# DALBO<sup>®</sup> ROLLERS FOR THE PROFESSIONAL

MADE IN DENMARK

# DALBO HAS THE WIDEST RANGE OF ROLLERS ON THE MARKET

At DALBO, craftsmanship, ingenuity and decades of experience go hand in hand when producing high-quality agricultural machinery. We have been supplying quality machines to farmers all over the world since 1948. DALBO A/S was founded in 1948 and thus has more than 70 years of experience in the agricultural industry. We specialise in the development and production of high-quality agricultural implements. DALBO is a Danish pioneer in rollers, seedbed harrows, stubble implements and front presses. DALBO remains at the forefront of technological development in order to meet the need for efficient and reliable machines in modern agriculture.



We maintain a permanent dialogue with the market and provide market-appropriate solutions to companies of all sizes, where flexible production and short delivery times are both top priorities. DALBO products are sold through specially trained dealers and importers located throughout the world.

This professional network brings localised service and guidance close to customers.



#### ONE OF THE WORLD'S BEST MANUFACTURERS **OF ROLLERS**

Ever since DALBO began developing and manufacturing rollers in the mid-60s, much has happened in agriculture as a whole, and especially in the roller category. Today, we have farmers all over the world who recognize our rollers for their innovation, performance and quality.

We work hard to maintain our position as one of the world's best manufacturers of rollers as the demands of the market increase and agricultural trends change. We achieve this through innovation and continuous testing, improving design and construction, utilising our vast experience in manufacturing rollers and, most importantly, listening to our customers.

#### THE ADVANTAGE OF ROLLING

The use of rollers in agriculture began more than 200 years ago and at the time was simply about making uneven fields level. Roller technology and methods have evolved significantly since then, and modern rollers can range from a smooth profile to rollers with the well-known Cambridge type rollers and highly specialized rollers with unique roller profiles and various accessories.

Most farmers are aware of the benefits of rolling before and after sowing adhering better soil to seed contact which will help establish a more uniformed crop.

Modern rolling has become much more complicated as more and more farmers recognize that rollers can be used for post-harvest stubble cultivation, seedbed preparation, grassland care and more.

#### **OUR ROLLER CATEGORIES**

At DALBO, we want to help farmers choose the right roller for any purpose. That is why we have divided our rollers into 5 categories:

- » Conventional rollers, typically used before and after sowing.
- » System rollers equipped with various tools.
- » Grass rollers for innovative care and maintenance of grass areas.
- » Knife rollers for cover crops and stubble.
- » Front-mounted rollers and packers, which in conjunction with a rear-mounted implement save a pass.

#### DALBO'S INNOVATION AND UNIQUE CHARACTERISTICS

Fully hydraulic folding and unfolding of sections enable switching from driving on roads to field operation without leaving the tractor and without the need for further manoeuvring during the process.

DALBO ROLLERS

- » Automatic transport safety. For optimal safety and ease of use during transport.
- » Unique frame design and construction that provides a low centre of gravity, great stability and excellent durability.
- » Sealed and greaseable ball bearings that ensure long life and easy maintenance. Rubber suspended bearings are standard on selected models and can be selected on all models.
- » LED lighting. Safety for you and all others on the road.
- » 060 mm roller shafts made of high-tensile steel.
- » Strong frames made of quality steel and high-tensile steel.
- » DUOFLEX system that allows individual movement for each roller section, thus ensuring optimal ground contact, regardless of the contours and irregularities of the ground.
- » Hydraulic or mechanical weight distribution in combination with DUOFLEX ensures an evenly distributed ground pressure over the entire working width, and together this creates a perfect soil consolidation.
- » 3D pendulum suspension ensures individual sections can ride over obstacles or uneven ground.

# **RINGS AND DUOFLEX**

#### **CROSS COMBI RING**

A big advantage of the Cross Combi rings is their ability to stay clean, as every other ring sits loosely on the shaft. Another advantage of the Cross Combi rings is that they press both downwards and to the side, which increases the contact between seed and seedbed. Cross Combi rings, like SNOWFLAKE® Cambridge rings, can be supplied with different diameters, where the same principles apply. With its aggressive movements and star profile, the Cross Combi ring is very suitable for seedbed preparation, as it helps to incorporate the seed into the seedbed. In addition to rolling, the interaction between the rings helps to crumble the soil, resulting in the topsoil layer being light and airy, providing drainage while the soil is packed at depth.

This provides a uniform sowing depth, which creates the best conditions for good root development. This tillage reduces the risk of surface hardening and a crust formation after rain. It is recommended to have a hydraulic cracker board mounted on the roller if the ground is lumpy. This gives both a really good levelling of the surface as well as shattering of dry clods. The aggressive roller effect of the Cross Combi ring is also incredibly suitable for destroying thick stubble, especially when combined with a front-mounted knife roller on a MAXIROLL. When used for grass rolling, the Cross Combi rings will help stimulate the germination of grass.

In areas where large areas of maize are grown, farmers are increasingly facing the problem of the corn borer beetle. The beetle can easily overwinter from year to year and infect crops in subsequent years. To minimize beetle reproduction, it is good practice to destroy the corn stalks by splitting or cutting the stalk between each section. This reduces the risk of the beetle overwintering. An ideal tool for use against the beetle is Cross Combi rings mounted on the heavy MAXIROLL roller together with a front-mounted knife roller. The knife roller, together with the Cross Combi ring, will cut and split the corn stubble, making it an unsuitable wintering place for the corn borer beetle. The high quality of the castings on our Cross Combi rings allows us to offer a 3-year warranty.



#### **CROSSKILL RING**

The Crosskill rings are always mounted on the axles in pairs using one large and one small ring. The small ring is in a fixed position, while the large ring moves freely. The large ring has a much larger centre hole, which allows it to move freely approx. 6 cm upwards when it rotates.

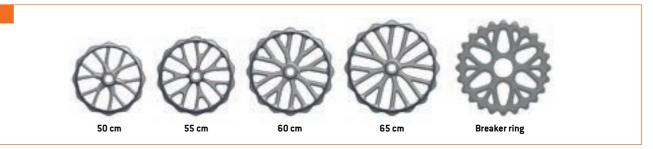
This movement means that the Crosskill rings are self-cleaning. The Crosskill ring is excellent for seedbed preparation. For most soil types, the rings work well in a MAXIROLL frame with a hydraulically adjustable cracker board, as this combination creates a good seedbed directly from the ploughed field. The Crosskill ring is also fantastic in a DALBO roller that is pulled behind a towed seedbed cultivator, leaving an ideal seedbed with a firmer soil layer at the bottom and with a loose and crust-resistant soil layer at the top. The high-quality casting of our Crosskill rings allows us to offer a 3-year warranty on the rings.



#### **SNOWFLAKE® RING**

The name of our SNOWFLAKE® ring is derived from the unique design that looks like a snowflake. Without a change in weight or material, the design of SNOWFLAKE® rings gives 6 times the strength of a conventional Cambridge ring, and therefore we offer an impressive 6-year warranty on the SNOWFLAKE® ring. The design of the SNOWFLAKE® ring is patent protected.

The SNOWFLAKE® ring is suitable for all purposes, both before and after sowing. The special properties of the ring's wide shoulder and wavy outer profile give a good result and uniform pressure when you roll crops. The wide shoulders support the weight better, and the outer protrusions leave small indentations in the ground before sowing. This makes the field more robust to wind and weather and provides good drainage of the field. In addition, the SNOWFLAKE® ring has the advantage that it provides a good drive for the roller when working in dry sandy soil. When choosing the

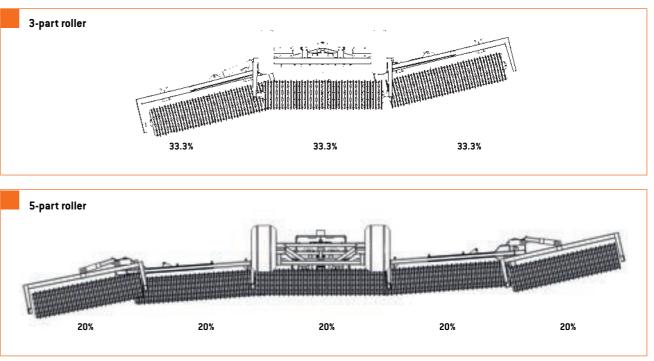


#### DUOFLEX

The DUOFLEX system allows individual movement for each roller section, thus ensuring optimal ground contact, regardless of the contours and irregularities of the ground. At the same time, a uniform weight distribution over the entire working width is ensured, and together this creates perfect soil consolidation.

#### DUOFLEX is available in two versions:

DUOFLEX with mechanical weight distribution works through springs, which by means of elongated holes in piston rods allows the frame of each roller section to work independently.



size of the ring, the starting point is that the heavier the soil, the larger the diameter needed. By choosing a larger ring diameter, a greater ground pressure and less wear as well as a better ability to push stones down is achieved. The breaker rings have a loose fit on the shaft, which allows them to move freely and thus ensure a good cleaning under most conditions.

In combination with intermediate serrated rings, the SNOWFLAKE® ring gives a good result when working on dry, uneven ground, and in these situations it is recommended that a hydraulic cracker board be fitted in front of the roller. This provides a great combination of crushing of clods as well as better levelling of the field.

Last but not least, the SNOWFLAKE® ring is suitable for rolling, levelling and compacting established grasslands. Freshly sown grass seeds will benefit from being rolled, which ensures good seed to soil contact.

This achieves optimal ground contact throughout the working width – even under difficult conditions.

The DUOFLEX system with hydraulic weight distribution has accumulators that allow each roller section to freely follow the contours of the ground. At the same time, powerful cylinders transfer weight from the middle section to the outer sections of the roller in order to ensure even weight distribution for the entire working width.

# CONVENTIONAL ROLLERS

In modern agriculture, rolling has evolved incredibly as capacity, quality and versatility are an increasing demand from both farmers and agricultural contractors. Today rollers are highly specialized agricultural machines that are suitable for many different soil types depending on the choice of ring type, ring size, frame design and more. Conventional rollers are still relevant for smaller farms, but as agriculture becomes more specialized, the demand for individually tailored rollers increases.

#### PART OF THE ROLLER REVOLUTION

At DALBO, we started manufacturing rollers in the 60s with a focus on quality and cost-effectiveness. Less than two decades later, we revolutionized the roller market by introducing one of the world's first fully hydraulic rollers. Although this roller had, at the time, an impressive 6.00 m working width, the market wanted more, and in the late 80's we introduced the 12.20 m wide ROLLOMAT.

Since the initial major leaps in the development of rollers, we have maintained our position as pioneers in rollers. Our current roller range extends from the simple and compact 1.50 m wide COMBIFLEX and all the way up to the 9-section 24.30 m wide advanced high-capacity MEGAROLL.

#### THE SIGNIFICANCE IS IN THE DETAILS

Through more than half a century of developing, manufacturing and selling rollers, we know that durability and trouble-free rolling are essential to our customers. With a focus on implementing this philosophy in all corners of the company, we are proud to be able to supply innovative and durable rollers to modern farmers worldwide.

We have entered into valuable partnerships with suppliers who manufacture strong cast iron rings, stable and durable bearings, high quality steel profiles, robust high-tensile steel shafts and much more. This helps us focus on roller design and manufacturing, while achieving the highest possible level of overall efficiency, productivity and durability.



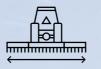
#### A STRONG SELECTION OF ROLLERS

We offer a total of 6 different products in the conventional roller category.

- » MINIMAX popular hydraulic folding roller available in 7 working widths from 4.50 to 9.50 m.
- » POWERROLL sophisticated and professional 5-section roller, available in working widths of 10.30 m up to 18.30 m.
- » MEGAROLL 9-section roller with enormous capacity, can be delivered in working widths of 21.30 and 24.30 m.
- » COMBIFLEX simple roller with great usability and it is available in 4 working widths from 1.50 to 4.00 m.
- » LEVELFLEX versatile and efficient front-mounted roller/packer, available in 7 sizes from 1.50 to 6.00 m working width.
- » FRONTFLEX simple front-mounted roller/packer that is ideal to use in combination with a drill. The sizes range from 1.50 to 6.00 m.

### MINIMAX **3-SECTION 450-950**

ALLING





WORKING WIDTH TRANSPORT WIDTH 4.50-9.50 M 2.50-3.00 M

**RING SIZE** 

The MINIMAX roller is an all-round roller that can be used for many purposes. It has been produced since the 1980's. With spring weight distribution, DUOFLEX and a wide range of roller rings, MINIMAX ensures a perfect roller result regardless of use. MINIMAX is especially suitable for light and medium soil types due to the low angle of the drawbar, and the possibility of accessories adds versatility and flexibility, making it a very cost-effective roller.

#### CONCEPT

With a MINIMAX, we deliver a precise and high-performance quality roller. It handles all roller tasks before and after sowing and can also be used as a packer for a stubble or seedbed preparation. MINIMAX is our smallest hydraulic folding roller, but still offers you all the usability, performance and versatility of our larger models.

1100

The tractor driver can perform the entire folding and unfolding of the roller sections from inside the tractor and without the need for further manoeuvring, which is both practical and safe. All MINIMAX rollers have our well-known DUOFLEX system.

The heavy duty springs ensure an evenly distributed ground pressure plus an individual flexibility that allows each section to follow changing field contours and irregularities.

The packing capacity of the roller is ensured in full working width via the large overlap between each section, which provides full-width ground contact, even when turning and working on uneven fields. Most MINIMAX models can be equipped with a hydraulically operated cracker board, making it a great tool for seedbed preparation.

In summary, a MINIMAX is a unique combination of value and versatility.

MINIMAX 3-SECTION 450-950



- » Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
- » 060 mm shafts made of high-tensile steel.
- » Strong frames made of quality steel and high-tensile steel.
- » Automatic weight distribution with springs that ensure an evenly distributed ground pressure is ensured across the full working width, regardless of the contours of the soil.
- » DUOFLEX with individual flexibility between sections.
- » Hydraulic weight distribution on 950 model.
- » Automatic transport security for optimal safety during transport.
- » SNOWFLAKE® rings with a 6 year warranty.
- » Detachable support legs.
- » Hydraulic connections: 1xSA and 1xDA.

SNOWFLAKE<sup>®</sup>. This ring is used in combination with a breaker ring and is suitable for most purposes, both before and after sowing. It is especially suitable for the care of grasslands as well as use together with the hydraulic cracker board for leveling cloddy soils. The Cross Combi rings are very suitable for seedbed preparation and rolling of grasslands.

The Crosskill ring type is used primarily for seedbeds and leaves the soil loose on top.



#### **CRACKER BOARD**

Hydraulically operated and adjustable cracker board, consisting of strong 80 mm spring tines with 200 x 12 mm angled wearing points. This makes it perfect for crushing clods and levelling the soil, thus leaving the soil loose, smooth and in perfect condition for the roller section. When using only MINIMAX for rolling, the cracker board can be lifted hydraulically, providing increased usability and versatility. The cracker board requires an extra double-acting hydraulic service on the tractor. In optimal working conditions we recommend a working speed of 8-10 km per hour.



MINIMAX with cracker board, shown here in transport position.



Mounted with hydraulically adjustable cracker board.

#### ACCESSORIES AND EXTRA EQUIPMENT

- » Air brakes or hydraulic brakes
- » High pull, drawbar or Scharmüller ball hitch
- » LED lighting
- » Wheel track erradicator
- » Hydraulic weight distribution on 9.50 m
- » Pre-emergence markers

- » Wheel upgrade
- » Rubber Suspended bearings on roller shafts
- » Stone tray option 45L or 100L
- » Hydraulic cracker board
- » Hydraulic jack on 530-950

#### MINIMAX PROCESS FOR UNFOLDING



1. The sections are lifted out of transport lock.



3. The roller sections are lowered to the working position and the wheels are automatically raised.

#### **TECHNICAL DATA**

ТҮРЕ	MINIMAX 450	MINIMAX 530
Transport width	2.30 m	2.50 m
SNOWFLAKE® 50 cm weight/number of rings	2,190 kg 91 pcs.	2,800 kg 109 pcs.
SNOWFLAKE® 55 cm weight/number of rings	2,610 kg 91 pcs.	3,290 kg 109 pcs.
SNOWFLAKE® 60 cm weight/number of rings	-	-
Crosskill 53 cm weight/number of rings	1,860 kg 45 pcs.	2,325 kg 55 pcs.
Cross Combi 50 cm weight/number of rings	2,230 kg 78 pcs.	2,740 kg 94 pcs.
Cross Combi 55 cm weight/number of rings	-	-
Wheels	260/75 x15.3	260/75 x15.3
Min. power requirements	50 HP	75 HP
Hydraulic connections	1xDA 1xSA	1xDA 1xSA

2. The wing sections are unfolded.

4. The machine is put in the float position and is now ready for use.

MINIMAX	MINIMAX	MINIMAX	MINIMAX
630	760	830	950
2.50 m	2.50 m	2.50 m	3.00 m
3,145 kg	4,070 kg	4,160 kg	5,215 kg
129 pcs.	157 pcs.	165 pcs.	189 pcs.
3,720 kg	4,760 kg	4,930 kg	6,090 kg
129 pcs.	157 pcs.	165 pcs.	189 pcs.
4,515 kg 129 pcs.	-	5,875 kg 163 pcs.	_
2,660 kg	3,545 kg	3,650 kg	4,580 kg
63 pcs.	79 pcs.	83 pcs.	95 pcs.
3,215 kg	4,160 kg	4,310 kg	5,340 kg
114 pcs.	134 pcs.	142 pcs.	160 pcs.
3,740 kg	4,940 kg	5,095 kg	6,410 kg
114 pcs.	134 pcs.	138 pcs.	160 pcs.
300/80	300/80	300/80	400/60
x15,3	x15.3 Twin	x15.3 Twin	x15.5 Twin
100 HP	110 HP	120 HP	130 HP
1xDA	1xDA	1xDA	1xDA
1xSA	1xSA	1xSA	1xSA







WORKING WIDTH 10.30-18.30 M

TRANSPORT WIDTH 3.00 M

Our POWERROLL series are high-capacity rollers designed for medium and large farms. With our innovative features and with a wide range of roller rings, a POWERROLL provides perfect rolling across seasons and applications. POWERROLL 1030 and 1230 can be equipped with a hydraulically operated cracker board, which makes it an efficient machine for seedbed preparation. At the same time, it can be equipped with sowing equipment, which saves a pass and precious time.

#### CONCEPT

POWERROLL is a fully hydraulic roller for modern farmers that places high demands on quality, durability and efficiency. The POWERROLL series is the market's most compact roller in its category, and despite its large working widths, it can be folded to a transport width of only 3 m, which makes the journey to and from the field easy and safe. The entire folding and unfolding of the roller sections can be done from inside the tractor and without the need for further manoeuvring, which is both practical and safe. POWERROLL is suitable for driving on all soil types and all types of farms.

The best possible field contact is ensured over the entire working width of the roller by means of the recognized hydraulic weight distribution and the DUOFLEX system, which makes it possible for each section to follow the contour of the field. On uneven fields, POWERROLL can roll across the entire working width, as the roller sections overlap and provide full-width ground contact, even when turning and working on uneven fields.

In summary, a POWERROLL is a versatile roller of high quality and with a large capacity for all users.

- Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
  LED lighting.
- » 060 mm shafts made of high-tensile steel.
- » Strong frames made of quality steel and high-tensile steel.
- » Hydraulic weight distribution, that ensures an evenly distributed ground pressure over the entire working width, regardless of the contours of the field.
- » DUOFLEX with individual flexibility between sections.



- » Automatic transport security for optimal safety during transport.
- » Hydraulic connections: 3xDA.
- » Hydraulic jack on 1350-1830.
- » Hydraulic brakes on 1350-1830.
- » Strong flange bearings.
- » At least 500 kg per working metre.
- $\, {\rm > } \,$  Rubber suspended bearings on 1350-1830.

SNOWFLAKE® is used with free running breaker rings and is suitable for most applications, both before and after sowing. They are especially suitable for rolling after sowing as well as for the care of established pastures.

The Cross Combi rings are very suitable for seedbed preparation and leave the soil firm with a slightly loose surface. In conjunction with a cracker board (POWERROLL 1030 and 1230 only), these rings will effectively crush, level and pack the clods and heavy soil.

The Crosskill ring type is used primarily for seedbeds and leaves the soil loose at the top and firmer just below the surface, which is optimal for sowing.



#### **CRACKER BOARD**

Hydraulically operated and adjustable cracker board, consisting of strong 80 mm spring tines with 200 x 12 mm angled wearing points, which makes it perfect for crushing clods and levelling the soil, thus leaving the soil loose, smooth and in perfect condition for the roller section. The cracker board can be mounted by DALBO before delivery, but can also be retrofitted.

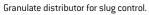
When using the POWERROLL for rolling, the cracker board can be

lifted hydraulically out of work, providing increased usability and versatility.

The cracker board requires two extra double-acting hydraulic outlets on the tractor, and to achieve optimal working conditions for, and thus effect of, the cracker board, we recommend a working speed of 8-10 km/h.











Linkage arms.



Wheel track eradicators.

#### SOWING EQUIPMENT

If you are looking for an ideal solution for the care of grasslands, sowing of subsequent crops and the like, it is possible to equip



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Air brakes or hydraulic brakes
- » Stone trays 45L or 100L
- » Hydraulic jack
- » Bracket for slug pelleter

#### **TECHNICAL DATA**

ТҮРЕ	POWERROLL	POWERROLL	POWERROLL	POWERROLL	POWERROLL	POWERROLL	POWERROLL
	1030	1230	1350	1430	1530	1630	1830
SNOWFLAKE® 50 cm	6,280 kg	6,955 kg	8,650 kg	8,950 kg	9,505 kg	9,980 kg	11,170 kg
weight/number of rings	209 pcs.	249 pcs.	271 pcs.	287 pcs.	307 pcs.	325 pcs.	364 pcs.
SNOWFLAKE® 55 cm	7,270 kg	8,120 kg	9,850 kg	10,250 kg	10,790 kg	11,380 kg	12,745 kg
weight/number of rings	209 pcs.	249 pcs.	271 pcs.	287 pcs.	307 pcs.	325 pcs.	362 pcs.
SNOWFLAKE® 60 cm	8,250 kg	9,300 kg	10,690 kg	11,240 kg	11,850 kg	12,975 kg	-
weight/number of rings	209 pcs.	248 pcs.	271 pcs.	287 pcs.	307 pcs.	325 pcs.	
SNOWFLAKE® 62 cm weight/number of rings	-	9,910 kg 248 pcs.	-	-	-	_	-
Crosskill 53 cm	5,810 kg	6,165 kg	-	8,900 kg	8,980 kg	9,430 kg	10,550 kg
weight/number of rings	107 pcs.	127 pcs.		145 pcs.	153 pcs.	163 pcs.	182 pcs.
Crosskill 60 cm	6,900 kg	7,840 kg	-	9,410 kg	10,010 kg	10,580 kg	12,080 kg
weight/number of rings	107 pcs.	127 pcs.		145 pcs.	153 pcs.	163 pcs.	182 pcs.
Cross Combi 50 cm	6,790 kg	6,970 kg	-	9,080 kg	9,720 kg	10,130 kg	11,350 kg
weight/number of rings	186 pcs.	208 pcs.		240 pcs.	256 pcs.	268 pcs.	298 pcs.
Cross Combi 55 cm	7,180 kg	8,550 kg	-	10,230 kg	10,750 kg	11,310 kg	12,650 kg
weight/number of rings	186 pcs.	208 pcs.		240 pcs.	256 pcs.	268 pcs.	298 pcs.
Min. power requirements	110 HP	140 HP	150 HP	170 HP	190 HP	210 HP	230 HP
Hydraulic connections	ЗхDА	ЗхDA	ЗхDА	ЗхDA	ЗхDА	ЗхDА	ЗхDA
Transport width	3.00 m	3.00 m	3.00 m	3.00 m	3.00 m	3.00 m	3.00 m
Wheels	400/60x	480/45x17 Twin/	600/50x22.5	600/50x	600/50x	600/50x	600/50x
	15.5 Twin	520/50 x17 Twin	Twin	22.5 Twin	22.5 Twin	22.5 Twin	22.5 Twin

16 POWERROLL 5-SECTION 1030-1830

POWERROLL with sowing equipment and thus increase the efficiency in the field, as you can save a pass.

- » Wheel upgrade
- » Sowing equipment for 1230
- » Pre emergence marker kit for 1230-1830
- » Hydraulics for slug pelleter bracket







WORKING WIDTH 21.30-24.30 M

TRANSPORT WIDTH 3.00 M

**RING SIZE** 55 CM



Our MEGAROLL is designed specifically for very large farms and offers record efficiency of up to 17.5 hectares per hour. MEGAROLL is not only impressive in size, but with almost a ton of ground pressure per. working metres and a transport width of only 3.00 m and 4.00 m in height, it is truly an extreme and unique roller.

#### CONCEPT

A MEGAROLL is a sophisticated, fully hydraulic roller with extreme capacity, and it is perfect for farmers who make ultimate demands on size, efficiency, quality and durability. MEGAROLL's enormous size and weight make it a perfect machine for use both before and after sowing, on farms with many hectares and/or limited weather windows before and after sowing.

For the highest possible safety and comfort, the entire folding and unfolding of the roller sections can be carried out from inside the tractor and without the need for further manoeuvring during the process.

The best possible ground contact is ensured across the full working width of the roller via DALBO's proven hydraulic weight distribution system, the DUOFLEX system, and by central swivel suspensions on the outer two sections on each side. The five middle sections have our unique 3D pendulum suspension, which allows individual sections to ride over stones, while reducing the impact and load on rings and frames.

#### STANDARD EQUIPMENT

- » Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
- » Hydraulic jack.
- » LED lighting.
- » 060 mm shafts made of high-tensile steel.
- » Strong bearings.
- » SNOWFLAKE<sup>®</sup> rings with a 6 year warranty.
- » Coupling, drawbar or ball hitch.
- » Hydraulic weight distribution ensures an evenly distributed ground pressure over the entire working width, regardless of the





HORSEPOWER

> 300

#### $\bigcirc$ KG

#### WEIGHT 20,750-21,690 KG

contours of the ground.

- » DUOFLEX with individual flexibility between sections.
- » Automatic transport security for optimal safety during transport.
- » Bogie transport wheels with powerful suspension and hydraulic brakes.
- » Roller sections with the 3D pendulum suspension.
- » Approx. 900 kg pr. working metre.
- » Hydraulic connections: 3xDA and 1xSA.
- » Strong frames made of quality steel and high-tensile steel.

MEGAROLL is fitted with specially designed SNOWFLAKE® rings, which are made of Ductile high-tensile steel.

The SNOWFLAKE® ring is used together with breaker rings and is suitable both before and after sowing.



#### HYDRAULICS

The hydraulic system on the MEGAROLL ensures a controlled and stable folding and unfolding of the machine, so that the frames are protected during the entire process.



#### MEGAROLL PROCESS FOR UNFOLDING



1. The sections are lifted out of transport lock.



Once the roller sections are lowered to the ground, the outer side sections are rolled out to the working position.

#### **TECHNICAL DATA**

түре	MEGAROLL 2130	MEGAROLL 2430
SNOWFLAKE® 55 cm – weight/number of rings	20,750 kg/430 pcs.	21,690 kg/489 pcs.
Min. power requirements	300-450 HP	300-450 HP
Hydraulic connections	3xDA, 1xSA	3xDA, 1xSA
Transport width	3.00 m	3.00 m
Transport height	4.00 m	4.00 m
Wheels	600/50x22.5 Twin	600/50x22.5 Twin

2. Side sections are folded out and lowered to the ground.

4. When the roller sections are in the working position, the 2 hydraulic weight distribution systems are at the correct working pressure and in the floating position, the wheels are automatically raised free of the ground.

# **SYSTEM ROLLERS**

Modern agriculture is very demanding in terms of the versatility of machines, as new and different types of soil preparation require highly specialised machines. The narrow time window in which the various phases of cultivation and preparation of the fields can be carried out presents a challenge to many farmers, especially those who have many hectares of land. These new and demanding conditions for farmers mean that we have had to revise the approach to soil preparation machines in general and rollers in particular.

That is why we at DALBO started around the turn of the millennium to develop what we call a system roller. It all started when we replaced the conventional board in front of the MAXIROLL roller with a cracker board, and the concept has since been further developed and refined over two decades.

#### A VERSATILE ROLLER

Compared to a conventional roller typically used before and after sowing, a system roller has a much wider range of applications. With the option of mounting up to 10 different attachments, our MAXIROLL system roller can perform a wide range of tasks from stubble cultivation after harvest to weed control in false seedbeds.

This places our MAXIROLL far ahead of the competition when it comes to efficient versatility, making it a very cost-effective machine.

#### FUTURE-PROOF AGRICULTURAL TOOL

More and more countries and regions are restricting or banning the use of chemical weed control, and this is increasing the demands on the efficiency, versatility and development of tillage machines and equipment. In addition, the growing prevalence of new tillage methods means that many farmers demand new types of implements.

With our system rollers, we help farmers solve current challenges and prepare for tomorrow's challenges. Our primary focus on rollers combined with the ambition to deliver machines that meet the demands of the modern farmer, means that we will continue to develop our system rollers so that we can deliver the best products and solutions – also in the future.

22 SYSTEM ROLLERS



#### SYSTEM ROLLER VARIANTS

We offer three different categories of system rollers.

- » MAXIROLL exclusive roller, available in sizes from 5.30 to 10.30 m.
- » MAXIROLL HD unique and heavy duty version of our MAXIRIOLL 8.30 to 12.30 m.
- » MAXIROLL GREENLINE professional grass roller available from 3.00 to 8.30 m.

## MAXIROLL 3-SECTION 530-1030





WORKING WIDTH 5.30-10.30 M

TRANSPORT WIDTH 2.50-3.00 M

MAXIROLL's unique roller frame design and high ground clearance enable the installation of a wide range of efficient front tools. This makes MAXIROLL a system roller with unique versatility, which can help increase productivity and yield.

#### CONCEPT

MAXIROLL is a roller that can be used for many different purposes by combining different front tools. With a MAXIROLL you can perform a variety of tasks, from simple rolling after sowing, stubble cultivation, care of grass areas & for seedbed preparation. This makes MAXIROLL a truly versatile roller in the field, and it saves valuable time and costs compared to most other conventional rollers and similar implements.

MAXIROLL comes standard with many of our unique features such as hydraulic weight distribution, DUOFLEX, quality roller rings with a 3-6 year warranty, automatic transport safety and much more. In summary, a MAXIROLL combines quality, productivity and versatility in a unique product.

- » Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
- » LED lighting.
- » 060 mm shafts made of high-tensile steel.
- » Strong flange bearings.
- » Hydraulic weight distribution that ensures an evenly distributed field pressure over the entire working width, regardless of the contours of the field.



- » DUOFLEX with individual flexibility between sections.
- » Automatic transport security for optimal safety during transport.
- » Hydraulic connection: 1xDA and 1xSA on 530-830 and 2xDA on 950-1030.
- » Detachable jack.
- » At least 500 kg per working metre.
- » Strong frames made of quality steel and high-tensile steel.

SNOWFLAKE<sup>®</sup>. This ring is used in combination with a breaker ring and is suitable for most purposes, both before and after sowing.

The Cross Combi rings are very suitable for seedbed preparation, especially in combination with a hydraulic cracker board. Another excellent combination is a long fingered harrow and it is used for efficient aeration and rolling of grasslands. For very heavy soil types, MAXIROLL 630 and 830 HD can be equipped with bogie Cross Combi rings, which with their higher weight effectively crush hard clods.

Crosskill rings are used primarily for seedbed preparation and leave the soil loose at the top and firmer just below the surface, which is optimal for sowing. For the MAXIROLL 630 and 830 HD models, we also offer our T-rings. This type of ring is particularly suitable for use on light and sandy soil types.



#### **CRACKER BOARD**

Hydraulically operated and adjustable cracker board, consisting of strong 80 mm spring tines with 100 x 12 mm angled wearing points, which makes it perfect for crushing clods and levelling the soil, thus leaving the soil loose, smooth and in perfect condition for the roller section. The board is suspended in a parallelogram, which makes the angle and working depth independent of each other. When using only MAXIROLL for rolling, the cracker board can be lifted hydraulically, providing increased usability and versatility. The cracker board requires an extra double-acting hydraulic service on the tractor.

In order to achieve optimal working conditions for, and thereby the effect of the cracker board, we recommend a working speed of 8-10 km per hour.



#### HARROW/MOLE HILL BOARD

The adjustable mole hill board is primarily designed to increase roller performance when clearing, rolling and tending grasslands along with a 2 row harrow section.

The harrow tines can be adjusted to make them more or less aggressive and the mole hill board can be vertically raised and



#### **KNIFE ROLLER**

A knife roller section helps you cut and crush thick stubble for faster and better decomposition and is a perfect match with the aggressive ring profile of the Cross Combi rings.



#### 2 ROWS OF TINES WITH CRACKER BOARD

The 2-row harrow with straight tines and cracker board transform MAXIROLL into a stubble implement or a seedbed harrow.



lowered.

Each section comes with a support wheel which is manually adjusted. This supports each section to follow the contours of the ground.

The aggressive profile of the rings combined with a knife roller is especially suitable for cutting and crushing powerful stubble, for example corn, and is a unique tool for controlling the corn borer beetle.

#### **3 ROW BLACK GRASS HARROW**

We offer many different harrowing tools that allow you to perform a wide range of tasks from simple grassland aeration to harrowing in stubble. harrow are hydraulically put in and out of work, and hydraulically adjusted to make the tines more or less aggressive. This is an ideal combination to use directly into stubble to encourage a chit.



#### WHEEL TRACK ERADICATOR

The use of track eradicators helps you remove compaction from the soil structure behind the tractor wheels, especially when using heavy tractors with single wheel sets on light to medium soil types.



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Air brakes or hydraulic brakes
- » High pull, drawbar or Scharmüller ball hitch
- » Rubber suspended bearings
- » Cracker board
- » Knife roller
- » 3-row seedbed harrow

- » Hydraulic jack
- » Wheel upgrade
- » Stone trays 45L or 100L
- » 2 row harrow tines
- » 2 row harrow tines and cracker board
- » Cracker board with clod crackers

#### SOWING EQUIPMENT

If you are looking for an ideal solution for the care of grasslands, sowing of subsequent crops and the like, our sowing equipment will help you save precious time and increase efficiency.



#### **TECHNICAL DATA**

ТҮРЕ	MAXIROLL	MAXIROLL	MAXIROLL	MAXIROLL	MAXIROLL	MAXIROLL	MAXIROLL
	530	630	760	830	HD 830	950	1030
Min. power requirements	90 HP	100 HP	110 HP	120 HP	120 HP	130 HP	140 HP
SNOWFLAKE® 50 cm	2,775 kg	3,460 kg	4,185 kg	4,450 kg	-	5,730 kg	6,030 kg
weight/number of rings	109 pcs.	129 pcs.	157 pcs.	165 pcs.		197 pcs.	213 pcs.
SNOWFLAKE® 55 cm	3,205 kg	4,050 kg	4,935 kg	5,210 kg	-	6,645 kg	7,025 kg
weight/number of rings	109 pcs.	129 pcs.	157 pcs.	165 pcs.		197 pcs.	213 pcs.
SNOWFLAKE® 60 cm	3,855 kg	4,605 kg	5,595 kg	5,970 kg	6,300 kg	7,365 kg	_
weight/number of rings	109 pcs.	129 pcs.	157 pcs.	167 pcs.	165 pcs.	197 pcs.	
SNOWFLAKE® 65 cm weight/number of rings	3,960 kg 108 pcs.	5,050 kg 126 pcs.	5,990 kg 148 pcs.	-	6,900 kg 162 pcs.	-	-
Crosskill 53 cm	2,290 kg	3,035 kg	3,685 kg	3,900 kg	_	5,130 kg	5,380 kg
weight/number of rings	55 pcs.	63 pcs.	79 pcs.	83 pcs.		99 pcs.	107 pcs.
Crosskill 60 cm	2,975 kg	3,920 kg	4,785 kg	5,050 kg	-	6,425 kg	6,785 kg
weight/number of rings	55 pcs.	63 pcs.	79 pcs.	83 pcs.		99 pcs.	107 pcs.
Cross Combi 50 cm	2,900 kg	3,540 kg	4,375 kg	4,555 kg	_	5,700 kg	6,000 kg
weight/number of rings	92 pcs.	114 pcs.	134 pcs.	83 pcs.		174 pcs.	186 pcs.
Cross Combi 55 cm	3,320 kg	4,090 kg	5,070 kg	5,275 kg	5,600 kg	6,770 kg	7,160 kg
weight/number of rings	92 pcs.	114 pcs.	134 pcs.	83 pcs.	142 pcs.	174 pcs.	186 pcs.
60 cm bogie Cross Combi	_	4,900 kg 67 pcs.	_	_	6,300 kg 83 pcs.	_	-
60 cm T-ring	-	2,355 kg 45 pcs.	-	-	-	-	-
60 cm bogie T-Ring	_	3,555 kg 67 pcs.	_	_	4,600 kg 85 pcs.	_	_
Transport width	2.50 m	2.50 m	2.50 m	2.50 m	3.00 m	3.00 m	3.00 m
Wheels	300/80x	300/80x	400/60x	400/60x	400/60x	400/60x	400/60x
	15.3	15.3	15.5	15.5	15.5	15.5	15.5

NOTE. Some accessories are only suitable for certain working widths. Please contact your local DALBO dealer.

We offer either a 300L or 500L hopper, with either electric or hydraulic fan option.

## **MAXIROLL HD** 5-SECTION 1030-1230





2.50-3.00 M

WORKING WIDTH TRANSPORT WIDTH 10.30-12.30 M

R.J. J. Transmith 

Our MAXIROLL Heavy Duty is a system roller with very high capacity. The unique frame design and high ground clearance enables the installation of a wide range of efficient front attachments. This makes the MAXIROLL HD a system roller with a unique combination of versatility and efficiency that helps you increase productivity, especially on medium to heavy soil types.

#### CONCEPT

MAXIROLL HD is a large and powerfull roller that can be used for many different purposes through unique combinations with different front tools. With a MAXIROLL HD you can perform several tasks, from simple rolling after sowing, over stubble cultivation

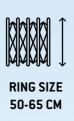
and levelling of grass areas for seedbed preparation. This makes the MAXIROLL HD a hugely versatile and multifunctional roller machine, saving you valuable time and cost. compared to most conventional rollers and similar implements.

Each MAXIROLL HD comes standard with many of our unique features such as hydraulic weight distribution, DUOFLEX, high quality roller rings with 3-6 year warranty, automatic transport safety and much more.

To sum up, a MAXIROLL HD capacity, quality and versatility are combined in one and the same roller.

#### STANDARD EQUIPMENT

- » Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
- » LED lighting.
- » SNOWFLAKE® rings with a 6 year warranty.
- » Hydraulic brakes.
- » Strong flange bearings.
- » 060 mm shafts made of high-tensile steel.
- » Hydraulic weight distribution ensures an evenly distributed ground pressure over the entire working width, regardless of





HORSEPOWER

> 120

#### \_\_\_\_ KG

#### WEIGHT 7,285-13,480 KG



the contours of the ground.

- » DUOFLEX with individual flexibility between sections.
- » Automatic transport security for optimal safety during transport.
- » Roller sections with the 3D pendulum suspension.
- » At least 600 kg per working metre.
- » Hydraulic jack.
- » Hydraulic connection: 2xDA and 1xSA.
- » Strong frames made of quality steel and high-tensile steel.

SNOWFLAKE®. This ring is used in combination with breaker rings and is suitable for most purposes, both before and after sowing. Also suitable for care of established grasslands as well as for levelling dry soil in combination with a hydraulic cracker board. The Cross Combi rings are suitable for seedbed preparation, especially in combination with a hydraulic cracker board. The aggressive profile of the rings combined with a front-mounted knife roller is especially suitable for cutting and crushing tough

stubble, for example corn, and is a unique tool for controlling the corn borer beetle. Another excellent combination is along with a harrow and it is used for efficient aeration and rolling of grasslands.

Crosskill is used primarily for seedbed preparation and leave the soil loose at the top and firmer just below the surface, which is optimal for sowing.



#### HARROW SECTION

We offer many different harrowing tools that allow you to perform a wide range of tasks from simple grassland aeration to harrowing in stubble.

The harrow tines can be adjusted to make them more or less aggressive and the mole hill board can be vertically raised and

#### lowered.

Each section comes with a support wheel which is manually adjusted. This supports each section to follow the contours of the ground.



#### **CRACKER BOARD**

Hydraulically adjustable cracker board, consisting of strong 80 mm spring tines with 100 x 12 mm angeled wearing parts, which makes it perfect for crushing clods and levelling soil, thus leaving the soil loose, smooth and in perfect condition for the roller section. The working angle of the cracker board is mechanically preset via spindles. When operating in the field, the working depth is controlled hydraulically via a parallelogram suspension. This means that the present tine angle is not affected by the change in working depth, which makes it possible to work relatively aggressively and thus achieve a more intensive levelling effect.

Each cracker board section is individually suspended and adjustable. In order to achieve optimal working conditions for, and thereby the effect of, the cracker board, we recommend a working speed of 8-10 km per hour.



#### **3D-PENDULUM SUSPENSION**

DALBO's unique 3D pendulum suspension allows you to roll emerging crops without damaging the root system in fields with an uneven surface. The 3D pendulum suspension whilst assisting



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Cat. 3-drawbar
- » Stone trays 45L or 100L
- » Hydraulic jack
- » Wheel track eradicator

#### **TECHNICAL DATA**

ТҮРЕ	MAXIROLL HD 1030	MAXIROLL HD 1230
Min. power requirements	120 HP	140 HP
SNOWFLAKE® 50 cm – weight/number of rings	7,285 kg/205 pcs.	10,920 kg/252 pcs.
SNOWFLAKE® 55 cm – weight/number of rings	8,260 kg/205 pcs.	11,730 kg/252 pcs.
SNOWFLAKE® 60 cm – weight/number of rings	9,275 kg/205 pcs.	12,750 kg/252 pcs.
SNOWFLAKE® 65 cm – weight/number of rings	9,730 kg/205 pcs.	13,480 kg/252 pcs.
Crosskill 53 cm – weight/number of rings	-	9,900 kg/128 pcs.
Crosskill 60 cm – weight/number of rings	7,900 kg/105 pcs.	11,300 kg/128 pcs.
Cross Combi 50 cm – weight/number of rings	7,550 kg/180 pcs.	11,170 kg/222 pcs.
Cross Combi 55 cm – weight/number of rings	8,480 kg/180 pcs.	12,000 kg/222 pcs.
Hydr. cracker board – weight/number of tines	1,100 kg/59 pcs.	1,200 kg/68 pcs.
Wheels	520/50x17	710/40x22.5
Transport width	3.00 m	3.00 m

the even weight distribution also makes to possible for individual sections to avoid damage from large stones, for example, while reducing the impact and load on the rings and frame.

- » Air brakes
- » Wheel upgrade
- » Hydraulic cracker board
- » 2- or 3-row harrow

## **GRASS ROLLERS**

The rolling of grassland is nothing new, as farmers have recognized the benefits of a flat grassland for centuries. Where rolling has in the past been done with a conventional, heavy roller with a smooth surface, more and more farmers are seeing the benefits of more sophisticated and thorough methods of improved grass rolling.

#### **INCREASED YIELD**

Grass rollers are primarily targeted at milk producers and help increase the yield of their grasslands in quantity as well as quality. These factors lead to major productivity benefits throughout the value chain. By rolling grassland, you get a significantly lower percentage of stone and loose soil in the silage. This means that feed quality increases, which is a primary factor in relation to increasing milk production. This means that the cows become healthier and the milk quality higher.

When grassland is well cared for by levelling, and compacting, it will help increase the overall crop growth. It also allows for a lower cutting height, which increases the amount harvested. Mowing grass blades below 8-9 cm will also stimulate regrowth, which increases harvest yield by up to 5-15%.

#### **ROLLING OF GRASS REDUCES COSTS**

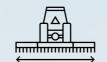
It is easier to harvest grassland with even soil, and it is much cheaper to roll grassland than it is to maintain and repair silage or green harvesters damaged by soil and stones. By reducing the amount of stones, molehills and loose soil on the surface, you can cut the grass low enough for optimal yield and growth and with a significantly reduced risk of damage to the harvester. A well-maintained grass field will also ensure longer life of the entire field. Most of our customers who use MAXIROLL GREENLINE often find that their grassland remains fertile for more than twice as long as before they started rolling the grassland.



#### PRODUCTIVITY AND VERSATILITY

The design of our grass roller frames is derived from our system rollers, making them very versatile and efficient. The MAXIROLL GREENLINE series is available as a lift-mounted, single-section version and two trailed, folding versions. The efficiency of our grass rollers is ensured by the weight, which is up to 900 kg per. working metre. This ensures that most stones are pressed into the ground and it evens out and compresses all loose surface soil.

## MAXIROLL GREENLINE **LIFT 300**





WORKING WIDTH 2.80 M

TRANSPORT WIDTH 3.00 M

Our mounted MAXIROLL GREENLINE 300 roller is perfect for the care and optimization of grasslands. It is a compact, efficient and easy to handle 3.00 m roller. It is available in many combinations for handling any task such as levelling, root aeration and consolidation of the soil.

#### CONCEPT

MAXIROLL GREENLINE 300 is a fantastic machine for maintenance and optimization of existing grass areas. It is also possible to mount a P-box-SpeedTronic STI seeder, so that grass and other

seeds can be sown under the roller, which saves an extra pass and valuable time.

DEMO Traktor

2

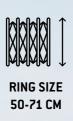
Most MAXIROLL GREENLINE rollers are equipped with a front frame that houses a 2-row harrow with 12 mm tines. These tines aerate and lift up dead grass.

A cracker board or a molehill board can also be mounted in front, which helps to level and thus prepare the ground for the roller section. Two types of roller rings, can be mounted snowflake, cross combi as well as our special steel roller with 710 mm in diameter

that can be filled with water for increased ground pressure. This roller is particularly suitable for working on existing grasslands where efficient consolidation and stone suppression, with a completely flat surface is desired.

#### STANDARD EQUIPMENT

- » Strong frame made of quality steel and high-tensile steel.
- » Jack.
- » Prepared for sowing equipment.





#### HORSEPOWER > 80



#### WEIGHT 1,100-1,760 KG

#### **MOLEHILL BOARD**

Mechanically adjustable molehill board, primarily designed to increase roller performance when clearing, rolling and tending grasslands.

The mole hill board working in conjunction with 2 rows of harrow tines, which can be manually adjusted to make more or less aggressive.



#### **SOWING EQUIPMENT**

If you are looking for an ideal solution for the care of grasslands and sowing of subsequent crops, our sowing equipment will help you save precious time and increase efficiency.



#### HARROW

We offer a 2-row harrow with 12 mm tines that allows perfect root aeration and tears up dead grass, which speeds up the germination of new grass.



#### **CRACKER BOARD**

Mechanically adjustable cracker board, consisting of strong 80 mm spring tines with 100 x 12 mm angled wearing points, which makes it perfect for levelling the soil, thus leaving the soil



#### **CRACKER BOARD/HARROW COMBINATION**

A cracker board/harrow combination is a fantastic tool for maintaining existing grass areas as well as for establishing new ones. The mechanically adjustable cracker board complements



#### **ACCESSORIES AND EXTRA EQUIPMENT**

- » Molehill board » Lift sensor » LED lighting
  - » Platform for seeder

#### **TECHNICAL DATA**

ТҮРЕ	MAXIROLL GREENLINE 300 X 71 CM Steel Roller	MAXIROLL GREENLINE 300 X 50 CM CROSS COMBI	MAXIROLL GREENLINE 300 X 55 CM CROSS COMBI	MAXIROLL GREENLINE 300 X 50 CM Snowflake®	MAXIROLL GREENLINE 300 X 55 CM Snowflake®
Transport width	3.00 m	3.00 m	3.00 m	3.00 m	3.00 m
Working width	2.80 m	2.80 m	2.80 m	2.80 m	2.80 m
Weight (with water)/ number of rings	1,100 kg (2,000 kg)	1,570 kg/ 46 pcs.	1,760 kg/ 46 pcs.	1,510 kg/ 53 pcs.	1,750 kg/53 pcs.
Pull (suspension)	Cat. 2/3	Cat. 2/3	Cat. 2/3	Cat. 2/3	Cat. 2/3

in perfect condition for the roller section. The working angle of the cracker board is mechanically preset via spindles.

the 2-row harrowing tool with 12 mm tines and ensures an even and well aerated grass field.

- » Cracker board » Harrow
- » Mounting kit for sowing equipment
- » Radar with speed sensor

## MAXIROLL GREENLINE 3-SECTION 630-830



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WORKING WIDTH 6.30-8.30 M

TRANSPORT WIDTH 2.50-3.00 M

Our MAXIROLL GREENLINE 630 and 830 are efficient, high-capacity trailed grass rollers. They are specially designed to perform the best possible care and maintenance of grasslands, from efficient rolling and sowing in one pass to optimal maintenance of existing grasslands and areas.

In short, a GREENLINE roller helps you increase your productivity, your yield, the quality of the field and thus the quality of the feed. This will ultimately mean a better milk quality and thus a higher settlement price.

#### CONCEPT

MAXIROLL GREENLINE 630 and 830 grass rollers are modern and innovative tools for the care of grass areas and have 100% hydraulic folding and unfolding, variable ballast in large steel rollers and front attachments specifically developed for the care of grass areas. Due to the large overlap between each roller section, optimal rolling is achieved in the entire working width, even when you turn and roll on uneven ground. Our proven hydraulic weight distribution ensures an evenly distributed weight across all 3 roller sections, and the DUOFLEX system allows the side frames to follow the ground contours individually. All 3 types of roller rings

can be mounted, and for MAXIROLL GREENLINE we also offer our special steel roller with a 710 mm diameter that can be filled with water for increased ground pressure. This roller is particularly suitable for working on existing grasslands where efficient consolidation and stone suppression is desired.

- » Fully hydraulic folding and unfolding of sections. Switching from driving on roads to field operation without leaving the tractor.
- » LED lighting.



- » 060 mm shafts made of high-tensile steel.
- » Strong frames made of quality steel and high-tensile steel.
- » Strong flange bearings.
- » Hydraulic weight distribution, that ensures an evenly distributed ground pressure over the entire working width, regardless of the contours of the field.
- » DUOFLEX with individual flexibility between sections.
- » Automatic transport security for optimal safety during transport.
- » Detachable support jack.
- » Up to 900 kg per working metre.
- » Hydraulic connections: 1xDA and 1xSA.

#### **BALLAST ROLLER**

The roller has as standard 0710 mm steel rollers with a wall thickness of 10 mm, which is good for levelling and caring for grass areas.

The curved edges on the ballast drum roller ensures a smooth finish especially when turning at a headland.



#### **MOLEHILL BOARD**

Mechanically adjustable molehill board, primarily designed to increase roller performance when clearing, rolling and tending grasslands.



#### SOWING EQUIPMENT

If you are looking for an ideal solution for the care of grasslands and sowing of subsequent crops, our sowing equipment will help you save precious time and increase efficiency.

The seeder is available in 300L or 500L, with the option of either a electric or hydraulic fan. The seeder can be mounted at the rear of the GREENLINE or at the front on the drawbar.



#### **CRACKER BOARD**

Mechanically adjustable cracker board, consisting of strong 80 mm spring tines with 100 x 12 mm angled wearing points, which makes it perfect for levelling the soil, leaving it in perfect



#### **CRACKER BOARD/HARROW COMBINATION**

A cracker board/harrow combination is a fantastic attachment for maintaining existing grass areas as well as for establishing new ones. The mechanically adjustable cracker board complements the 2-row harrowing tool with 12 mm tines and ensures full mulching



ACCESSORIES AND EXTRA EQUIPMENT	>>
» Air brakes or hydraulic brakes	>>
» Hydraulic cracker board	»

#### **TECHNICAL DATA**

ТҮРЕ	MAXIROLL GREENLINE 630	MAXIROLL GREENLINE 830
Min. power requirements	80 HP	100 HP
Weight/with water	3,250 kg/5,580 kg	4,200 kg/7,540 kg
Transport width	2.50 m	3.00 m
Wheels	400/60x15.5	400/60x15.5
Harrow – weight/number	900 kg/94 pcs.	1,150 kg/126 pcs.
Mole hill board	170 kg	200 kg
Cracker board – weight/number of tines	785 kg/34 pcs.	1,110 kg/43 pcs.
Harrow/cracker board	1,415 kg/24 pcs.	1,700 kg/33 pcs.

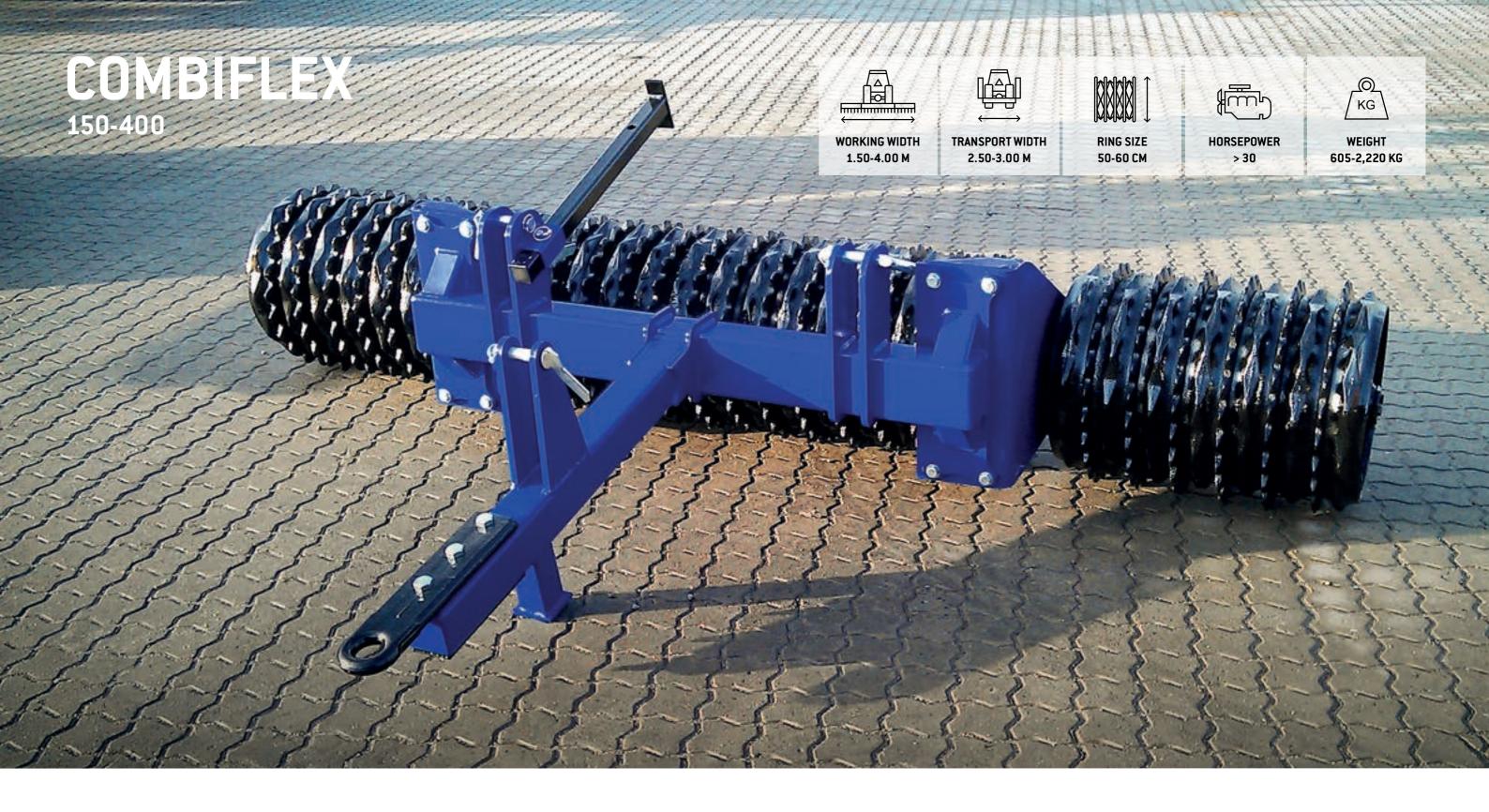
condition for the roller section. The working angle of the cracker board is mechanically preset via spindles.

throughout the working width of the machine.

Each section has its own manually adjustable support wheel which is follows the contours of the ground.

- » High pull, drawbar or Scharmüller ball hitch
- » Molehill board
- » Harrow

MAXIROLL GREENLINE 83	0
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A COMBIFLEX roller is a good choice for simple tasks on small farms and hobby farms. It can be used both as a trailed or a mounted roller, which makes it very versatile use. The stable and strong frame construction and the total weight of the roller ensure the best possible results in the field.

#### CONCEPT

If you need a very compact and simple roller with great versatility, you need to consider a COMBIFLEX. The construction with a single roller section is simple to use and very durable, and it comes with both a 3-point hitch and a drawbar. In this way, a COMBIFLEX can be used both in front of and behind the tractor. It can also be used as a trailed roller, either directly behind the tractor or behind a harrow, for full tillage in one pass. The support leg allows you to store COMBIFLEX in a vertical position, which saves valuable storage space when the roller is not in use.

- » 060 mm shafts made of high-tensile steel.
- » 3-point hitch and drawbar.
- » Strong frame made of quality steel and high-tensile steel.

SNOWFLAKE® is used in combination with breaker rings and is suitable for most purposes, both before and after sowing. It is also suitable for the care of established grasslands.

The cross combi rings are very suitable for seedbed preparation. Crosskill. This ring type is used primarily for seedbed preparation and leaves the soil loose at the top and firmer just below the surface, which is optimal for sowing.



#### **SOWING EQUIPMENT** COMBIFLEX can also be fitted with sowing equipment.



#### **TECHNICAL DATA**

түре	COMBIFLEX 150
50 cm SNOWFLAKE® – weight/number	605 kg/29 pcs.
55 cm SNOWFLAKE® – weight/number	755 kg/29 pcs.
60 cm SNOWFLAKE® – weight/number	920 kg/29 pcs.
53 cm Crosskill – weight/number	670 kg/15 pcs.
60 cm Crosskill – weight/number	775 kg/15 pcs.
50 cm Cross Combi – weight/number	685 kg/25 pcs.
55 cm Cross Combi –weight/number	840 kg/25 pcs.
Min. power requirements	30 HP
Transport width	1.50 m



COMBIFLEX 260	COMBIFLEX 300	COMBIFLEX 400
905 kg/45 pcs.	1,230 kg/55 pcs.	1,570 kg/75 pcs.
1,195 kg/45 pcs.	1,575 kg/55 pcs.	2,015 kg/75 pcs.
1,490 kg/45 pcs.	1,710 kg/55 pcs.	2,220 kg/75 pcs.
940 kg/25 pcs.	1,050 kg/29 pcs.	1,330 kg/39 pcs.
1,190 kg/25 pcs.	1,355 kg/29 pcs.	1,770 kg/39 pcs.
1,010 kg/43 pcs.	1,460 kg/46 pcs.	1,790 kg/62 pcs.
1,380 kg/43 pcs.	1,605 kg/46 pcs.	2,055 kg/62 pcs.
40 HP	50 HP	60 HP
2.60 m	3.00 m	4.00 m

# **KNIFE ROLLERS**

Modern agriculture is very demanding in terms of the versatility of machines, as new and different types of soil preparation require highly specialised machines for soil preparation.

The narrow time window in which the various phases of cultivation and preparation of the fields can be carried out presents a challenge to many farmers.

#### RETHINKING THE PROCESSING OF STUBBLE AND SUBSEQUENT CROPS

MAXICUT 920 DALBO

Knife rollers are an efficient, high-capacity solution for dealing with all kinds of stubble that need to be converted quickly. Knife rollers cut through stubble and plant remains of e.g Maize, rapeseed, grain, vegetables, sunflower and tobacco. The stubble is broken up and crushed on the surface of the soil and is thereby "mixed" with a little soil so that the microorganisms can start their work. At the same time, the knife roller is an effective remedy against the maize borer beetle, which is an ever-increasing challenge for maize cultivation. The larvae overwinter in the stubble, and the only control of them without chemical application is the disintegration and crushing of the corn stubble, where a knife roller is an effective tool.



#### FUTURE-PROOF AGRICULTURAL TOOL

A knife roller is a tool developed to process the part of the plant remains that is above the soil surface, without destroying the root system. Knife roller work is very cost effective with a diesel consumption of approx. 3 l/ha, and at the same time has a large capacity with a speed of up to 20 km/ha and working widths ranging from 1,50 to 9.20 m. Together, this makes the knife roller a usable and innovative machine that both saves you time and fuel.

## MAXICUT 150-920





WORKING WIDTH 1.50-9.20 M

TRANSPORT WIDTH 1,75-3.00 M

DALBO MAXICUT 920

New Perspectives on the incorporation of stubble and plant residues, have brought about a need for large capacity at low cost and the possibility of setting a high stubble have led to the development of our innovative MAXICUT roller.

DALBO was the first in the European market with this type of machine and continues to be a leader in both quality and working widths. It helps you crush any stubble or subsequent crop quickly and efficiently, significantly improving productivity and yields.

#### CONCEPT

MAXICUT is a fast and very effective tool for destroying subsequent crops and cutting thick stubble from crops such as maize, rapeseed, grain, vegetables, sunflowers, tobacco, cotton, etc. Plant residues and stubble are cut into 15 cm lengths, crushed and pressed into the ground, which accelerates the activation of microorganisms and the degradation of plant residues.

MAXICUT is especially good in the fight against the corn borer beetle that lives in corn stubble. By crushing the stubble, which is the beetle's natural habitat, its chances of survival are greatly reduced. No other roller, harrow or pto-powered implement is as efficient as MAXICUT for this purpose.

MAXICUT is most effective at speeds between 15 and 20 km/h. At this speed, a MAXICUT can reach a capacity of up to 15 hectares/ hour and thus far surpasses mower-type implements, which only work above ground and thus do not ensure the same degree of mulching. In summary, a MAXICUT is a combination of innovation, efficiency and productivity in one machine.

#### STANDARD EQUIPMENT

- » Fully hydraulic folding and unfolding of sections on 920. Switching from driving on roads to field operation without leaving the tractor.
- » Lifted on the 300 version. Easy to use and transport and optional mounting on the front or rear of the tractor.

MAXICUT 150-920



- » Heavy-duty double-sealed and lubricated tapered conic bearings from established manufacturers mean long life and easy maintenance. All trailed MAXICUT rollers are fitted as standard with a patented suspension system. It ensures long life and stability for the entire roller.
- » LED lighting.
- » 70 mm shafts made of high-tensile steel of 920.
- » Strong frames made of quality steel and high-tensile steel.
- » Specially hardened knives 100 x 8 mm.
- » Hydraulic weight distribution ensures an evenly distributed ground pressure over the entire working width, regardless of the contours of the ground.
- » Automatic transport security for optimal safety during transport.

#### **ROLLER SECTION**

The heart of the MAXICUT roller is the thoroughly tested steel roller of 0610 mm and with a wall thickness of 7 mm. To increase the overall weight and efficiency, the rollers can be filled with water, and the weight can thereby be increased up to 1,000 kg/m on the 300-600 models. MAXICUT 920 has a standard weight of 1,110 kg per working metre and therefore can not be filled with water. Mounted with 100 mm knives made of 8 mm specially hardened steel, the roller has an effective outside diameter of 820 mm. The large diameter of the roller ensures stable motion and high efficiency. For maximum durability despite the high operating speeds, the steel rollers are mounted on powerful 70 mm shafts.



#### **DISC SECTION**

It is possible to mount a corrugated disc section on our MAXICUT 920 in front of the knife roller. This helps to improve stubble removal, as the stubble is first cut in the direction of travel and subsequently across it. This ensures that all stubble is cut into pieces so that no whole stems are left.



#### SOWING EQUIPMENT

If you are looking for an ideal solution for sowing cover crops and the like, our sowing equipment will help you save precious time and increase efficiency. It is especially suitable for use with the harrow tool.



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Air brakes on MAXICUT 600 and 920
- » Hydraulic brakes on MAXICUT 600
- » Sowing equipment for MAXICUT 600 and 920

#### **TECHNICAL DATA**

ТҮРЕ	MAXICUT 150	MAXICUT 200	MAXICUT 300	MAXICUT 600	MAXICUT 920
Working width	1.50 m	2.00 m	2.75 m	5.80 m	9.20 m
Weight/with water	1,150 kg/1,465 kg	1,450 kg/1,950 kg	1,750 kg/2,450 kg	4,300 kg/6,100 kg	9,800 kg
Number of knives	30 pcs.	30 pcs.	45 pcs.	90 pcs.	165 pcs.
Min. power requirements	60 HP	75 HP	90 HP	150 HP	330 HP
Transport width	1.75 m	2.50 m	3.00 m	2.55 m	3.00 m

On the 6 m model, it is possible to fit 2 rows of 12 mm harrows tines, which is mounted behind the MAXICUT.

- » Various drawbars and couplings
- » Tractor protection on MAXICUT 300
- » Harrow for MAXICUT 600

# **FRONT PRESSES**

The modern farmer is constantly focusing on increasing efficiency and optimizing their yield. Therefore, front-mounted implements are a good way to utilize the tractor, as a pass is saved and the seedbed is improved.

#### **EFFICIENT UTILIZATION**

Front-mounted implements are an obvious way to streamline the workflow, as several processes in soil cultivation can be carried out in just one pass. Both time and fuel are saved, which is very valuable for the individual farmer. There are several options for making unique combinations that are tailored to your specific needs and the type of soil you work on.



There are both front-mounted soil packers that are useful in connection with sowing, cracker board combinations and the option of a front-mounted roller, which gives you versatility in work. When there is a packer before the tractor, the entire surface becomes smoother and packed, which creates smaller tractor tracks before sowing and thus an optimized yield.

## LEVELFLEX 150-600





WORKING WIDTH 1.50-6.00 M

TRANSPORT WIDTH 1.50-4.00 M

LEVELFLEX is designed for mounting with all of our rollers and packer rings, and combined with its robust and heavy frame, it gives excellent results in a wide range of applications. Cracker boards and 2-row harrow (accessory) are both hydraulically adjustable, making LEVELFLEX an extremely efficient and versatile tool.

#### CONCEPT

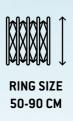
With working widths from 1.50 to 6.00 metres and a frame large enough to accommodate all ring types and sizes, including the HD packer ring, LEVELFLEX is a unique and efficient front-mounted packer. Its unique front suspension makes it very easy to maneuver in the field, and the suspension's flexibility provides optimal ground contact, which provides good yields.

CHP MAN-1

All frames are designed for mounting very close to the tractor, which minimizes the required lifting force and load on the tractor.

LEVELFLEX is available both as a single section and hydraulically folding machines. The frame on the models with a single section has the bearings placed inside the outer rings. This means that the working width is equal to the transport width, which ensures maximum efficiency and often better size match with a seeder behind the tractor. Mounting a cracker board or harrow section in front increases the performance of the LEVELFLEX and makes it a valuable machine for soil consolidation and sowing in one operation.

56 LEVELFLEX 150-600





HORSEPOWER

> 30



#### WEIGHT 700-3,625 KG



- » Fully hydraulic folding and unfolding of sections of 400-600. Switching from driving on roads to field operation without leaving the tractor.
- » 060 mm shafts made of high-tensile steel.
- » Scraper chains between packer rings.
- » Connection in 3 different heights.
- » Jack.
- » Automatic transport security for optimal safety during transport.
- » Strong frames made of quality steel and high-tensile steel.

#### **ROLLER AND PACKER RINGS**

The Cross Combi ring is suitable for rolling ploughed ploughed areas, as it's serrated design cuts and crushes the clods, while at the same time packs the soil in depth with its large weight. Crosskill. This ring type is used primarily for seedbed preparation and leaves the soil loose at the top and firmer just below the surface, which is optimal for sowing. Packer rings are available in 80 and 90 cm and 65 HD. A packer ring is suitable for working in heavy soil, where its large weight crushes clods and packs the soil.



#### HARROW SECTION

A 2-row harrow section in front of the packer helps to break down clods and level the soil perfectly, making the packer much more efficient and leaving a completely uniform surface and structure.

The 2-row harrow is supplied as standard with hydraulics to lift the harrows in and out of work.



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Front weight bracket
- » Hydraulically adjustable cracker board
- » Packer ring profile
- » LED lighting
- » 2-row harrow

#### CRACKER BOARD

Hydraulically adjustable cracker board, consisting of strong 80 mm spring tines with 100 x 12 mm angled wearing points or 45 mm spring tines with 50 x 10 angeled wearing points, depending on the soil conditions on the individual farm. This makes the cracker board perfect for crushing clods and levelling the soil, thus leaving the soil loose, even and in perfect condition for the packer section. The working angle of the cracker board is set mechanically via spindles. When operating in the field, the working depth is



#### **TECHNICAL DATA**

түре	LEVELFLEX 150	LEVELFLEX 150 m/4 m cracker board	LEVELFLEX 250	LEVELFLEX 300	LEVELFLEX 400	LEVELFLEX HYDRAULIC 400	LEVELFLEX HYDRAULIC 450	LEVELFLEX HYDRAULIC 500	LEVELFLEX HYDRAULIC 600
Min. power requirements	20 HP	20 HP	25 HP	30 HP	40 HP	50 HP	60 HP	65 HP	70 HP
SNOWFLAKE® 55 cm weight/number of rings	_	-	1,405 kg 45 pcs.	1,625 kg 51 pcs.	2,030 kg 71 pcs.	2,540 kg 67 pcs.	2,475 kg 75 pcs.	2,870 kg 83 pcs.	3,150 kg 109 pcs.
SNOWFLAKE® 60 cm weight/number of rings	-	-	1,620 kg 45 pcs.	1,885 kg 51 pcs.	-	-	-	-	-
SNOWFLAKE® 65 cm weight/number of rings	-	-	1,780 kg 45 pcs.	2,085 kg 51 pcs.	-	-	-	-	-
Crosskill 53 cm weight/number of rings	-	-	970 kg 22 pcs.	1,110 kg 27 pcs.	1,370 kg 37 pcs.	1,850 kg 35 pcs.	1,930 kg 39 pcs.	1,990 kg 45 pcs.	2,050 kg 51 pcs.
Crosskill 60 cm weight/number of rings	_	-	1,245 kg 22 pcs.	1,445 kg 27 pcs.	1,780 kg 37 pcs.	2,360 kg 35 pcs.	2,595 kg 39 pcs.	2,595 kg 45 pcs.	2,825 kg 51 pcs.
Cross Combi 50 cm weight/number of rings	-	-	1,320 kg 40 pcs.	1,485 kg 45 pcs.	1,845 kg 62 pcs.	2,520 kg 57 pcs.	2,835 kg 63 pcs.	2,950 kg 73 pcs.	3,200 kg 93 pcs.
Cross Combi 55 cm weight/number of rings	_	-	1,490 kg 38 pcs.	1,695 kg 45 pcs.	2,125 kg 62 pcs.	2,635 kg 67 pcs.	2,880 kg 63 pcs.	3,125 kg 73 pcs.	3,575 kg 93 pcs.
80 cm packer rings weight/number	900 kg 10 pcs.	920 kg 10 pcs.	1,260 kg 17 pcs.	1,175 kg 15/20 pcs.	1,435 kg 20 pcs.	1,945 kg 20 pcs.	3,125 kg 22 pcs.	2,270 kg 26 pcs.	2,595 kg 30 pcs.
90 cm packer rings weight/number	1,140 kg 10 pcs.	1,160 kg 10 pcs.	1,630 kg 17 pcs.	1,520 kg 15/20 pcs.	-	-	-	-	_
65 cm packer rings V-profil HD – weight/number	-	-	-	1,300 kg 15 pcs.	-	-	-	-	-
Rubber wheels	700 kg 4 pcs.	700 kg 4 pcs.	_	-	-	1,835 kg 18 pcs.	_	-	2,840 kg 10 pcs.
Cracker board tines 45 x 10 – weight/number	-	250 kg 28 pcs	160 kg 18 pcs.	175 kg 22 pcs.	200 kg 28 pcs.	250 kg 28 pcs.	280 kg 32 pcs.	315 kg 36 pcs.	380 kg 44 pcs.
Cracker board tines 80 x 10 – weight/number	_	310 kg 21 pcs.	200 kg 12 pcs.	225 kg 16 pcs.	260 kg 22 pcs.	310 kg 22 pcs.	350 kg 24 pcs.	395 kg 28 pcs.	470 kg 34 pcs.
2-row harrow Number of tines	-	-	200 kg 18 pcs.	230 kg 22 pcs.	305 kg 28 pcs.	350 kg 28 pcs.	375 kg 29 pcs.	403 kg 37 pcs.	525 kg 42 pcs.
Transport width	2.00 m	2.50 m	2.50 m	3.00 m	4.00 m	2.90 m	2.90 m	2.90 m	2.90 m



controlled hydraulically via a parallelogram suspension. This means that the set tines angle is not affected by the change in working height, which makes it possible to work relatively aggressively and thus achieve a more intensive levelling effect. In order to achieve optimal working conditions for, and thereby the effect of, the cracker board, we recommend a working speed of 8-10 km per hour.

## FRONTFLEX 150-600





WORKING WIDTH TRANSPORT WIDTH 1.50-6.00 M 1.50-4.00 M

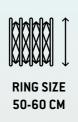
21493411111 FRONTFLEX 600

FRONTFLEX is a compact front-mounted roller with a single section for small and medium-sized farms. For larger farms, we can offer a 3-part foldable model of up to 6.00 m in working width and with a transport width of 3.00 m with all the good features of the classic FRONTFLEX. The stable and powerful frame construction, together with our quality roller rings, cracker board or 2-row harrow, ensures optimal rolling and packing of the soil.

#### CONCEPT

The frame on the FRONTFLEX has the bearings placed inside the outer roller rings, which means that the working width corresponds to the transport width. It ensures maximum productivity as well as a better size match for seeders behind the tractor. The choice of either a cracker board or a 2-row harrow, both of which are manually height-adjustable, further increases the usability of the FRONTFLEX and makes it an efficient and inexpensive machine for soil consolidation and seedbed preparation in one operation. Its unique 3-point hitch makes the machine very easy to maneuver in the field. FRONTFLEX can be delivered with our three most popular roller rings: SNOWFLAKE®, Cross Combi and Crosskill.

60 FRONTFLEX 150-600





HORSEPOWER

> 30



#### WEIGHT 715-2,340 KG



- » Fully hydraulic folding and unfolding of sections (450-600). Switching from driving on roads to field operation without leaving the tractor.
- » Strong frames made of quality steel and high-tensile steel.
- » Suspension for front and rear mounting.

SNOWFLAKE<sup>®</sup>. This ring is used in combination with breaker rings are suitable for most purposed both before and after sowing. The Cross Combi rings are suitable for seedbed preparation in combination with a hydraulic cracker board. The aggressive profile of the rings is good for crushing and levelling uneven soil. Crosskill. This ring type is used primarily for seedbed preparation and leaves the soil loose at the top and firmer just below the surface, which is optimal for sowing.



#### HARROW SECTION

A 2-row harrow section in front of the packer helps to break down clods and level the soil perfectly, making the packer much more efficient and leaving a completely uniform surface and structure.

The 2-row harrow is supplied as standard with hydraulics to lift the harrows in and out of work.



#### ACCESSORIES AND EXTRA EQUIPMENT

- » Cracker board on 150-400
- » Hydraulically adjustable cracker board
- » LED lighting
- » 2-row harrow

#### CRACKER BOARD

Hydraulically adjustable cracker board, consisting of strong 80 mm spring tines with  $100 \times 12$  mm angled wearing point or 45 mm spring tines with  $50 \times 10$  swaged wear parts. This makes the cracker board perfect for crushing clods and levelling the soil, thus leaving the soil loose, even and in perfect condition for the packer section.

The working angle of the cracker board is set mechanically via spindles. When operating in the field, the working depth is



#### **TECHNICAL DATA**

түре	FRONTFLEX 150	FRONTFLEX 260	FRONTFLEX 300	FRONTFLEX 400	FRONTFLEX 450 hydraulic foldable	FRONTFLEX 600 hydraulic foldable
SNOWFLAKE® 50 cm – weight/ number	-	1,155 kg/47 pcs.	1,290 kg/55 pcs.	1,640 kg/75 pcs.	-	-
SNOWFLAKE® 55 cm - weight/ number	_	1,365 kg/47 pcs.	1,525 kg/55 pcs.	1,940 kg/75 pcs.	_	-
SNOWFLAKE® 60 cm - weight/ number	1,165 kg/29 pcs.	1,574 kg/47 pcs.	1,730 kg/55 pcs.	-	-	-
Crosskill 53 cm – weight/number	715 kg/15 pcs.	975 kg/25 pcs.	1,075 kg/29 pcs.	1,215 kg/37 pcs.	-	-
Crosskill 60 cm – weight/number	920 kg/15 pcs.	1,240 kg/25 pcs.	1,380 kg/29 pcs.	1,750 kg/37 pcs.	-	-
Cross Combi 50 cm – weight/number	900 kg/25 pcs.	1,260 kg/43 pcs.	1,255 kg/46 pcs.	1,770 kg/66 pcs.	-	-
Cross Combi 55 cm – weight/number	1,005 kg/25 pcs.	1,450 kg/43 pcs.	1,485 kg/46 pcs.	2,070 kg/66 pcs.	-	-
Cross Combi light 55 cm – weight/ number	-	-	-	-	2,000 kg/68 pcs.	2,340 kg/92 pcs.
Cracker board – weight	115 kg	160 kg	175 kg	200 kg	-	-
Min. power requirements	30 HP	40 HP	50 HP	60 HP	60 HP	70 HP
Transport width	1.50 m	2.60 m	3.00 m	4.00 m	3.00 m	3.00 m

controlled hydraulically via a parallelogram suspension. This means that the set tines angle is not affected by the change in working depth, which makes it possible to work relatively aggressively and thus achieve a more intensive levelling effect. In order to achieve optimal working conditions for, and thereby the effect of, the cracker board, we recommend a working speed of 8-10 km per hour.

