

DOUBLE-BLADE MOWERS



LIGHTWEIGHT - GENTLE ON FORAGE - LOW ENERGY CONSUMPTION

SECO DUPLEX



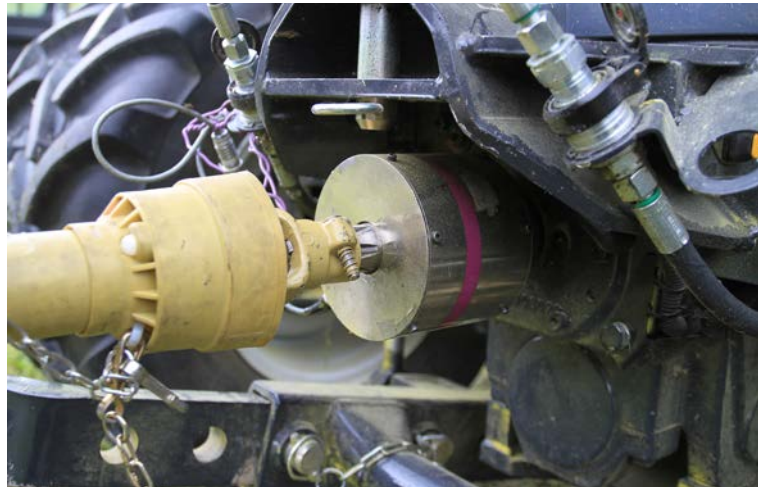
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Advantages of the double blade mower

Minimum power requirement

The power requirement of less than 2 hp / meter operating width measured by the Federal Institute for Agricultural Engineering (BLT) Wieselburg, Austria, illustrates the low energy input required for powerful mowing. A double blade mower combination with 9 meters has a power input of 18 hp, a disc mower requires about 5 times this drive power.



Minimum ground pressure

Double-blade mowers are significantly lighter than rotary mowers due to their design. They have a weight of about only one third of that.

Soil compaction and hub damage can be avoided with the use of double-blade mowers.

Improved regrowth behavior and cutting results

In rotary mowers, the forage is cut off by the fast rotating blades. The double-blade mower cuts off the plants with a shear cut. This results in a straight cut, which significantly improves the regrowth of the plants.



Clean forage

Forage contamination is significantly lower when mowing with double-blade mowers than when mowing with rotary mowers because contamination, e.g. from a molehill, is not distributed throughout the forage.



Perfect forage deposit

During mowing with the double-knife mower, the forage is deposited completely homogeneously and evenly on the surface. The result is excellent drying behavior of the forage, and turning can be significantly reduced.

Safe matter

With the double-blade mower, unlike rotary mowers, there is no risk of foreign bodies, such as stones, being thrown away and damaging machines or even injuring people.



Gentle for amphibians and insects

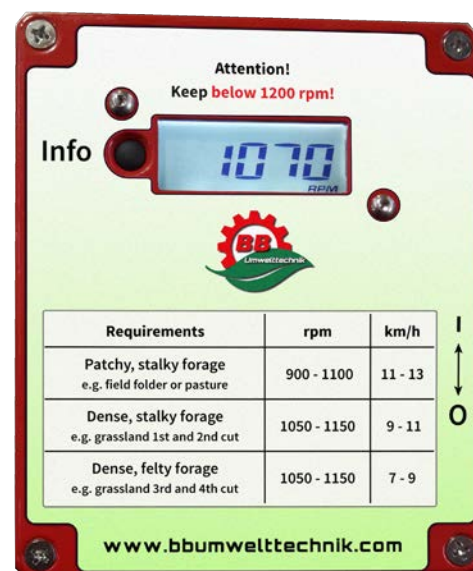
Double-blade mowers protect amphibians, insects and wildlife to a high degree. The number of injured and killed animals is provably many times higher when mowing with rotary mowers. Furthermore, the dead animal parts remain in the forage and cause various sicknesses in the animals that eat the forage.

Double-blade mowers from BB - Umwelttechnik

The ideal alternative.

Long lifetime of the blades

Since the correct ratio of travel speed and knife cutting speed is a very important factor for a long lifetime of the knives, we have developed a revolution counter with integrated operating hours counter, which always reflects the speed of the cutterbar drive. A table showing the parameters of the appropriate relationship between ground speed and cutterbar drive speed helps to adjust the rpm or the driving speed. Anything else is a "blind flight" when mowing with a double-blade mower and can cause significant damage to the mower due to incorrect speeds.



Cutting units with smooth lower knife

Tests in grass cutting have clearly proven that the service life of knives with a smooth lower blade is significantly higher than when using serrated lower blades.

Serrated bottom knives, on the other hand, have advantages in extremely stalky crops, such as hemp or reed.

Oil temperature monitoring

The use of oil coolers (optional) ensures an ideal oil temperature and consistent cutting performance, even on long and hot working days. All machines with their own oil supply are equipped with a thermometer as standard to always have information about the oil temperature.





Overload protection

When the cutterbar makes contact with an object, the mower reliably deflects to the rear / upwards.

The pressure relief valve of the hydraulic drives is set so that the cutterbar stops if a foreign object gets into the knife. This prevents damage to the cutterbar.

Own oil supply

Basically, all BB - Umwelttechnik double-blade mowers are equipped with their own oil supply. A large-volume hydraulic oil tank, return flow filter and large-dimensioned pipes ensure reliable drive of the cutterbar. Optionally, the solo mowers can also be operated via the hydraulics from the carrier vehicle.



Flexible cutting heights from 4 cm

Depending on customer requirements, the mowers can be equipped with skids of different heights. From a minimum of 4 cm to a maximum of 20 cm, all cutting heights can be supplied.

NEW! Two different cutting heights are possible with one skid! For example, by turning the skid, you can switch between 5 and 7 cm cutting height.

Modular design

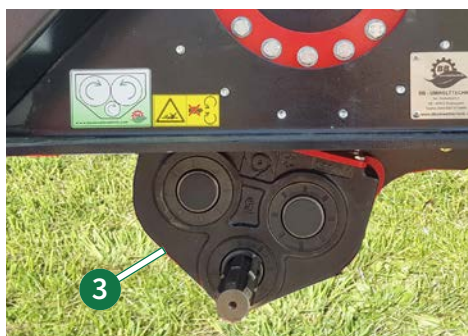
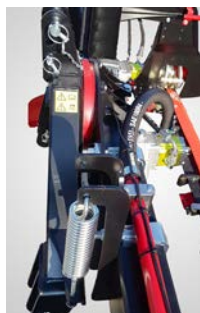
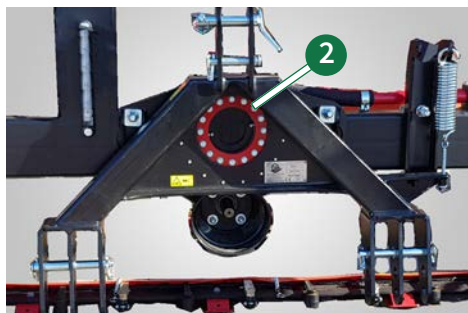
Due to the well thought-out modular design, many machines can be upgraded or converted without additional expense, e.g. a standard rear side mower can be upgraded to a rear butterfly mower at any time.



- Weiste triangular attachment incl. three-point attachment CAT 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Parking supports
- Adjustable pressure relief valve protects the cutting unit in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
- Drive **with** own oil supply, i.e. via front PTO 1,000 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 700 rpm
- Alternative: Drive without own oil supply, i.e. via hydraulics of the carrier vehicle; required: single-acting control unit, pressureless return and a liter rate of approx. 30 l/min
- Cutting unit widths from 1.95 to 3.10 meters (*3.75 m possible on request*)
- All parts powder coated or galvanized

Differences to STANDARD front mower:

- **Lifting out the mower with the front hydraulics, swinging via lower links**
(*Except for the pendulum support option*)
- The cutting unit is close to the tractor, thus providing a better center of gravity.
- Lightweight design with a stable frame



Equipment options:

- Swath drums, small ($\varnothing 50\text{ cm}$) ① or large ($\varnothing 70\text{ cm}$)
- Swath boards, small or large
- Three-point attachment CAT 1
Instead of Weiste triangular attachment
- Three-point attachment CAT 1+2 with integrated pendulum support ②
- Reverse and transmission gear unit ③
Only combinable with pendulum support version
Speed change from 540 to 1,000 rpm with or without reversal of rotation direction or only reversal of rotation direction possible
- Change of rotation direction of PTO shaft
- Different PTO speed
- Revolution counter, digital and illuminated ④
- PTO shaft
- Road traffic regulation set with LED position lights, LED turn signals and warning signs
- Relief spring set
- **NEW!** Swath merging ⑤
Combinable with 275 F ECO or 310 F ECO
- Oil cooler, temperature controlled ⑥
- Own oil supply mounted in the rear for front mowers ⑦: drive via rear PTO incl. three-point attachment CAT 2
Without PTO shaft
- Spare blade set

Technical data	FRONT mower ECO				
Seco Duplex	195 F ECO	210 F ECO	240 F ECO	275 F ECO	310 F ECO
Cutting unit width (in meters)	1.95	2.10	2.40	2.75	3.10
Weight (in kg)	280	300	330	360	390
Transport width (in meters)	2.20	2.35	2.65	2.98	3.35
Power requirement (HP)	5	5.5	6	7	8

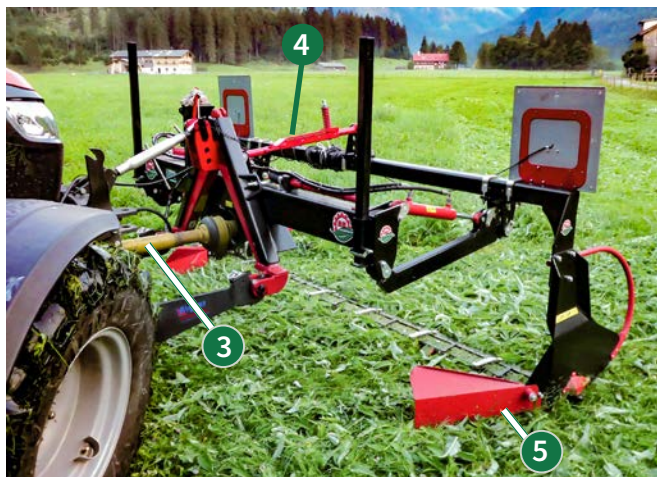
All illustrations, dimensions and weights do not necessarily correspond to the standard equipment and are non-binding, subject to technical changes.



- Weiste triangular attachment incl. three-point attachment CAT 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Parking supports
- Stable frame
- Adjustable pressure relief valve protects the cutting unit in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
- Drive **with** own oil supply, i.e. via front PTO 1,000 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 700 rpm
- Alternative: drive without own oil supply, i.e. via hydraulics of the carrier vehicle; required: single-acting control unit, pressureless return and a liter rate of approx. 30 l/min
- Cutting unit widths from 2.10 to 3.10 meters
- All parts powder coated or galvanized

Differences to ECO front mower:

- **Own cutting unit lift** via mower's own **hydraulic cylinders with single-acting control unit**
- Tractor-independent **ground hugging due to own pendulum**
- Also suitable **for carrier vehicles without front hydraulics** due to its own cutting unit lifting system
- **Integrated cutting unit relief**
- **Optionally with hydraulic side shift**
(*Shifting path: 35 cm*)
- **Optionally with collision protection**
(*Flip-away mechanism that activates when the resistance to the cutting unit is too high, thus creates reaction time*)



Equipment options:

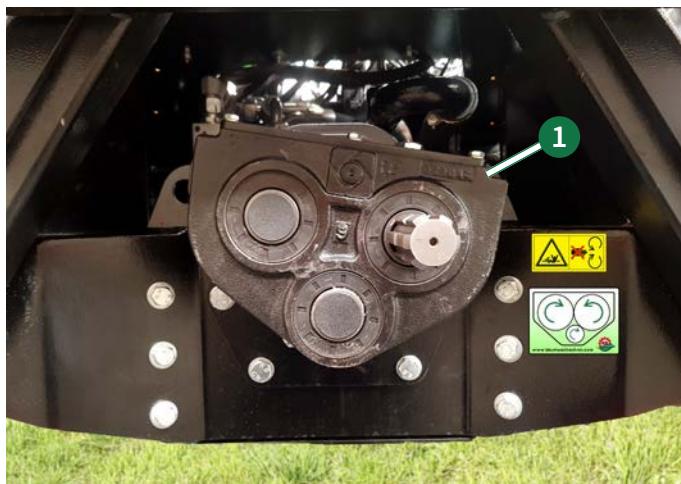
- Swath drums, small ($\varnothing 50\text{ cm}$) or large ($\varnothing 70\text{ cm}$) ①
- Three-point attachment CAT 1
Instead of Weiste triangular attachment
- Road traffic regulation set with LED position lights, LED turn signals and warning signs ②
- PTO shaft ③
- Flip-away mechanism ④
Cannot combined with swath drums!
- Swath boards, small ⑤ or large
- Oil cooler, temperature controlled ⑥
- Revolution counter ⑦, digital and illuminated
For monitoring the optimum cutting speed; with integrated operating hours counter
- Additional relief springs
- Change of rotation direction of PTO shaft
- Different PTO speed
- Special frame for mowing very high cuttings, e.g. reeds
- Hydraulic side shift
- Parking foot, height adjustable
For easier coupling to vehicles without front hydraulics
- Own oil supply mounted in the rear for front mowers ⑧: drive via rear PTO incl. three-point attachment CAT 2
Without PTO shaft
- Spare blade set

Technical data	FRONT mower STANDARD			
Seco Duplex	210 F	240 F	275 F	310 F
Cutting unit width (in meters)	2.10	2.40	2.75	3.10
Weight (in kg)	329	359	389	419
Transport width (in meters)	2.35	2.65	2.98	3.35
Power requirement (HP)	5.5	6	7	8

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



- Weiste triangular attachment incl. three-point attachment CAT 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Own cutting unit lift via mower's own hydraulic cylinders with single-acting control unit
- Intelligent and adjustable hydraulic collision protection (*pressureless return required*)
- Parking supports
- Adjustable pressure relief valve protects the cutting unit in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
For cutting unit 3.35 m: with bar reinforcement
- Cutting unit can be shifted sideways on frame, thus easy adaptation to carrier vehicle possible
- Right- or left-hand cutting unit version possible
- Drive **with** own oil supply, i.e. via front PTO 1,000 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 700 rpm
- Alternative: Drive without own oil supply, i.e. via hydraulics of the carrier vehicle; required: single-acting control unit, pressureless return and a liter rate of approx. 30 l/min
- Cutting unit widths from 1.65 to 3.35 meters
- All parts powder coated or galvanized



■ Equipment options:

- Reverse and transmission gear unit **1**
Speed change from 540 to 1,000 rpm with or without reversal of rotation direction or only reversal of rotation direction possible
- Change of rotation direction of PTO shaft
- Different PTO speed
- PTO shaft
- Swath board, large
- Road traffic regulation set with LED position lights, LED turn signals and warning signs
- Oil cooler, temperature controlled **2**
- Revolution counter **3**, digital and illuminated
For monitoring the optimum cutting speed; with integrated operating hours counter
- Feeler wheel under the drive shoe of the side cutting unit **4**
Necessary from a cutting height of 10 cm
- Own oil supply mounted in the rear for front mowers: drive via rear PTO incl. three-point attachment CAT 2
Without PTO shaft
- Spare blade set

Technical data	SIDE mower FRONT attachment STANDARD						
Seco Duplex	165 F R/L	195 F R/L	210 F R/L	240 F R/L	275 F R/L	295 F R/L	335 F R/L
Cutting unit width (in meters)	1.65	1.95	2.10	2.40	2.75	2.95	3.35
Weight (in kg)	222	233	247	261	272	280	305
Power requirement (HP)	4.5	5	5.5	6	7	7.5	9

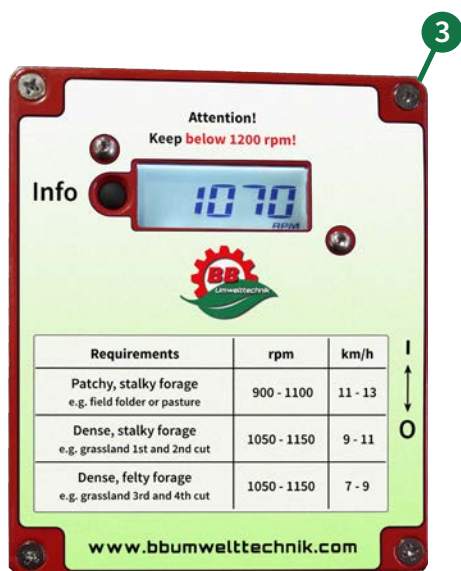
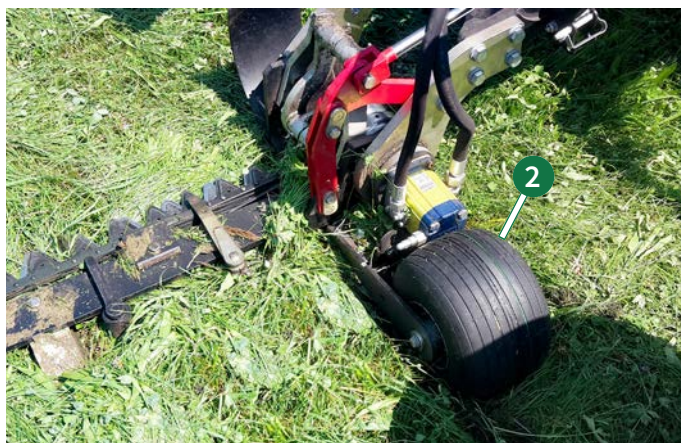
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- Three-point attachment CAT 1 + 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Defined cutting unit lift with two hydraulic cylinders
- Intelligent and adjustable hydraulic collision protection (*pressureless return required*)
- Parking supports
- Adjustable pressure relief valve protects the cutting unit in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
- Drive **with** own oil supply, i.e. via rear PTO 540 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 320 rpm
- Drive without own oil supply possible on request
- Cutting unit widths from 1.65 to 2.95 meters
- All parts powder coated or galvanized

Differences to STANDARD rear mower:

- Lightweight design
- Ideal for smaller carrier vehicles
- Right-hand cutting unit version only
- Maximum cutting unit width: 2.95 meters



■ Equipment options:

- Swath board, large ①
- Feeler wheel under the drive shoe of the side cutting unit ②

Necessary from a cutting height of 10 cm

- Revolution counter ③, digital and illuminated

*For monitoring the optimum cutting speed;
with integrated operating hours counter*

- PTO shaft
- Change of rotation direction of PTO shaft
- Different PTO speed
- Spare blade set

Technical data	SIDE mower REAR attachment ECO					
Seco Duplex	165 H ECO	195 H ECO	210 H ECO	240 H ECO	275 H ECO	295 H ECO
Cutting unit width (in meters)	1.65	1.95	2.10	2.40	2.75	2.95
Weight (in kg)	180	187	194	206	217	225
Power requirement (HP)	4.5	5	5.5	6	7	7.5

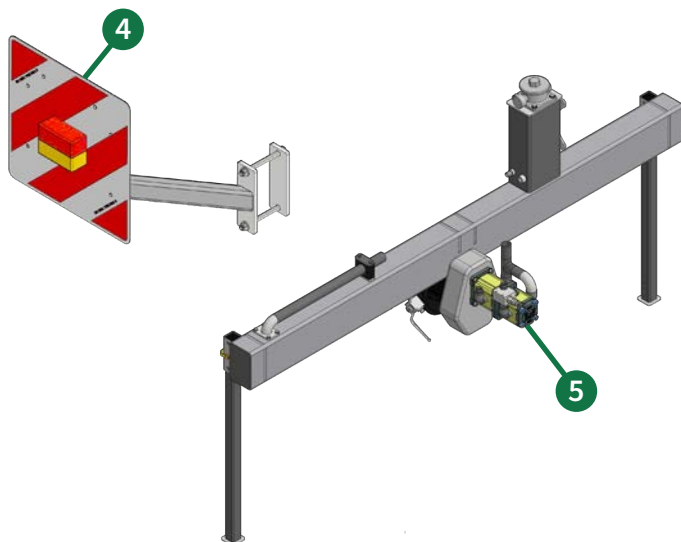
All illustrations, dimensions and weights do not necessarily correspond to the standard equipment and are non-binding, subject to technical changes.



- Three-point attachment CAT 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Defined cutting unit lift with two hydraulic cylinders
- Intelligent and adjustable hydraulic collision protection (*pressureless return required*)
- Parking supports
- Adjustable pressure relief valve protects the cutting unit in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
For cutting unit 3.35 m: with bar reinforcement
- Drive **with** own oil supply, i.e. via rear PTO 540 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 320 rpm
- Alternative: Drive without own oil supply, i.e. via hydraulics of the carrier vehicle; required: single-acting control unit, pressureless return and a liter rate of approx. 30 l/min
- Cutting unit widths from 2.10 to 3.35 meters
- All parts powder coated or galvanized

Differences to ECO rear mower:

- **Position of cutting unit on frame mechanically adjustable**, e.g. for operation with twin tires or for adjustment of overcut to front mower unit
- Modular design allows a side mower **to be upgraded to a rear butterfly mower at any time**
- Right- or left-hand cutting unit version possible
- Maximum cutting unit width: **3.35 meters**



Equipment options:

- Feeler wheel under the drive shoe of the side cutting unit **1**

Necessary from a cutting height of 10 cm

- Oil cooler, temperature controlled **2**
- Three-point attachment CAT 1 + 2
- PTO shaft
- Revolution counter **3**, digital and illuminated
For monitoring the optimum cutting speed; with integrated operating hours counter

- Road traffic regulation set with LED position lights, LED turn signals and warning signs **4**

- Swath board, large

- Change of rotation direction of PTO shaft

- Different PTO speed

- **Additional pump 5** for driving a front mower or pre-equipment for a butterfly mower

Only for drive with own oil supply

- Spare blade set

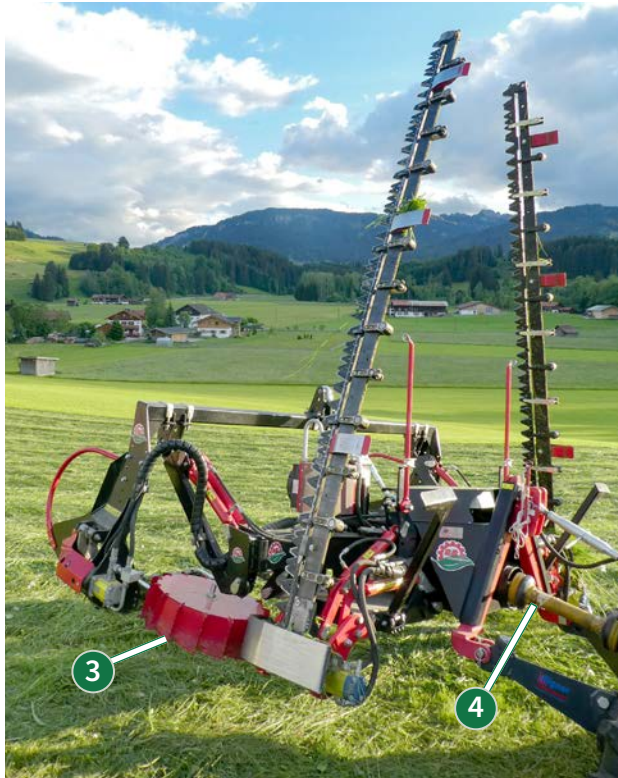
Technical data	SIDE mower REAR attachment STANDARD				
Seco Duplex	210 H R/L	240 H R/L	275 H R/L	295 H R/L	335 H R/L
Cutting unit width (in meters)	2.10	2.40	2.75	2.95	3.35
Weight (in kg)	220	236	257	265	285
Power requirement (HP)	5.5	6	7	7.5	9

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



- Weiste triangular attachment incl. three-point attachment CAT 2
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Defined cutterbar lift of the side cutting units with two hydraulic cylinders each
- Intelligent and adjustable hydraulic collision protection for side cutting units
- Parking supports
- Adjustable pressure relief valves (*for each drive separately*) protects the cutting units in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
For cutting unit 3.35 m: with bar reinforcement **1**
- Mower control with control box **2**
 - Cutting units can be lifted and lowered separately
 - Cutting units can be switched on and off separately
 - With integrated revolution counter to monitor the optimal cutting speed
 - With integrated operating hours counter
- Drive **with** own oil supply, i.e. via front PTO 1,000 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 700 rpm
- Cutting unit widths from 6.50 to 9.50 meters
- Single sided butterfly mowers as right or left hand cutterbar with cutting widths from 5.00 to 6.00 meters can be upgraded with a 3rd cutting unit at any time
- All parts powder coated or galvanized





- Excellent overview, as the whole machine is in the operator's field of vision. Barriers are seen without any problems. Full utilization of the operating width via cutterbars located in the field of view - no unnecessary overcutting
- With very wide carrier vehicles, e.g. with twin tires, no driving over standing forage
- Clear view to the front even in transport position
- Turnability: little space required at the headland
- Flexible due to large operating widths, low mower weight and low power requirement, thus interesting for smaller carrier vehicles
- For carrier vehicles with rear drive unit also possible as an option in rear-mounted version
- Can be used as a multi-purpose machine, e.g. for mechanical weed control



Mechanical weed control with hydraulically height-adjustable feeler wheel



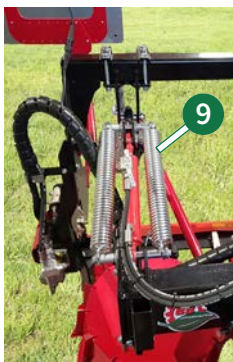
Mechanical weed control by tensioning the side cutting units



■ Equipment options:

- Swath drums, small ③ (Ø 50 cm) or large (Ø 70 cm)
- PTO shaft ④
- Oil cooler, temperature controlled ⑤
- Road traffic regulation set with LED position lights, LED turn signals and warning signs ⑥
- Flip-away mechanism for the middle cutting unit

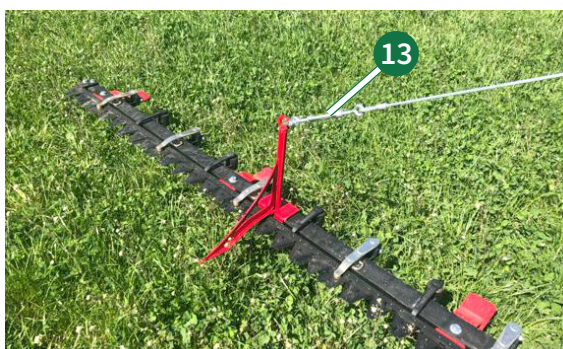
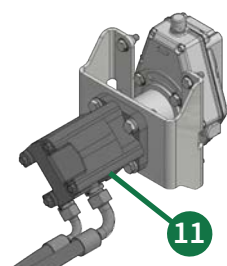
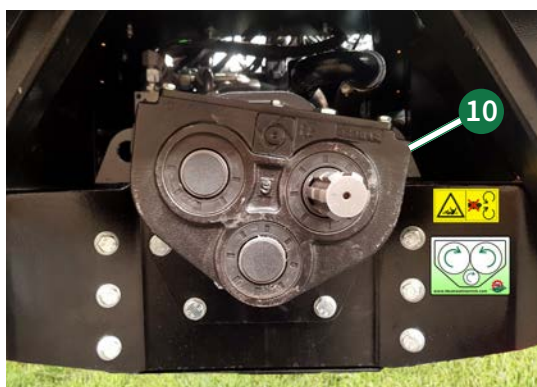
Not combinable with swath drums!



- Swath boards, small ⑦
For the middle cutting unit
- Swath boards, large
For the outer cutting units
- Feeler wheel under the drive shoe of the side cutting unit ⑧

Necessary from a cutting height of 10 cm

- Additional relief springs ⑨ for the middle cutting unit
- Reverse and transmission gear unit ⑩
Speed change from 540 to 1,000 rpm with or without reversal of rotation direction or only reversal of rotation direction possible
- Different PTO speed
- Hydraulic front PTO ⑪, drive via tractor hydraulics: approx. 80 l/min





■ Equipment options:

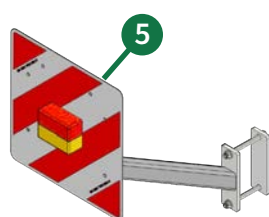
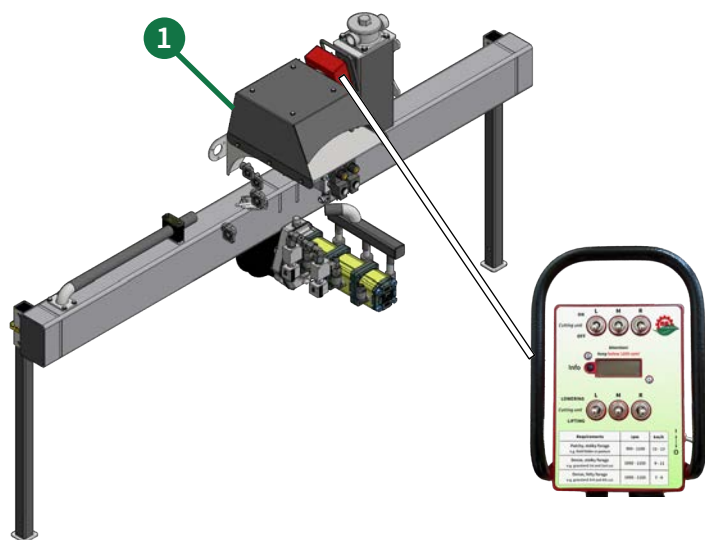
- Hydraulically height-adjustable feeler-wheel for side cutting unit **12**: 25 - 100 cm
For precise cutting height guidance of the side cutting units, e.g. for weed control
- Tensioning butterfly mower **13**
For stabilization of the side cutting units, e.g. for weed control
- Rapeseed cutting unit on middle cutting unit **14**
With hydraulic drive
- Mower control with joystick **15**
 - Cutting units separately or together liftable and lowerable
 - Cutting unit separately or together can be switched on and off
 - Automatic functions (automatic lift / automatic shutdown of all cutting units at the headland))
 - With integrated revolution counter
 - With integrated operating hours counter
 - As a little gimmick, the joystick can be removed from the box without tools and mounted e.g. directly on the existing arm rest of the tractor
- Spare blade set

Technical data	FRONT BUTTERFLY mower					
Seco Duplex	650 F	700 F	800 F	850 F	900 F	950 F
Cutting unit width (in meters)	6.50	7.00	8.00	8.50	9.00	9.50
Weight (in kg)	790	800	820	850	890	920
Transport width (in meters)	2.98	2.98	2.98	2.98	2.98	3.35
Power requirement (HP)	17	18	20	22	24	26
Configuration (of the cutting units)	1 x 2.75 2 x 1.95	1 x 2.75 2 x 2.40	1 x 2.75 2 x 2.75	1 x 2.75 2 x 2.95	1 x 2.75 2 x 3.35	1 x 3.10 2 x 3.35

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
- Bidux cutting unit with Carbodux knife blades and unequal blade spacing
- Defined cutterbar lift of the side mowers with two hydraulic cylinders each and via tractor hydraulics with single-acting control unit
- Intelligent and adjustable hydraulic collision protection for side cutting unit (*for version without own mower control: pressureless return required*)
- Parking supports
- Adjustable pressure relief valves (*for each drive separately*) protects the cutting units in case of overload
- With skids (*cutting heights of 4-20 cm freely selectable*)
For cutting unit 3.35 m: with bar reinforcement
- Rear butterfly can be combined with front mower from 2.75 m cutting unit width
- Balanced weight distribution on the tractor when combined with a front mower
- Cutting units can be shifted on the frame, thus perfect adaptation of the overcut to the operating width of the front mower
- Optionally also with electrohydraulic control:
 - Cutting units can be lifted and lowered separately
 - Cutting units can be switched on and off separately
 - With integrated revolution counter for monitoring the optimal cutting speed
 - With integrated operating hours counter
- Drive **with** own oil supply, i.e. via rear PTO 540 rpm (*rotation direction of the PTO shaft: clockwise as seen in the driving direction*); operating speed of the PTO shaft during mowing: approx. 320 rpm
- Cutting unit widths from 7.00 to 9.00 meters
- All parts powder coated or galvanized



Equipment options:

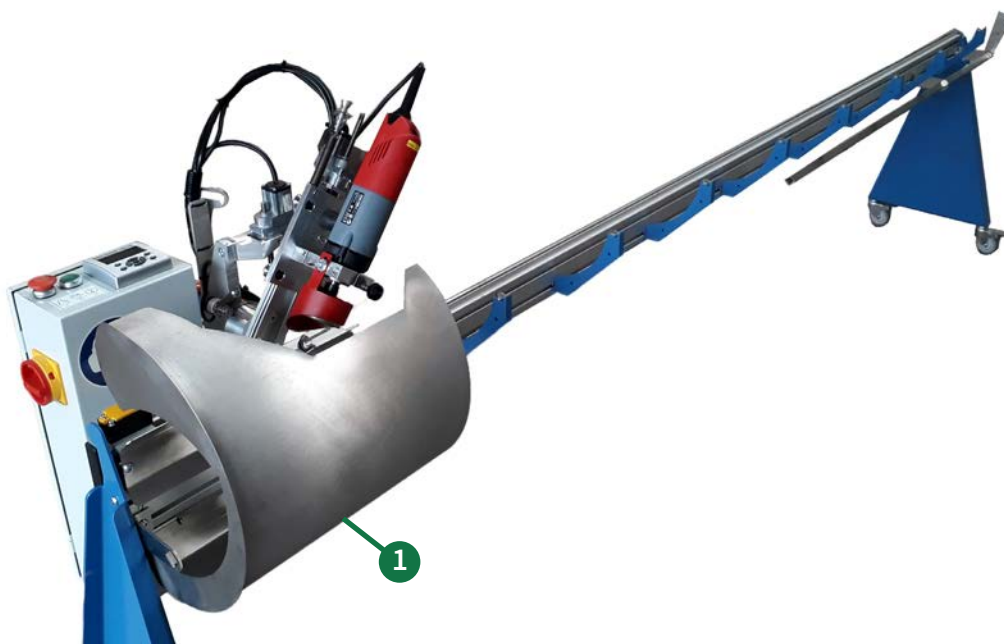
- Three-point attachment CAT 1 + 2
- Mower control with control box **1**
 - Cutting units separately lift- and lowerable
 - Cutting units separately switchable on and off
 - With integrated revolution counter
 - With integrated operating hours counter
- Revolution counter, digital and illuminated **2**
For monitoring the optimum cutting speed; with integrated operating hours counter
- PTO shaft
- Oil cooler, temperature controlled **3**
- Swath boards, large
- Feeler wheel under the drive shoe of the side cutting unit **4**
Necessary from a cutting height of 10 cm
- Road traffic regulation set with LED position lights, LED turn signals and warning signs **5**
- Change of rotation direction of PTO shaft
- Different PTO speed
- Hydraulically height-adjustable feeler wheel for side cutting unit **6**: 25 - 100 cm
For precise cutting height guidance of the side cutting units, e.g. for weed control
- Tensioning butterfly mower **7**
For stabilization of the side cutting units, e.g. for weed control
- Spare blade set

Technical data	REAR BUTTERFLY mower			
Seco Duplex	700 H	800 H	850 H	900 H
Cutting unit width (in meters)	7.00	8.00	8.40	9.00
Weight (in kg)	405	426	440	457
Power requirement (HP)	13	14	15	16
Configuration (of the cutting units)	2 x 2.40	2 x 2.75	2 x 2.95	2 x 3.35

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



- Manual placing of the knife on magnetic holder, the grinding process of the complete knife is made automatically
- Automatic grinding machine switches off automatically after completion of the grinding process
- Each blade is ground individually: The material removal rate is the same on every blade, i.e. regardless of whether it is a new blade or an old blade, only as much as necessary is ground down.
- Special grinding body: no heat generation during the grinding process, therefore no structural changes (= loss of hardness) on the blade
- Exactly adjustable cutting edge angle: The result is a cutting edge that is in no way inferior to the grind of a new blade.
- Maximum grindable knife length: 3.35 m
- Equipment options:
 - Extension rail for automatic grinding machine for wall mounting: additional length of 4 m; thus e.g. 2 knives can be ground in one set-up
 - New! Dust basket ① collects up to 80% of the sanding dust; removable with one handle





- Knife is fixed on the device with clamps
- Grinding angle and the stops of the stroke can be adjusted individually
- Stroke movement and feed must be performed manually, positioning aid by means of handwheel
- With speed adjustable quality angle grinder from Metabo
- Maximum sharpenable double blade length without reclamping (*depending on the Messerfix type*):
 - 2.40 meters
 - 3.10 meters
 - 3.35 meters





Instagram



Sustainability redefined!

The company BB - Umwelttechnik GmbH 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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COMB RAKES



LIGHTWEIGHT - GENTLE ON FORAGE - LOW ENERGY CONSUMPTION

CLEMENTER



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www.bbumwelttechnik.com

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

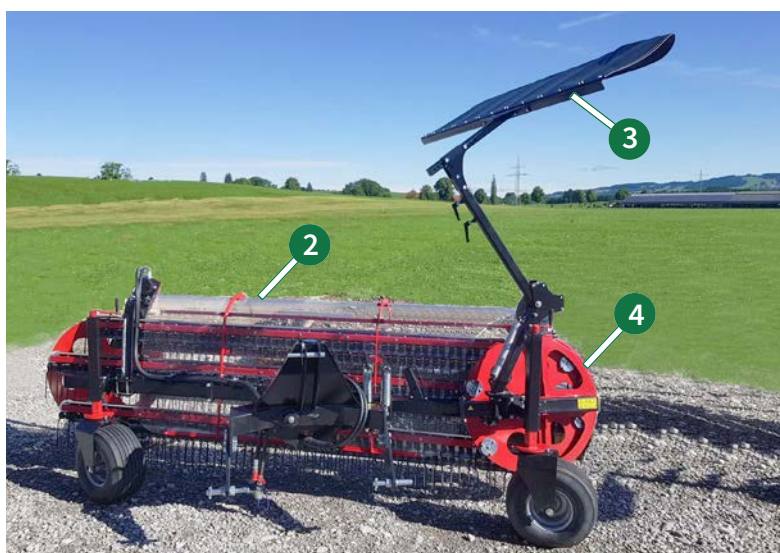
Basically, all comb rakes from BB - Umwelttechnik will be equipped with their own oil supply. A large-volume hydraulic oil tank, oil sight glass, return filter and large-dimensioned lines ensure the reliable drive of the comb rake. A thermometer in the oil sight glass provides information on the oil 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
- 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)



Equipment options:

- Road traffic regulation set with LED position lights, LED turn signals and warning signs **1**
- Windscreen **2**
Minimizes the throwing over of forage in headwinds and thus also prevents clogging of the radiator grille from the carrier vehicle
- Swath curtain, hydraulically or mechanically **3** foldable
- Throw-over protection **4**
Mounted on the right swath disc, prevents the forage from being pulled up, especially for heavy forage
- Relief spring set **5**
- PTO shaft **6**
- 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 **7**
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
Operating width (in meters)	2.50	3.00	3.30	3.50	4.00
Weight (in kg)	410	440	470	510	560
Transport width (in meters)	2.58	2.95	3.23	3.42	3.96
Tines (quantity)	126	150	168	180	216
Tine rows (quantity)	6	6	6	6	6
Tires	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.

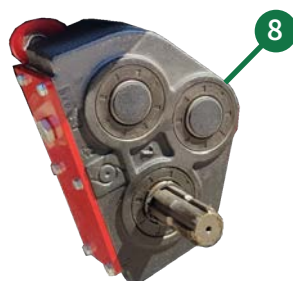
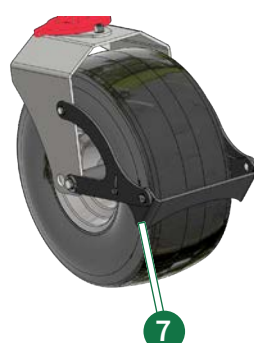


- Three-point attachment CAT 2
- Reduced tine spacing
(50 mm instead of 80 mm up to now)
- Drive via tractor hydraulics or via front PTO with its own independent oil supply
- Optimum ground hugging due to integrated pendulum support and steplessly height-adjustable feeler wheels
- Operating widths from 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, hydraulically or mechanically **4** foldable
- PTO shaft
- Relief spring set
- Plug-on pump set **5**
- 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**
- Reverse and transmission gear unit **8**

Technical data	Front comb rake STANDARD 1-PART			
Clemler	300 F	330 F	350 F	400 F
Operationg width (in meters)	3.00	3.30	3.50	4.00
Weight (in kg)	610	640	680	730
Transport width (in meters)	2.95	3.23	3.42	3.96
Tines (quantity)	150	168	180	216
Tine rows (quantity)	6	6	6	6
Tires	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
- 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
- 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, hydraulically or mechanically foldable
- PTO shaft
- Electric headland setting **1**
(Lifting of the side swath drum also with control unit of the front hydraulic)

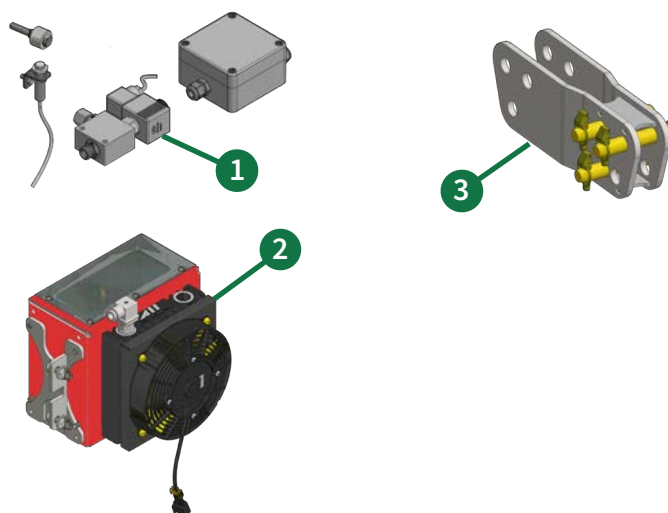
Transport position / headland position of the side swath drum, switchable by sensor-controlled solenoid valve

- 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 upper link **3**



Technical data	Front comb rake STANDARD 2-PART			
Clemler	550 F	580 F	600 F	650 F
Operating width (in meters)	5.50	5.80	6.00	6.50
Weight (in kg)	950	980	1.020	1.070
Transport width (in meters)	2.95	3.23	3.42	3.96
Tines (quantity - total)	300	318	330	366
Tine rows (quantity per swath drum)	6	6	6	6
Tires	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
- 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, hydraulically or mechanically foldable
 - 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 upper link ③

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

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