



INO BREŽICE d.o.o.
8262 Krška vas 34 b, Slovenija
Tel.: ++386 (0) 749 59 233;
Fax: ++ 386 (0) 749 59 151
E-mail: ino@inobrezice.si
Internet: www.inobrezice.com

FERTILISER SPREADER FERTI, PK



**IT IS MANDATORY TO READ AND FOLLOW THESE
INSTRUCTIONS BEFORE CARRYING OUT ANY OPERA-
TION!**

CONTENT


1. General information.....	4
1.1 Purpose of use.....	4
1.2 Identification of the machine.....	4
1.3 Warranty.....	5
2. Technical data.....	6
2.1 Technical specification.....	6
3. Safety.....	7
3.1 General safety rules.....	7
3.2 Attachment on the tractor and transport.....	8
3.3 PTO drive.....	9
3.4 Maintenance and servicing.....	10
3.5 Warning decals.....	11
4. Description and operating.....	12
4.1 Hydraulics (optional equipment).....	12
4.2 Side spreading device (optional equipment).....	13
5. Attachment.....	13
5.1 Appropriate length of the PTO shaft.....	15
5.2 Stability of the tractor.....	16
6. Transport to the working area.....	16
7. Adjustment.....	17
7.1 Working width and height adjustment.....	17
7.2 Working width adjustment.....	17
7.3 Spreading adjustment.....	18
8. Operating.....	20
9. Cleaning, maintenance and servicing.....	21
9.1 At the end of the season.....	22
9.2 Demolition when out of order.....	22
10. Spare parts.....	23

Dear Customer!

We are glad that you decided to buy our product.

We would like to thank you for your trust. We are sure that you won't be disappointed with your choice. A quality of the material, appropriate technical characteristics and after sales services go together with your choice. For eventual questions our stuff is always at your disposal.

We will specially respect your suggestions and observations that can be of a great help for future development of the machine Through all the past of our company experiances from the praxis represent a basement of development and innovations.



INO d.o.o., General Manager
Branko Kos

1. General information

This operation and maintenance manual is intended to the operator. It consists of operating instructions, maintenance part and spare parts list for the machine.

It is mandatory to follow these instructions in order to prevent events which could endanger the operator's, other people's and animal's safety, apart from the correct functioning of the machine. In case of doubt do not experiment, call INO after-sales service instead, or a specialized INO dealer.



It is mandatory to read these instructions to understand the operating of the machine!

1.1 Purpose of use

Fertiliser spreader FERTI is purposed for spreading of dry fertilisers in granules, powder or crystalized, for spreading of lime and also for spreading seeds. The use of fertiliser spreader is possible till max slope of the terrain 20% .

1.2 Identification of the machine

Each machine is fitted with an identification plate with the following data: producer and address, CE sign, name of the machine, type, weight, identification number and year of production.

Fig. 1





1.3 Warranty

INO does not accept any responsibility in the case of not respecting these operating instructions.

This machine is in conformity with the following provisions of law:

- SIST-EN 292-1, SIST-EN 292-2, SIST-EN 745



A producer can ensure normal operating of the machine only with use of original spare parts!



INO is not responsible for any damage or injuries, if the user doesn't consider the rules in this book!



INO is not responsible for any damage or injuries due to improper use of the machine!

After receiving the machine it is necessary to check that the machine was not injured during transport and that it is equipped with all basic and additional equipment (if ordered). A customer can claim any missing or damaged part in the period of 8 days after receiving the machine.

INO does not accept any responsibility in the case of:

- Improper maneuvering the machine,
- Improper maintenance,
- Unauthorized repairing or modifications on the machine or use of non-genuine spare parts,
- Non-respecting these rules,
- Overloading of the machine

Some exceptions, that can cause irregular operating in spite of proper use of the machine.

- Different structure of the fertiliser or spreader
- side spreading on sloping terrain,
- stopped flow from the hopper (foreign objects, rest of package, wet fertiliser),
- worn parts of the machine (spreading vanes,...)

2. Technical data

Fig. 2



1. hopper,
2. holding frame
3. regulation system
4. 3-point hitch I and II cat..

5. deflector,
6. spreading plate,
7. spreading vanes

2.1 Technical specification

	FERTI			FERTI PK			
	300	400	500	180	300	400	500
Volume of the hopper (l)	300	400	500	180	300	400	500
Weight (kg)	54	58	59	62	66	73	76
RPM (min ⁻¹)	540	540	540	540	540	540	540
Spreading width (m)	6-18	6-18	6-18	6-18	6-18	6-18	6-18



3. Safety



3.1 General safety rules

1. Before starting, checks on the tractor and the machine must be carried out as regards: functionality, road safety, accident prevention rules.
2. Together with the operating and maintenance rules for the machine it is necessary to consider general health and security rules and warnings.
3. Before starting it is mandatory to know everything regarding the equipment and operating of the machine. Reading instructions among operating is too late.
4. Security and warning decals on the machine are very important. Respect them always.
5. Whenever using public roads, respect traffic rules.
6. Never wear loose or fluttering clothes.
7. Before starting check the surrounding area for the likely presence of children and/or animals.
8. Never carry passengers on the machine.
9. Specially take care at mounting and dismounting the machine from the tractor.
10. Start the machine only if all guards of the machine are fit on proper places .
11. It is forbidden to stand in the range of operating of the machine.
12. Do not enter the working zone of the PTO shaft. It is dangerous to approach the rotating parts of the machine.



13. Keep a safety distance from drive parts outside of the machine (PTO shaft, spreading disc, agitator).
14. Never overload the machine and the tractor. Use the ballast if necessary.
15. Before leaving the tractor with the machine attached disconnect the tractor, put the machine steadily on the ground (with the hydraulic lift), apply the hand brake and if the ground is steeply sloping, wedge the tractor. Take out the starting key.
16. Do not enter the zone between the tractor and the machine. It is strongly forbidden to be in this zone if the tractor is not properly disconnected, hand brake applied and starting key taken out.
17. Take special care to avoid any injuries on the parts driven through outside drive (hydraulics).
18. Filling in the hopper is allowed only at tractor disconnected and bottom of the hopper closed.
19. It is forbidden to put any foreign objects into the hopper.
20. Do never detach the machine from the tractor when the hopper is full. It is a danger of overturning.



3.2 Attachment on the tractor and transport

1. Before attaching the machine on or detaching it of the tractor be sure that hydraulic lift system is in a neutral position.
2. check that a category of 3-point linkage on the tractor corresponds to that one on the machine.
3. Be careful! There is a danger of injuries when working near or with 3-point linkage.



4. It is forbidden to be in the zone between the tractor and the machine while working with the hydraulics
5. During transport secure the lever of hydraulic lift to avoid any unplanned moving the machine.
6. Adjust driving speed to the road conditions.
7. Never leave the tractor cab when the tractor is working



3.3 PTO drive

1. Use only PTO shafts with all guards, as directed by the producer.
2. All guards on PTO shaft must be in good order .
3. Take care that all guards on the PTO shaft are in proper position during transport or operating. Respect the producer's instructions.
4. The PTO shaft must be assembled or diassambled only with the engine stopped and the starting key removed.
5. The guards of the PTO shaft must be fixed to the machine and to the tractor with chains, to prevent rotation.
6. Before starting always check that the speed and the rotational direction correspond to those on the machine.
7. At some tractors a number of rotations depends on the speed and a direction of rotating depends on the direction of driving. Take care about that.
8. Before starting the PTO shaft be sure, that noone is in the danger area.
9. Never try to start the PTO shaft when the tractor engine is disconnected.



10. It is forbidden to be in the zone of drive axle exit, when it is engaged.
11. After the drive is disconnected wait that the drive axle stops to rotate completely. Never approach before it stops.
12. Never carry out maintenance of a machine or tractor whilst the engine is running. The engine should be switched off and the key removed.
13. If the PTO shaft is damaged, immediately stop with any operating.



3.4 Maintenance and servicing

1. Never start or continue any maintenance or servicing with the machine if the tractor or the drive axle are engaged
2. Always remove the starting key after you stopped the tractor.
3. Periodically check that bolts and nuts are tighten properly.
4. At maintaining it is sometimes necessary to lift the machine. It is mandatory to put under the machine an appropriate support to avoid falling the machine at eventual damage on hydraulics.
5. Used oils and greases should be removed according to the rules.
6. Always disconnect electric cables on the tractor before any welding or other operation when using electricity is necessary.

3.5 Warning decals



1. Always take off previously the machine of the tractor and read the instructions carefully before starting servicing and or lubrication operations.



2. Keep at a safety distance from the machine to avoid the risk of projection of objects.



3. Never remove the guards while the parts of the machine are moving. It is dangerous to injure the hands.



4. Keep at a safety distance from the machine to avoid the risk of cutting the feet.



5. It is forbidden to mount on the machine because of the risk of fall.

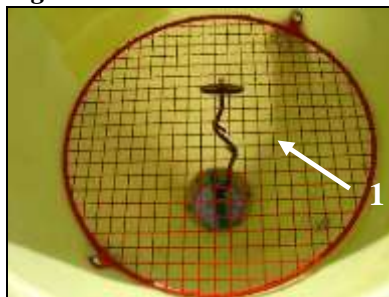
4. Description and operating

An important part of fertiliser spreader is spreading disc (*Fig. 4/1*), that is driven through PTO shaft and the gearbox. There are 6 vanes mounted on the spreading disc (Fig. 4/2). Dosing is controlled with regulation levers. The position of the vanes, placed by a producer, is the most optimum for optimal and uniform distribution of the fertiliser. With increasing the angle we reach more intensive spreading on the right side looking into the direction of driving. For more intensive left side spreading we decrease the angle of the vanes.

Fig. 4



Fig. 5



4.1 Hydraulics (optional equipment)

The machine can be equipped with hydraulic regulation of dosing (*Fig. 6*) for easier work.

Fig. 6



4.2 Side spreading device (optional equipment)

Side spreading device serves for spreading only in one row, what is very useful in orchards and vineyards. With this device we spread fertiliser only on that place where it is necessary and with that reduce the costs for fertiliser.

Fig. 7



5. Attachment



Attachment the machine on and detachment off the tractor is serious operation, therefore read these instructions very carefully.



At both operations first check that there is no any persons or animals nearby.



Fertiliser spreader with full hopper put down slowly, not less than in 2 seconds.

Before doing an operation check:

- If the machine is in a good condition,
- If all components are greased well,
- If rpm on the tractor correspond to those allowed for the machine,
- If spreading vanes and regulating levers are fixed well.

Fig. 8



With tractor drive backwards to reach the machine. The lower levers of the tractor must reach lower 3-point hitch on the machine, connect and fix them with pivot pin. The upper lever on the tractor adjust for fertiliser spreader that spreading disc is in a horizontal position, connect upper hitch point with pivot pin. Adjust the levers on the tractor in the way that they prevent against side movement during transport.



Attached machine must be in a parallel with the tractor.

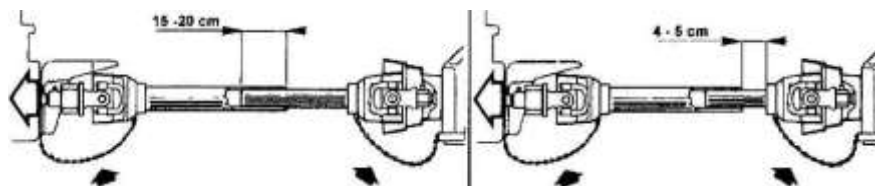


Spreading disc must be in a horizontal position.

5.1 Appropriate length of the PTO shaft

After attaching the machine lift the machine that PTO shaft will be in a horizontal position and that a distance between the machine and tractor is the smallest. Split the tubes into both parts and put one part on the tractor and another on the machine. At the machine in this position, minimum overlapping of the tubes mustn't be less than 150 mm. Cut too long part of the tube and clean the edges. Cut on the proper length also the guard as on fig. 10. Measure the length when the PTO shaft is in horizontal position. Grease before putting them together.

Fig. 9: Appropriate length of PTO shaft

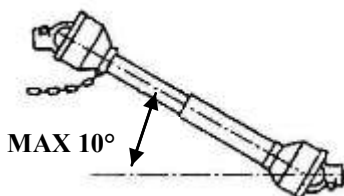


Too long PTO shaft can seriously damage tractor or machine.



Max. allowed angle is 10°!

Fig. 10



Never put PTO shaft on the tractor without all guards and chains fitted properly.

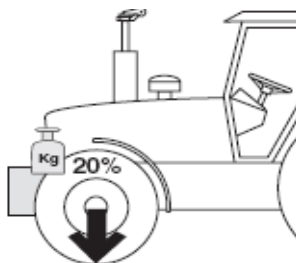
5.2 Stability of the tractor

At fullfilled hopper a tractor is sometimes unstable because of the weight of the machine and material in the hopper. Put a ballast on the front if necessary.



At attachment of the machine on the tractor always take care about allowed weight of the attachment and axle load. First axle of the tractor should always be loaded with min.20% of the weight of the tractor itself.

Fig. 11



6. Transport to the working area



Whenever use public roads for transport of the machine, respect traffic rules. The machine must be equipped with proper signalisation equipment and warning plates.



Avoid to transport the machine with fullfilled hopper. Fill in the hopper on working area.



During transport secure a lever for hydraulic system on the tractor to avoid unexpected lowering the machine.

7. Adjustment

7.1 Working width and height adjustment

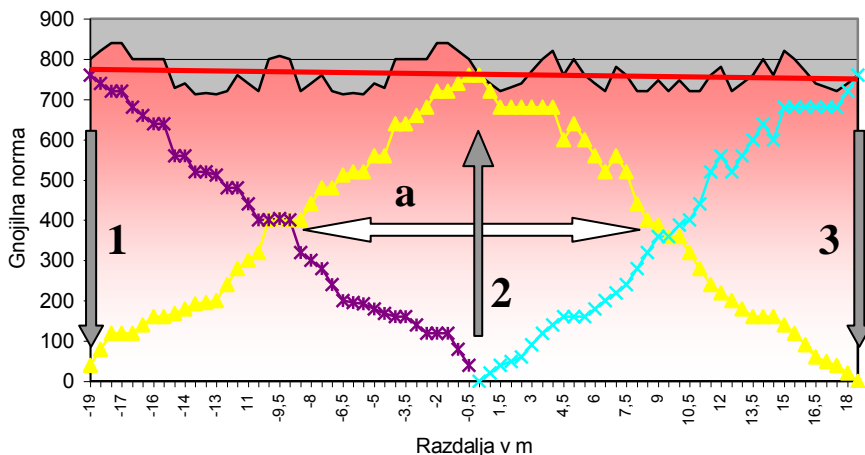
After attaching the machine on the tractor adjust the working height with lower levers on the tractor (60-70 cm from the ground). Working height influences on the spreading width.

Fig. 12



7.2 Working width adjustment

Spreading width depends on type of fertiliser, working height of the machine and weather conditions. Spreading width with this machine is possible between 6m and 18m. With setting the machine higher, bigger spreading width can be reached.



Graph. 1: Distribution of the spreader in 3 working lines (a-working width)

7.3 Spreading adjustment

The quantity of the fertiliser spread is controlled with regulating levers. A scale for regulation is between 2-9. Fix the levers with the bolt after adjusting the quantity desired.

Fig. 14





Table 2: Quantity of the fertiliser spread per 1 ha at different working widths and different working speed, at rpm 540,

Type of fertiliser	W. speed	Spread width	Quantity spread in kg/ha							
	km/h	m	2	3	4	5	6	7	8	9
Large granular	4	18	148	275	451	712	1042	1137	1278	1400
	8		74	138	225	357	521	568	639	700
	12		49	92	150	238	348	379	426	467
Medium Granular	4	16		348	502	795	1037	1149	1254	1325
	8			175	251	398	519	575	627	663
	12			117	167	266	347	384	418	442
Fine Granular	4	12	126	212	361	593	838	944	1080	1179
	8		63	107	186	297	419	472	541	590
	12		41	71	124	199	279	314	360	394
Ammon. Silphate	4	7	253	413	628	998	1386	1518	1707	1830
	8		127	206	314	499	693	759	853	915
	12		84	138	210	333	462	506	569	610
Thomas meal	6,5	6			640		1422		1887	
	13				320		711		944	

8. Operating

Fig. 16



Max. Rpm on PTO shaft is 540 min⁻¹!



Before operating check that the machine is in parallel position with the ground.



Fill in the hopper on working area.



Take care that there are no people and animals in working area of the machine.



Before activating the PTO shaft open dosing gates on the bottom of the hopper.

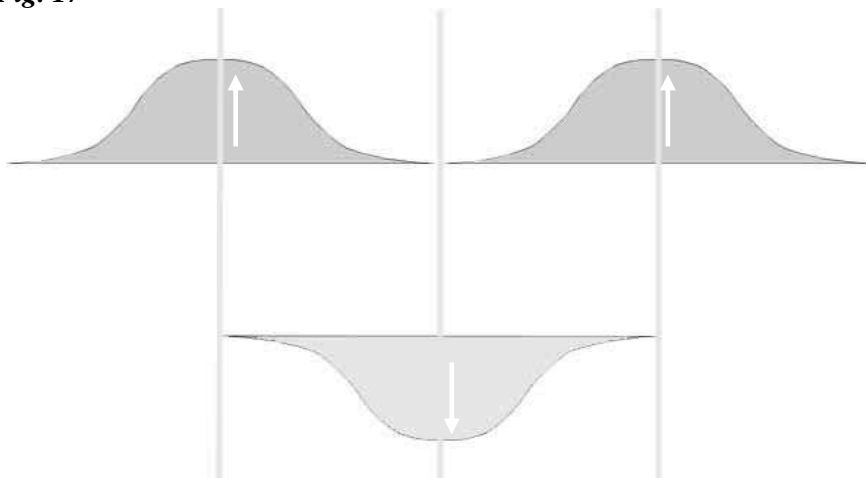


Whenever the wind blows more than 5m/s we do not recommend spreading.

Always cover half of the spreading row with next spreading row to reach uniform covering area with the fertiliser (Fig. 17).



Fig. 17



Immediately after operating clean the machine to avoid the corrosion.

9. Cleaning, maintenance and servicing



All maintenance, cleaning and repair operations must be carried out with the machine firmly lowered to the ground and detached from the tractor, or with disconnected PTO, engine off and starting key out.



After disconnecting the Pto shaft wait that all rotating parts stop to rotate.



After use grease regulating bars.

After use clean the machine with the water with special care on the bottom of the hopper and dosing gates. Dry the machine and protect with anticorrosive liquid. Leave dosing gates open.



Grease the bolts and washers on regulating levery to keep their functionality.

For long and proper use it is necessary that spreading disc with vanes is in good condition. Vanes must be changed after they are worn. Their working life depends on a type of fertiliser, quantity of spreading and regular maintenance.

After the end of the season clean the machine, dry and protect with anti-corrosive liquid.

9.1 At the end of the season

After the end of the season clean the machine, tighten the bolts, change damaged parts and protect with oil all parts with damaged paint. Store on a dry place.

9.2 Demolition when out of order

If the machine is out of order, all its parts that might cause dangers have to be made inoffensive. All the operations and the disposal have to be carried out in total respect of the present provisions of law on the subject.

10. SPARE PARTS



We reserve to modify the technical data and characteristics of the machines at any moment without prior notice.



A producer is obliged to supply the spare parts min.7 years after the sale of the machine.



At ordering the spare parts always add the following details: type of the machine, serial number and year of the production. All data are on the identification plate. See the sample order below.

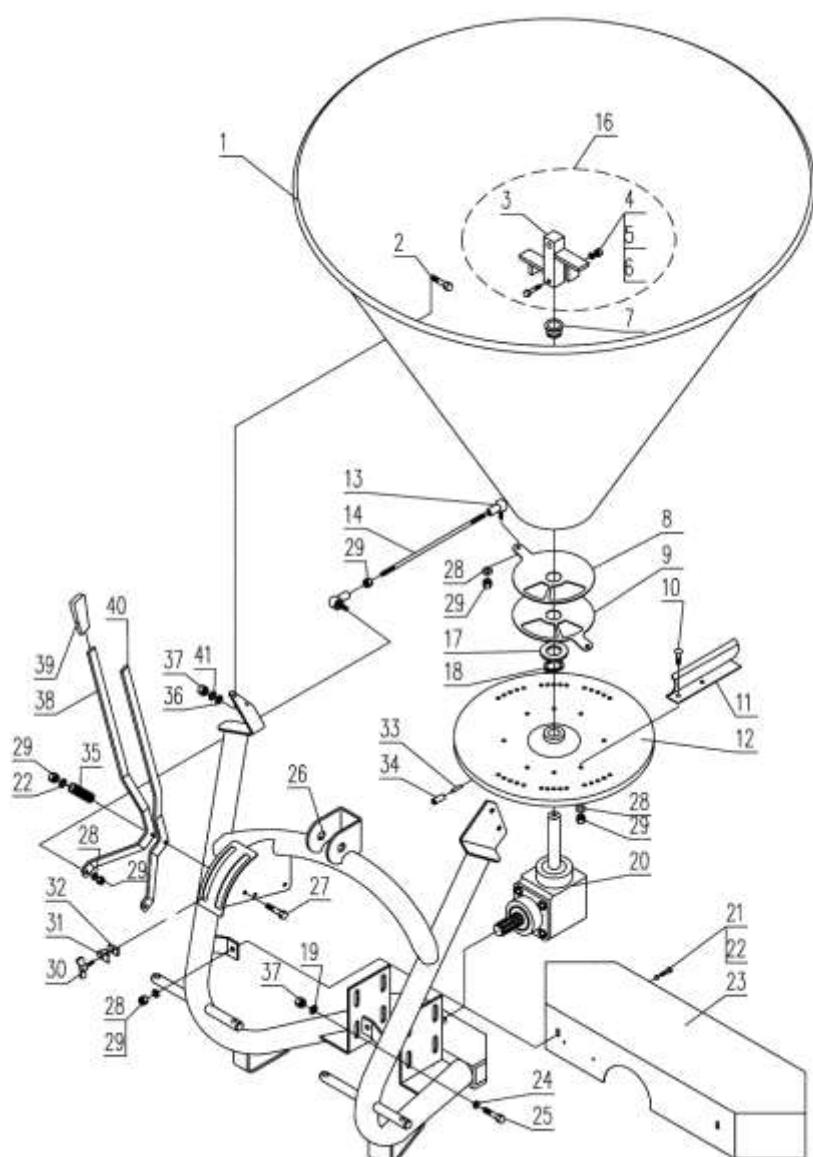
machine	type	Serial nr	year	Pos	Part nr	Name	pc
F.spreader	FERTI	333	2006	3	016159	agitator	1

Service department:

Tel.: ++386 (0)7 49 59 233; (0)7 49 59 306



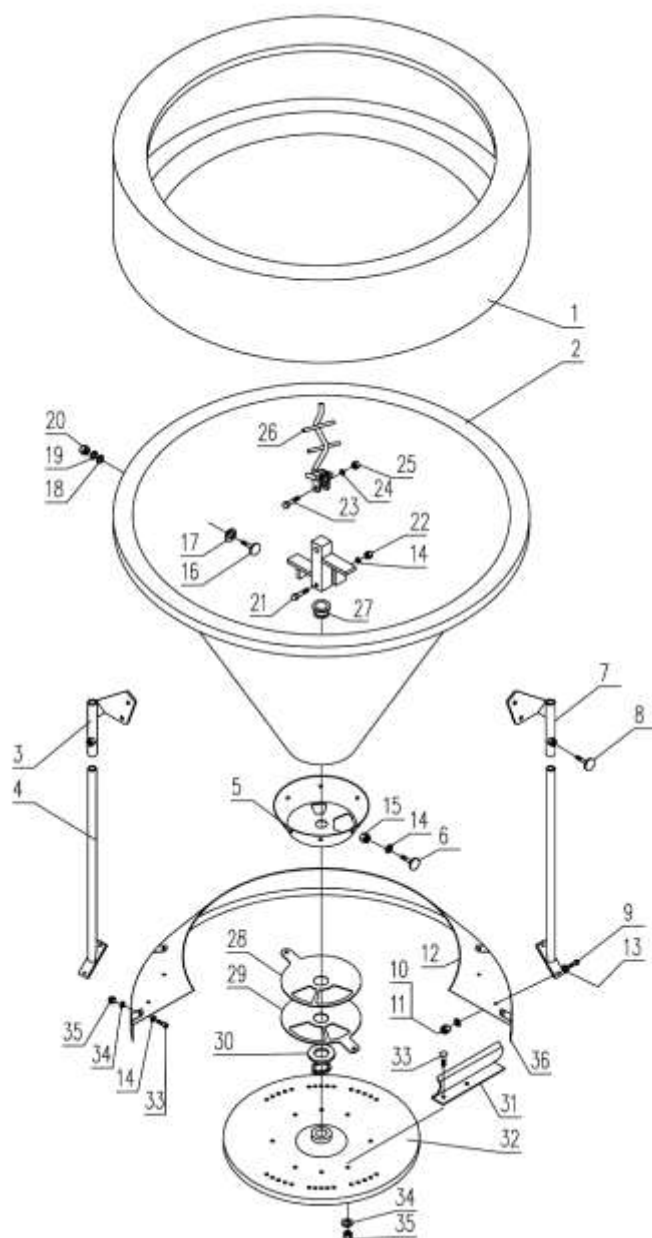
A



**A**

Pos.	Name	Part nr.	Pc
A	FERTI 300/400/500		
1	HOPPER FERTI 300	016140	1
	HOPPER FERTI 400	016141	1
	HOPPER FERTI 500	016142	1
2	BOLT M10X20	011625	5
3	AGITATOR FERTI CPL.	016159	1
4	BOLT M8X40	016161	1
5	WASHER 8	010218	1
6	NUT M8 DIN 982	010201	1
7	BUSHING	016146	1
8	GATE UPPER	016806	1
9	GATE LOWER	016805	1
10	BOLT M8X16	012024	12
11	VANE FERTI	016145	6
12	SPREADING DISC	012933	1
13	CONNECTION	016157	4
14	CONNECTION BAR FERTI –R	016151	2
17	WASHER 32,5/60	016160	1
18	SLIDE PC 32	011512	1
19	SPRING WASHER 10	010232	3
20	GEARBOX FERTI	010663	1
21	BOLT M8X20	010249	2
22	WASHER 8	012439	7
23	SHIELD	016150	1
24	WASHER 10	012440	6
25	BOLT M10X110	011626	3
26	FRAME FERTI	016139	1
27	BOLT M8X70	017715	1
28	SPRING WASHER M8	010231	18
29	NUT M8	010188	21
30	BOLT M6X15 PVC	017490	1
31	REGULATOR	016841	1
32	PLATE FERTI	016842	1
33	PIN	010329	1
34	PIN	010999	1

A			
Pos.	Name	Part nr	Pc
A	FERTI 300/400/500		
35	SPRING 12	010533	1
36	WASHER 10	010219	5
37	NUT M10	010189	5
38	LEVER R	016148	1
39	HANDLE PVC FERTI	016152	2
40	LEVER L	016149	1
41	SPRING WASHER 10	010232	5



B			
Pos.	Name	Part nr	Pc
	FERTI P-K 180/300/400/500		
1	HOPPER EXTENSION 100L	017012	1
1	HOPPER EXTENSION 200 L	017013	1
2	HOPPER PVC 300 L	016998	1
2	HOPPER PVC 180 L	018632	1
3	DEFLECTOR HOLDER UPPER- R	017151	1
4	DEFLECTOR HOLDER LOWER	016227	2
5	BOTTOM OF THE HOPPER	017049	1
6	BOLT MX16	017050	6
7	DEFLECTOR HOLDER UPPER L	016222	1
8	BOLT M12X25	016908	1
9	BOLT M8X16	012024	4
10	WASHER 8	010231	4
11	NUT M8	010188	4
12	DEFLECTOR – OPTIONAL EQT	016239	1
13	WASHER 8	010218	4
14	WASHER 8 A2	017763	15
15	NUT M8	017052	6
16	BOLT M10X30 A2	016987	5
17	WASHER 12 A2	017037	5
18	WASHER 10 A2	017059	5
19	WASHER 10 A2	017060	5
20	NUT M10	017061	5
21	BOLT M8X40 A2	012935	1
22	NUT M8 A2	019827	1
23	BOLT M12X60 A2	022301	1
24	WASHER 12 A2	017039	1
25	NUT M12	017042	1
26	AGITATOR – OPTIONAL EQT	019980	1
27	BUSHING	016196	1
28	OPENING	016883	1
29	OPENING	016884	1
30	WASHER	017084	1
32	SPREADING PLATE INOX	016144	1
33	BOLT M8X16 A2	012934	21
34	WASHER 8 A2	017051	21
35	NUT M8	012936	21
36	DEFLECTOR EXTENSION – OPT.	018709	1



OPTIONAL EQUIPMENT

	SIDE SPREADING DEVICE	018972	
	ADD.AGITATOR	017009	
	NET	016902	
	HYDRAULIC REGULATION	017753	
	LIGHTS CPL.	017180	
	HOPPER COVER 180	019042	
	HOPPER COVER 300	012940	
	HOPPER COVER 400	017936	
	HOPPER COVER 500	017937	
	SPREADING DEFLECTOR	016907	
	DEFLECTOR EXTENSION VERTICAL	019014	



INO BREŽICE d.o.o.
8262 Krška vas 34 b, Slovenija
Tel.: ++386 (0) 749 59 233;
Fax: ++ 386 (0) 749 59 151
E-mail: ino@inobrezice.si
www.inobrezice.com



V-01/11.06