



Mower conditioners with hydro-pneumatic suspension  
**FC 104 LIFT-CONTROL**  
**FC 1025 F**





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## FC 104 LIFT-CONTROL - FC 1025 F

Mower conditioners with hydro-pneumatic suspension

### ONE OBJECTIVE, TOP QUALITY FORAGE!

TODAY'S HIGH-PERFORMANCE FARMS KNOW HOW IMPORTANT IT IS TO OPTIMISE THEIR PROFITABILITY BY:

- MAKING SURE THE HERD RECEIVES ALL OF THE NUTRITIONAL VALUE OF THE FORAGE,
- EXTENDING THE SERVICE LIFE OF THEIR MOWER CONDITIONER.



PERFECT GROUND ADAPTATION FOR TOP QUALITY FORAGE.

The clever and exclusive LIFT-CONTROL kinetics on the mowing unit combine ground pressure reduction with Non-Stop safety. Additionally, the central pendulum articulation ensures uniform weight distribution over the entire working width. This results in perfect ground adaptation and, above all, less dirt mixed in with the forage.

EFFICIENT CONDITIONING FOR HIGH NUTRITIONAL VALUE.

The conditioner is another decisive component on KUHN's FC mower conditioners: the shorter the drying time, the more the forage will retain its nutritional qualities. KUHN finger and roller conditioners are not only effective in terms of drying speed, the V-shaped nylon fingers also record low power consumption.

# CLEAN FORAGE FOR HIGHER REVENUES

Profits from livestock farming start with the feed reserves, whether in silos, bales or bulk. The aim is simple: to produce as much milk or meat as possible from the basic feed ration. To achieve this goal, palatability and forage uptake by the herd must be optimised while retaining the highest nutritional value in the forage. This strategy considerably reduces the need for concentrates and increases your profitability.

## THE SOLUTION: LIFT-CONTROL FOR...

### Improved mowing:

- perfect ground contouring,
- less dirt in the crop,
- higher nutritional value,
- grass stubble protected for faster regrowth.

### Reduced costs:

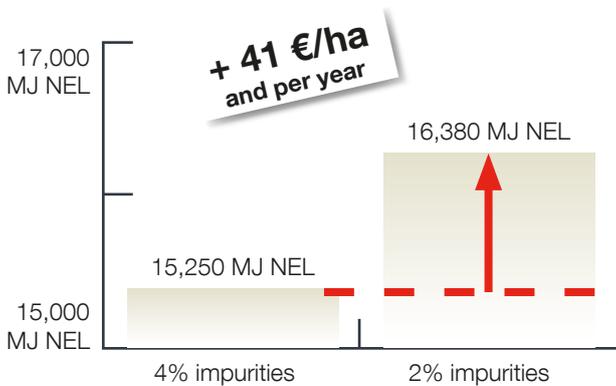
- less pull-power needed,
- less fuel consumption,
- less wear and lateral stress,
- less concentrates needed,
- higher working speeds,
- higher productivity.

### Easier work:

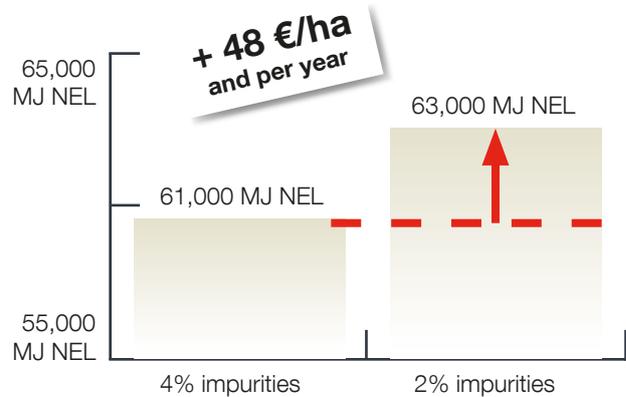
- adjustments from the cab,
- pressure gauge for accurate settings,
- easy passage over obstacles,
- Non-Stop safety.



**ENERGY UPTAKE PER COW PER YEAR**



**ENERGY CONTENT PER HA AT A YIELD OF 10 T DRY MATTER**



### Reducing the rate of impurity from 4 % to 2 % saves €89 per hectare per year

Studies carried out in a forage-producing region of Germany compared 2 types of silage (the first with 2 % of impurities and the second with 4 %.) to determine the financial impact of silage quality on dairy farms. They measured the nutritional value of the poorer quality silage to calculate the amount of concentrate needed to equal the better quality forage. The financial loss was found to be €89 per hectare per year.

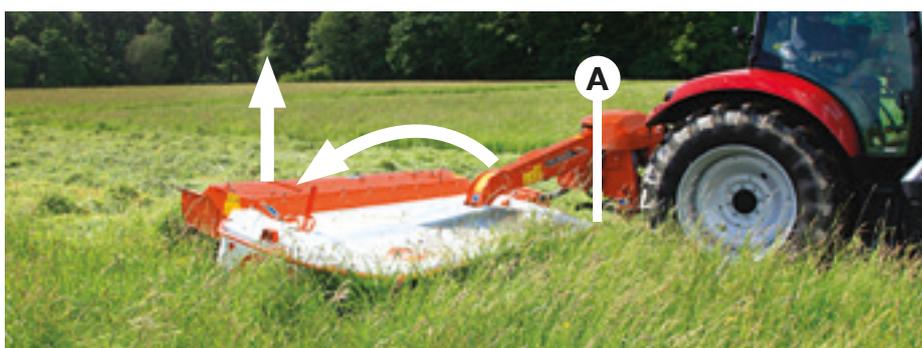
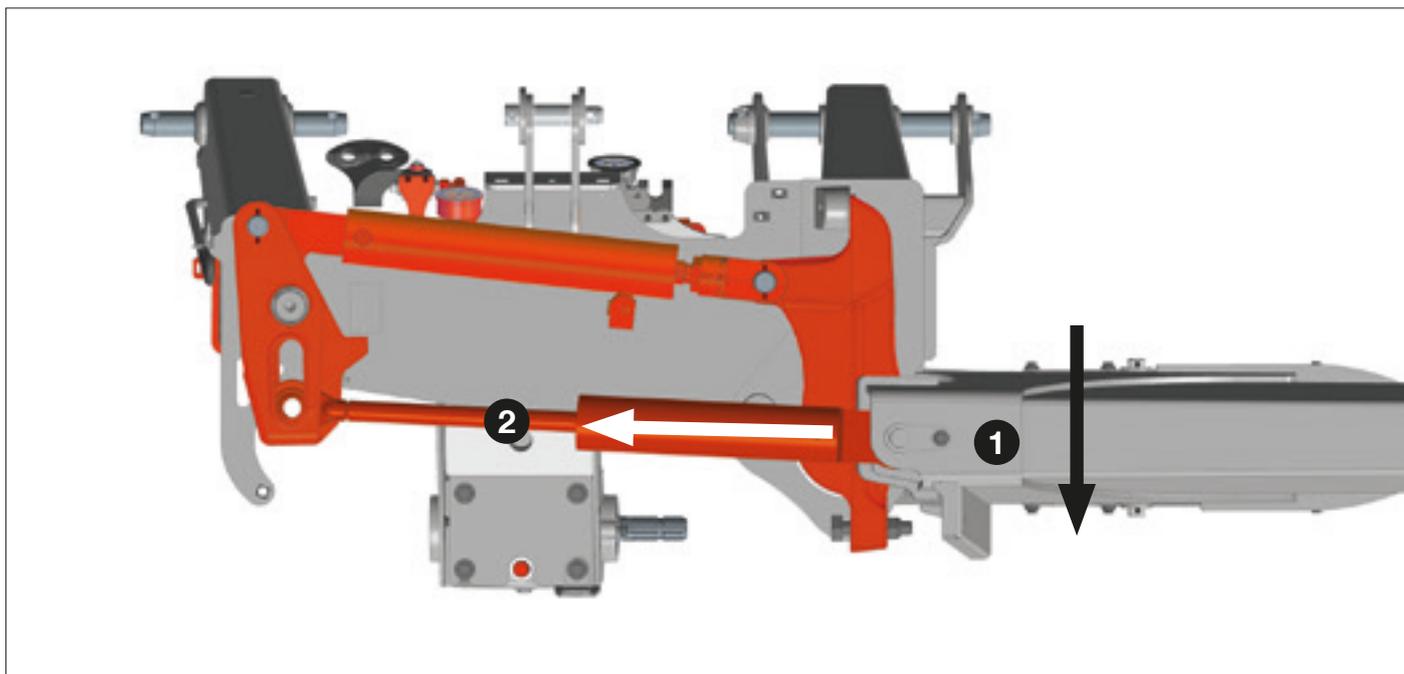
# LIFT-CONTROL: THE ANSWER TO CLEAN FORAGE

## Clever kinematics

LIFT-CONTROL is much more than just a suspension system with a nitrogen accumulator replacing the traditional spring. It features an exclusive system whose kinetic forces act on the cutter bar. KUHN engineers have designed a dynamic suspension system different to most commonly used suspension systems, which are passive.

## How does LIFT-CONTROL work ?

- When the cutter bar runs along the ground it is inevitably subjected to backward stress **(1)**.
  - As the stress on the cutter bar increases, the LIFT-CONTROL system adapts to and relieves it **(2)**.
- Exclusive LIFT-CONTROL kinetics: a must-have for a clean crop and protected grass stubble.



## Adjust pressure easily and accurately

The accumulators make it possible to adapt ground pressure to mowing conditions, with great precision, from the tractor cab.

On wet land, for example, minimal pressure on the ground prevents clogging and dirty forage.

## Active Non-Stop break away: Peace of mind

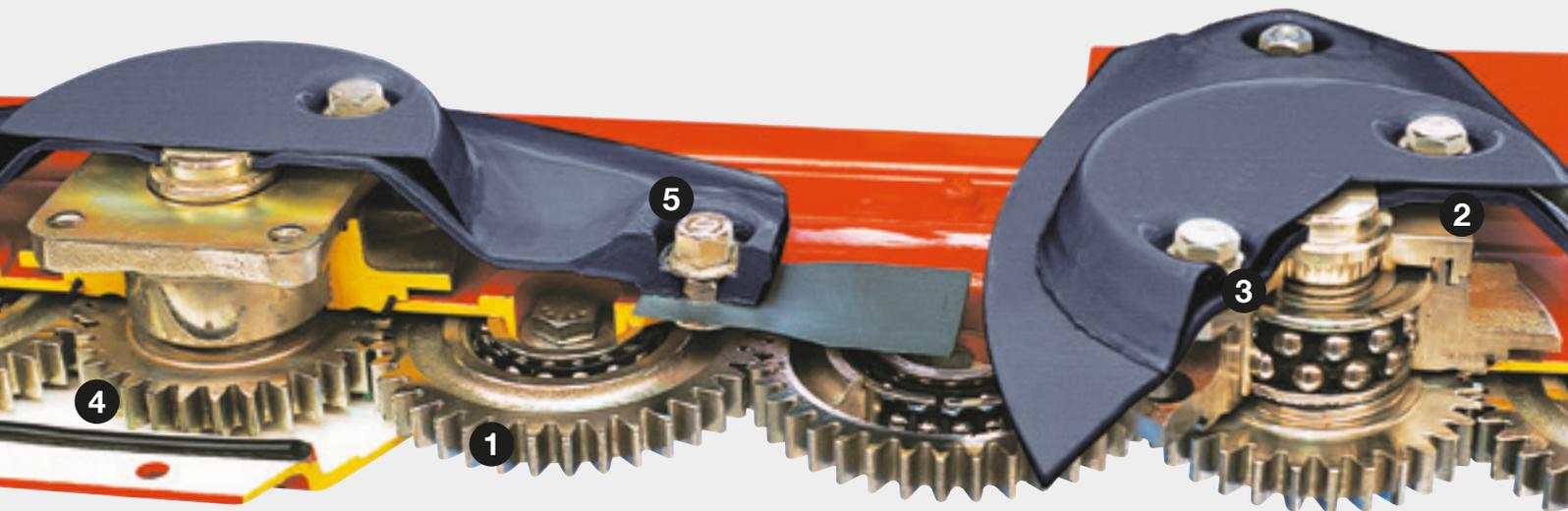
FC 104 LIFT-CONTROL mower conditioners feature an active system that ensures almost constant ground pressure up to an angle of 11°. In case of an obstacle, and when at an angle of more than 11°, the mowing unit will pivot up to 25 degrees to the rear and at the same time will lift to clear the obstruction. Afterwards, the machine automatically moves back to mowing position. The LIFT-CONTROL system also integrates the market-exclusive suspension and Non-Stop safety systems. The breakaway safety system also works efficiently if the cutter bar is hit from the left, as the pivot point of the frame arm is far enough away from the first discs **(A)**. The mowing unit automatically resets to its original mowing position.

# THE IMPORTANCE OF TAKING A LOOK INSIDE

## BEING N°1 TAKES DETERMINATION...

Some disc mower conditioners may look like a KUHN machine from the outside, but it's what is on the inside that is really important.

KUHN's design and manufacturing standards ensure that the centrepiece, in other words the cutter bar, of each mower conditioner is extremely dependable. Take a closer look inside our machines to discover the exclusive features that make the difference.



### 1. Gearwheels that withstand the most violent impacts...

All gearwheels are made of forged steel and have a large diameter. This ensures the maximum strength required in the event of impact on the discs.

#### HUGE SAVINGS:

In less than 15 minutes the mower conditioner is operational once more at a very low repair cost.

### 2. ... and are always safe thanks to the PROTECTADRIVE safety system

Every minute saved during the season is precious. In the event of a very violent impact between a disc and an obstacle, the shaft holding the disc can shear just above the bearing, thanks to a carefully dimensioned shear groove, and the precious gearwheels are protected.

### 3. High-capacity guidance system

The discs are supported by two rows of oblique contact ball bearings. High-end components for the centrepiece of the cutter bar.

### 4. Symmetrical casings

The pressed casings are made from two U-shaped plates, so that the mounting screws are close to the neutral axis. Consequently, there is no particular stress on the screws or the seal unlike designs with one U-shaped casing and a flat top plate.

### 5. High wear resistance

The front part of the disc where the blade is fixed is the area which participates most actively in the evacuation of the forage and which is exposed to wear. KUHN has integrated a massive forged steel part into it. Even in abrasive conditions, enjoy maximum longevity.

## FAST-FIT or bolts: your knives completely secured

Depending on the country, all LIFT-CONTROL mower conditioners can be equipped with knives attached by bolts or by the exclusive FAST-FIT system. This system has a quick-release spring that provides user comfort and absolute safety, with reduced maintenance costs.

### CHOOSING YOUR ATTACHMENT SYSTEM

The FAST-FIT quick release knife mount system gives you three advantages:

- a powerful leaf spring provides constant pressure to the knife retainer,
- the knife retaining pins are equipped with a shoulder to provide an additional level of securement,
- the leaf spring can only be depressed to remove the knife at one point when it is centered over the skid.

So when the disc is rotating it is not possible for the knife to be released. To minimise costs the knife retention pins can be replaced individually. Cutting quality remains excellent due to the compact design of the cutter bar and the exclusive knife profile that allows them to rotate extremely closely to the protective skids.



Replacing a FAST-FIT knife quickly



FAST-FIT attachment



Bolt attachment



# CENTRAL ARTICULATION: PERFECT BALANCE

On the LIFT-CONTROL mower conditioner range, the mowing head is suspended at the centre of gravity to ensure high cutting quality across the entire width.

## NO COMPROMISES WHEN IT COMES TO GROUND CONTOURING

Thanks to its central pendulum articulation system the mowing unit runs smoothly and with stability over the roughest fields. It provides excellent ground contouring even at high ground speeds so the sward is protected and less dirt gets into the forage. The large pivot angle of the mowing unit ensures a clean cut in diverse conditions.



### **Central articulation with automatic locking system**

The central pivot point is locked hydraulically to prevent the machine from swaying when in transport and headland mode and to ensure your safety.

## FEATURES TO GIVE YOU EXCEPTIONAL WORKING COMFORT



### **Compact for transport**

In transport position, the mower conditioner pivots 90° rearwards. This gives perfect visibility and reduces machine height and width so that no time is lost. The FC 314 is also equipped with suspension in transport which makes travel safer and more comfortable.



### **Quick and easy attachment**

To attach the mower conditioner to the tractor, there is no need to change the length of the tractor linkage arms to balance the weight of the mower conditioner. In addition, when unfolding it to working position, cutting height is automatically set at 45/50 mm with no further action required.



### **Total control**

It is easy to control the mowing head with precision. The hydraulic requirements have been minimised to reduce reaction times and a single hydraulic valve is all you need to raise and lower the unit. The minimum lift clearance of 40 cm (16») easily clears obstructions and previously cut crop.

### **One lubrication job less**

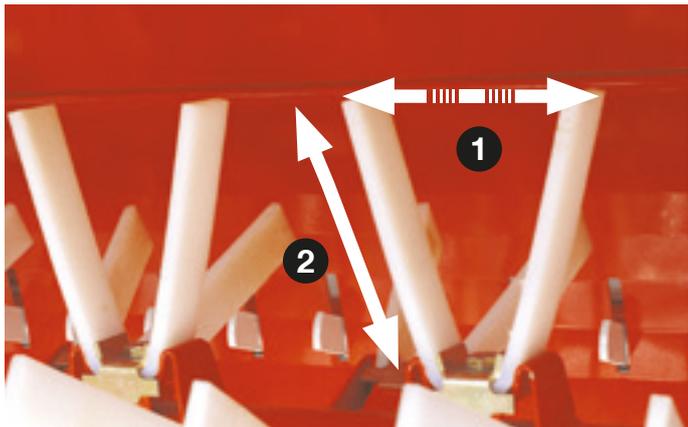
The secondary PTO shaft u-joints only have to be greased every 100 hours: quite an advantage.



# FINGER CONDITIONERS: TWO CHOICES, ONE GOAL: QUICK DRYING!

## HOW DO THEY WORK?

The fingers scrape the plants' protective wax coating which promotes plant transpiration and accelerates the forage drying process.



### Avoid excess weight with nylon fingers

On a mounted machine, any extra weight requires a larger weight-bearing structure and in the end a heavier tractor using more fuel. This is the main reason why KUHN equips its machines with nylon finger conditioners. Not only are they lighter, but also highly effective. The fingers are V-shaped and made of highly resilient material.

1. Should a foreign body pass through the conditioner, the fingers can bend out of the way and then return to their original position without being damaged.
2. They are rigid in their rotational direction which creates fluffy and regular swaths.

### Steel fingers are highly effective in a great diversity of situations

The conditioner with steel fingers is highly efficient in heavy, long and mature forage, as well as in short forage. Its high-capacity intake produces smooth forage flow through the machine. Power requirement for this type of conditioner is kept low with quicker forage passage and no need for recirculation. Well-structured, fluffy swaths are created by the position of the fingers that fluff up the forage, sending it up in the air before it comes down to form the swath. Swath ventilation is optimum resulting in accelerated drying for more energy and nutrient-rich forage. Steel fingers can also work alfalfa, preserving the leaves on the stems and consequently the nutritional quality of the forage - with the appropriate conditioner settings.

## A dream adjustment range

Imagine a mower conditioner with 36 adjustment positions allowing you to cope with young, dense or late forage, and helping you to save on precious fuel. Your dream becomes reality with KUHN mower conditioners.

Conditioning intensity can be modulated by:

- adjusting the deflector plate,
- comb setting,
- choice of conditioner speed (615 or 888 min<sup>-1</sup>).



## EVER MORE FEATURES TO YOUR ADVANTAGE



### Longer service life

The frame and beam on the new FC 104 series models are strong enough to cope with intensive mowing at high speeds with modern tractors. The articulations have also been reinforced with greased bronze bushes.



### Kuhn designers think practical

A modern design will never be the deciding factor in your choice of mower conditioner if it doesn't add any value. But it is undeniable that the new bodywork design of FC 104 series LIFT-CONTROL mower conditioners elegantly integrates the box for spare knives and tools.



### Suited to large-tyre tractors

With an offset of 19 cm (7.48"), FC 244, 284 and 314 mower conditioners can be easily coupled to tractors equipped with large-width tyres in order to optimise overlap when combined with a front mower conditioner. The attachment link has been reinforced to provide more machine stability. The frame of FC 314 models is equipped with a category 3 right-hand attachment bracket that holds the pins in place on both sides.



### Extra-strong covers increase user safety and resale value

User safety is a primary concern for KUHN which is why our protective covers are highly resistant to perforation and tearing. Users greatly appreciate this clear advantage which also contributes to the renowned high resale value of KUHN mower conditioners.

No compromise on road safety:

- a signalling panel is incorporated directly in the protective cover,
- a protected taillight is fitted to the rear.

**FC 244 D | 284 D | 314 D | LIFT-CONTROL**

## ABSOLUTE VERSATILITY AND EFFICIENCY

Everything you need to produce top quality forage:

- a highly efficient conditioner which is capable of accelerating the forage-drying process with lower power consumption,
- wide spreading as standard,
- Impressive ground contouring thanks to LIFT-CONTROL kinetics and pendulum-type articulation.



### **Great quality wide spreading**

On LIFT-CONTROL mower conditioners with finger conditioners, wide spreading comes as standard without the need to dismantle the swath deflectors. Forage dries quickly as soon as it is cut with no extra work or costs necessary.

## **SAFETY ON HEADLANDS AND ON THE ROAD**

With a working width of 3.11 m, the FC 314 LIFT-CONTROL mower conditioner boasts the same features as the smaller models:

- LIFT-CONTROL suspension to adapt to all types of ground quickly and with precision,
- Non-Stop safety breakaway,
- Pendulum-type articulation which ensures that pressure is constant across the entire working width,
- A choice between steel and V-shaped nylon conditioning fingers.

This model also has a special feature: a suspension system designed to protect the tractor and the machine, and at the same time provide flexibility at work and on the road.

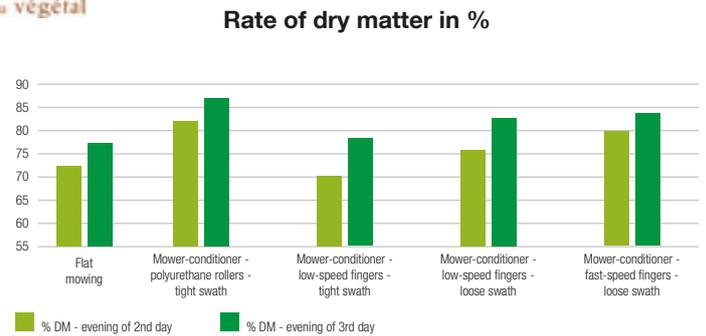
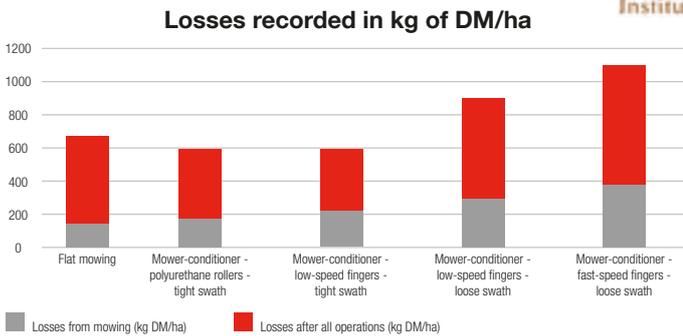


### **Machine protection**

A **hydro-pneumatic suspension** system effectively absorbs the shocks the machine has to endure in headland and transport position when on the road and on bumpy paths, especially at high speeds. The machine's frame and 3-point linkage are protected. You can drive smoothly and safely between fields.

# ROLLERS: GENTLE CONDITIONING OF DELICATE CROPS

One of the best ways to reduce concentrates in feed is to integrate plant protein into it. Legumes are ideal for this as long as the leaves, that contain the protein, are retained in the harvest. Tests carried out in 2016 by Arvalis (French Institute), the Chamber of Agriculture and the FD machinery cooperative highlight the efficiency of rollers for legume leaf preservation.



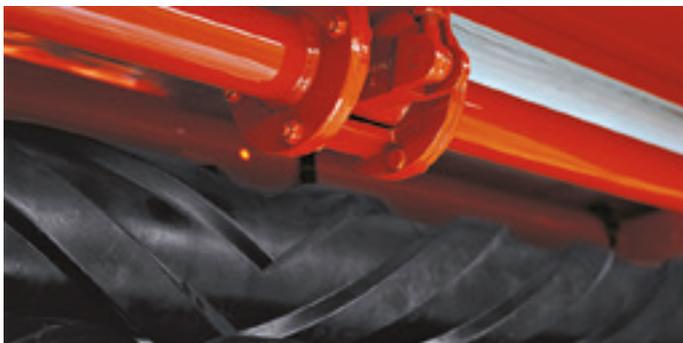
### Rollers save you around €100 / ha / cut

Losses caused by the different crop operations are reduced by using rollers (tight swaths). For a well-balanced feed, it is necessary to buy concentrate to make up for leaf loss. Depending on the price of raw materials, the cost can be as much as 100 euros/ha. It is definitely worth considering a conditioner with rollers!

### Harvest earlier!

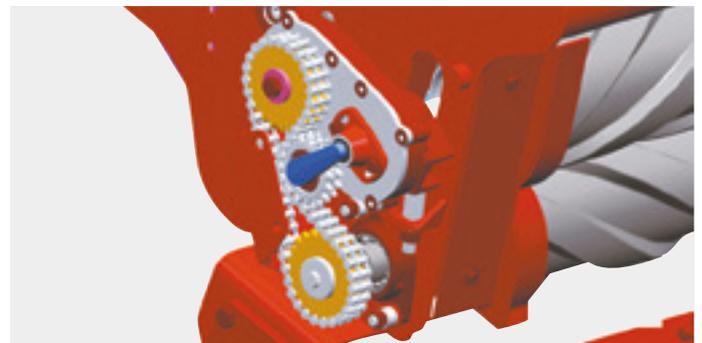
The tests also showed the drying curves of the different methods. The mower-conditioner with polyurethane rollers gave the best performance. It produced 80% of DM by the second evening as opposed to the third evening for the other methods.

## HOW DOES IT WORK?



### Easy settings

Plants pass through the polyurethane rollers smoothly thanks to the herringbone pattern. Pressure between the rollers is adjustable with the easily accessible adjustment screw. The space between the rollers can be increased to allow most foreign bodies through.



### Synchronised roller drive

The upper roller is driven by a simple chain whereas lower-roller rotation is by three belts. The rollers are synchronised at a speed of 1,000 rpm to ensure optimum operations in any conditions and a long service life with no particular maintenance.



## GENTLE WITH LEGUMES

Conditioning delicate plants, such as alfalfa and clover, is a vital operation in the harvesting process. The conditioning system has to be effective enough to accelerate drying and gentle enough to avoid damaging the nutrient-rich leaves. The rollers of the FC 244 R and FC 284 R conditioners have been designed to operate both gently and effectively.

Exemplary ground contouring made possible by the LIFT-CONTROL system and the pendulum-type articulation are additional features that will help you harvest your crop with the maximum nutritional value. Dirt contamination is reduced in your forage and grass stubble is protected.

## **MODERN DESIGN, GREAT PERFORMANCE**

First impressions count, and when you take a look at FC front mower conditioners, you'll certainly be impressed. These models also come with so many of KUHN's functional features:

- special frame design for perfect ground adaptation,
- maintenance-free OPTIDISC ELITE cutter bar for an optimum cut,
- PROTECTADRIVE safety and FAST-FIT quick-release knife system,
- mowing unit with hydro-pneumatic LIFT-CONTROL suspension,
- easy adjustments for increased user comfort,
- strong and safe cat.2 coupling (no A frame) which also provides high clearance for the PTO shaft,
- conditioner rotor with pivoting steel fingers or SQUAREFLEX rollers.



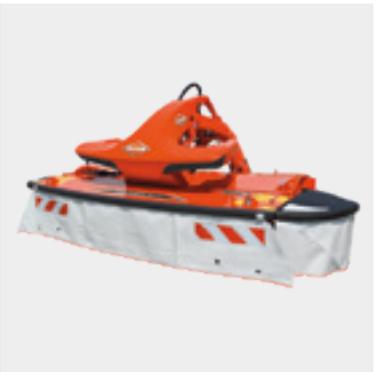
EXCLUSIVE

### **A FUNCTIONAL LOOK**

The new KUHN FC front mower conditioners come with an attractive, but also especially functionally designed headstock. The compact frame offers improved visibility and subtly integrates the suspension unit, which provides exceptionally good ground adaptation. The two support arms are distanced from each other to give the mower unit better working stability.

## Dynamic support arms

The highly specific kinematics of these machines include two strong lower connecting rods mounted on extra-large ball joints. The connecting rods are attached to the tractor in a lower position than at the front. This creates dynamic stress during operations which produces a lift-effect on the mower unit and makes a considerable difference to ground contour following in hilly areas.



## Great terrain followers

Our front mower conditioners adapt to all changes in terrain. They are often subject to extreme stress levels which is why they are equipped with pendulum-type articulation and can move in all directions.

They can oscillate left to right at an angle of up to 30° and have a vertical travel range of nearly 70 cm!

## Quick and easy settings

Ground pressure is quick and easy to set with the hydraulic suspension system that keeps it at the right level. The unit is lifted at the headland by an integrated cylinder. FC front models are equipped with a selector lever for simple conditioning-speed adjustment (755 or 1,000 min<sup>-1</sup>). The SQUAREFLEX roller version has a central pressure setting which provides up to 500 kg of pressure per metre on the roller if needed!



## Narrow swath, clean forage

The conditioner rotor contributes to reducing swath width to 1.20m, if required. This way the tractor wheels don't drive over it and tamp it down into the soil.

## Wide and modular overlap

For a clean cut on slopes and bends, the units' overlap can be adjusted with a maximum offset of 19 cm. That makes a possible overlap of between 240 and 645mm, depending on the rear machine and the working width of the front unit. A real advantage when you work with tractors with wide tracks or wheels.

## Flexprotect: flexible protection

Gone are the days of damaged side covers after having hit an obstacle! These polyethylene side covers bend without breaking or damaging the mower conditioner and then return to their original shape.

## Specifications

	FC 244 LIFT-CONTROL	FC 244 D LIFT-CONTROL	FC 244 R LIFT-CONTROL	FC 284 LIFT-CONTROL	FC 284 D LIFT-CONTROL
Working width (m)	2.40			2.80	
Number of discs	6			7	
Cutter bar	100 Series				
Cutter bar drive					
Gear train protection					
Suspension and safety systems	LIFT-CONTROL hydro-pneumatic suspension and Non-Stop safety system				
Ground following	Pendulum-type articulation of mowing units				
Hydraulic ground pressure adjustment					
Conditioning system	Flexible V-shaped fingers, baffle plate with adjustable and retractable comb	Steel fingers, baffle plate with adjustable and retractable comb	2 synchronised rubber rollers	Flexible V-shaped fingers, baffle plate with adjustable and retractable comb	Steel fingers, baffle plate with adjustable and retractable comb
Conditioning rotor speed	888 or 615		1 000	888 or 615	
Swath width, min/max (m)	0.90 to 2.30		0.90 to 1.80	1.00 to 2.70	
Wide spreading system	◆		-	◆	
Attachment	3-point, cat. 2, 2 positions - offset: 190 mm				
Transport position setting	Hydraulic pivoting 90° to the rear and automatic locking				
PTO speed (min <sup>-1</sup> )	540			540 or 1 000*	
Secondary PTO shaft					
Free wheel					
Min. PTO power requirement (kW/hp)	37/50			43/59	
Lighting and signalling	◆ (in				
Tractor electric requirements					
Tractor hydraulic requirements	1 x SA** + 1 x DA				
Weight (kg)	1,010	1,055	1,060		1,115

◆ standard ◇ option - not available \*PTO speed available depends on the country. \*\* Only necessary to adapt ground pressure.



## KUHN PARTS

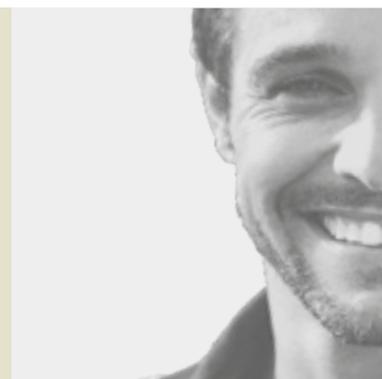


**Designed and manufactured to rival time.** KUHN foundries and forge as well as a high-level manufacturing process allow the production of spare parts to defy time. You can truly rely on our know-how and our genuine parts. Farmers benefit from our client support and logistics services via any KUHN PARTS warehouse, which provide quick and reliable repair solutions in cooperation with your nearest authorized KUHN dealer.

FC 284 R LIFT-CONTROL	FC 314 LIFT-CONTROL	FC 314 D LIFT-CONTROL	FC 3125 DF	FC 3525 DF	FC 3125 RF	FC 3525 RF
	3.11			3.50	3.11	3.50
	8		7	8	7	8
			OPTIDISC ELITE			
Through the 1 <sup>st</sup> disc						
PROTECTADRIVE						
			LIFT-CONTROL			
			Integrated suspension unit			
◆						
2 synchronised rubber rollers	Flexible V-shaped fingers, baffle plate with adjustable and retractable comb	Steel fingers, baffle plate with adjustable and retractable comb	Steel fingers, baffle plate adjustable in 5 positions	2 synchronised rubber SQUAREFLEX rollers with double drive system		
1 000	888 or 615		1 000 or 755	780		
1.30 to 2.20	1.20 to 3.00		1.20 to 2.00	1.40 to 2.00		
-	◆		-			
	3-point, cat. 3N – 190 mm offset		3-point, cat. 2			
-						
1,000						
With torque limiter						
◆ (integrated into side gearbox)						
	49/66		50/68	57/77	50/68	57/77
accordance with the regulations in the country of destination)						
1 x 7-pin plug						
	1 x SA + 1 x DA		1 x SA			
1,145	1,235	1,325	1,320	1,390	1,370	1,455

## KUHN SERVICES\*

**KUHN sos order** - Spare parts service, 24/7\*\*  
**KUHN protect+** - The choice of professionals!  
**KUHN i tech** - For ever quicker repairs!  
**KUHN finance** - Invest rationally!



\* Not all services are available in all countries. \*\* except January 1, May 1 and December 25

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## Check out the extensive KUHN range of mowers



1. Rear-mounted mowers - 2. Front-mounted disc mowers - 3. Trailed disc mowers - 4. Triple gang disc mowers

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KUH N FARM MACHINERY (U.K.) LTD - Stafford Park 7 - GB TELFORD/ SHROPS TF3 3BQ

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