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Driving impression: Krone Comprima F155 XC round baler

Fixed-chamber baler pumps out different pack sizes

It may sound rather implausible, but the Krone Comprima F155 fixed-chamber round baler is said to be capable of producing six different bale sizes with diameters from 1.25m up to 1.50m. How so? We examine the cunning design principles that have gone into creating this new crop-packaging machine concept

At the tail end of last year, Krone introduced a completely new range of Comprima round balers – two variable-chamber, one fixed-chamber unit and a semi-variable. Refer to ‘The Comprima range’ box on the adjacent page. Sounding distinctly like a contradiction in design terms, there is no doubt that it is the semi-variable F155 machine that’s attracting the most interest from competitors and prospective buyers alike. And with good reason. It would seem to be a genuine ‘first’. In Krone language, semi-variable means a fixed-chamber design that is able to increase its volume in 5cm increments to produce a bale diameter of 1.25m up to 1.50m. Clearly the advantage with this is that a livestock farmer, who generally tends to favour simple fixed-chamber technology, can continue to operate this type of machine but now with the additional capability to pump out a decent-sized 1.5m package when working in a straw crop rather than being restricted to the traditional ‘fixed’ 1.25m diameter bale profile – more straw per bale etc.

Key to the new semi-variable concept is Krone’s decision to go with its so-called NovoGrip belt and slat elevator which, as its name suggests, comprises metal slats attached to endless belts. The belts themselves are made up of three polyester and polyamide fabrics with a layer of rubber vulcanised to either side. Just like a tyre, these rubber outer layers bristle with lugs that are said to ensure slip is not a problem on the machine’s rubber-coated drive rollers, and this is reckoned to apply even when working in the more challenging crop conditions. Not surprisingly, perhaps, Krone says that a switch from chains to belts brings nothing

but advantages. Among the company’s claims are for lower wear rates, no maintenance requirement, quieter operation, and higher bale densities because of the rubber’s higher tensile strength; maximum load on the belts at maximum bale density is reckoned to be no more than 10-12% of their maximum rating – or in other words, the belts are operating well within their comfort zone.

As for the slats, these items are a new design, too. They bolt to the belts via slat holders that, in turn, are protected from wear and damage by the chunky belt lugs situated on either side.

Krone Comprima F155 is the first fixed-chamber baler to produce variable-diameter bales. Photos: ST





The new elevator design is made up of channel-type slats, which are attached to two endless belts.

That's dealt with NovoGrip. In terms of how the machine actually operates in practice, the Comprima F155 works according to familiar fixed-chamber principles, its belt-and-slat elevator running on five guide rollers that keep the elevator in a set position. The starter roller, along with two further profiled rollers, feeds the material into the chamber where it begins to roll up the crop, initially in a polygon pattern.

There is no serious compression at this stage in the cycle. As soon as the bale diameter figure gets up to 1.2m, the belts move away from the internal guide rollers, and by now the shape has changed from a polygon to a round profile.

Now for the critical design ingredient. As the belts expand away from the guide rollers, the tensioning bar moves down against the spring-loaded stop rods, this process enabling bale diameter to increase up to the point where the setting pins have been inserted in the stop rods. There are six holes in the two rods, and it is these hole positions that permit the baler operator to choose from one of six different bale diameters – from 1.25 to 1.50m in 5cm steps.

Once the preselected diameter has finally been reached, the compression part of the cycle starts off – in simple terms, bale density begins to build up. Here the in-cab 'Comfort' control terminal (£650 opt.) comes into play, using sensors on either side of the machine to inform the



Bale diameter is set on the pin/hole setting system (red arrow); it could hardly be simpler. The pin position adjusts the spring-loaded tensioning bar, which determines elevator flexibility as the bale diameter grows.

The Comprima range

Comprima model	Bale diameter	Chopping system
Fixed-chamber balers		
F125	1.25m	N/A
F125 XC	1.25m	17/26 knives
Variable-chamber balers		
V150	1.00–1.50m	N/A
V150 XC	1.00–1.50m	17/26 knives
V180	1.00–1.80m	N/A
V180 XC	1.00–1.80m	17/26 knives
Semi-variable balers		
F155	1.25–1.50m	N/A
F155 XC	1.25–1.50m	17/26 knives
Baler/wrapper combinations		
CV150 XC	1.00–1.50m	17/26 knives
CF155 XC	1.25–1.50m	17/26 knives

operator of the rising density within the chamber. Usefully this Comfort control box also indicates to the driver whether he needs to steer to the left or right to counteract unevenness to the material already within the machine. Not that this was a problem in our test. We baled a number of 1.25m bales, and were unable to fault the 155 on either its bale density or shape.

Important for many users will be that the F155 is also offered in XC crop-chopping format. The standard X-Cut system comprises 17 knives for a 64mm chop length; 26 knives (42mm chop) are available as an option. With the 17-knife set-up, the operator is able to select between 0, 8, 9 or 17 knives by manually adjusting a couple of shafts, and each of the knives is separately impact-protected.

Also in this area, the X-Cut feed rotor diameter has been increased from 41cm to 53cm to boost the machine's intake capacity, with Krone claiming a 20% hike in Comprima output when compared with that of its previous models. The risk of blocking up the baler should be reduced too, which again should encourage the operator to push the machine to its full potential.

If a blockage does occur, it's a simple and quick sequence to put matters right. First step is the cam-type clutch trips. Then the baler operator lifts the pick-up to increase the clearance between guide plate and rotor. Next, set the knife floor spool into float position and restart the rotor. The springs inside the rams will then lower the floor – if the springs don't, the crop will – to allow the crop to be transferred into the chamber.



The Krone round baler employs the same camless pick-up tines that appear on the BiG X forager's grass pick-up (see practical test) and BiG Pack large square baler. Contour-following and material gathering performances were impressive in our test.

Other points worth mentioning:

■ Comprima boasts a new 2.15m wide pick-up unit. Pneumatic tyres and springs are part of the standard specification, as are camless tines.

■ Power passes from the driveshaft to a gearbox that mounts on the front chassis beam. This power-splitting box directs drive to the right, to the rotor cutter and on via a cam-type clutch to the pick-up, and to the left machine side to power the bale chamber.

■ Krone's net wrap system (£830 option) has been updated. An actuator-controlled guide plate sends the net to the net feed roller which, in turn, then feeds it into the bale chamber through the two top rollers. The net roll compartment lives at the front end of the machine and is located at a convenient height. The storage box has capacity for two spare rolls.

■ Standard footwear spec for the 3,400kg Comprima F155 XC model could do with



The Comfort terminal boasts a host of functions including the ability to diagnose faults. Display could do with being larger.



Drives on either side of the machine are convenient to access, courtesy of the large side doors. Standard auto lube system takes care of chain maintenance.



Comprima F155 XC has a 17-knife cutter (64mm chop). There is the option to spec a 26-knife system for a 42mm chop.



DATA SHEET

Krone Comprima F155 XC

Working width of pick-up unit (DIN)	2.15m
No. of knives	17
Chop length	64mm
Bale chamber	3 rollers, 'NovoGrip' belt/slat elevator
Tying system	Twine (option of net)
Tyre size	11.5/80-15.3
Length	4.60m
Transport width	2.61m
Transport height	2.60m
Weight	3,400kg
Tractor power	40kW/55hp
List price excl VAT	from £26,285

Manufacturer information for base specification machine

an upgrade. The boots on our tested F155 were 500/50-17 (an £800 option), and we wouldn't have wanted anything smaller for the conditions that we were operating in. A tandem axle is available as a £2,070 option and is worth considering.

■ The magnet-mount operator terminal – a bracket is supplied for installation in the cab – is practical and allows the baler operator to enter all machine settings, retrieve all automatic functions as well as monitor and diagnose. The display is on the small side and, as a result, may well seem cluttered.

■ Automatic chain lubrication system is part of the standard specification.

■ Our Comprima F155 XC model in test specification, featuring Comfort control, net wrapping, 500 tyres, bale ejector and 17-knife cutter is list-priced at £28,565, excluding VAT.

Summary: Comprima F155 XC is said to be the first semi-variable round baler and uses technology that's as straightforward as it is ingenious. Bale diameters can be altered in 5cm increments, from 1.25m up to 1.50m – in straw, for example.

For those operators who like to keep their machines as simple as possible, the F155 will undoubtedly have its attractions, not least of which will be its sizeable £5,520 price saving against a similarly specced but more conventional variable-chamber V150 XC model – an interesting machine-purchasing dilemma.

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