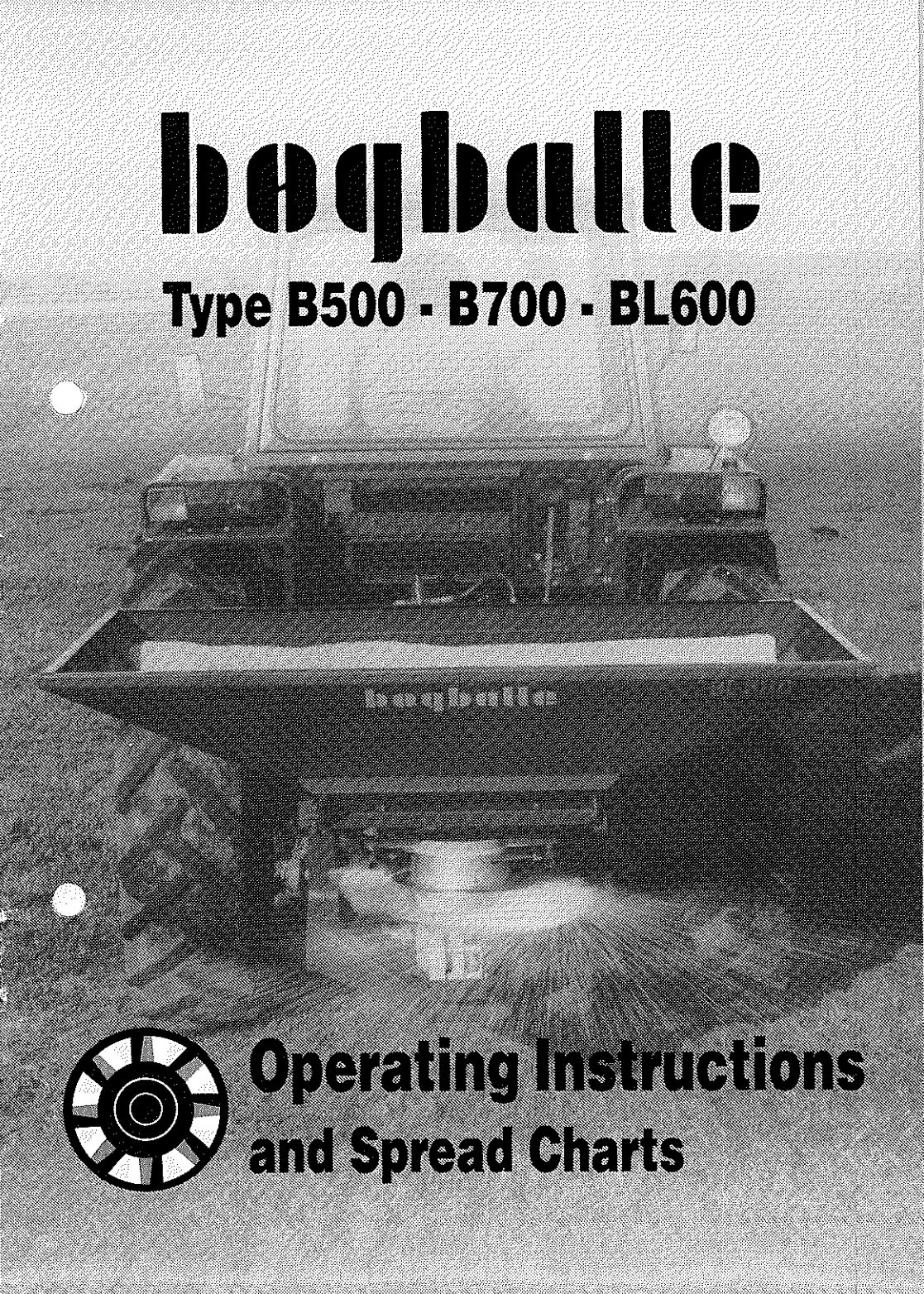
bogballe

Type B500 - B700 - BL600



Operating Instructions and Spread Charts

EC declaration of Conformity

Manufacturer: A. P. LAURSEN A/S
BOGBALLE
DK-7171 ULDUM
Tel: 75 89 32 66
Fax: 75 89 37 66

declares on own responsibility that

BØGBALLE TYPE B/BL/BS

which is covered by this declaration, was manufactured in conformity with the following directives and other normative documents (see the technical dossier for harmonized standards):

1. DS 6010/ISO 730/I,-1977, Dimensions 3-point linkage
2 DS 6003, Quick coupling for oil outlet on tractor
3. DS 6009/ISO 500, 1st edi.-1979-02-15, Power take-off & draw bar

according to the decisions in directive 89/392/EEC, annex 91/368/EEC and annex 93/44/EEC on mutual approximation of the laws of the member states on machines.

Bogballe, 29th September 1994

Henning Laursen

This machine is intended for spreading all common types of fertiliser.

Spreading of other flowing materials might also be interesting. If so we shall draw the attention to the date list of the material concerned in order to determine possible safety or health measures to be taken.

MOUNTING OF THE SPREADER

The Bogballe fertiliser spreader is an asset to your field work, and provided you maintain it, it will serve you for many years.

The spreader should be mounted on the tractor so that the frame with the hopper is horizontal.
The stabilising chains of the tractor should be tightened up to prevent the spreader from moving sideways while driving.

When fitting the spreader, connect the pto shaft last, and vice versa. Ensure that the ends of the pto shaft do not bottom when the spreader is lifted to the working position.

Ensure that the pto has a good mesh, also when lowering the spreader for filling.

Never lift or lower the spreader when the pto is rotating. This will damage the universal joints.

CONTROL OF THE SPREADER

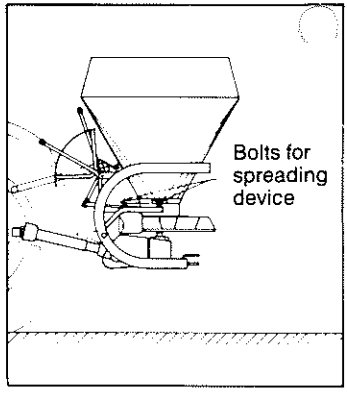
Check that the spreader disc turns easily and that the adjustment rings and levers move easily. If not, oil the sliding surfaces between the rings and the adjustment lever bearings.

It is important that the distance between the inner fixed ring and the spreading disc does not exceed 1/64" (0,5 mm). If the distance is more than this, loosen the three nuts carrying the spreader unit and adjust the distance by means of the lower nuts. Make sure to tighten the upper nuts after adjustment.

ADJUSTMENT OF THE SPREADER

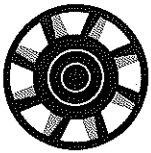
Adjustment of the friction clutch on the gear box drive should not be necessary as the clutch is normally set for 12-15 kilogrammetres while a moment of torsion of only 4-6 kilogrammetres is necessary for starting.

It is not possible to make an exact spreading chart for a centrifugal fertiliser spreader, as the quantity sowed depends on the travelling speed, the spread width, and the consistency of the fertiliser. The spread width again depends on the rate of rotation of the spreading disc and it is therefore important that the pto is run at 540 r.p.m. Lower speed will give a smaller spread width.

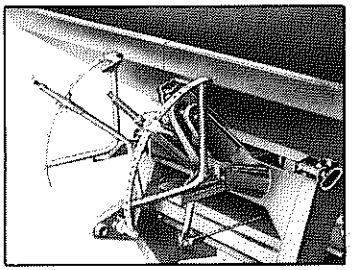


The spreader has two adjustments levers, one for quantity control and the other for lateral control.

The lever for quantity control operates over a scale marked form one to six with four sub divisions, giving twenty four settings. The adjustable scale stop can be locked in any position, where the spreader gives the wanted quantity.



The lever for lateral control operates over a scale with zero as the centre position, and with numbers ranging from 1 to 8 on both sides of the centre position. The distance between these numbers is subdivided in 4, giving 32 settings on both sides of the zero.



The arrows on the scale indicate the side to which the spreading pattern goes when mowing the adjustment lever. Raising the lever distributes more to the left as indicated by the upper arrow, and lowering the lever to the right, as shown by the bottom arrow.

The adjustable scale stop can be locked in any position, where the spreader gives exactly the same quantity to the right and to the left.

If you want to spread to one side only, the lever is completely raised to spread to the left, or lowered to spread to the right. It is not necessary to move the adjustable scale stop when adjusting your spreader for lateral spreading. When spreading to one side only the quantity spread is automatically halved, for which reason the lever for quantity control should not be moved.

To assist you we have worked out some spread charts indicating the approximate adjustments of the levers. These charts are based on a pto speed of 540 r.p.m. The adjustment positions mentioned are intended only as a guide are we give below some instructions as to how you can check the adjustment of the quantity and lateral spread with your particular fertilizer.

QUANTITY CONTROL (in the field)

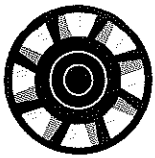
It is preferable to make a test with 50 kilos of fertiliser in the hopper, and see how long this quantity will last. By means of the proportions below, you can easily calculate the quantity spread per hectare.

SPREAD WIDTH (m)									
6	7	8	9	10	11	12	13	14	15
PROPORTIONAL									
835	715	625	555	500	455	415	385	357	333

EXAMPLE

Spread width 12 metres.
50 kgs of fertiliser in the hopper.
If you find - after having spread 50 kgs - that the distance done is 125 m the quantity in kg per ha will be:

$$= \frac{\text{proportional from the chart} \times 100}{\text{m done}} = \frac{415 \times 100}{125} = 332 \text{ kg per ha.}$$



If you for instance want to spread 400 kg/ha and the effective spread width for the fertiliser in question is 12 m, you see from the above chart that the driving distance per 1/10 ha is 83 m, and on this distance you have to spread 400/10 = 40 kg fertiliser.

Effective spread width	Driving length corresponding to 1/10 ha (1000 m²)
4 m	250 m
5 m	200 m
6 m	167 m
7 m	143 m
8 m	125 m
9 m	111 m
10 m	100 m
11 m	91 m
12 m	83 m
13 m	77 m
14 m	71 m
15 m	67 m

QUANTITY CONTROL (stationary)

Fill up the hopper, start the engine and let it make 540 revolutions per minute on the pto. On the tractormeter you can read the speed with which the tractor will go in the gear wanted.
The spreader runs for 2 minutes for instance.
The fertiliser is swept together and weighed.
The effective spread width is seen from the spread chart.

The quantity spread indicated in kgs per ha is calculated in the following way:

$$\text{kg/ha} = \frac{\text{kgs fertiliser} \times 600}{\text{driving time (min.)} \times \text{spread width (m)} \times \text{speed (km p.h.)}}$$

EXAMPLE

Quantity spread = 100 kg
Driving time = 2 minutes
Effective spread width = 12mtres
Speed = 8 km/hour

$$\text{Kg/ha} = \frac{100 \times 600}{2 \times 12 \times 8} = 313 \text{ kg}$$

CONTROL OF LATERAL SPREADING

About 25 kg of fertiliser are spread on a clean, plane surface at 540 r.p.m. and with a stationary tractor. The fertiliser is swept together in 2 heaps, one on either side of the central line of the spreader disc. If the 2 heaps do not have the same weight, too much has been spread to one side. This can be remedied by moving the lever for lateral control.

1. If too litle has been spread to the left, the lever is raised.

2. If too little has been spread to the right, the lever is lowered.

3. The lever is moved about one scale number and a new test is made.

8 PRACTICAL HINTS TO FOLLOW IN ORDER TO OBTAIN THE BEST POSSIBLE RESULT

1. It is important to keep the right distance between the bouts. A centrifugal spreader cannot spread the fertiliser with sharp limits, therefore the total spread width is considerably greater than the effective spread width - and the greater the overlap the fainter the possible inexactitudes of the spreading. The effective spread width stated in the spreading charts corresponds to the distance between the bouts.

2. An even spread is easily obtainable by circling in the field as in this way small errors in the side adjustment are compensated for.

3. Although the spreader is equipped with a friction clutch, both the tractor and the spreader will be relieved of unnecessary strains if the pto is engaged smoothly.

4. Avoid shaking the fertiliser too firmly together before spreading. It is to be preferred to place the fertiliser near the field where you intend to spread.

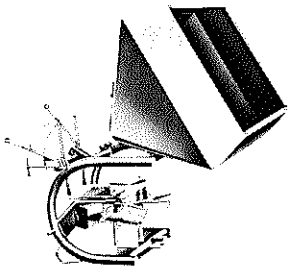
5. Do not allow the spreader disc to rotate with the register ring closed. This will cake the fertiliser and may block the register ring.

6. The agitator is only used for powderized and damp fertiliser or if the fertiliser is lumpy. It is easily fitted between the two lugs of the spreader disc when the hopper has been tipped backwards.

7. If buying fertiliser in bulk a screen should be mounted on the hopper to make sure that foreign bodies do not damage the spreader unit. Large and hard lumps in the fertiliser have to be broken when filling up the hopper, otherwise they can block up the outlet.

8. A strip of field is easily sowed by moving the lever for lateral control to one of the extreme positions thus halving the spread width.

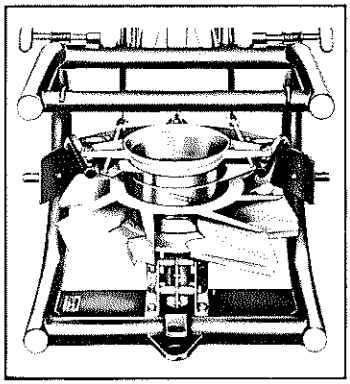
CLEANING AND MAINTENANCE



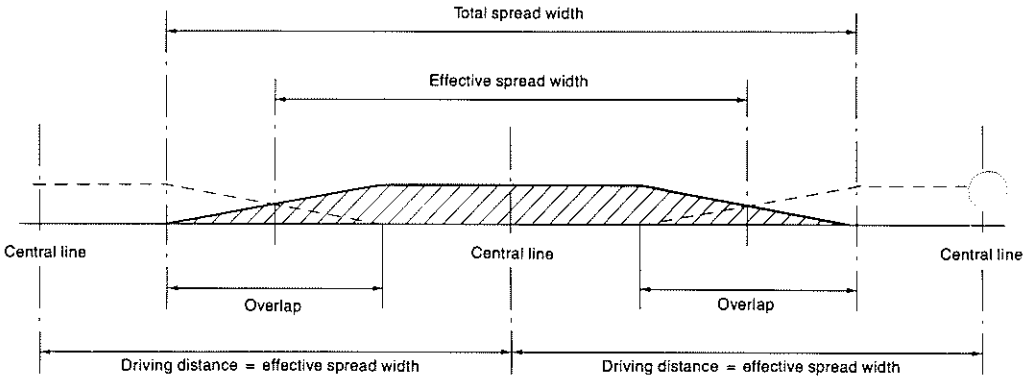
After use the spreader must be carefully cleaned. - The cleaning is easily done by means of a hose after having removed the hopper. The register rings are oiled a little and the spreader is ready for use next time. The pto must be oiled once a day. The gear is filled up with grease and need no maintenance.

STORAGE

If the spreader is not to be used for some time it is recommended to oil it after cleaning.



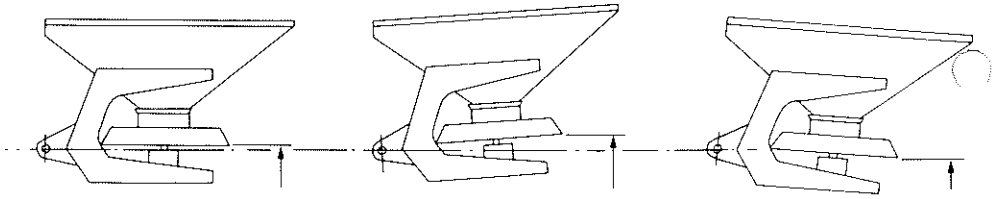
SPREAD PATTERN when spreading with the spreader in horizontal position.



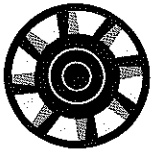
ADJUSTMENT OF SPREAD WIDTH

Due to differences in the types of fertiliser, it is necessary to adjust the height of the fertiliser spreader above the ground or the crop. This correction is necessary when driving with firm spread width.
The Bogballe spread charts are made in such a way that there is for all spread charts stated a height, at which you can get a spread width of 12 m.
In order to adjust the spread width the spreader is tilted as shown on the sketches below. The height for 10, 12 and 15 m should be measured with the longest vane at rear. The height of the spreader should be checked in the field with filled hopper..

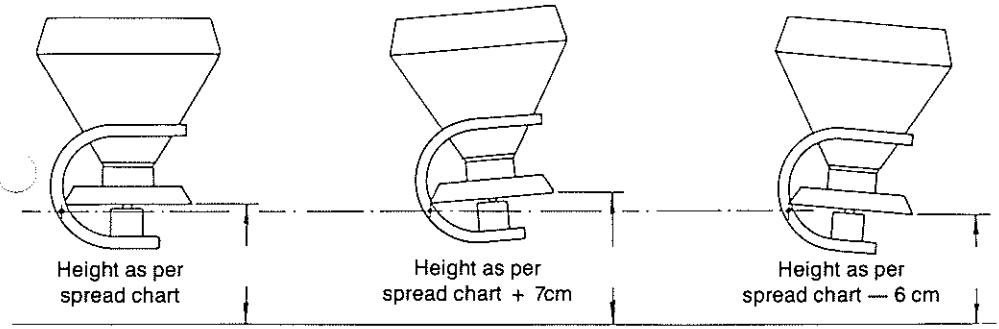
Adjustment of Bogballe type BL at different spread widths.



Height as per spread chart	Height as per spread chart + 10 cm	Height as per spread chart — 8 cm
12 metres Horizontally mounted Kgs of fertiliser per ha = spread chart	15 metres Tilted around pivot, longest vane to the rear Kgs of fertiliser per ha = spread chart×0,8	10 metres Tilted around pivot, longest vane to the rear Kgs of fertiliser per ha = spread chart×1,2



Adjustment of Bogballe type B at different spread widths.

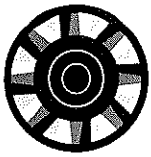


12 metres Horizontally mounted Kgs of fertiliser per ha = spread chart	15 metres Tilted around pivot, longest vane to the rear Kgs of fertiliser per ha = spread chart×0,8	10 metres Tilted around pivot, longest vane to the rear Kgs of fertiliser per ha = spread chart×1,2

The height should be measured from the ground or the crop.

The height should be measured with the longest vane at rear.

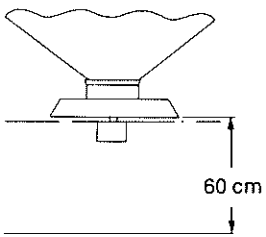
The spreader height should be checked in the field with filled hopper.



NPK-PRILLED

Spread width 12 M

(without agitator)



In order to convert kilos per hectar to lbs. per acre you must multiply by 0,9. - 500 kilos per hectar corresponds for instance to 450 lbs. per acre.

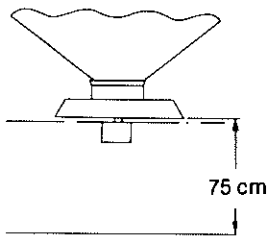
Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1	18,5	160	120	95	80	½ upwards
1½	38,0	320	240	190	160	¾ upwards
2	60,0	500	375	300	250	1¼ upwards
2½	77,5	650	490	390	325	1½ upwards
3	96,0	800	600	480	400	1¾ upwards
3½	111,5	930	700	560	465	1 upwards
4	130,0	1080	810	650	540	2¼ upwards
4½	138,0	1150	865	690	575	2½ upwards
5	148,5	1240	930	745	620	2¾ upwards
5½	155,5	1300	975	780	650	2¾ upwards
6	160,5	1340	1005	805	670	2¾ upwards

For spread widths of 10 and 15 metres see page 6 and 7.

NPK GRANULAR

Spread width 12 M

(without agitator)



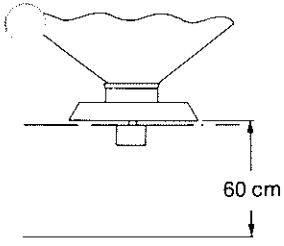
Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1¼	24,5	200	150	120	100	5 upwards
1½	34,5	290	215	175	145	3¾ upwards
2	54,5	450	340	270	225	2 upwards
½	74,5	620	465	370	310	1 upwards
3	94,5	790	590	475	395	½ upwards
3½	111,5	930	700	560	465	¼ upwards
4	126,5	1060	795	635	530	0
4½	139,5	1160	870	700	580	0
5	150,5	1260	945	755	630	0
5½	159,0	1320	990	795	660	0
6	165,0	1380	1035	825	690	0

For spread widths of 10 and 15 metres see page 6 and 7.

PK GRANULAR

Spread width 12 M

(without agitator)



In order to convert kilos per hectar to lbs. per acre you must multiply by 0,9. - 500 kilos per hectar corresponds for instance to 450 lbs. per acre.

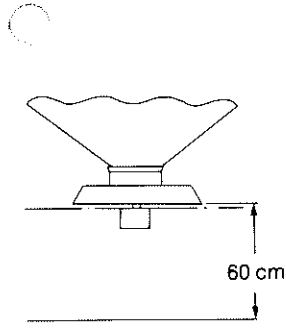
Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1	15,0	130	95	75	65	¾ downwards
1½	33,0	280	210	170	140	½ downwards
2	55,0	460	345	275	230	0
2½	73,5	610	460	365	305	¼ upwards
3	91,0	760	570	455	380	¾ upwards
3½	110,0	920	690	550	460	1 upwards
4	127,0	1060	795	635	530	1¼ upwards
4½	141,0	1180	885	705	590	1½ upwards
5	152,0	1270	950	760	635	1½ upwards
5½	159,0	1330	995	795	665	1¾ upwards
6	164,0	1370	1025	820	685	1¾ upwards

For spread widths of 10 and 15 metres see page 6 and 7.

SUPERPHOSPHATE

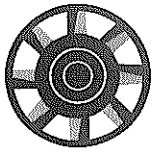
Spread width 12 M

(without agitator)



Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1	17,5	150	110	90	75	1 downwards
1½	37,5	310	235	190	155	1½ downwards
2	63,0	530	395	315	265	1½ downwards
2½	87,0	730	545	435	365	1 downwards
3	106,0	880	660	530	440	¾ downeards
3½	121,5	1010	760	605	505	½ downwards
4	135,0	1120	840	675	560	¼ downwards
4½	147,0	1220	915	735	610	¼ downwards
5	158,0	1320	990	790	660	0
5½	165,5	1380	1035	830	690	¼ upwards
6	171,0	1430	1070	855	715	¼ upwards

For spread widths of 10 and 15 metres see page 6 and 7.

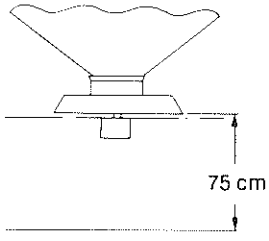


In order to convert kilos per hectar to lbs. per acre you must multiply by 0,9. - 500 kilos per hectar corresponds for instance to 450 lbs. per acre.

CALCIUM AMMONIUM NITRATE

Spread width 12 M

(without agitator)



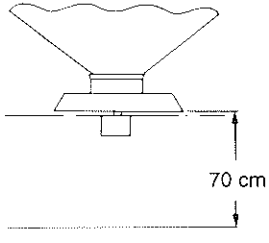
Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1	15,0	130	95	75	65	1¾ upwards
1½	31,0	260	195	155	130	1 upwards
2	51,0	430	320	255	215	½ upwards
2½	70,0	580	435	350	295	¼ downwards
3	88,0	730	550	440	365	¾ downwards
3½	101,0	840	630	505	420	¾ downwards
4	113,0	940	705	565	470	¾ downwards
4½	123,5	1030	775	620	515	¾ downwards
5	132,5	1100	825	660	550	½ downwards
5½	138,0	1150	865	690	575	½ downwards
6	142,0	1180	885	710	590	½ downwards

For spread widths of 10 and 15 metres see page 6 and 7.

CALCIUM NITRATE

Spread width 12 m

(without agitator)



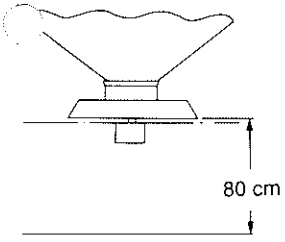
Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
1	24,0	200	150	120	100	½ upwards
1½	51,0	430	320	255	215	½ downwards
2	80,0	670	500	400	335	1 downwards
2½	103,0	860	645	515	430	1½ downwards
3	125,0	1040	780	625	520	1½ downwards
3½	145,0	1210	905	725	605	1½ downwards
4	160,0	1330	1000	800	665	1¼ downwards
4½	171,0	1430	1070	855	715	1¼ downwards
5	178,0	1480	1115	890	740	1 downwards
5½	184,0	1530	1150	920	765	1
6	187,0	1560	1170	935	780	1

For spread widths of 10 and 15 metres see page 6 and 7.

UREA - 46% N

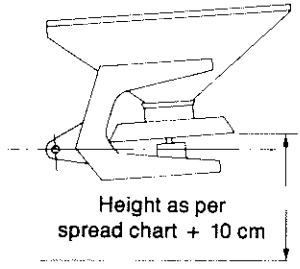
Spread width 10 M

(without agitator)

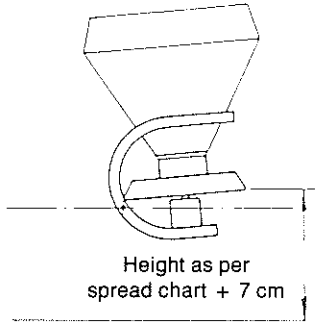


In order to convert kilos per hectar to lbs. per acre you must multiply by 0,9. - 500 kilos per hectar corresponds for instance to 450 lbs. per acre.

Register Position Quantity	Kg pr. min.	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
		6	8	10	12	
¾	8,0	80	60	48	40	2¼ upwards
1	15,0	150	115	90	75	1¾ upwards
1½	30,5	305	230	185	155	¾ upwards
2	46,0	460	345	275	230	¾ upwards
2½	61,5	615	460	370	310	1 upwards
3	77,5	775	580	465	390	1¼ upwards
3½	92,0	920	690	550	460	1½ upwards
4	103,5	1035	775	620	520	1¾ upwards
4½	112,0	1120	840	670	560	1¾ upwards
5	117,0	1170	880	700	585	2 upwards
5½	120,5	1205	905	725	605	2 upwards
6	121,5	1215	910	730	610	2 upwards

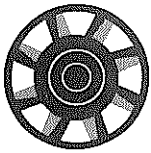


12 metres
Tilted around pivot,
longest vane to the rear
Kgs of fertiliser per ha
= spread chart×0,83



12 metres
Tilted around pivot,
longest vane to the rear
Kgs of fertiliser per ha
= spread chart×0,83

Revolutions per minute on the p.t.o. should be approx 570 r.p.m. when spreading on 12 metres spread width.



WHEAT

Spread width 11 M

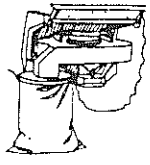
(without agitator)

Register Position Quantity	Kg fertiliser per ha Speed 6 to 12 km/hour				Register Position Lateral Spread Quantity
	6	8	10	12	
1	95				2½ upwards
1¼	175	130	105		1½ upwards
1½	250	185	150	125	1½ upwards
1¾		250	200	165	1½ upwards
2			250	210	1½ upwards
2¼				250	1½ upwards

OPTIONAL EXTRAS:

The following optional extras can be recommended for checking the spread width:

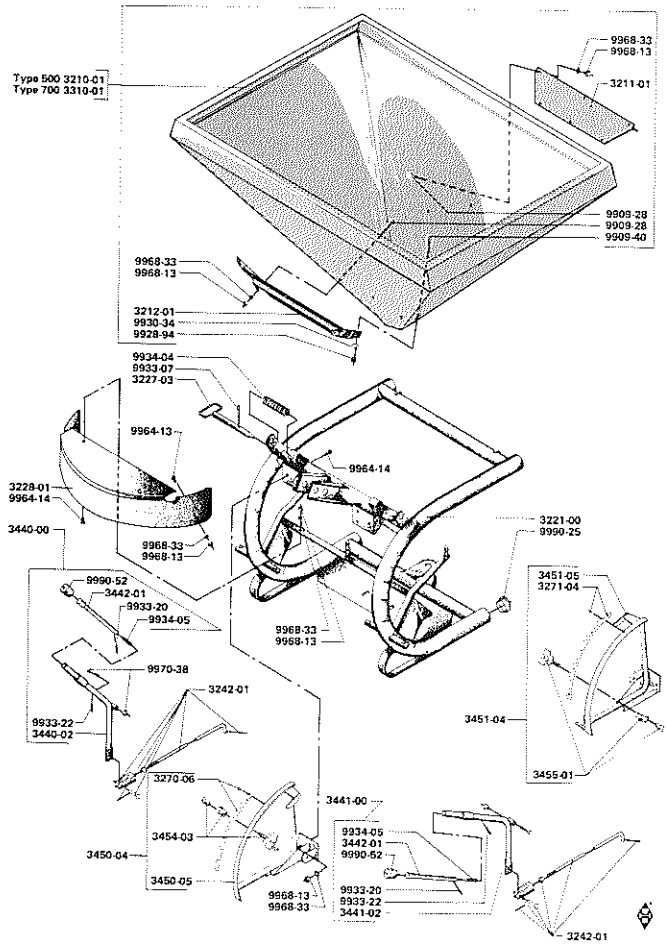
Test trays are available for checking the even distribution of fertilizer to both sides and for ensuring accurate bout matching, whatever material is being applied.



Calibration kit is making it possible to calibrate the spreader before starting to spread, so you can be sure of correct spreading quantity, whatever the material.

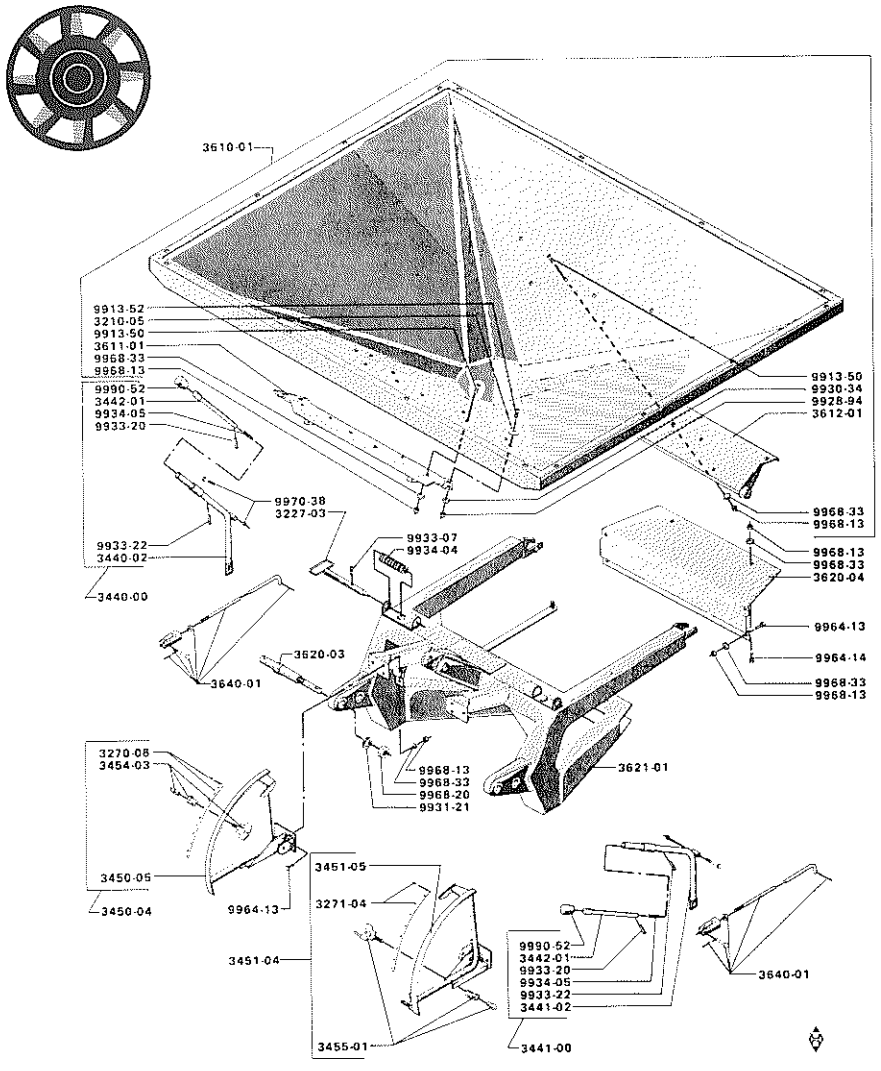
Ask for special leaflet and/or operation instructions.

Type B 500/B 700



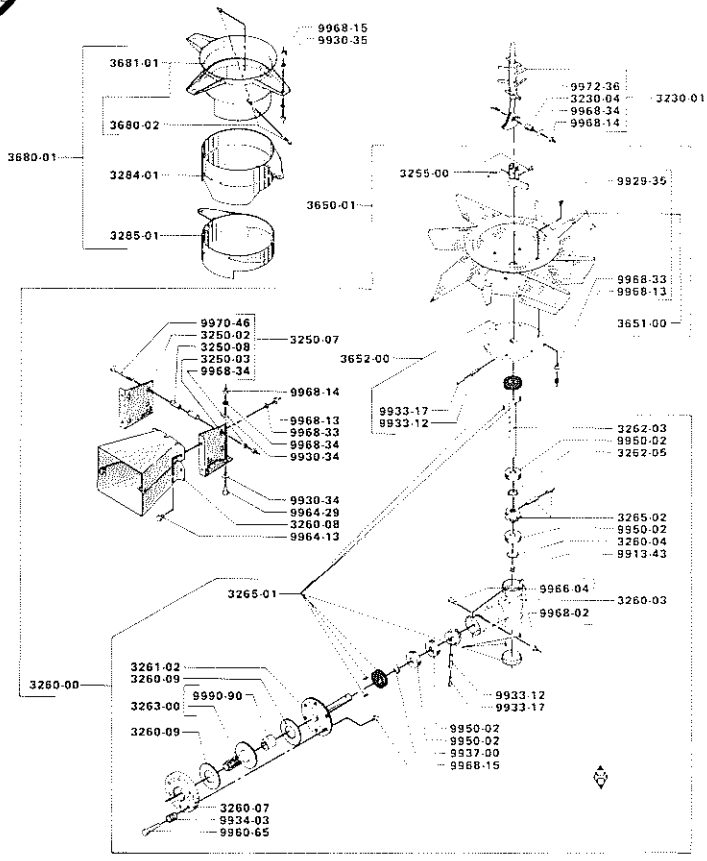
Part No.	Designation
3210-01	Hopper B 500
3210-05	Washer Ø10 mm
3211-01	Support,rear
3212-01	Support, front
3221-01	Frame
3227-03	Locking pawl
3228-01	Shield
3240-01	Adjustment handle, right
3241-01	Adjustment handle, left
3242-01	Connecting rod
3270-00	Scale bow, right, complete
3270-01	Scale bow, right
3270-06	Scale for quantity control
3271-00	Scale bow. left, complete
3271-01	Scale bow, left
3271-04	Scale for side control
3272-01	Scale stop, right
3272-02	Scale stop, left
3310-01	Hopper B 700
9928-94	Selflocking nut M10 galv.
9930-34	Washer Ø10 galv.
9933-07	Pin Ø6 x 35 mm
9934-04	Spring
9964-13	Set screw M8 x 15 mm. galv.
9964-14	Set Screw M8 x 20 mm. galv.
9964-29	Set screw M10 x 25 mm, galv.
9968-13	Nut M8 galv.
9968-14	Nut M10 galv.
9968-33	Starwasher M8 galv.
9970-38	Bolt M10 x 55 mm
9990-25	Plastic plug
9990-52	Rubber ball

Type BL 600



Part No.	Designation
3210-05	Washer, Ø10
3227-03	Locking pawl
3270-06	Scale for quantity control
3271-04	Scale for side control
3440-00	Handle, quantity adjustment, compl.
3440-02	Handle, quantity adjustment
3441-00	Handle, side adjustment, compl.
3441-02	Handle, side adjustment
3442-01	Releasing rod
3450-04	Scale bow, quantity adjustment, compl.
3450-05	Scale bow, quantity adjustment
3451-04	Scale bow, side adjustment, compl.
3451-05	Scale bow, side adjustment
3454-03	Scale stop, quantity adjustment, compl.
3455-01	Scale stop, side adjustment, compl.
3610-01	Hopper, BL 600
3611-01	Support, front
3612-01	Support, rear
3620-03	Lower link pin
3620-04	Shield
3621-01	Frame
3640-01	Connecting rod
9913-50	Bolt, M8 x 16 mm
9913-52	Bolt, M10 x 25 mm
9928-94	Selflocking nut, M10
9930-34	Washer, Ø10
9931-21	Washer, M24
9933-07	Pin, Ø6 x 35 mm
9933-20	Pin, Ø5 x 55 mm
9933-22	Pin, Ø3 x 25 mm
9934-04	Spring
9934-05	Spring
9964-13	Set screw, M8 x 15 mm
9964-14	Set screw, M8 x 20 mm
9968-13	Nut, M8
9968-20	Nut, M24
9968-33	Starwasher, M8
9970-38	Bolt, M10 x 55 mm
9990-52	Rubber ball

Type BL 600 and B 500/B 700



No.	Designation
3230-01	Agitator
3230-04	Spacer
3250-02	Console, right
3250-03	Console, left
3250-07	Console set
3250-08	Spacer
3255-00	Spreading device
3260-00	Gear, complete
3260-03	Gear housing
3260-04	Washer
3260-07	Plate for clutch
3260-08	Shield
3260-09	Clutch plate
3261-02	Drive shaft
3262-03	Exit shaft
3262-05	Spacer for gear-wheel
3263-00	Hub
3265-01	Gasket set
3265-02	2 gear wheels with pins
3284-01	Middle ring
3285-01	Outher ring
3650-01	Spreader aggregate
3651-00	Spreader disc with bolts
3652-00	Hub with pins
3680-01	Spreader box, compl.
3680-02	3 thread pins with nut
3681-01	Inner ring w/thred pins
9913-43	Lock screw, M10 x 20 mm
9929-35	Screw, M8 x 20 mm
9930-34	Washer, Ø10 mm
9930-35	Washer, Ø12 mm
9933-12	Pin, Ø8 x 45 mm
9933-17	Pin, Ø5 x 45 mm
9934-03	Spring
9937-00	Seeger circlip, UK 25 x 1,2 mm
9950-02	Ball-bearing 6305-2RS
9960-65	Bolt, M12 x 70 mm
9964-13	Set screw, M8 x 15 mm
9964-29	Set screw, M10 x 25 mm
9966-04	Set screw, M6 x 15 mm
9968-02	Nut, M6
9968-13	Nut, M8
9968-14	Nut, M10
9968-15	Nut, M12
9968-33	Starwasher, Ø8 mm
9968-34	Starwasher, Ø10 mm
9970-46	Bolt, M10 x 110 mm
9972-36	Set screw, M10 x 45 mm
9990-90	Bronce bearing