

COMB RAKES



LIGHTWEIGHT - GENTLE ON FORAGE - LOW ENERGY CONSUMPTION

# CLEMENTER



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## **Comb rakes from BB - Umwelttechnik**

### **The ideal alternative.**

#### **Clean fodder**

With the front-mounted comb rake, the forage is not driven over and thus not pressed into the ground and soiled by the tractor. Due to the very short ground contact of the tines, no soil or stones are picked up and deposited in the swath, unlike with the conventional rotary rake.

#### **Extremely gentle on the forage**

With the principle of the comb rake, the forage is "lifted" from the ground and not dragged across the ground as with conventional rotary rakes. The extremely gentle transport of the forage onto a swath guarantees minimal crumble losses.

#### **Airy swath deposit**

Due to its mode of operation, the comb rake deposits the forage in an even and distinctly airy swath. This also ensures excellent drying of the forage on the swath.

#### **Low power consumption**

The BB-Umwelttechnik comb rakes are extremely easy to pull. An intelligent drive technology promises lowest energy consumption at maximum working width.

#### **Highest quality**

All components of the BB-Umwelttechnik machines are made of high quality materials. All sheet metal bending and laser parts are made of fine-grained steel S355 and are powder-coated or galvanized. Only high quality purchased parts from selected suppliers are used.

#### **Modular design**

Thanks to the sophisticated modular design, many machines can be expanded without additional expense, e.g. the Clementer 300 F to the Clementer 550 F by retrofitting a swath drum.

## Perfect ground hugging

The feeler wheels running close to the swath drums and the integrated pendulum support guarantee very good ground hugging.



## Steplessly adjustable

The height of each feeler wheel can be adjusted by means of a hand crank. The hand crank is secured against independent rotation by a simple mechanism.

## Safe matter

All joints on the tine carriers are supported by high-quality ball bearings. To prevent the winding of forage, a winding protection is fitted at each rotating point.



## Drive via power take off (PTO) shaft

Basically, all comb rakes from BB - Umwelttechnik will be equipped with their own oil supply. A large-volume hydraulic oil tank, oil sight glass, return filter and large-dimensioned lines ensure the reliable drive of the comb rake. A thermometer in the oil sight glass provides information on the oil temperature. Should the comb rake ever be subjected to a great deal of resistance, an overload protection system protects it from damage.

If desired, the comb rake can also be driven directly by the hydraulics of the carrier vehicle.

## Wide tires

Wheels measuring 18 x 8.5 x 8" always ensure a smooth and gentle ride on uneven or damp ground.





- Three-point attachment CAT 1+2
- **NEW!** Reduced tine spacing (50 mm instead of 80 mm up to now)
- Drive via tractor hydraulics or via front PTO with its own independent oil supply
- Optimum ground hugging due to integrated pendulum support and steplessly height-adjustable feeler wheels
- Operating widths from 2.50 to 4.00 meters
- Lower link pin position adjustable, thus individual adaptation options to the respective carrier vehicle possible
- Adjustable pressure relief valve protects the comb rake in case of overload (only possible for drive **with** own oil supply)
- All parts powder coated or galvanized

## Differences to STANDARD comb rake:

- Lightweight construction
- Short headstock
- Not upgradeable (to 2-PART)
- Optionally with reversing gear



## Equipment options:

- Relief spring set ①
- PTO shaft ②
- Swath curtain ③
- Windscreen ④

*Minimizes the throwing over of forage in headwinds and thus also prevents clogging of the radiator grille from the carrier vehicle*

- Throw-over protection

*Mounted on the right swath disc, prevents the forage from being pulled up, especially for heavy forage*

- Road traffic regulation set with LED position lights, LED turn signals and warning signs

- Reverse and transmission gear unit

*Speed change from 540 to 1,000 rpm with or without reversal of rotation direction or only reversal of rotation direction possible*

- Trailing device ⑤

*For minimum transport width; for max. 25 km/h*

- Scraper for feeler wheel

Technical data	Front comb rake ECO				
Clemler	250 F ECO	300 F ECO	330 F ECO	350 F ECO	400 F ECO
<b>Operating width</b> <i>(in meters)</i>	2.50	3.00	3.30	3.50	4.00
<b>Weight</b> <i>(in kg)</i>	410	440	470	510	560
<b>Transport width</b> <i>(in meters)</i>	2.58	2.95	3.23	3.42	3.96
<b>Tines</b> <i>(quantity)</i>	126	150	168	180	216
<b>Tine rows</b> <i>(quantity)</i>	6	6	6	6	6
<b>Tires</b>	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR

All illustrations, dimensions and weights do not necessarily correspond to the standard equipment and are non-binding, subject to technical changes.

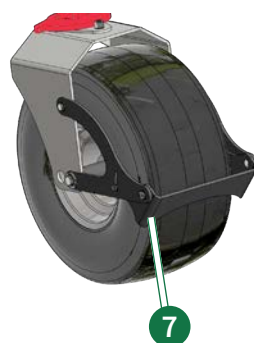
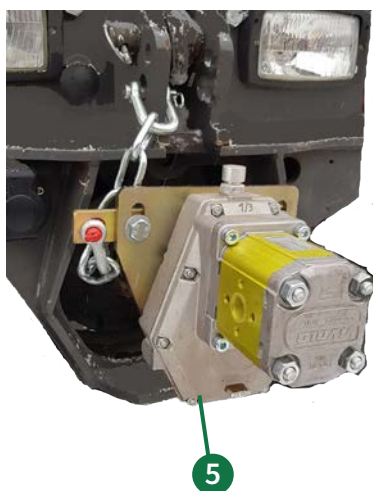


- Three-point attachment CAT 2
- **NEW!** Reduced tine spacing (50 mm instead of 80 mm up to now)
- Drive via tractor hydraulics or via front PTO with its own independent oil supply
- Optimum ground hugging due to integrated pendulum support and steplessly height-adjustable feeler wheels
- Operating widths from 3.00 to 4.00 meters
- Lower link pin position adjustable, thus individual adaptation options to the respective carrier vehicle possible
- Adjustable pressure relief valve protects the comb rake in case of overload (only possible for drive **with** own oil supply)
- All parts powder coated or galvanized



## Difference to ECO comb rake:

- **Can be upgraded** at any time to a front comb rake STANDARD 2-PART



## Equipment options:

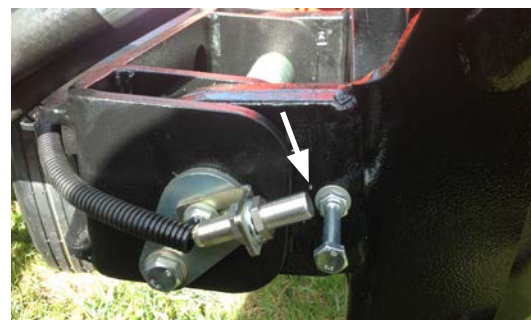
- Windscreen **1**  
*Minimizes the throwing over of forage in headwinds and thus also prevents clogging of the radiator grille from the carrier vehicle*
- Road traffic regulation set **2** with LED position lights, LED turn signals and warning signs
- Throw-over protection **3**  
*Mounted on the right swath disc, prevents the forage from being pulled up, especially for heavy forage*
- Swath curtain **4**
- PTO shaft
- Relief spring set
- Plug-on pump **5** incl anti-rotation protection
- Kit for hydraulic hoist relief **6**  
*Must be connected to the pressure line of the front hydraulics by the customer*
- Scraper for feeler wheel **7**

Technical data	Front comb rake STANDARD 1-PART			
Clementer	300 F	330 F	350 F	400 F
<b>Operating width</b> <i>(in meters)</i>	3.00	3.30	3.50	4.00
<b>Weight</b> <i>(in kg)</i>	610	640	680	730
<b>Transport width</b> <i>(in meters)</i>	2.95	3.23	3.42	3.96
<b>Tines</b> <i>(quantity)</i>	150	168	180	216
<b>Tine rows</b> <i>(quantity)</i>	6	6	6	6
<b>Tires</b>	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR

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## Simple operation

In standard equipment, the front rake is easily lifted or moved into transport position via a single-acting control unit on the tractor. When working with the Clementer STANDARD 2-PART, the outer swath drum is automatically (sensor-controlled) lifted only so far that it can be easily driven over the swaths without touching them. A switch can then be used to swivel further into the transport position.



## Absolutely flexible

On the comb rakes with two or three swath drums, the outer swath drums can optionally be attached or removed with a quick coupling system, uncomplicated and without tools. This offers maximum flexibility. The smaller working width for heavy forage growth or uneven terrain and the large working width for weak growth and flat areas. The uncoupled swath drum is parked on parking supports. These are height-adjustable with a hand crank for easy coupling.





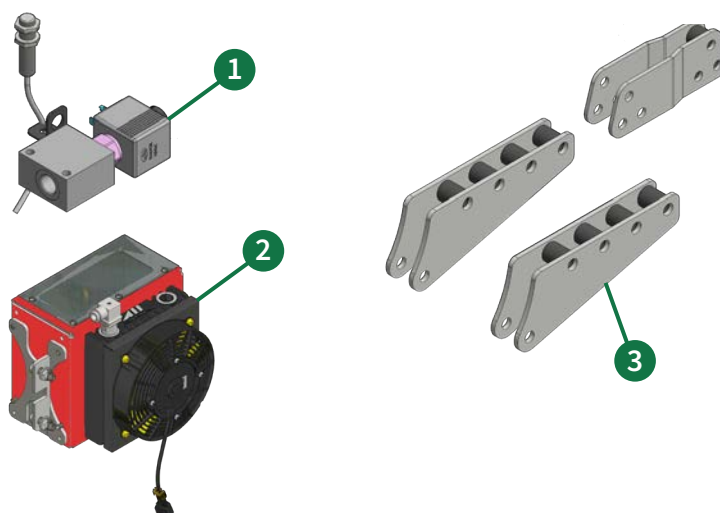


- Three-point attachment CAT 2
- **NEW!** Reduced tine spacing  
(50 mm instead of 80 mm up to now)
- Drive via tractor hydraulics or via front PTO with its own independent oil supply
- Optimum ground hugging due to integrated pendulum support at the middle swath drum and due to steplessly height-adjustable feeler wheels
- Operating widths from 5.50 to 6.50 meters
- Right swath drum 3.00 m wide
- Standard with quick coupling system for the outer swath drum
- **NEW!** Parking of the comb rake also possible in transport position!
- Lower link pin position adjustable, thus individual adaptation options to the respective carrier vehicle possible
- Adjustable pressure relief valve protects the comb rake in case of overload (only possible for drive **with** own oil supply)
- All parts powder coated or galvanized



## ■ Equipment options:

- Windscreen
- Swath curtain
- PTO shaft
- Electric headland setting ①  
(Lifting of the side swath drum also with control unit of the front hydraulic)  
*Transport position / headland position of the side swath drum, switchable by sensor-controlled solenoid valve*
- Throw-over protection  
*Mounted on the right swath disc, prevents the forage from being pulled up, especially for heavy forage*
- Relief spring set
- Road traffic regulation set with LED position lights, LED turn signals and warning signs
- Kit for hydraulic hoist relief  
*Must be connected to the pressure line of the front hydraulics by the customer*
- Oil cooler ②, temperature controlled
- Extension lower and upper link ③



Technical data	Front comb rake STANDARD 2-PART			
Clemer	550 F	580 F	600 F	650 F
<b>Operating width</b> (in meters)	5.50	5.80	6.00	6.50
<b>Weight</b> (in kg)	950	980	1.020	1.070
<b>Transport width</b> (in meters)	2.95	3.23	3.42	3.96
<b>Tines</b> (quantity - total)	300	318	330	366
<b>Tine rows</b> (quantity per swath drum)	6	6	6	6
<b>Tires</b>	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR	18 x 8.5 x 8 " 4 PR

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- Three-point attachment CAT 2
- No pendulum support! Middle part must swing over tractor lower links
- **NEW!** Reduced tine spacing  
(50 mm instead of 80 mm up to now)
- Drive via tractor hydraulics or via front PTO with its own independent oil supply
- Steplessly height-adjustable feeler wheels
- Operating width: 7.50 meters
- Swath drum widths:
  - Right and middle drum: 3.00 m
  - Left swath drum: 2.50 m
- Standard with quick coupling system for the outer swath drums
- Parking by using parking supports  
(only in operating position possible)
- **Road transport in front hydraulics not allowed!** Ideal for carrier vehicles with reverse drive unit
- Equipment options:
  - Windscreen  
*Minimizes the throwing over of forage in headwinds and thus also prevents clogging of the radiator grille from the carrier vehicle*
  - Swath curtain
  - PTO shaft
  - Electric headland setting ①  
*(Lifting of the side swath drum also with control unit of the front hydraulic)  
Transport position / headland position of the side swath drums, switchable by sensor-controlled solenoid valve*
  - Relief spring set
  - Kit for hydraulic hoist relief  
*Must be connected to the pressure line of the front hydraulics by the customer*
  - Oil cooler ②, temperature controlled
  - Extension lower and upper link ③

Technical data		Front comb rake STANDARD 3-PART
Clementer		750 F
<b>Operating width</b>	(in meters)	7.50
<b>Weight</b>	(in kg)	1,400
<b>Transport width</b>	(in meters)	2.95
<b>Tines</b>	(quantity - total)	426
<b>Tine rows</b>	(quantity per swath drum)	6
<b>Tires</b>		18 x 8.5 x 8 " - 4 PR

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Instagram



## Sustainability redefined!

The company BB - Umwelttechnik sets new standards as a manufacturer of double-blade mowers and comb rakes. Whether it's front rakes with operating widths from 2.5 to 7.5 meters or double-blade mowers with operating widths from 1.65 to 9.5 meters, we have the right machine for your requirements. Our customers benefit from a combination of ecology and economy in the double-blade mowers and comb rakes, made possible by the implementation of innovative ideas in the highest quality. Starting with the 3D - CAD - design, which simulates in advance the motion sequences and the power flow of the machines, to our own production, where only the highest quality materials are used, to the perfect powder coating, we do everything to offer you a high quality product.

Our goal is satisfied customers.

The company BB - Umwelttechnik. Agricultural technology for sustainable agriculture.

## Quality made in Germany

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