

**MaxFlow: Maximizing crop flow through Big Pack balers**

Spelle, August 2009. MaxFlow is the name - an optimized crop flow on the Krone XC big balers is the effect. Thanks to a combination of innovative features, the new system improves the flow of material through the machine: The modified contours of the pick-up scrapers result in an almost linear crop feed to the cut-and-feed rotor, another innovation featuring tines that are hardened by wide 20mm Hardox steel plates to enhance the material feed. There are three tines arranged around the circumference of the rotor. These innovations combine to improve the overall crop feed and optimize the quality of cut. Additionally, the cutting system pulls the material much easier through the knives and the knives offer a much longer service life.

Another modification to the Big Pack XC series is the new knife drawer that features an enhanced cutting frame contour, another detail that optimizes the crop flow at a low power input. In addition, the Big Pack XC machines feature new and open auger boxes on the pick-up system, which effectively reduce the risk of blockages.

Another new feature is the standard-fit knife selection system on all X-Cut models. This selects 26, 13, 13, 0 X-Cut knives (on 1.20m baling chamber models). The Big Pack 890 model is equipped with a 16-knife cutting system at a baling width of 0.80m and a choice of 16, 8, 8, 0 X-Cut knives. The system offers two cutting lengths - 45mm and 90mm. This means that two sets of knives are available when cutting at 90mm length.



**The new Big M 400 from Krone  
Added power plus added operator comfort**

Spelle, August 2009 – At Agritechnica, Krone is introducing the new Big M 400 self-propelled mower. Equipped with a 400hp Mercedes Benz engine, Big M 400 performs extraordinary well in dense crops and on slopes.

More than that, the new engine operates at significantly lower speeds on the road and in the field than the Big M II engine. Like its predecessors, Big M 400 features the automotive transmission, which controls engine speed automatically to match it to the selected ground speed and the current load on the drive system. This means that unlike traditional hydrostatic systems, the engine on this machine is not revving constantly at high speeds but reduces speed automatically when the machine is waiting at a traffic light or road junction – a concept that leads to substantial fuel savings and reduces wear on the engine and drive system.

What is more, the overall level of machine specification reflects a clear focus on operator comfort. For example, Big M 400 features the new HeavyDuty mower bed with its SafeCut auto-reset system, which centres on a roll pin that connects each disc to the drive shaft and that shears off as the disc hits an obstacle. The stopped disc jacks up on a thread and clear of the neighbouring discs while the sprocket keeps revolving, eliminating the risk of damage to the neighbouring discs. This patented system protects the mower bed and discs effectively from any damage and enhances the machine's overall operational reliability. Replacing the bearing housing is straightforward and the mower is up and running again within minutes after the impact. The tripped bearing element may be reused after inspection and roll pin replacement.

Like Big M II, Big M 400 is marketed with a choice of three conditioner versions. The high-performance CV conditioner offers a 9.7m work width and uses freely pivoting V-type steel tines, which give extremely intensive conditioning. The rotor speed is set conveniently on the gearbox (700rpm and 1,000rpm).

Leafy crops such as alfalfa and clover should receive gentle treatment, which comes from the rubber processor rollers of the high-performance CRi conditioner from Krone whereas a steel roller version is available to condition tall and dense crops such as Sorghum-Sudan grass. Both CRi versions offer a 9m work width and roller diameter is 25cm.

Feed augers are available for the two side mowers. This Krone Big Swath System transfers the conditioned crop from the conditioner to the middle of the machine without the material dropping to the ground and contaminating. This Big Swath merging system operates in combination with both the CV conditioner and the CRi conditioner and also when the auger hoods are opened for spreading the crop across the full width.

For additional versatility and machine utilisation, Big M 400 also performs as a self-propelled topper, which works at a 9m width. An intriguing application, for example, is topping the stubble of a crop of maize to control the European maize borer.

The Big M 400 cooling system, too, received an update to match the enormous engine power. The enhanced system comprises a bigger radiator including radiator sieve and an integral suction duct that takes in air from the top. The advantage of this design is that the air that is inducted from the top is much cleaner. To protect the radiator effectively from contamination, the automatic reverse fan cuts in periodically, the fan blade turning around its axis and freeing the radiator from debris and dust, which drop to the ground through the rear radiator flap that opens automatically. This automatic cleaning system prevents the engine from overheating and reduces downtime spent on cleaning.

New comfort cab

Featuring the convenient Command Vision Cab, Big M 400 stands out by its restyled, spacious, uncluttered and fully air-conditioned operator platform, where all major controls are within convenient reach. The transmission and the mower lift / lower functions are controlled from the established joystick and all major machine data are displayed on the colour EasyTouch display screen for easy and fast editing.

Innovative diamond treaded CARGO XBIB tyres are available for Big M 400 to run on in delicate crops such as Lucerne. This special tyre benefits from a substantially smaller contact area and a pressure as low as 1.0bar to minimize the load on the rootstock, protect the soil and ensure fast crop re-growth.



**The prime example of mowing  
Big M 500 out to harvest up to 20 ha/h\***

Spelle, August 2009 – Achieving work rates of up to 20 hectares per hour, the Krone Big M 500 mower conditioner is a truly high-capacity machine. Following the presentation of a Big M 500 preview model at last Agritechnica, Krone field-tested the machine extensively during the 2008 and 2009 seasons. The test results speak for themselves," says Krone Managing Director Bernard Krone.

Big M 500 impresses by its 13.20m work width, which is gained from the 5.30m front mower and two 4.40m side units, enabling work rates of indeed up to 20ha/h as user experience reveals. The drive power to the individual mowers flows via drivshafts and gearboxes. The split front mower folds into two vertical wings to reduce transport width to 3.2m (900/60 R32 tyres).

Big M 500 is powered by a 520hp longitudinal engine, which sends its power to the four hydrostat-driven wheel motors, a system that is shared with Big M 400. This design in combination with four-wheel steering makes Big M 500 extremely agile on the headland and in small fields, opening up awkward and small plots easily and quickly.

As another benefit, Big M 500 features the Krone Big Swath System, which provides the flexibility of wide spreading and forming one single swath. Each mower is controlled separately at the touch of a button, which opens (wide spreading) or closes (merging two swaths into one) the auger hoods hydraulically. At the same time, the system swathes material from two 13.20m work widths to a width of approximately 15m to avoid rapid wilting after the second or third cut, for example. Like Big M 400, Big M 500 does not allow the crop to drop to the ground before it is swathed, ensuring exemplarily clean fodder – a major benefit when cutting wet autumn crops. Besides, user experience shows that direct swathing leads to a substantial reduction of harvest costs as it eliminates the swathing pass. At the same time, it reduces crop fragmentation significantly in leafy crops (e.g. Lucerne).

"Our Big M concept has been proven thousands of times in fields around the world. Its huge efficiency combined with the outstanding quality of the forage appeals enormously to contracting businesses and machinery rings," says Bernard Krone.

20 ha = ca. 50 acres



**VariStream - innovative technology varies crop flows on forage harvesters**

Spelle, August 2009 – Krone VariStream is a new, variable and automatic crop flow control system on Big X precision-chop foragers that adapts the cross section of the crop flow as the volume varies. To do that, the innovative and mechanical system adjusts the base plate of the chopping cylinder. This plate is attached to the cylinder's shear bar and is automatically readjusted after knife grinding and shear bar repositioning.

The opposite end of the base plate mounts on springs to respond to variations in the volume of crop as it flows through the system, for example when harvesting uneven grass swaths. Once the load peak has passed the chopping area, the original position of the base plate is restored with the help of pressure springs. The blower, too, mounts on a spring-loaded plate, which adjusts relative to the current crop volume in this area.

The VariStream system offers the advantage of maintaining the high output levels of the blower and chopping cylinder while substantially reducing the risk of blockages thanks to providing a uniform crop flow.

The new system, for which Krone has filed a patent, is the first system on the market that controls automatically the cross section of the crop flow on a Big X. The system frees operators from setting and adjusting the machine manually to match varying conditions.

VariStream offers a range of further benefits besides optimizing the flow of crops. These include a substantially quieter machine running in varying volumes of crop, reduced fuel consumption and wear as well as full machine utilization in all conditions. Above all, the system makes for a substantial increase in grass throughput.



**Maximum protection and minimum life-cycle cost  
All EasyCut mowers now feature SafeCut cutterbar protection**

Spelle, August 2009 – After the Krone SafeCut cutterbars have proven excellently on the Krone Big M self-propelled mower for two years, the innovative and patented SafeCut system is standard-fit on all EasyCut mowers. Providing exemplary impact damage protection, the system centres on a roll pin that connects each mower disc to the drive shaft and that shears off as the disc hits an obstacle. All elements in the cutterbar driveline are protected. While the sprocket continues revolving, the stopped disc jacks up on a thread and out of the operating area of the blades on the neighbouring discs, thereby eliminating the risk of damaging these as well.

The Krone SafeCut system effectively protects the cutterbar and discs from damage and adds substantially to the machine's unbroken functionality. The tripped bearing element may be reused after inspection and roll pin replacement. With SafeCut reducing machine downtime to an absolute minimum, all Krone EasyCut mowers benefit from a substantial reduction in repair costs, in particular when operating in stony conditions.

**Reduced life-cycle costs**

All Krone mowers (EasyCut and AM models) will feature permanent lubrication in the coming season to eliminate cutterbar oil changes and minimize servicing to oil level checks. Hence, owners will benefit from low machine life cycle costs and enormous time savings.



**New EasyCollect 753 maize header**

Spelle, August 2009 – The new EasyCollect 753 maize header is now available to harvest 10 rows of crop at a 7.50m work width and then fold into a three-layer sandwich for transport. EasyCollect 753 is designed to the same concept as the well-proven and award-winning Krone Collector. Its modular design and the endless Collector design lead to a substantial reduction in the number of components and drive systems installed, thus reducing weight and input power.

A more compact and flatter design makes the new EasyCollect 753 unit about 400kg lighter than its predecessor and reduces the load on the front axle while enhancing machine ride in the field and on the road. Thanks to its flat design, the unit picks up lodged crop more easily and reduces the risk of material loss in delicate crops.

The EasyCollect Collector works on the following principle: It feeds the crop to the middle of the machine without the crop ever changing direction, passing very smoothly through the header and axially into the machine – a system that warrants dependable operation in all conditions. It presents the stems axially to the chopping assembly, which chops them effectively and accurately to the set length. Tests and user experience bear evidence that the EasyCollect feed principle improves effectively the quality of chop and reduces significantly the number of coarse chops. As another plus, the EasyCollect 753 Collector is equipped with tungsten carbide coated and self-sharpening knives. Purpose-made fingers ensure the material is picked up and retained effectively, warranting a clean cut and exemplary quality of chop even in tall crops.

All EasyCollect headers that operate on Big X models are equipped with the AutoScan system, where an optical sensor adjusts the chop length automatically to the maturity of the crops.

The photo-optical sensor is integrated in the maize header, where it compares the colour of the leaves to determine the maturity of the crops (dark green = high moisture level, brown = low moisture level). Based on these scans, the electronic system then computes and sets the optimum chop length. The hydraulic pre-compression rollers on Big X adjust their speed automatically to the maturity of the crop, varying chop length to ripeness.

The benefits are obvious – green (i.e. moist) maize is automatically chopped to longer lengths to maintain the structure of the forage whereas brown (i.e. dry) maize is chopped to shorter lengths to increase silage density and avoid fermentation in the clamp.

EasyCollect 753 offers even more advantages when used on a Big X forage harvester, which offers stepless and hydraulic drive and infinitely variable Collector speed adjustment to optimize the crop flow. Further features include automatic adjustment of the Collector speed to forward speed, which is performed at the touch of a button, as well as automatic Collector reversal on the headland (automatic self-cleaning).

Split into three parts, the EasyCollect header 'sandwiches' quickly and easily into transport position at the touch of a button to give a low transport height and a narrow 3m transport width.



**Maintaining ground pressure at all times  
The new EasyCut 32 CV float**

Spelle, September 2009 – The new EasyCut 32 CV float is a new addition to the Krone range of mower conditioners. The speciality of this machine is its innovative float technology, which maintains ground pressure with the help of suspension springs that are set by the operator to change the pressure. The unique advantage of this unit is its integral design, which incorporates the springs in the headstock to eliminate the need of adapting and adjusting the spring to the tractor. This design also enables the mower to operate at a constant ground pressure even when cutting undulating fields.

At the same time, EasyCut 32 CV float is a pushed mower that provides well-proven benefits – a straightforward design and few moving parts that translate into reduced wear and lighter weight.

More than that, the new system brings the mower closer to the tractor than a pulled front mower, hence taking load off the tractor's front axle and reducing the load on the rear axle. Therefore, EasyCut 32 CV float suits smaller and lighter tractors as well.

Field findings reveal that the new Krone float system improves the quality of forage substantially by providing exemplary turf protection and consistently clean forage.



**EasyCut 32 M - the bespoke mountain machine**

Spelle, August 2009 – EasyCut 32 M is a front mower that is designed for mountainous applications. The super light EasyCut M model boasts a compact design and brings the centre of gravity closer to the tractor to minimize the load on the tractor's front axle. Weighing as little as 600kg, EasyCut 32 M is about 30% lighter in weight than other front-mounted mowers that use swathing drums.

EasyCut 32 M is specified with a standard centre-of-gravity suspension system, which provides a travel range of up to 30cm. The system ensures extremely accurate cuts in undulating fields, on steep slopes and when working across the slope. Another standard-fit on all EasyCut mowers is now the innovative and patented SafeCut cutterbar, which provides exemplary impact damage protection. The system centres on a roll pin that connects each disc to the drive shaft and that shears off as the disc hits an obstacle. While the sprocket keeps revolving, the stopped disc jacks up on a thread and clear of the blades on the neighbouring discs to avoid damaging these.

EasyCut 32 M operates behind 60hp and higher tractors.



**Krone EC 9140 Shift Triple mower  
Convenient mower gives variable overlap**

Spelle, September 2009 – Mower combinations offer high efficiency and high operator comfort – such as the 8.70m Krone EasyCut 9140 Triple mower combination. Yet, when working on the slope or travelling through narrow bends, mower combinations often leave strips of uncut crop, which result from a relatively small overlap between the front and rear units. The new Krone Shift system offers a simple but effective solution for the telescoping side mowers of the Triple combination. The operator sets the desired overlap on the arms by refitting pins, reducing the clearance down to 24cm and thereby setting the overlap to 50cm to achieve clean cuts also on extremely steep slopes.

The plain and sturdy body makes EasyCut 9140 one of the lightest Triple mowers in the market, a fact that is reflected by a low input requirement. The EasyCut 9140 standard specification comprises the EasyCut DuoGrip centre of gravity suspension and the auto-reset system. The EC 9140 model is available in three versions - without conditioner, with conditioner and with cross conveyor belt.



**Trailed tedder with transport running gear  
Krone presents the new trailed KWT 11.22/10 tedder**

Spelle, August 2009 – The new KWT 11.22 from Krone implements wide working widths and low tractor input in an exemplary way. Featuring a dedicated transport chassis and tractor link arm attachment, KWT 11.22 contents itself with a 50hp tractor and yet delivers best tedding and spreading results. 10 small-diameter rotors work at a width of more than 11m, spreading wet and wilted material in a uniform pattern.

As another highlight, the new KWT 11.22 requires only one double-acting spool to move from transport to work position. An integral automatic sequencing system controls the entire process and swings the transport chassis automatically up into park position after the tedder has been lowered into work.

Furthermore, the machine's 2.40m track width ensures smooth and safe running, even at 40km/h transport speeds. Maintenance is as low as it can get, because KWT 11.22 features liquid-grease rotor drive systems and maintenance-free 'OctoLink' clutches from Krone.

In addition, the model benefits from tubular-section tine arms and 9.5mm diameter 5-coil tines made from top-quality Super-C material and protected by an effective anti-tine-loss system. These Krone tines boast legs of different lengths so they always operate parallel to the ground to avoid crop contamination.

Like all Krone rotary tedders, KWT 11.22 features a standard angle adjustment system, which sets the spreading angle from 12° to 19° with out tools, and a hydraulic boundary tedding system on each machine side.



**New MX range  
Krone expands its range of forage wagons**

Spelle, August 2009 – At Agritechnica, Krone is presenting two new rotor forage wagons. Badged MX 310 (31m³ to DIN = 50m³ haylage volume) and MX 350 (35m³ to DIN = 56 m³ haylage volume), these new machines expand the Krone range of forage wagons to now comprise AX, MX and ZX models. The new MX is marketed in GL and GD specification. The GL version is a forage wagon with closed body, the GD version is a self-loading model with closed body and two standard discharge rollers; a third discharge roller is an option.

The MX models stand out for their 880mm diameter feed-and-cut rotor with 8 rows of tines. The tines are welded to the rotor in a helical arrangement and are surfaced with hardwearing Hardox plates. These wide feed plates have proven their worth in preventing the material from compressing and squeezing. 41 knives spaced 37mm apart give perfect cuts at minimum input power.

The uncontrolled and low-maintenance Krone EasyFlow-Pickup system is standard specification on all MX wagons, offering a 1,800mm pick-up width (DIN) and five rows of tines for smooth material ingestion.

The EasyFlow holders mount right on the rotor discs at either end of the pick-up, a position that eliminates the need for a traditional cam track control system, which is a major area of wear. Another plus point is the pivoting design of this new Krone EasyFlow pick-up unit. Protected by the cam-type clutch on the main drive shaft, the discharge rollers benefit from higher torques, which in turn make for higher work rates even in heavy and wet material.

The special highlight on the MX forage wagons is the knife bank, which folds down and swings out to the side. The operator no longer walks around the machine to lock and unlock the bank on either side. Instead, he carries out all operations on the left side of the machine. To swing out the knife bank, he simply operates a lever that unlocks the knife bank and then swings it out to the left for fast knife changes without tools.

Another noteworthy innovation is the MX chain-and-slat floor, the front end of which is lowered by 15cm or 25cm. This sloping conveyor significantly reduces the space through which the material passes from cutting rotor into the wagon, enabling faster and gentler crop feed as well as a substantial reduction in input power, making MX a good machine to run behind 88kW/120hp tractors.

As an extra benefit, the sloping design increases the utilisation of the overall machine capacity, because the first portion of material cannot fall over to the rear.

The optional automatic loading system is equipped with an extra precompression sensor, which maximizes machine fill levels and profitability.

Road transport is another impressive aspect of the MX models. The level of specification comprises a professional package of axles, tyres and brakes, such as the suspended axle assembly on up to 20" tyres or the Boogie assembly running on maximum 26.5" tyres.

For straightforward and intuitive MX operation, Krone developed two new GL and GD operator control units. There is also the option of a high-comfort control system, which offers a large display. All control options on MX are compatible with the tractor's load-sensing system.

Offering capacities from 25 m³ to 53m³ (DIN), the new Krone MX series is the professional addition to the Krone range of forage wagons. All Krone forage wagons stand out for high efficiency, low input requirements and an exemplary quality of cut. Lacking cross-hoops or ropes, the wagon is also a perfect option for backing up the maize harvesting trailer team.



**The new symbol of efficiency  
Swadro 2000 cuts up to 20 ha per hour\***

Spelle, August 2009 – Achieving work rates of up to 20 hectares per hour, the Krone Swadro 2000 6-rotor rake is truly a high-efficiency machine. These work rates were confirmed in numerous field tests that took place in the last season. Swadro 2000 offers 10m-19m work widths, which are adjusted infinitely variably on the move to respond to varying conditions and produce 1.6m-2.8m swaths. These options make this high-output rake a suitable machine to work ahead of powerful harvesters such as forage wagons or forage harvesters.

Swadro 2000, like all Krone rakes, features the enclosed and fully maintenance-free cam track housing and the especially hardened DuraMax cam track. The tine arms run in sealed races and require no lubrication at all. The 250-hour service intervals for all drive shafts suggest Swadro 2000 is a particularly low-maintenance machine.

The rotors are 3.3m in diameter. The four leading rotors have 13 tine arms, whereas the two rotors at the rear boast 15 arms. The leading rotors operate at a higher speed than the rear units to optimize the flow of crop as the leading rotor transfers it to the rear rotors. This patented Krone system produces fluffy and light swaths without roping and offers optimum conditions for the following harvester to perform most efficiently at a minimum risk of blockage.

This innovative technology ensures that the material is raked into clean and uniform swaths in all conditions while tridem axles and rotor wheels running closely to the inner tines ensure exemplary ground contour following.

Up to 800/40-26.5 flotation tyres are available for the transport running gear to reduce the ground pressure and provide sustained turf protection.

Swadro 2000 folds to a 3m transport width and a 3.995m height without folding the tines. Quiet running on the road and in the field is provided by the intelligent steer axle, which performs passively in the swath to ensure the rake produces uniform and straight swaths. The steer axle is activated automatically on the headland, giving excellent manoeuvrability even in very small plots. In addition, when the machine is travelling through narrow gates or is raking up wedges the operator can correct the current position of the steer axle from the tractor.

The rake is also convenient to operate. The operator sets or programs work depth for each rotor separately or all rotors simultaneously at the touch of a button. The system allows him to lift only one rotor out of work to rake up corners. The 6-rotor rake operates behind a tractor of 130hp and higher.

\*20 ha = ca. 50 acres



**Saving time, giving peace of mind  
New: Electronic weighing system integrated on ZX dual-purpose forage wagons**

Spelle, August 2009 – Now operators can watch the process of loading their forage wagon from the tractor terminal. Krone is the first manufacturer who offers an integral electronic weighing system for the Krone dual-purpose forage wagons. Available for the ZX 400/450/550 models (featuring hydraulic levelling), the system uses weighing pins that are integrated in the drawbar and the axle assembly to weigh and memorize the weight of each machine fill. The cab computer accumulates these axle and drawbar loads to compute the total machine weight.

The system offers the advantage of measuring each wagon load instantly and on the move and eliminates the need to travel to the weighing bridge. Thus it keeps the harvest chain running and saves operators an enormous amount of time. The system provides 20 different memories to store the results by customer and field and easily determine the specific fresh matter yields. In addition, the new and integral weighing system enhances road safety by displaying the current load on the cab-mounted display screen. As a result, operators can conveniently and easily exploit the full machine capacities.

Weighing accuracy of the new and cost-effective Krone system is +/- 3% of the GVWR.

