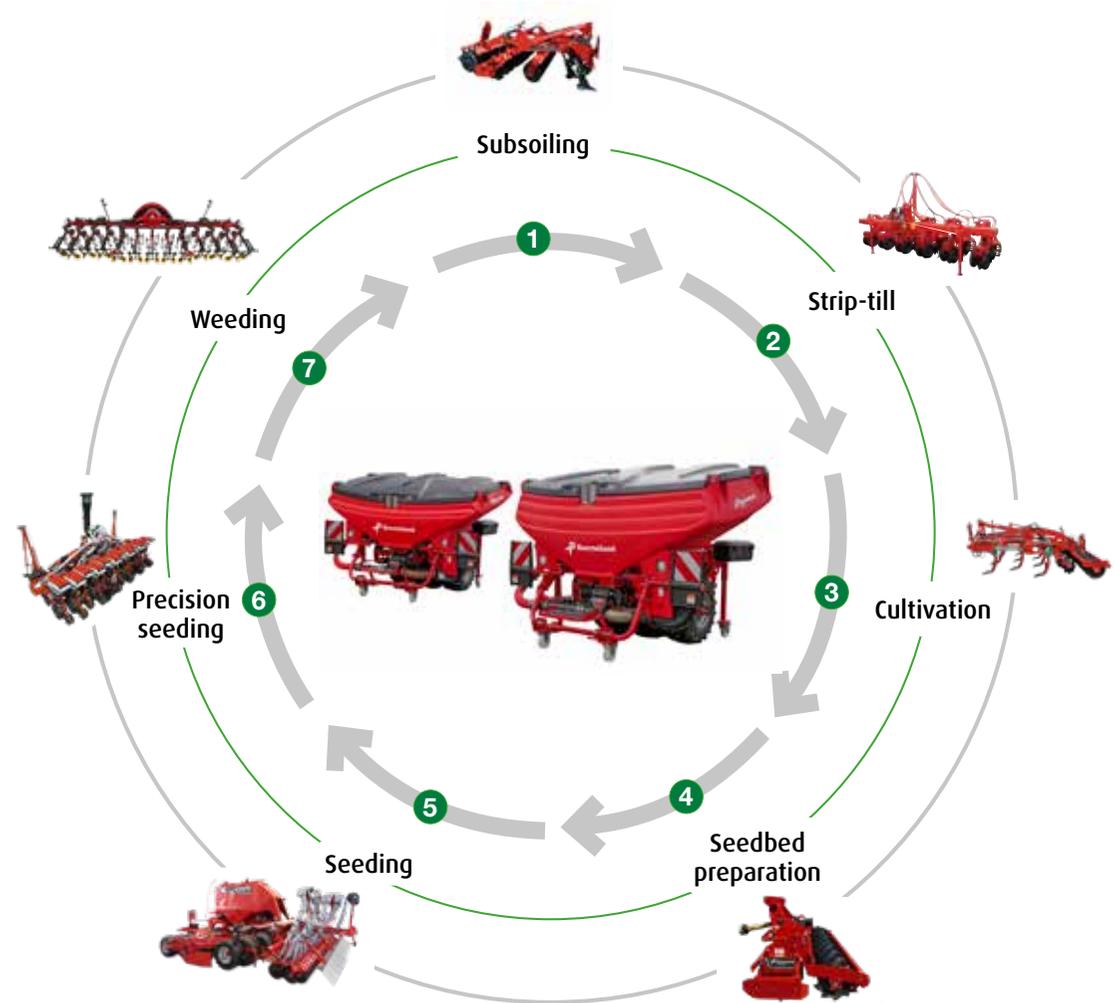
The easily accessible electric driven metering device, ELDOS, with exchangeable rotors is easy to adjust, without any tools. ELDOS is steered by Kverneland e-com software, which is fully ISOBUS compatible. By the automatic section control (GEOCONTROL), the metering device stops/starts automatically for optimal driver comfort. Calibration is automatic and the sensors monitor the metering rotors and give a warning if a wrong metering rotor is accidentally installed. Calibration tests can be stored and reused afterwards when needed. Easy plug and play is possible due to the ISOBUS compatibility.

3

### Weight balance

The f-drill is well-balanced and offers even weight distribution. The optimised position of the hopper keeps the centre of gravity close to the tractor. Weights are important, and in many countries the permissible axle loads are regulated. In Germany, for example, a minimum front axle load of 20 % must be maintained. Instead of having only one implement at the rear, the front hopper combination already provides weight at the front. The additional wheel packer with lifting function relieves the load on the front axle while maintaining good steering ability. The packer is self-steering and pull-attached, which reduces power requirement and fuel consumption. A basic or ISOBUS steered comfort version is available. Optionally, a weight kit can be fitted.





*Subsoiling, cultivation, strip-till, hoing and sowing - all can be done together with the f-drill*

## F-DRILL - FLEXIBILITY MANY POSSIBILITIES AND COMBINATIONS

The front hopper models are ready to combine with different implements and for operation in various working widths. Seeding and fertilising, seeding and cultivation or fertilising and cultivation as strip-tillage in one pass is possible as well as the combined application of seeds and companion crops. The machine's clear layout and the high level of incorporated intelligent technology offers the user maximum ease of use, from set-up and filling, to balanced transport with good view in front and rear of the tractor. The combination makes it versatile to have everything done in one pass.

*Flexible in combination*

The modular structure of the Kverneland f-drill ensures an even weight distribution across the machine arrangement, giving the tractor the best balance by maximum capacity. This improves both safety and manoeuvrability, whilst at the same time giving the driver an unrestricted view of the entire machine set-up.





## F-DRILL - EFFICIENT IN USE

### OPERATOR'S SAFETY AND EASY MANOEUVRABILITY

The compact design of the f-drill front hopper still gives the tractor driver excellent visibility. The f-drill will give optimal balance to the rear and front combination. With tractors able to carry much higher loads on their rear linkages, the need for ballast weight on the front of the tractor is essential. With a nominal volume of up to 2200 litres, the f-drill is that front end weight, adding stability to the tractor, but only when needed. From the tractor cab the operator has the entire machine in view, the working procedures can be monitored constantly and conveniently. The Kverneland f-drill offers the perfect balance between size and compactness!

*We make your life easier and more comfortable*

The hopper is fitted with an access platform, ideal for maintenance purposes and for the filling operation. A close-fitting 2-part hopper cover protects from dust and water and can easily be opened and closed. The wide opening of the hopper allows filling with a big bag or filling auger. The pyramid sieves of the hopper protect the ELDOS from stones etc. The positioning of all the major components is well-organised and clear. The hydraulic fan and the ELDOS metering device are located in front of the hopper for best access. A radar sensor records the speed in order to maintain the relevant distribution rate at the correct time.

The f-drill made of plastic has a modern design which ensures good emptying, low maintenance and long lifetime, especially when working with corrosive material such as fertilisers.





1,500kg

Load support



## F-DRILL - SOIL THE MOST VALUABLE ASSET WEIGHT BALANCE

Soil compaction caused by the use of heavy agriculture machinery in not optimal soil conditions affects crucial soil functions. Tire pressure, traction and wheel load are well-known key drivers of compaction. Soil structural deformation increased with higher drawbar pull and number of wheeling passes. Especially in wet periods, the separate tillage and seeding system reduced the impact on the soil structure due to better weight distribution.

The optional self-steering and pull-attached wheel packer with lifting function relieves the load on the front axle while maintaining good steering ability. The packer consists from three wheels (3x 31x15.50-15) and takes a bearing load of up to 1,500kg. A bulldozing effect is avoided. The packer can pivot 15° to the right and left while driving and ensures the self-steering effect. The passive self-steering and pull-attached packer reduce power requirement and fuel consumption.

A basic or ISOBUS steered comfort version with an intelligent overload protection is available. The comfort packer is lowered/lifted automatically, if ELDOS will start or stop.

Optionally, weight kits from 100kg up to maximum 600kg are available and can be used as additional ballast for the front axle.

*Precision, flexibility and adaptability*





# PRECISE SEED METERING WITH ELDOS

## AUTOMATIC AND SAFE



ELDOS metering device fully controlled via the ISOMATCH Kverneland Tellus Pro or Tellus GO+ terminals.

ELDOS is the **electric driven metering device** for Kverneland pneumatic seed drills. It is state-of-the-art technology for perfect seed placement.

ELDOS is steered by Kverneland e-com software, which is fully **ISOBUS compatible**. By the automatic section control, GEOCONTROL, the metering device stops/starts automatically. Double and/or missed seeding on headlands or odd-shaped fields is avoided. Special sensors ensure complete functionality from the tractor cab.

Calibration is automatic, and a range of interchangeable seed metering rotors can be swapped - even when the hopper is full - without the need for tools. Sensors monitor the metering rotors, and give a warning if the wrong metering rotors are accidentally installed. Additional rotors, a scale and calibration bag are always ready to hand and stored well-protected against dust in a tool box near the metering device.

*Good results of seed rate variation across the drill.*

The f-drill is available with one or two ELDOS metering units. As duo version, two ELDOS are installed for higher application rates.

The entire system is based on the venturi principle. No additional effort is required to keep the system tight, as with a pressurised system. The venturi system guarantees the accuracy of the desired dosage and also the adherence to the higher application rates are achieved with the Kverneland conveyor system.



## SAFE ON THE ROAD – UNRESTRICTED VIEW AND WELL-BALANCED

The front hopper gives the driver an unrestricted view onto the field and the road during transport. This is ensured by its low height and by the distribution pipes running alongside the tractor.

*Increasing driver's comfort -  
reducing tractor's wear and tear*

Made of special plastic the hopper offers large capacity and is at the same time light to carry. Fitted in front of the tractor, the weight balance on both axles is optimal for a smooth run – which is good for both the tractor and driver's comfort.

Road light kit is fitted as standard. Optional LED working lights ensure safe operation during the night shifts.







# MANAGE YOUR FARM AS A BUSINESS

## WITH OUR ISOMATCH PRECISION FARMING OFFERING

Our precision farming offering is essential in managing your farming business with success. Applying electronics, software, satellite-technology, online tools and Big Data enables you to use your farming equipment more effectively and reach higher profitability of your crops.



*iM FARMING - smart, efficient, easy farming*

*Speed up on the path towards connected agriculture. We offer you numerous options and solutions for how to produce more with less; utilise inputs more efficiently and thereby increase profits and sustainability.*

### Enhance your success with e-learning

**IsoMatch Simulator** is a free downloadable virtual training program. It simulates all functions of the IsoMatch Universal Terminals and Kverneland ISOBUS machines. Train yourself and make yourself familiar with your machine to avoid errors and enhance your machine performance.

### The best overview in farm management

**IsoMatch FarmCentre** is the first of a series of telematics solutions. This fleet management solution is applicable for your ISOBUS machines in combination with an IsoMatch Tellus GO+/PRO. Whether you wish to control your fleet, manage tasks remotely or analyse machine performance data, IsoMatch FarmCentre provides this in an efficient web application, linking implements, tractors, terminals and the cloud in one continuous flow of data and connectivity.





**Be a PRO in increasing productivity**

The **IsoMatch Tellus PRO** 12-inch terminal provides you with the optimal solution for an all-in-one control system inside the tractor cab. It is the centre for connecting all ISOBUS machines, running precision farming applications and Farm Management Systems. It offers everything you need to get the maximum out of your machines and crop, as well as cost savings in fertiliser, chemicals and seeds by using automatic section control and variable rate control. With the unique dual screen functionality it gives you the

opportunity to view and manage two machines and/or processes simultaneously.

**Easy control management**

The **IsoMatch Tellus GO+** is a cost-efficient 7-inch terminal, especially developed for managing the machine in a simple way. Easily set up the machine with the soft keys and simply use the hard keys and rotary switch for optimal control while driving.

*Improve your performance  
Maximum efficiency, minimum waste*



**IsoMatch Grip**

This ISOBUS auxiliary device is made for maximum machine control and efficient farming. Operate up to 44 implement functions from one device.



**NEW**

**IsoMatch Global 3**

The IsoMatch Global 3 is a GPS antenna system with DGPS accuracy for the best precision and productivity possible.



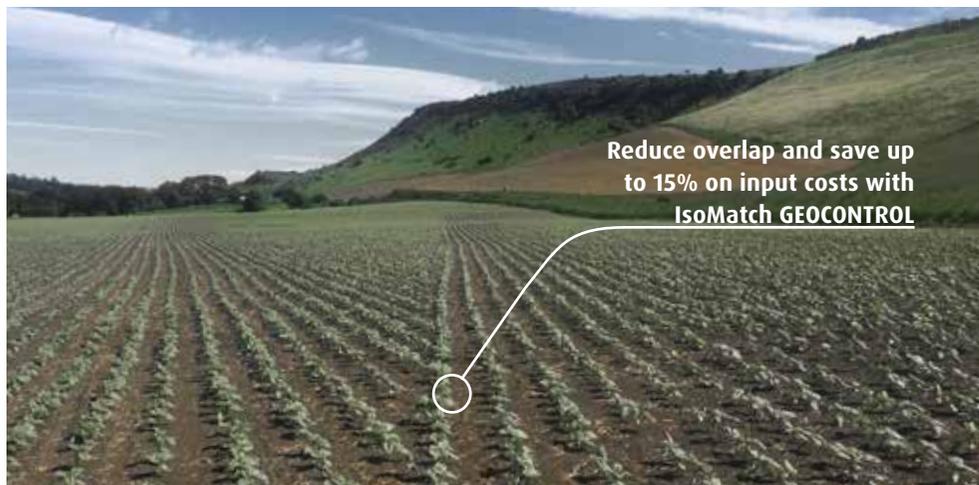
**IsoMatch InLine**

Light bar for manual guidance including section status information. Manage the distance from the A-B line and steer for the ideal position.



**IsoMatch (Multi)Eye**

Connect up to 4 cameras to the IsoMatch Universal Terminals. It gives you full control and overview of the entire machine operation.



**Reduce overlap and save up to 15% on input costs with IsoMatch GEOCONTROL**

**Maximum savings!**

*The IsoMatch GEOCONTROL precision farming application includes Manual Guidance and Data Management free of charge. It is possible to expand this application with Section Control and/or Variable Rate Control.*

# ORIGINAL PARTS & SERVICE

## LET'S FOCUS ON YOUR BUSINESS

ORIGINAL  
PARTS

- 
- ① LONG LASTING, HIGH QUALITY SPARE PARTS
  - ② OVER 100 YEARS OF PARTS KNOWLEDGE
  - ③ SUPPORT FROM A WIDE NETWORK OF DEALERS
  - ④ 24/7 SPARE PARTS SERVICE
  - ⑤ HIGHLY SKILLED DEALER TECHNICIANS

# MYKVERNELAND SMARTER FARMING ON THE GO

## A personalised online platform tailored to your machine needs

With MYKVERNELAND you will benefit from easy access to Kverneland's online service tools.

Receive first hand access to information on future developments and updates, operator and spare part manuals, FAQs and local VIP offers. All information is gathered in one place.



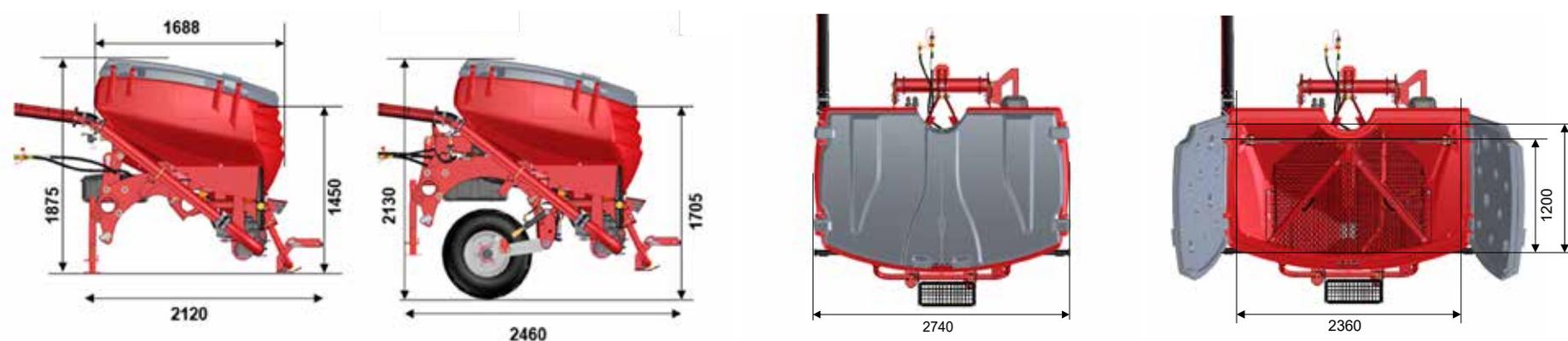
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# TECHNICAL DATA

Model	f-drill				
Model	f-drill compact	f-drill maxi	f-drill compact duo	f-drill maxi duo	f-drill maxi plus
Machine type	modular mounted				
Hopper capacity (l)	1,600	2,200	1,600	2,200	2,200 (60:40)
Machine width (m)	2.75	2.75	2.75	2.75	2.75
Weight base machine (kg)	658	678	732	752	767
Weight optional front packer (3x 31x15.50-15) (kg)	361	361	361	361	361
Ballasting weights 100 - 600kg (steps 2 x 50kg)	Option	Option	Option	Option	Option
Min. power requirement (HP/Kw)	106/80	173/130	106/80	173/130	173/130
Hydraulic fan drive closed centre	Standard	Standard	Standard	Standard	Standard
Hydraulic fan drive open centre with adjustment valve	Option	Option	Option	Option	Option
Hydraulic fan drive power beyond load sensing	Option	Option	Option	Option	Option
Oil charge hydr. fan (l/min)	30	30	40	40	44
ELDOS electric driven metering device (no.)	1	1	2	2	2
Metering units in relation to the no. of distribution heads	1	1	2	2	2
e-com electronic (IsoMatch Tellus GO+ / Tellus Pro)	Standard	Standard	Standard	Standard	Standard
Working switch for metering unit (start/stop) on top link for older tractors	Option	Option	Option	Option	Option
Metering device control	Standard	Standard	Standard	Standard	Standard
Seed rate adjustment	Standard	Standard	Standard	Standard	Standard
Seed quantity (min-max.) - kg/ha*	1-400	1-400	2-600	2-600	2 x 1-400
Ø 100mm distribution system	Standard	Standard	Standard	Standard	Standard
Ø 135mm distribution system	Option	Option	Option	Option	Option
Radar speed signal	Standard	Standard	Standard	Standard	Standard
Calibration set	Standard	Standard	Standard	Standard	Standard
Quick emptying chute	Standard	Standard	Standard	Standard	Standard
Low level sensor (no.)	Standard (1)	Standard (1)	Standard (2)	Standard (2)	Standard (2)
Platform	Standard	Standard	Standard	Standard	Standard
Lighting equipment	Standard	Standard	Standard	Standard	Standard
Working lights	Option	Option	Option	Option	Option
Working width seed coulter bar grain (m)	rigid: 3.0m; 3.5m; 4.0m /fold: 4.0m; 4.5m		fold: 5.0m; 6.0m		rigid: 3.0m; 3.5m;4.0m / fold: 4.0m (CX-II double entry)
No. of precision planter rows	4 - 8	4 - 8	9 - 16	9 - 16	-
Hydr. spool valves 1 sa + pressless return for fan drive	Standard	Standard	Standard	Standard	Standard
Hydr. spool valves 1 sa + pressless return for fan drive and optional comfort front packer	Option	Option	Option	Option	Option
Additional hydr. spool valves 1 da for optional basic front packer lifting	Option	Option	Option	Option	Option

\* with 15km/h working speed

Matrix of f-drill combinations with coulter bar or precision drill rows																	
Front hopper f-drill	No. of ELDOS	Seed coulter bar											Precision drill row				
Coulter/rows		CX-II					CX-II double entry			CX-II			Optima rows				
Machine type		rigid			fold		rigid			fold							
Working width		3.0m	3.5m	4.0m	4.0m	4.5m	3.0m	3.5m	4.0m	4.0m	5.0m	6.0m	4	6	8	12	16
f-drill compact (1,600l)	1	✓	✓	✓	✓	✓							✓	✓	✓		
f-drill maxi (2,200l)	1	✓	✓	✓	✓	✓							✓	✓	✓		
f-drill compact duo (1,600l)	2										✓	✓				✓	✓
f-drill maxi duo (2,200l)	2										✓	✓				✓	✓
f-drill maxi plus (2,200l)	2						✓	✓	✓	✓							
ø 100mm distribution system		✓	✓	✓	✓		✓				✓	✓	✓	✓		✓	
ø 135mm distribution system						✓		✓	✓	✓					✓		✓



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**WHEN FARMING MEANS BUSINESS**

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