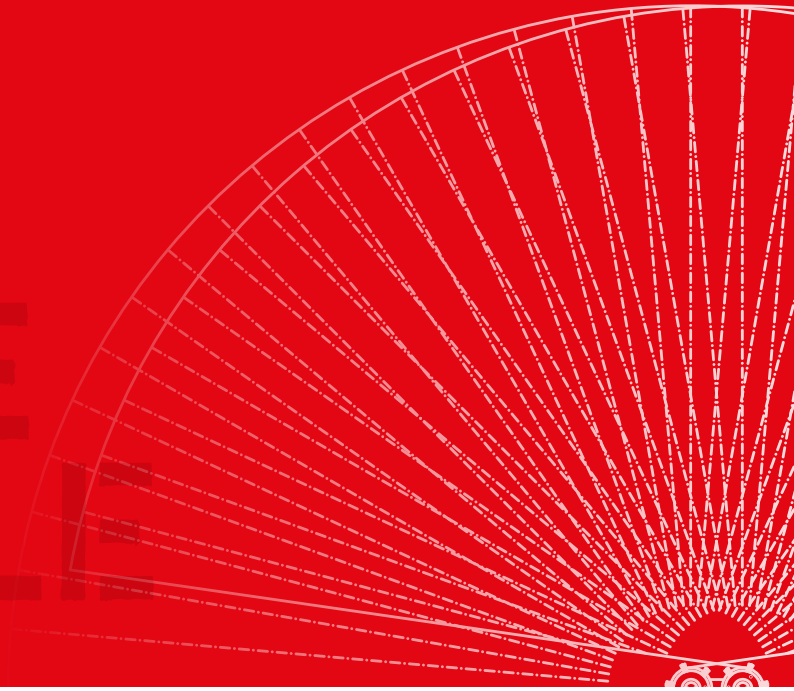




F8/F10 

SIMPLE
PRECISE
RELIABLE







CONTENTS

F8/F10	2
Construction	4
Bredal F8/10	9
Spreading of fertilizer	12
Headland spreading	13
Spreading tests	16
Standard equipment	18
Tyres	23
Additional equipment	26
Spreading principle	35
Computer control/ISOBUS	36
F8 technical specifications	38
F10 technical specifications	38
Equipment overview	40
Dimensional sketches	41

**F8/F10 ARE FERTILIZER SPREADERS
DESIGNED FOR WORKING WIDTHS
STARTING FROM 24 METER AND UP,
WHICH SKILLFULLY COPE WITH THE
TASKS OF SPREADING IN WEDGES
AND ON RESIDUAL AREAS.**

F8 and F10 are specialized fertilizer spreaders for professional use where efficiency and profitability are of vital importance. The spreader is designed to meet various requirements for graduated fertilizing, headland spreading, spreading in wedges and on residual areas.

The spreader is operated via ISOBUS with a newly developed software.

Both spreaders are built as trailed models with a capacity of 5700 to 7500 liters for F8 and 6600 to 11600 liters for F10.





CONSTRUCTION

Bredal spreaders have a robust construction and are designed for professional use. Every component of each machine is constructed with optimal reliability and strength to ensure the longest possible working life.

> CONSTRUCTION

F8 and F10 are supplied with 10 hole hubs. Axles can be specified in different widths to match the required track width. The whole construction of the machine has been designed to resist hard pressure that occur under practical conditions in the field.

Bredal always tests modifications and new designs meticulously before launching products onto the market, because as experience shows, the machines are exposed to heavy loads and challenging conditions in their practical surroundings. F8/F10 are provided with a heavy constructed chassis, and an exceptionally strong axle. Both models can be delivered with hydraulic, pneumatic brakes or without brakes.

In the whole construction priority has been given to minimizing daily maintenance.

Belt rollers upon which the conveyor belt rests, are made of plastic with an axle in continuous stainless steel, bearings are plastic and are totally maintenance free. Belt roller posts are also made of stainless steel. The most exposed areas of the belt frame and spreading unit are equally made of stainless materials for better durability.

The frame is made of heavy profile metal and is reinforced at all exposed areas, the hopper is built of 3 and 4 mm plate, and is equally reinforced at exposed areas. The robust construction results in a very good durability of the spreader.

The vanes on the discs are made of stainless steel and are coated with a wolfram carbide wearlayer for longer working life.

> POWDER COATING

All painted parts on Bredal spreaders are painted with 2 layers of powder paint which gives a strong surface, a good corrosion protection and a beautiful finish.

Bredal spreaders are designed as high-quality machines with longest possible working life, and in this context qualitative paint finish is vitally important.

BREDAL has made an extensive investment into painting system, as the result it has one of Denmark's largest and most modern powder painting facilities where machine parts are first shot-blasted and then powder painted with their primer and top coat layers.

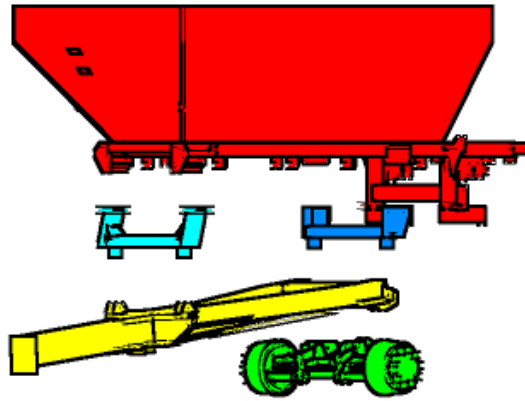
The powder painting system was specifically developed to provide a consistent surface and the highest corrosion and wear resistance for exploitation in tough environment.

> > MODULE-BUILT SPREADERS

As a new solution the chassis of the spreader is built in a more flexible way. The construction consists of individual linkage stands in front and rear, these are made in various heights, to give the height on spreading discs and drawbar as wanted. These stands are bolted together with the chassis which in its turn is bolted together with the axle. This ensures flexibility in construction and makes it possible e.g. to order a machine with the height of discs of 100 cm in case a machine with higher clearance is required.

The axles are stocked in different widths which allows ordering a spreader with a desired track width. The axles at stock are for following track widths: 1950, 2050 and 2150 mm.

- Hopper
- Linkage, front
- Linkage, back
- Chassis
- Axle



01



02



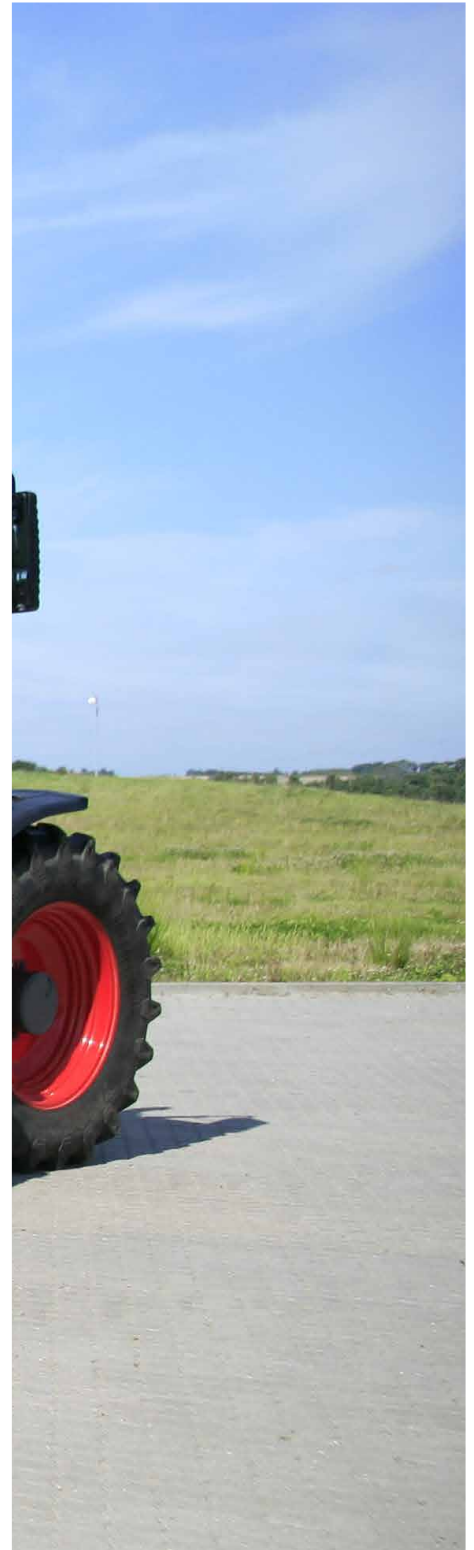
03



04

1 > CONSTRUCTION DRAWING showing the machine's construction 2 > BELT FRAME 3 > ELECTRONICALLY REGULATED DOWNCHUTE 4 > F8 WITH CHASSIS which is welded directly onto the frame



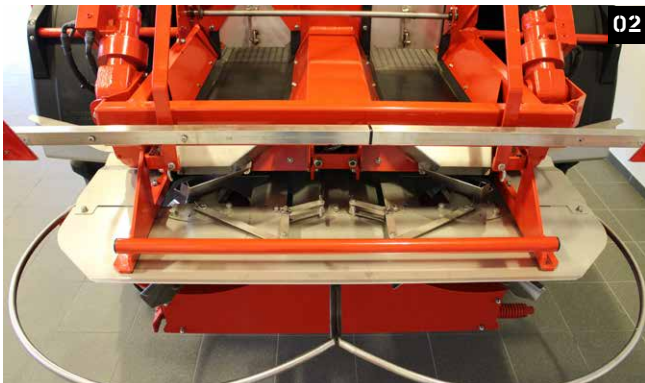


Spreaders and all the parts mounted are painted with 2 layers of powder which gives a strong surface and a beautiful finish.

01



02



03



04



05



06



1 > BREDAL F8 2 > SPREADING SYSTEM with 2 belts, 2 back doors and 2 independently operated downchutes 3 > ELECTRICALLY OPERATED DOWNCHUTE 4 > SENSOR 5 > F8 FROM ABOVE 6 > SCALE FOR REAR DOOR

BREDAL F8/F10

F8 with 520x85R38 wheel mounting offers high clearance under the spreading unit and discs height over 1 m. Due to the method of module construction it is possible to build a machine with even higher clearance, in case that should be necessary.

All hydraulic hoses are gathered at the front of the machine and suspended through a weight relief swivel ring over to the tractor. The hoses can be hung up onto a crossbar when the machine is disconnected from the tractor.

The machine is provided with 2 conveyor belts that are operated independently of each other so that at the same time there can be applied different dosing on the right and on the left sides.

The position of downchutes is operated by one of the two electric engines and is controlled automatically by the computer. When a working width is chosen, the downchute position gets fitted accordingly. On F8 the position of downchutes is adjusted individually for each belt, this is equally applied for headland spreading. Computer control for downchute positioning has an in-built software with automatic flow adjustment, thus the position of downchutes is self-regulating to actual outflow amount. Practically it means that no changes occur in the spreading pattern, regardless of the amount of fertilizer on load.

Electric engines of downchutes are made of plastic and stainless steel and are well-protected by screening.

All moveable parts of the rear door are made of plastic or stainless steel which results in minimal maintenance need.

F8/F10 can be delivered with various types of tyre mounting and with track width starting from approx. 1950 mm and up. Wheel mudguards in plastic are offered as additional equipment for most types of tyres.

Spreader's computer control system has an integrated tilt sensor which is applied to adjust the weight signal so that the weight displayed is always the correct one, includingly when driving on sloping terrain. The amount spread out is furthermore adjusted with the help of the tilt sensor, so the spreader doses correct amount, no matter how the spreader is driving - up or down the hill.

In case the machine is equipped with weighing cells, dosing process is monitored and adjusted non-stop when driving.

The sensors applied e.g. for measuring revolutions on the discs, conveyor belt speed etc have a stainless housing. For further protection they are molded into a plastic bearing which is in its turn sealed with silicone. All sensor cables, weighing cells etc. are conducted into a protective flex hose to achieve maximal isolation.

**F8 AND F10 ARE BREDALS
SPECIALIZED FERTILIZER
SPREADERS FOR PROFESSIONAL
USE WITH A CAPACITY OF 5,7 -
11,6 M³.**





SPREADING OF FERTILIZER

F8/F10 spreaders are designed to spread with high precision on large working widths.

F4 spreaders work according to the 4-double overlap principle where each disc is spreading double working width. This principle ensures achieving good spreading results.

Bredal spreaders are designed to send fertilizer grains out at high exit speed. This rapid acceleration combined with a low exit angle (7 degrees) minimizes the risk of wind sensitivity in field conditions.

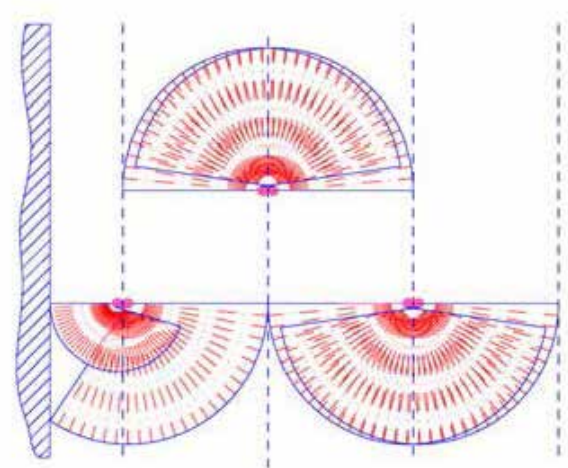
Fertilizer is delivered to the centre of each disc without touching the vanes, where it is then accelerated even before contacting the vanes. This reduces considerably the risk of damaging fertilizer in the process of spreading.

The 6 vanes mounted on each disc provide that fertilizer is being sent out in smaller portions hence securing the spreading process.

The large diameter (Ø72 cm) of spreading discs provides a high rate of acceleration for fertilizer grains just before they leave the disc. At PTO speed of 1000 rpm fertilizer grains accelerate up to 250km/h which considerably reduces wind sensitivity.

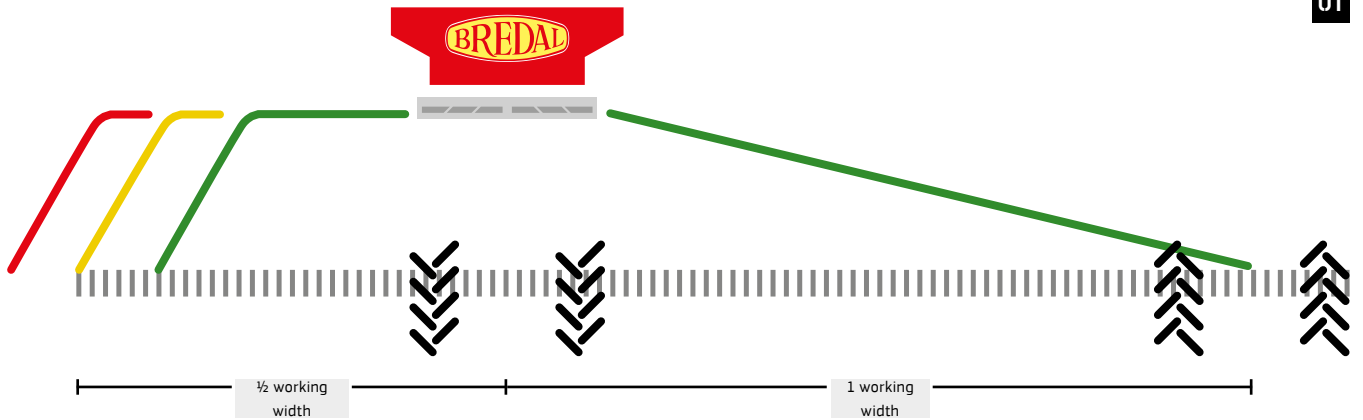
> H-DISCS

For spreading of fertilizers such as Granular Urea, Potash or Ammonium Sulphate, Bredal can supply a kit of special discs for working width of 24-36 m.



HEADLAND SPREADING

01



02



The unique headland spreading system on Bredal spreaders works by reducing the speed on one disc only, resulting in a reduced spread distance towards the headland. The disc on the field side is not affected and retains the optimal spreading towards the next track and ensures the full overlap.

Due to Bredal system of headland spreading a neat boundary at the division line can be achieved at the same time with preserving the actual spreading pattern towards the field. Operation of headland gear is easy.

03



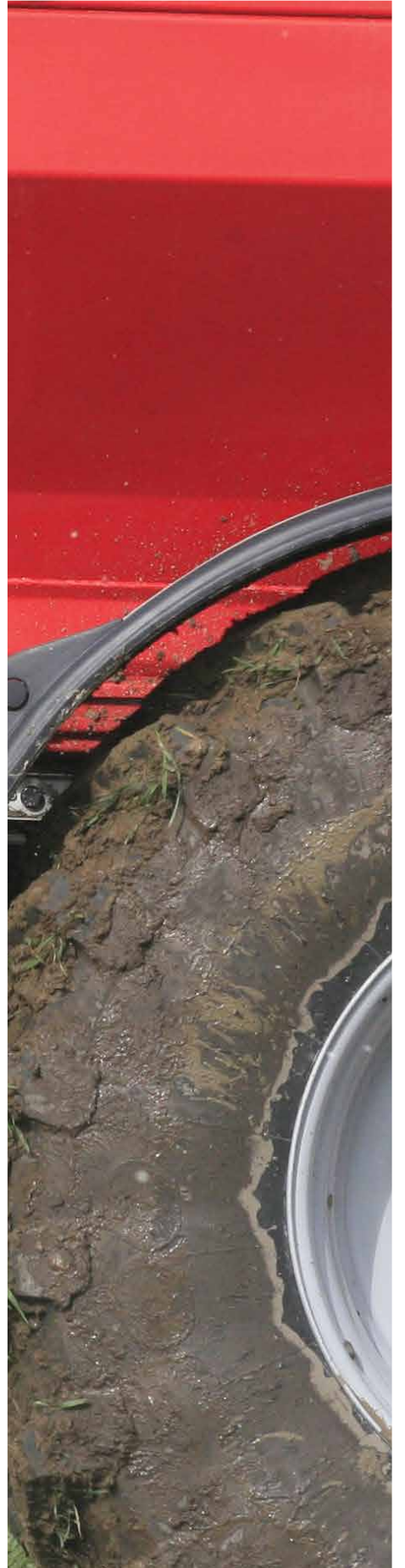
When headland spreading is on, the position of downchutes changes automatically, so the best possible spreading result is achieved.

04



1 > HEADLAND SPREADING PRINCIPLE 2 > BREDAL F8 3 > SPC 4500-2 HEADLAND "closeup" of the gearing 4 > HYDRAULIC SHIFTING OF HEADLAND GEAR





SPREADING TESTS

> TESTED SPREADERS

All Bredal spreaders are regularly tested with a wide range of fertilizer types at the independent spreading test centre at Bygholm (part of Aarhus University). Test results are based on weighing cells technique, according to which it is the actually spread amount collected in each tray that is taken for results evaluation, not a theoretical calculation.

Bredal uses this very testing centre because the surrounding conditions here are as close to practical farming conditions as possible.

> BREDAL SPREADING PRINCIPLE

Bredal K spreaders use the 4-double overlap system. Here both discs cover double working width, i.e. when spreading on the width of 24 m the left disc covers 24 m to the right and 24 m to the left. Accordingly, the right disc is a mirror image in its turn covering 48 m in total. Thus a 4-zone distribution mode is achieved which provides high precision and minimal risk of making spreading errors.

Bredal spreaders are designed to send the fertilizer grains out at high exit speed. This rapid acceleration combined with a low exit angle (7 °) minimizes the risk of wind sensitivity in field conditions.

> BREDAL TEST KIT

Bredal test kit is used to perform practical spreading tests for the purpose of optimizing the spreading pattern.

The kit consists of test plastic trays incl. dividers, measuring tubes with holders, a funnel, a granule strength tester and a sieve box to check granule sizes.

> SETTINGS

Optimal spreading settings for various fertilizer types can be downloaded from Bredal homepage.



1 > A SIEVE TO MONITOR GRAIN SIZES **2 > CALIBRATION KIT** **3 > MEASURING TUBE** **4 > BREDAL TEST KIT** The test kit includes plastic trays with dividers, measuring tube, funnel, granule strength tester and a sieve **5 > SPREADING TEST IN THE FIELD** with Bredal machine and Test kit (trays positioned on the field)

STANDARD EQUIPMENT

HOPPER SCREEN IN STAINLESS STEEL >

When spreading fertilizer it is important to have a screen inside the hopper to avoid lumps, mud etc. affecting the application rate. The screen is made of stainless steel.



< CROSSBAR FOR HYDRAULIC HOSES AND OVERVIEW PANEL

All hydraulic hoses are gathered at the front of the machine and suspended through a weight relief swivel ring over to the tractor. The hoses can be hung up onto a crossbar when the machine is disconnected from the tractor.

LADDER >

A ladder at the front of the spreader providing easy access to the hopper.



WINDOWS >

There is a window on the frontal part of the hopper which makes it easy to monitor hopper contents.



< CONVEYOR BELT TENSIONING

Each belt is pulled by an oil engine via a gear. Oil engine revolutions are regulated via a Proportional valve.

STAINLESS STEEL REAR DOOR >

The rear door is in stainless steel, with nylon guidance runners for easy adjustment, long life and minimal possible maintenance.



STANDARD EQUIPMENT

PTO >

All spreaders are supplied with a wide angle 6z PTO shaft.
Alternatively an 8z, 20z or 21z can be specified.

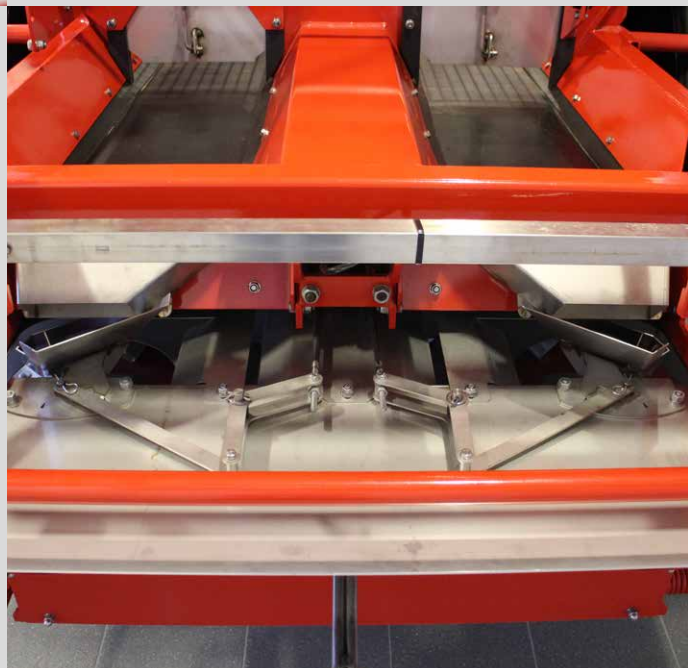


< LED LIGHTS

Bredal spreaders are equipped with LED lights
and side marker lights.

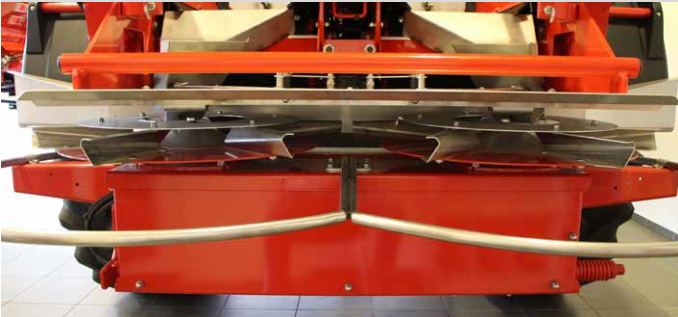
DOWNCHUTES AND CONVEYOR DOSING BELT >

Electrically operated downchutes with flow control which
automatically adjusts itself to chosen working widths.
The machine is equipped with 2 belts, so the dosing on
them can be operated independently of each other on the
right and on the left side.



SPRING LOADED TIGHTENER >

Spring loaded firming of V-belts ensures their proper tightening.



< SPREADING UNIT

F8 and F10 are supplied with SPC4500-2 belt transmission, spreading discs for working width of 12-36m and headlad gear for 24-36 m working width.



PARKING JACK >

F8 and F10 are equipped with mechanical jack (double acting hydraulic jack is under additional equipment)



STANDARD EQUIPMENT

COVER OVER SPREADING UNIT >

A tarpaulin cover provides protection of the spreading unit and dosing system.



< ISOBUS CONTROL

F8/F10 are delivered only with computer control via ISOBUS.

< TILT SENSOR

Computer control has an integrated tilt sensor, which ensures consistent application rate when the spreader drives on hilly terrain.

AXLE AND BRAKES >

A strong 10 tons BPW axle is used for F8 and F10 machines with hydraulic brakes. Pneumatic brakes can also be specified.

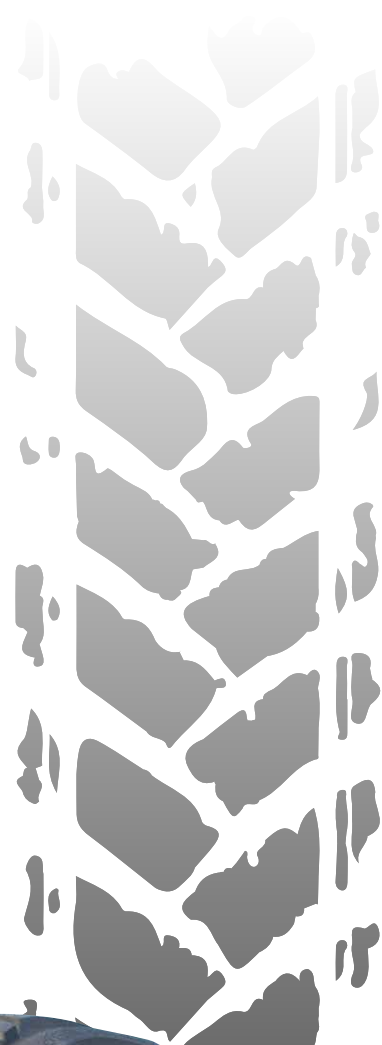


> WHEELMOUNTING

There is a number of possibilities when it comes to wheel equipment on a Bredal spreader. The spreaders are used in a variety of different situations and under different practical conditions.

It is often a matter of protecting the soil against compaction and this is mainly achieved by having a large carrying surface area. This can be obtained by having a larger wheel diameter or using a wheel with a wider width. It is also important to choose the tyre pattern that fits best to actual practical conditions of use.

When it comes to pattern, size and shape, Bredal offers many different solutions, so there is always a solution to match individual needs.







ADDITIONAL EQUIPMENT

CALIBRATION KIT >

Stored conveniently on the spreader, calibration kit can be used to quickly and accurately check the bulk density of the material to be spread.



< STEERING AXLE

To prevent damaging the crop, especially when driving late in the season, Bredal offers an active steering axle.

When fitted, the spreader will automatically follow the tractor wheel tracks, so there is only one set of wheel marks when turning at headland.



HYDRAULIC HEADLAND GEAR >

Hydraulic headland gear can be specified for a convenient switch between headland and in-field spreading.



WEIGHING CELLS >

Weighing cells provide 100% control over fertilizer distribution. F8/F10 automatically adjusts output amount using the data from weighing cells when driving.

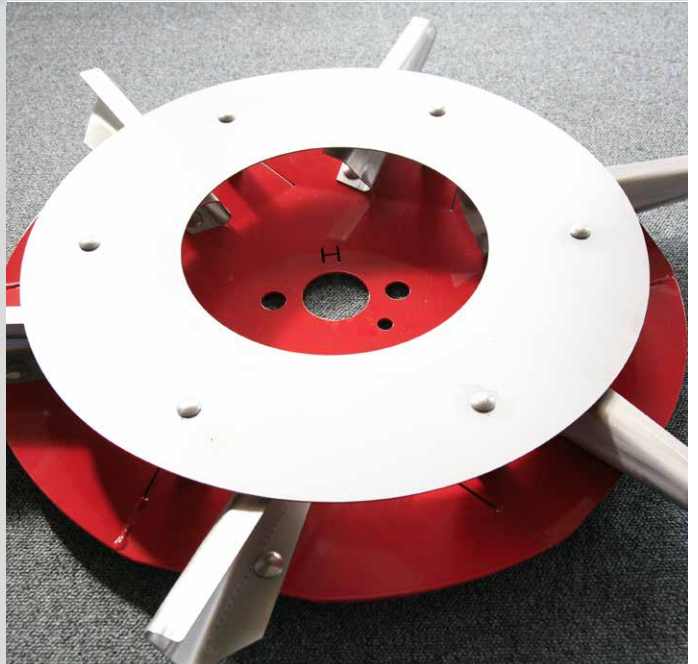


< 540-1000/ 1000-540 GEARING

540 - 1000 or 1000 - 540 downshifting for tractors which either only have 540 or 1000 revolutions on PTO. Eco gear 750 - 1000 rev/min is also available.

H DISCS KIT >

Specially designed equipment for spreading such fertilizers as Granular Urea, Ammonium Sulphate and Potash at wider working widths.



ADDITIONAL EQUIPMENT

HOPPER IN STAINLESS STEEL >

To simplify cleaning tasks and maintenance it is possible to specify a hopper in stainless steel.



< WHEEL MUDGUARDS

Plastic mudguards protect the spreading unit and spreading discs from any material being picked up by the wheels.

LATE APPLICATION EQUIPMENT >

When applying fertilizer late in the season, Bredal offers a special bounce plate equipment to adjust the spreading to a higher throwing angle, reducing the risk of damage for sensitive growing crops.



MANUAL HOPPER COVER >

To protect hopper contents during road transport and spreading process, a hopper cover with manual opening and closing option can be specified.



< HOPPER EXTENTION

Hopper extension in 23 cm or 50 cm (only F10) can be specified for providing bigger capacity.

HYDRAULICALLY OPERATED HOPPER COVER >

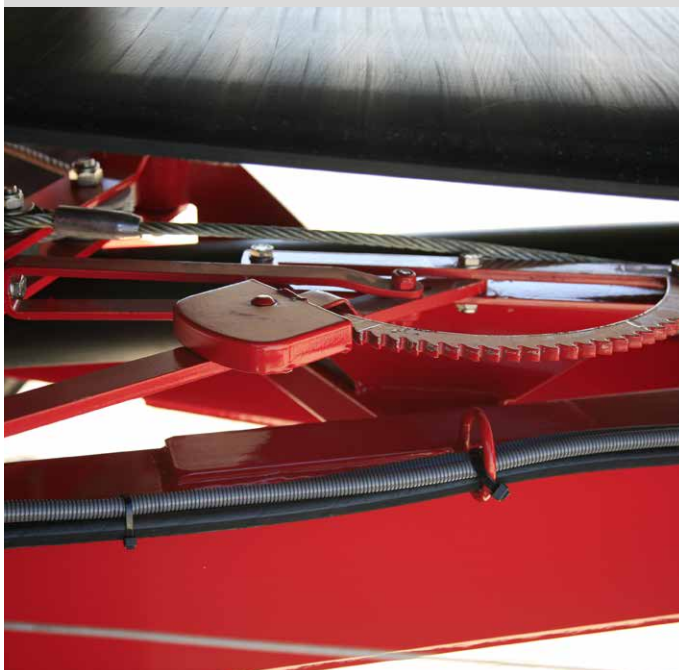
Convenient operation of the cover when loading the spreader.



ADDITIONAL EQUIPMENT

PNEUMATIC BRAKES >

Instead of hydraulic brakes which are standard (additional equipment on K45) pneumatic brakes in 1 or 2 circuits can be specified. Besides there can be offered combined hydraulic and pneumatic brakes.

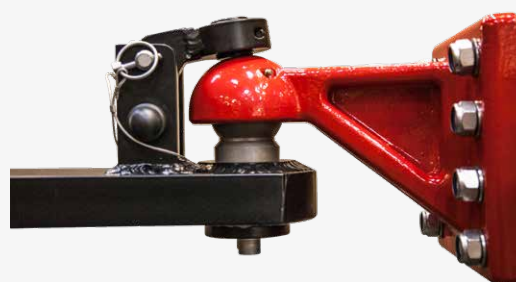


< HAND BRAKE

Hand brake secures a spreader with hydraulic brakes at parking.

BREDAL HITCHES >

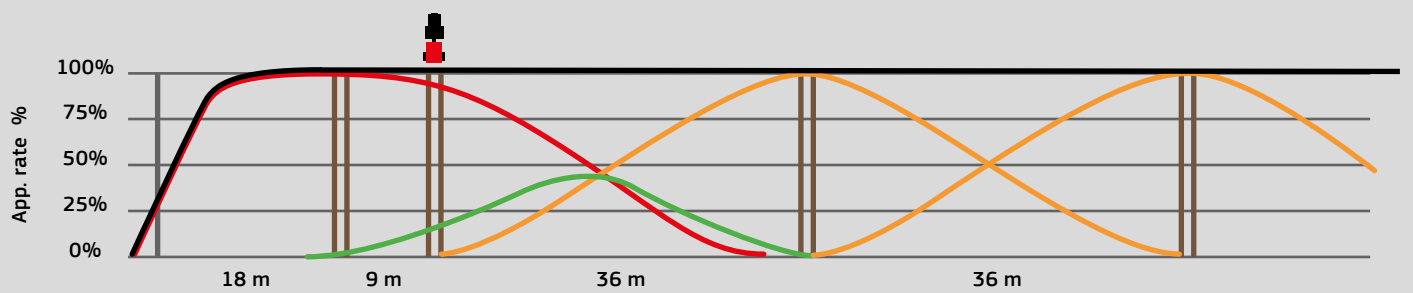
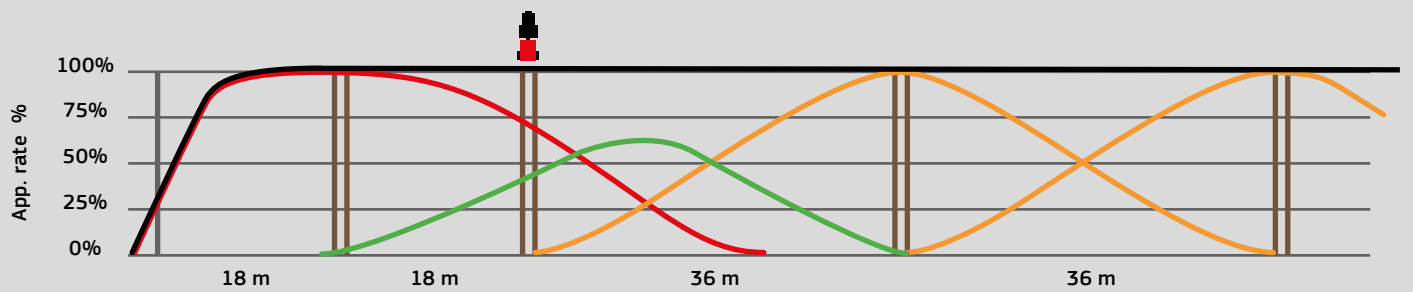
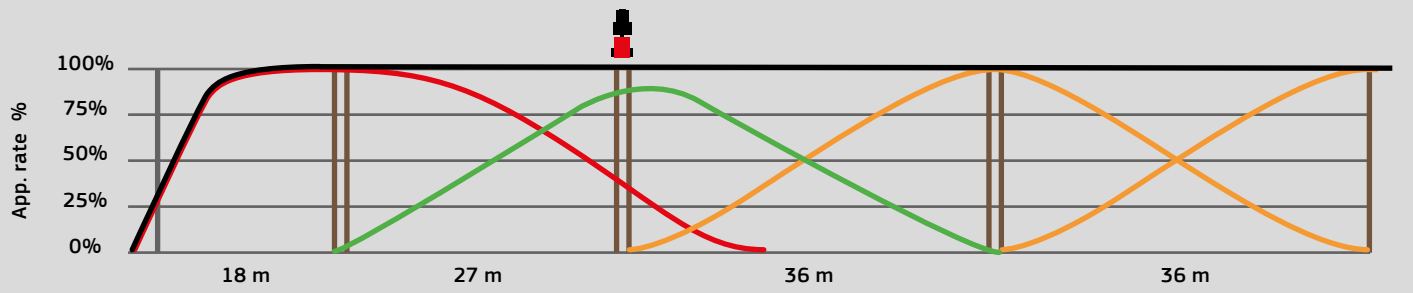
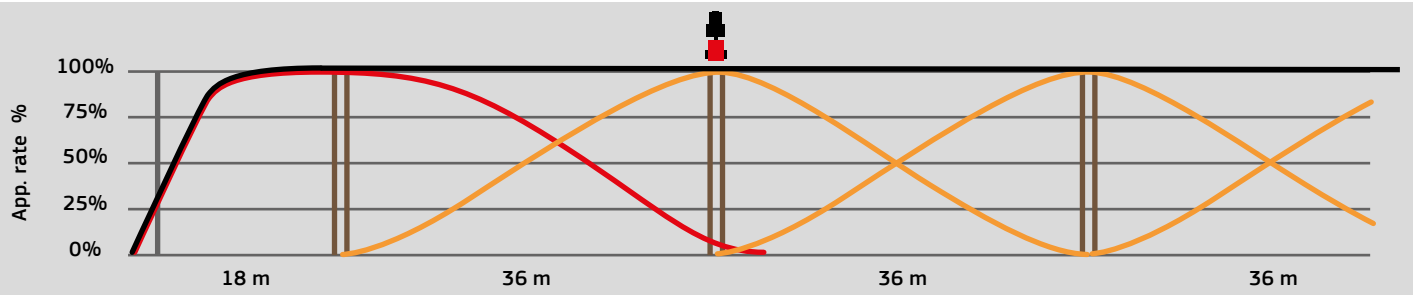
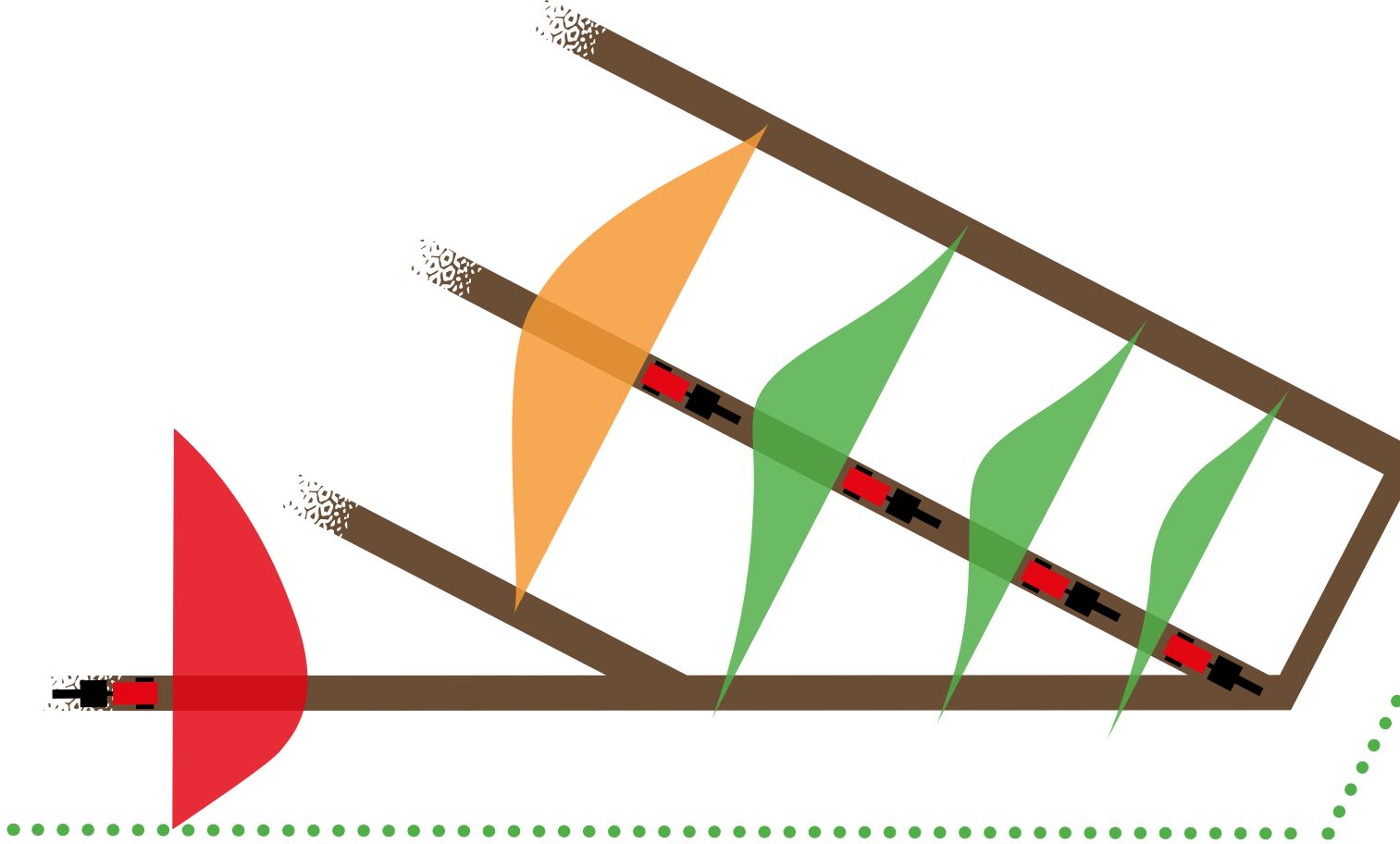
Instead of a standard Bredal ring hitch, it is possible to specify one of the two Bredal ball hitches which are available both in high and low versions. There is either a heavy duty version with an encapsulated ball and hitch, or a hitch suitable for 80mm tractor ball hitches.



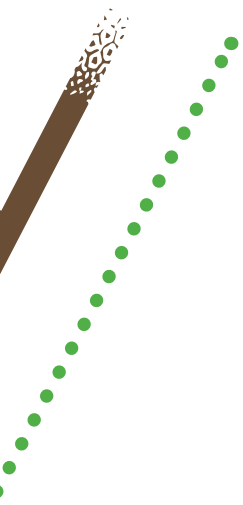








SPREADING PRINCIPLE



36 m working width in the field shown together with headland spreading.

A common spreading pattern without residual area.

36 m working width with residual area on 27 m.

The centre of the spreading pattern (marked green) is shifted approx. 3 m to the right from the track, and the amount of output quantity is reduced.

36 m working width with residual area on 18 m.

The centre of the spreading pattern (marked green) is shifted approx. 10 m to the right from the track, and the amount of output quantity is further reduced.

36 m working width with residual area on 9 m.

The centre of the spreading pattern (marked green) is shifted approx. 12 m to the right from the track, and the amount of output quantity is considerably reduced.

F8/F10 is constructed with 2 dosing belts which can dose independently of each other, so that the amount of fertilizer can be continuously adjusted, when the tractor drives into a wedge on the field. When moving forward along the wedge, the amount is gradually reduced on the side facing the wedge, so the correct dosing is achieved. The same forward mode is applied when moving in a residual width within the field, dosing on the side facing the residual width is reduced, in this way the right amount is always spread, neither too little nor too much.

It is shown on the left how the spreading pattern is changing gradually when the spreader moves forward in a wedge, and the amount is reduced (marked green)

Below is the principle of spreading pattern for different residual areas between headland and tracks in the field. When the residual width gets smaller, the amount of output quantity on the according side of the spreader is also reduced, so the total amount spread in the field always matches the encoded number.

ISOBUS section control is used to regulate the amount of spread material. Section control program can be found on most of ISOBUS terminals, and is required for activating the function of regulating the amount of spread material in wedges and on residual areas. One of the advantages of using the software already existing on the terminal is that it not only can be used by spreaders but also by field sprayers, seeding machines etc., which is the main idea of having ISOBUS system.

Each year Bredal performs a number of spreading tests with various fertilizer types found on the market. Settings for different fertilizer types can be downloaded from our homepage, so that an optimal setting for each fertilizer type can always be found.

We monitor and optimize current settings, and there is a big focus on active developing and improving e.g. headland spreading, where, as a novelty, we offer independent downchute positioning on the right and on the left sides. Another novelty is an automatic reduction of output quantity on headland side, when headland gear is switched, precisely to optimize on spreading pattern when spreading at headland.

COMPUTER CONTROL/ISOBUS



> ISOBUS

ISOBUS solution is developed in collaboration with TeeJet, with focus on simplicity in user interface, which is easy to use for encoding daily settings. F8/F10 is developed exclusively for ISOBUS solution.

> SECTION CONTROL (UP TO 12 SECTIONS)

Bredal applies the same software as field sprayers use for section control, which is a component of most ISOBUS terminals. This means operation is the same, regardless of the type of machine that uses it.

> MÜLLER TRACK GUIDE III

In case the tractor is not equipped with an ISOBUS terminal, Bredal can offer a touch-screen in colour from Müller, together with a complete mounting kit and GPS antenna along with necessary software. Müller terminal can be used together with other ISOBUS tools, it also contains a track guidance program.



Bredal computer control for F8/F10 is designed exclusively for ISOBUS. There has been put a big focus on designing a user interface which is easy and user-friendly and at the same time contains all the required functions.

The software is developed in collaboration with Teejet which has many years of experience in developing solutions for agricultural sphere and has been Bredal's supplier for over 25 years.

With the new F8/F10 there appeared a range of new functions that haven't been offered by Bredal until now. Most important of them are wedge and residual spreading, automatic switching of dosing when turning at headland.

There are also other useful functions built in, such as tilt sensor adjusting the output amount when the spreader drives at slopy terrain, which provides very consistent dosing pattern. The tilt sensor is also applied to correct the weight signal, so that the correct weight is always displayed when driving at slopy terrain.

Downchute position is chosen automatically when working width is encoded. Besides, when driving, the settings continuously get adjusted to the spread amount, so that the best possible spreading pattern is always achieved, no matter how the spreader moves, slowly or quickly. Both downchute positions for spreading in the field and settings for headland spreading can be easily changed, if it is necessary for optimizing the spreading pattern.

All functions are monitored when the machine is in action, and various data indicators are shown on displays to the driver.

The functions described above are some of a wider range of functions available on a Bredal newly developed F8/F10 fertilizer spreader. A combination of these functions ensure an optimal distribution of fertilizer in the field.



F8

> F8 TECHNICAL SPECIFICATIONS

Capacity: 5,70 m³
with hopper extension: 7,50 m³
Netto weight: 3200 kg
Total length: 6600 mm
Std. spreading unit: SPC4500-2

Hopper length: 3916 mm
Hopper width: 2000 mm
Loading height min: 2475 mm
Loading height max: 2975 mm
Min. width outside of wheels: 2250 mm
Max. width outside of wheels: 2800 mm
Largest possible tyre dia.: Ø2100 mm



F10

> F10 TECHNICAL SPECIFICATIONS

Capacity: 6,60 m³
with 23 cm hopper extension: 8,60 m³
with 50 cm hopper extension: 11,60 m³
Netto weight: 3800 kg
Total length: 6600 mm
Std. spreading unit: SPC4500-2

Hopper length: 4016 mm
Hopper width: 2200 mm
Loading height min: 2385 mm
Loading height max: 3155 mm
Min. width outside of wheels: 2250 mm
Max. width outside of wheels: 2800 mm
Largest possible tyre dia.: Ø2100 mm



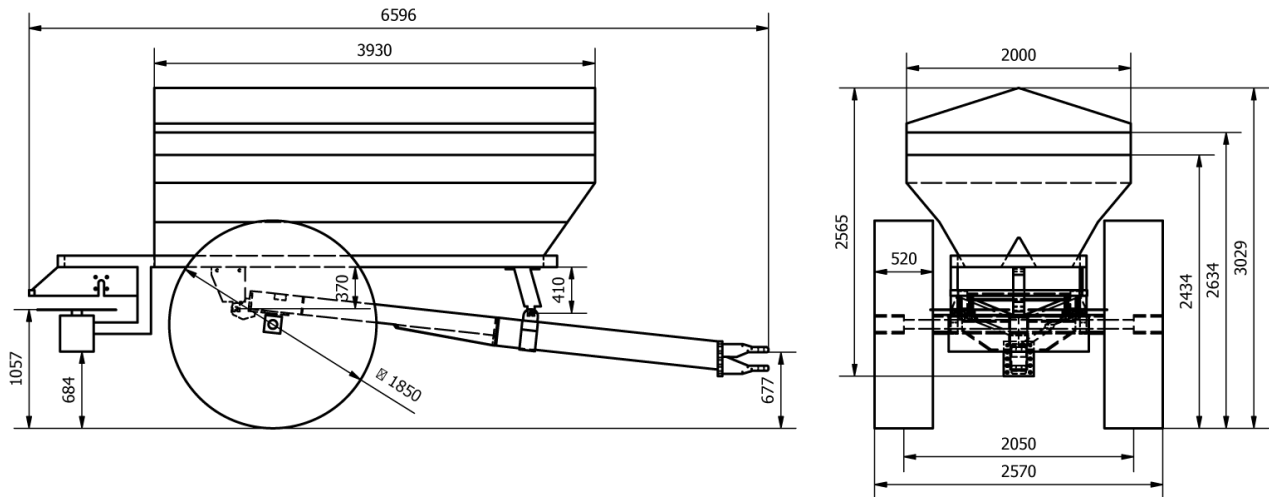


EQUIPMENT OVERVIEW

EQUIPMENT	F8			F10		
	Standard	Option	Not possible	Standard	Option	Not possible
Hydraulic parking jack		o			o	
Mechanical parking jack	o			o		
Hydraulic brakes	o			o		
Pneumatic brakes		o			o	
LED light kit fitted to a stainless steel frame	o			o		
12-36 m fertilizer equipment	o			o		
24-36 m spreading discs, type : 'H'		o			o	
Power transfer, 6z PTO shaft with wide angle	o			o		
SPC4500-2 spreading unit	o			o		
Headland gear for headland spreading	o			o		
Weighing cells		o			o	
ISOBUS operation system	o			o		
Calibration kit		o			o	
Hopper extension, 23 cm		o			o	
Hopper extension, 50 cm			o		o	
Hopper screen, stainless steel	o			o		
Cover, rolling, manual incl. gable		o			o	
Cover, hydraulic incl. 23 cm hopper extension		o			o	
Cover, hydraulic incl. 50 cm hopper extension			o		o	
Cover, over spreading unit		o			o	
Wheel mudguards, plastic		o			o	
540-1000 gear		o			o	
1000-540 gear		o			o	
750-1000 gear, "Economical"		o			o	
Hopper, stainless steel		o			o	
Rear door, stainless steel	o			o		
Late application equipment		o			o	
Inspection window on front	o			o		
Ladder	o			o		
Step inside the hopper	o			o		
Steering axle		o			o	
Bredal Hitch (see the types below)						
- Bredal 5000 eye drawbar 35/50 mm hole	o			o		
- Bredal 2500 towbar	o			o		
- Bredal 4000 ball hitch	o			o		
- Bredal 5000 ball hitch	o			o		

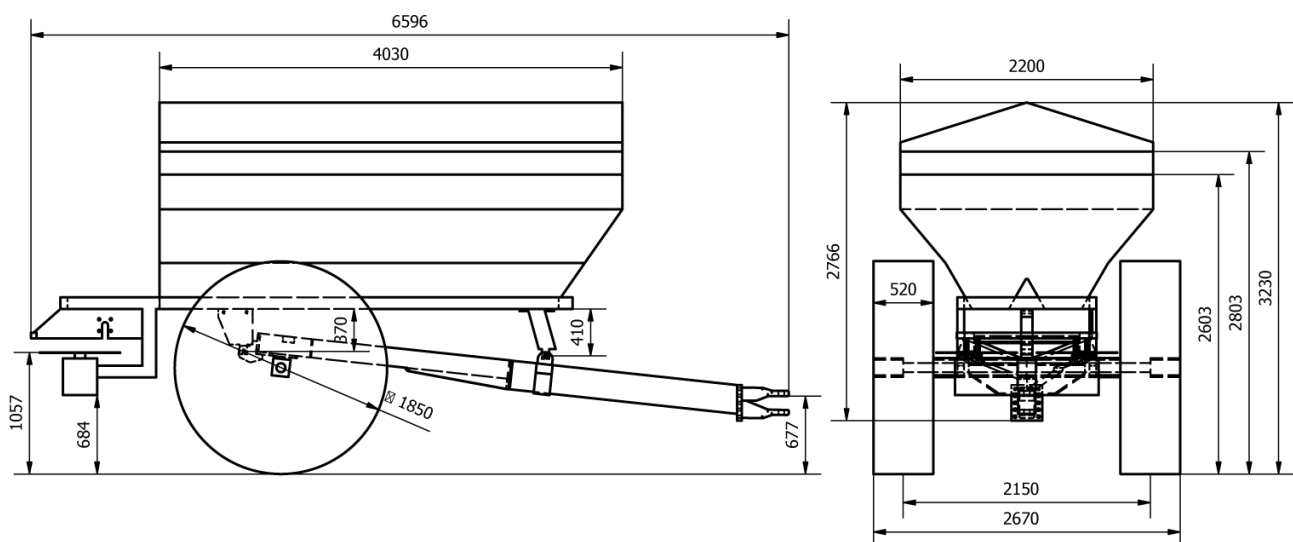
F8/F10 DIMENSIONAL SKETCHES

BREDAL F8



Bredal F8 with 520/85 R38 wheel mounting.
Spreader capacity without extension is 5,7 m³.

BREDAL F10



Bredal F10 with 520/85 R38 wheel mounting.
Spreader capacity without extension is 6,6 m³.



SIMPLE PRECISE RELIABLE

For more than 50 years Bredal has been specializing in production of high-quality lime and fertilizer spreaders for agricultural purposes. The company's goal is to build reliable machinery, precise in exploitation, simple in operation and maintenance. In recent years Bredal product line has been expanded to include winter equipment in the form of sand and salt spreaders.

The company's interests in most of the countries importing Bredal machinery are represented by local importers who sell Bredal spreaders and provide technical support and service.

Bredal is located in Vejle, Denmark, where it has top modern production facilities with latest equipment used for producing the high-quality machines.

