

Reprint: Field test Krone Swadro TC 1570

traction

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Sweeping the board?

With compliments by:



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Sweeping the board?

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#FARMACHINE

This year's Agritechnica will see Krone unveiling its new four-rotor rake. Measuring 15.70m, the Swadro TC 1570 is the widest rake on the market and has the potential for scooping the Farm Machine Award in our view. We had the opportunity to accompany the rake in the field.

Alexander Brockmann

While competitors have been adding belt mergers to their product ranges, Krone focused on developing their range of rotary rakes, giving their Austrian and French competitors, Pöttinger and Kuhn, a demonstration of what four-rotor rakes hold in store. With the formal introduction of the brand-new Swadro TC 1570 at Agritechnica 2023, Krone takes the lead in the maximum-width four-rotor rake segment. Clearing 15.70 metres of work, the machine is no doubt the widest four-rotor rake on the market. To implement this width, the engineers explored uncharted territory on the one hand while also tapping into existing company expertise on the other.

With a comprehensive level of standard specification, this four-rotor rake is designed for high usage and acreages – in short, for professional customers. For example, it targets those contracting firms which look for a machine that is smaller than the six-rotor model or one that is wider than the existing four-rotor TC 1370.

WITH CAPITAL V

The frame was the first element that needed a rethink in order to implement the impressive width. Indeed, the engineers didn't have to look far, because they simply chose the six-rotor Swadro TC 2000 flagship as the donor of the Swadro TC 1570 frame. This means, the special frame with V-arms was taken from the six-rotor rake and transferred to the four-rotor sibling. Here, the two front rotors no longer move hydraulically in slideways to adjust the width. Instead, they

Technical data

Design

Four-rotor rake with V-frames; 11-15.7m work widths, 1.4-2.9m swath widths; hydraulic control, Load sensing, optional hydraulic circuit, ISOBUS operation; Cat. 2 attachment; 710/40 R22.5 or opt. 800/35 R22.5 wheels on running gear

Rotors

3.8m diameter, 15 tine arms, 4/5 lift tines per arm, 4- or 6-wheel undercarriages (16x9.50-8); gimbal-mounted gyroscopic suspension; hydr. rotor suspension, mechanical rotor drives, electric height control, hydraulic crop deflector (option)

Dimensions and weights

7,900kg, 4.00m transport height, 2.99m transport width, 10.50m transport length; minimum 110hp tractor power

List price (excl. VAT)

€144,255

THE MASTER RAKE: The brand-new Krone TC 1570 is the widest four-rotor rake on the market.



The gimbal-mounted gyroscopic suspension produces the jet effect.

1 The two front rotors mount on V-type frames which adjust their angle relative to the main beam for implementing the total work

2 The front rotors have their own gauge wheels.

3 The lift-out cylinders have integral shock absorbers which make the machine float across the ground.





The jockey wheels stay on the ground for headland turns. Only the arms are raised.



Each rotor has 15 tine arms. The arms on the front rotors carry four sets of double tines and the ones at the rear five.



The front rotors spin at a 25% higher rpm than the rear units.

mount on long V-arms which alter their angle relative to the massive central beam to adjust the width.

Yet unlike the TC 2000, each of the two TC 1570 arms is controlled by its own separate ram, which means that the front V-arms can be controlled independently – which is not possible on the six-rotor model. To suit, we were able to clear out corners by pushing the outside rotor into the corner while the rotor on the inside of the curve stayed in its position – which is also very useful when avoiding obstacles in the field.

Then you flick a button on the AUX-Joystick and the outside rotor moves back, mirroring the position of the inside rotor (which also works the other way round). This is done manually, if you don't use the joystick. It is of course also possible to control the two front rotors simultaneously and in parallel.

EXTRA WHEELS FOR THE ARMS

The two rotor arms at the front are supported by 15/55-17 gauge wheels. These are necessary for implementing the 11m to 15.70m work widths and at the same time ensure quiet running and dependable operation. These wheels stay always on the ground, also during headland turns. Here, the rotors are not raised by the long V-arms but by the rotor arms that extend from the gauge wheels to the rotor units. This means, each wheel carries the weight of the rotor's hydraulic suspension unit and the entire rotor weight during lift-out.

Each lift-out cylinder has an integral nitrogen accumulator that absorbs vibrations. We should also mention the automatic 'Soft Down' return-to-rake feature, which reduces the drop rate just before the bogie wheels touch the ground. The gauge wheels pivot in a bearing on one side while an anti-wrap guard on the other rotor-facing side protects the wheel assemblies from any material thrown here by the tines.

Moving to the rear rotors, these mount on traditional telescoping arms that extend from the central beam. These rotors are instrumental for adjusting the swathing width between 1.4m and 2.9m. They also have a suspension system that adjusts automatically and even in parallel relative to the selected work width. A shock absorber is also integrated here.

Mid-mounted between the front and rear rotors is the swathing curtain which is hydraulic as an option and which folds automatically into headland or road position.

HEAVY-DUTY ROTORS

Each of the four rotors measures 3.80m in diameter and, folded to the vertical for road transport, they stay below the statuto-



ry 4m transport height. The undercarriage also needs to move into transport position. 800mm tyres are available for soft treading on the forage and the sward.

Moving on to the tines, we counted the maximum number of 15 tine arms for high work rates. The arms on the rear rotors carry five double tines each for managing the extra volumes that arrive here, whereas the front rotor arms carry four double tines.

The tines are kinked, which is reckoned to give the so-called 'lift effect' and means the material is pushed up the tine shaft mainly for reduced contamination.

As the black drive shafts suggest, all rotors are powered mechanically. The tractor power flows down the main drive shaft to the rear section of the machine where the gearbox splits the flow, sending it to the front rotors via a straight as possible driveline on a separate frame that moves with the V-arm.

The gearbox on the rotor is – typically Krone – permanently lubricated and maintenance-free. The small-diameter and steep cam track was also sourced from the existing

1 The Krone Swadro TC 1570 hitches to the Cat II linkage. The Loadsense and ISOBUS lines also need connecting.

2 The running gear is raised hydraulically for field work and lowered for road transport.

3 Typically Krone, the rotors are driven mechanically.

rakes. Included in the standard specification level is the electric and on-board height adjuster.

The two front rotors spin at a 25% higher speed than the rear units, spreading the material instead of grouping it into a swath.

THE JET EFFECT

In line with its philosophy, Krone mounts the rotors centrally yet in front of the centre of gravity. This arrangement has two advan-



The machine is operated from the ISOBUS terminal. The A3 joystick is a very useful addition.



Section Control is also available for headland turns thanks to the independent rotor lift-out feature.

tages: on the one hand, it pulls the rotors across the ground for improved contouring and on the other hand, the gimbal-mounted gyroscopic suspension creates the so-called jet effect. With the centre of gravity behind the suspension unit, the front wheels touch off first during lift-out, followed by the rear wheels. Vice versa, when lowering into work the rear wheels touch down first, followed by the front wheels. This is to avoid the tines poking the ground, contaminating the crop and damaging the sward. Each bogie has four standard wheels and six wheels as an option, the latter being the specification on our rake. Apart from that, the four-rotor flagship runs exclusively on the wide 16x9.50-8 bogie wheels.

COMFORT CONTROL

Operators can control all settings conveniently from the cab. The complex road/field folding sequences are also carried out automatically. In view of the multitude of sequences and valves, it is obvious that ISO-BUS is a standard feature.

The operator menu has also been revised. The navigation is clear and nearly self-explanatory. The virtual machine status is displayed graphically - great. Operators

Our summary

Krone expands its four-rotor rake family by a new top model which clearly addresses professional farmers and contracting companies. Many of the Swadro TC 1570 features are sourced from the six-rotor TC 2000 in order to implement the 15.70m working width - the largest on the four-rotor market. This width calls for two gauge wheels that support the front rotor arms. These boast independent control for clearing out corners, for example. There are no significant changes to the rotors themselves except that they have been fortified to cope with the higher loads. On the whole, the TC 1570 boasts a comprehensive level of standard specification and multiple control options, and yes, it is heavy, too.

- ➕ Working width
- ➕ Level of standard specification
- ➕ Quality of work
- ➖ Premium control from AUX joystick only
- ➖ Weight

need to put their heads into the system before they are able to master the multitude of functions. Swadro TC 1570 is a professional machine and as such calls for the appropriate number of hectares to clear.




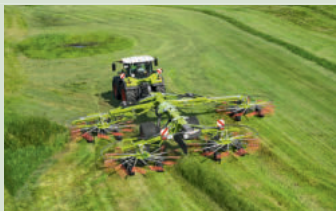
We tested both, the CCI 1200 terminal and the very useful ISOBUS joystick. The touchscreen interface is split into various

views. One view shows the functions of the joystick keys, something tractor joysticks can't.

Thanks to Section Control, the rotors lift and lower as per application map. 

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Translated into English by trans-agrar

Market overview Four-rotor rakes

	Krone Swadro TC1570	Kuhn GA 15231	Claas Liner 4900 Business
			
Work width	11m - 15.70m	9.5m - 14.7m	10.1m - 15m
Rotor diameter	3.80m	3.65m	3.80m
No. of tine arms	15	13 at front / 15 at the rear	14
No. of double tines per arm	4 at the front, 5 at the rear	4	4
Rotor drive	mechanical	hydraulic	mechanical
Rotor suspension	cardanic	cardanic	cardanic
Bogie wheels	4 or 6, 16x9.50-8	4	4 or 6
Rotor height control	electric	hydraulic	hydraulic
Swath width	1.4m - 2.9m	1.4m - 2.5m	1.4m - 2.5m
Operation	ISOBUS	ISOBUS	ISOBUS
Transport running gear	710/40 R22.5 or 800/35 R22.5	600/50-22.5 or opt. 710/40-22.5	to 800/35 R 22.5
Hydraulic control	Loadsensing	Loadsensing	Loadsensing
Tractor attachment	Lower link arms	Lower link arms	Not available
Machine length	10.5m	10.9m	10.15m
Tractor power	from 110hp	from 115hp	Not available
Weight	7,900kg	6,100kg	5,970kg

Photos: Firm, Brockmann