DECLARATION OF CONFORMITY WE

According to the Decree of the Minister of Economy of 21 October 2008 on essential requirements for equipment (Journal of Laws No. 199, item. 1228) and a Directive of the European Parliament and Council Directive 2006/42 / WE

JAR-MET Spółka Jawna Dariusz Sińczuk, Tomasz Sternicki
Ul. T. Kościuszki 94, 07-100 Węgrów

The person responsible for preparation of technical documentation machines:

First name and last name ……, address……

acting as a producer, I declare with full responsibility that the:

Machine: **SUSPENDED ONE DISCS SPREADER**

Type/model:

Serial number :

Year of production:

Function: …..……..…

to which this declaration relates, complies with all relevant provisions contained in:

Directive of the European Parliament and Council Directive 2006/42 / WE of 17 May 2006 on machinery (Acts. Office. The EU L157 of 09.06.2006, p. 24-86);
Regulation of the Minister of Economy of 21 October 2008. On essential requirements for machines (Dz. U. 199, item. 1228)
Regulation of the Minister of Labour and Social Policy of 14 March 2000 on occupational health and safety manual handling (Dz. U. No. 26/2000 pos. 313 with later. d.);
Regulation of the Minister of Agriculture and Food Economy of 12 January 1998, on occupational health and safety when operating tractors, machines, tools and technical uzrządzeń used in agriculture (Dz. U. 1998. No. 12, pos. 51)
Regulation of the Minister of Labour and Social Policy of 23 June 2014, on maximum permissible concentration and intensity of harmful factors in the work environment (Dz. U. 2014. No. 0, pos. 817)
Announcement of the Minister of Transport, Construction and Maritime Economy dated 6 June 2013, on the publication of the consolidated text of the Regulation of the Minister of Infrastructure on the technical specifications of vehicles and their scope of necessary equipment (Dz. U. Pos. 951/2013)

To the conformity evaluation the following harmonized standards:
PN-EN ISO 14017:2005+A2:2009 PN-EN ISO 12100:2012 PN-EN ISO 4254-1:2013

and the standards and regulations:
PN- ISO 3600:1998 PN – ISO 11684:1998

This declaration of conformity loses its validity, if the machine is changed or converted without the manufacturer's consent

An integral element of the machine is manual.
Transfer of machinery to another person only possible in a position to full fitness technical, accompanied by the instruction manual and declaration of conformity.

Węgrów, …… ……
Place and date of issue *Name and function of the signatory*

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IDENTIFICATION

ONE DISC SPREADER

Suspended one disc spreader has a rating plate, fitted in the front part of the frame on the left side (figure 1). Basic data which serves for identification of the machine is put there: manufacturer's name, machine symbol, serial number, year of production.

Data placed on the rating plate serves for identification of the spreader and ought to correspond to the following data, filled in during the sales.

Symbol……..……..
Year of production……..……
Serial number……..

IT IS ADVISED THAT THE SUPPLIER OF A MACHINE, BOTH NEW AND USED ONES, KEEP THE SIGNED BY THE PURCHASER CONFIRMATION OF RECEIPT OF MANUAL ALONG WITH THE MACHINE

THE MANUAL CONSTITUTES MACHINE BASIC EQUIPMENT

KEEP THIS INSTRUCTION FOR FUTURE REFERENCE

TABLE OF CONTENTS

1. INTRODUCTION

This manual is attached to each machine in order to present the construction, operation and adjustment of a one disc spreader. Its aim is also warning against existing or possible threats. The instruction also includes information concerning preparation for transportation on public roads.

Strict compliance with recommendations included in the content of the instruction will ensure long-term and non-failure operation and contribute to reduction of operating costs of the machine.

Each chapter of the instruction (according to the contents) presents proper issues in detail. If there is any unclear information for the user, they can obtain exhaustive explanation by writing to the manufacturer's address (the address is on the cover) – you are asked to give: exact address of the purchaser of the machine, machine symbol, serial number, year of production, year and number of issuing the manual.

Terms used in the manual: left side, right side, back and front – refer to the settings of an observer with his face turned according to the direction of the machine drive.

Warranty proceedings regulations and rights resulting from them, are given in the warranty card, attached to each spreader.

2. INTENDED USE OF THE SPREADER

Suspended one disc fertilizer spreader is intended to operate exclusively in the agriculture. Using it for other purposes shall be understood as using it against the intended use. Meeting requirements referring to operation of the machine, its maintenance and repairs according to recommendations of the manufacturer and strictly complying to them states the condition of using it according to the intended use.

The machine shall be employed, operated and repaired only by people acquainted with its detailed characteristics and with procedures in the field of safety.

Regulations concerning accident preventions and all the basic regulations in the field of occupational health and safety and also traffic regulations shall be always abided by.

Unauthorized modifications introduced to the machine without the manufacturer's consent absolve the manufacturer from liability for any resulting damages and harms and entail a loss of warranty.

Fertilizer spreader is intended to shallow seeding of granular and powder mineral fertilizer on cultivated fields, meadows, stubbles and pastures. The spreader is a machine suspended on a three-point suspension system, driven by a tractor power with a take-off shaft. Centrifugal one disc seeding system ensures the seeding width of mineral fertilizer from 10 to 14 m.

Due to toxic action of mineral fertilizers during operation and maintenance of the spreader one shall strictly obey to basic regulations of occupational health and safety included in chapter 3 and valid regulations in a given country.

3. SAFETY PRECAUTIONS AND WARNINGS

3.1. Symbols: meaning and application

In the present manual the following symbols are used, in order to draw the reader's attention and stress certain particularly important aspects requiring discussion.

DANGER
This indicates danger, with possible serious accident risk. Not obeying recommendations marked with this sign may cause a situation of a serious risk of sustaining an injury by the operator and/or people nearby!
Obey strictly these recommendations!

CAUTION	The symbol indicates possibility of damaging the machine or other personal object of the operator and demands to be cautious. It is important advice which should be paid special attention!

REMEMBER	The symbol indicates advice or notice regarding key functions or useful information concerning proper functioning of the machine.

3.2. Expected use

One disc fertilizer spreader of JAR-MET company has been designed, built and adjusted to work in agricultural production. It serves to shallow seeding of granular and powder mineral fertilizers on cultivated fields, meadows, stubbles and pastures. The machine works after mounting it to a tractor and is driven by a take-off shaft through PTO shaft. The spreader needs to be aggregated only with recommended tractor classes, see technical characteristics.

REMEMBER	Regulations concerning intended use and configurations, provided for this machine are not the only ones, which are exclusively allowed. The machine shall not be employed for other purposes than those, which are provided for it. The regulations given in this manual do not substitute obligation towards present regulations with force of a statute, referring to standards concerning safety and prevention from misadventure prevention, but they summarize them.

CAUTION

While lending the spreader to another person, the manual shall be attached to the machine.

3.3 Expected threats in operating the spreader

When operating the spreader according to the intended use, some threats for human life and health can be predicted. In order to avoid occurring threats, it is essential to become acquainted with usage regulations and operation of the spreader in detail. It is necessary to pay special attention to spreader assembles and situations posing threats for the operator and people nearby:

- rotating spreading disc,
- rotating PTO shaft,
- mechanical threat caused by hitting or abrasion made by spreader construction parts,
- threat of being crushed while staying near spreader lower rods while mounting on a tractor,
- threat resulting from throwing mineral fertilizer by the spreader disc,
- threat resulting from stability loss,
- threat resulting from contact with chemical fertilizer used at seeding,
- threat resulting from negligence in using personal protective equipment.

3.4. Other risk elements

Although JAR-MET® company takes responsibility for pattern-designing, construction in order to eliminate danger, however certain risk elements during the spreader operation are unavoidable.

Danger of being caught or hurt caused by sticking-out spreader parts during loading the tank and during operation of the spreader. Before beginning above activities, one shall make sure there are no people nearby.

Danger of being crushed during aggregation, lifting or lowering the spreader. Keep extreme caution during performing these activities, check whether there are any people within the reach of the spreader.

 **Danger of being pulled into or caught** by rotating drive parts and a seeding disc. Keep safe distance when the rotating parts are in motion. The operator and other people shall not approach the machine while it is operating.

 **Danger of throwing fertilizer by the spreader** during operation. Keep extreme caution during the spreader operation. The operator and other people shall not approach the machine while it is operating. Keep safe distance from the operating machine.

 **Danger of stability loss.** While filling the tank, the spreader shall be connected to the tractor. When stored, the spreader should be set on the tough and flat ground. The spreader shall be aggregated with recommended tractors.

 **Danger caused by contact or inhaling harmful substances.** During service and operation of the spreader use recommended personal protective equipment. The operator and other people shall not approach the machine during its operation.

3.5. Regulations for occupational health and safety

CAUTION
In order to avoid threats, before starting operating the spreader, please read the present manual and follow these rules concerning threats and safety measures:

General regulations

- Apart from this manual, one shall also follow traffic regulations and occupational safety and health regulations.
- Warnings (pictograms) placed on the spreader give advice concerning safety of the user and other people and avoiding accidents.
- It is obligatory to follow regulations included in Highway Code about motion on public roads.
- The user must avoid wearing too loose clothing, which might be pulled into by operating parts of the spreader.
- It is advised to cooperate with a tractor equipped with a cabin or a protective frame.
- Before each using the machine, it is necessary to check if all the protection devices are in a good condition. Damage incurred shall be fixed without delay and possible deficiencies filled up.
- Avoid staying within the range of operating spreader.

- Before leaving the spreader cabin and before each activity made near the spreader, turn off the tractor engine, remove the key from the ignition switch and make sure all the rotating assembles have stopped.
- The spreader shall be stored in a dry room, on tough and flat ground. During the lowering the spreader onto the ground, keep particular caution. Danger of injury!!!

Aggregation

- Keep particular caution during connecting the spreader with a tractor and during disconnection.
- It is forbidden to stay between a spreader and a tractor during any activities done with a hydraulic system lever.
- Before connecting the spreader, check if the pressure on the front of the spreader is sufficient in accordance with the manual and conditions made by the spreader manufacturer.
- Keep the minimum load of the spreader front in dependence on the spreader capacity. Ensuring the front axle pressure, equaling minimum 20% of the spreader weight itself is the condition of keeping the spreader controllability.

CAUTION

Operating with other than recommended by the manufacturer tractors may cause threat of stability loss in operation or in stoppage.

- The spreader can be operated by a person with qualifications allowing for using agricultural spreaders.
- It is not allowed to permit other people who are not familiar with the manual to use the spreader. During aggregation of the spreader with a tractor or performing any repairs in the unit, stop the engine, remove the key from the ignition switch and pull hand brake.
- The spreader shall be aggregated with recommended tractors equipped with standard front axle ballasts in accordance with data given in the technical characteristics of the spreader.
- While connecting the spreader with a tractor, keep extreme caution, it is forbidden to stay between the machine and a tractor during the engine operation.
- All points connecting the spreader with a tractor shall be protected with standard cotter pins.
- Use recommended PTO shaft. Operation with the PTO shaft without a shield or with a damaged disc is forbidden.

CAUTION

Operation with the recommended PTO shaft guarantees overlapping of the take-off shaft shield with a PTO shaft shield by at least 50 mm at each side.

- Shaft shield shall be protected against the rotation with a chain.
- Operation without take-off shaft shields or power input connection is forbidden.

Mineral fertilizers

- Only adult men can work with mineral fertilizers. It is not allowed to employ women or adolescents (under 18 years old). People suffering from any illnesses shall consult a doctor, if they can work with mineral fertilizers.
- In case of poisoning, contact a doctor; determine exactly the applied mineral fertilizer.
- During work with mineral fertilizers it is necessary to use protective clothing (rubber: boots, gloves, coat, cap and a half mask – at powder fertilizers).
- After finishing work or during the break, one shall take off the protective clothing, wash their hands and face with water and soap and rinse your mouth with water.
- Do not start work with fertilizers on an empty stomach and do not eat, drink or smoke during work. Do not take drinks containing alcohol: before, during and after work.

Maintenance

- The spreader can be operated by a person with qualifications allowing for using agricultural spreaders and acquainted with the spreader manual.
- Operation without shields, canvas cover and protective barriers is not allowed.
- Check if bolts fastening spreading discs are not loose and eliminate arisen backlash.
- The spreader shall be raised and lowered smoothly, without jerks or vibrations.
- Lift the spreader to the transportation position (clearance 300 mm), further lifting may damage the open rear window of the tractor cabin.
- All maintenance shall be done with the spreader lowered to the ground, the engine stopped, key taken out from the ignition switch and hand brake pulled.
- During the first run, check the spreader operation and make initial adjustment without filling the tank with fertilizers.
- It is forbidden for the operator to stay between a tractor and the spreader with the engine running.
- Clean the spreader precisely after each use and before performing maintenance, also clean tools if they have been chemically contaminated.
- It is not allowed to transport any people or items on the spreader.
- Work on slopes with gradient exceeding 8° is not allowed.
- While making returns, keep extreme caution and reduce speed to the necessary minimum.
- It is prohibited to make any mechanical loading of fertilizer with the use of the loader if there are any other people in its operation area.
- During operation it is prohibited to insert hands into the tank and rake fertilizer.
- It is prohibited to perform any seeding procedures if there are any people within the distance of not less than 20 m from the machine.

Storage

- The spreader shall be stored in a clean condition.
- The spreader shall be stored in a place where there is no possibility of accidental injury of people or animals, on the flat ground, preferably under a roof.
- The spreader shall be stored in dry room, on the tough and flat ground. While lowering the spreader onto the ground, keep extreme caution – there is a threat of injury!!!

Transportation

- The transportation of spreaders by means of transport from the manufacturer to the sales person or the client is described in the chapter ‘Spreader transportation’ in

detail. One shall remember safety rules during the loading and proper fixing of the spreader on a car trailer. Hooks for ropes or chains can be found at the ends of the spreader frame and are marked with pictograms.

- Spreader transported on public roads shall be equipped with portable light and warning devices and a triangular sign for low-speed vehicles, fixed in special handles on the spreader frame, see details in chapter 'Spreader transportation'.
- It is forbidden to transport people or items on the spreader during transportation or work.
- Before driving on a public road and starting work, check the nearest area of the tractor and the spreader, if there are any unwanted people (children!). Dismiss each person and animal from the danger zone of the working spreader.
- Before driving on public roads check operation of light signals in portable light devices required by regulations in the Highway Code.
- Keep extreme caution while making a turn with a tractor with a suspended spreader, during transportation and also while making returns in the field, especially when there are any people, animals or items nearby.

Others

- It is not allowed to use the spreader for other purposes than given in the manual.

Not following these rules may cause threat to the operator and other people and also may cause damage to the spreader. Any damage resulting from not following these rules is the only responsibility of the user.

3.6. Standard conformity

The machine has been designed and made in accordance with standards concerning safety in the machine industry, valid on the day of marketing the spreader. Particularly, following legal acts and harmonized standards have been taken into account:

- 2006/42/WE –Directive machinery safety introduced by the Ordinance of Minister of Economy on 21 October 2008 (Journal of Laws 'Dziennik Ustaw' No 199, item 1228).
- PN-EN ISO 12100-1:2005/A1:2009 – Machinery. Safety. Basic concepts, general principles for design. Basic terminology, methodology.
- PN-EN ISO 12100-2:2005/A1:2009 – Machinery. Safety. Basic concepts, general principles for design. Principles and technical requirements.
- PN-EN ISO 4254-1:2009 – Agricultural machinery. Safety. Part 1: General requirements.
- PN-ISO 4254-9 – Tractors, agricultural and forest machinery. Technical measures of ensuring safety. Devices for seeding, tillage and fertilization.
- PN-ISO 730-1+AC1:1996 – Wheeled agricultural tractors. Rear three-point suspension system. Categories 1, 2, 3 and 4.
- PN-ISO 2332:1997 – Tractors and agricultural machinery. Mounting machinery on a three-point suspension system. Free space zone.
- PN-ISO 3600 – Tractors, agricultural and forest machinery, mototools. Manual. Contents and form.
- PN-ISO 11684 – Tractors, agricultural and forest machinery, mototools. Safety and warning signs. General principles.

3.7. Manufacturer's responsibility and guarantee

In relation to described in this manual types of machines, company does not acknowledge any civil responsibility towards:

- improper or inconsistent with the manufacturer's recommendations using the machine,
- using the machine in a way breaking domestic law concerning safety and preventing unfortunate accidents,
- non-compliance or improper following regulations cited in this manual,
- making unauthorized changes in the machine,
- using the machine by unqualified staff,
- using spare parts that are not original.

As long as the purchaser wants to make use of warranty, he should strictly follow recommendations and regulations given in the manual. In particular:

- he should work only in the given ranges of the machine operation,
- he should always perform unchangeable and thorough maintenance,
- only operators with proper abilities and qualifications (properly trained) shall be allowed to use the machine,
- he should use only original spare parts recommended by the manufacturer.

3.8. Noise and vibrations

During the operation of one disc spreaders for the operator there is no threat caused by noise contributing to the loss of hearing because the workplace of the operator is in the tractor cabin. Noise level measurement was made at the machine stoppage, in accordance with appendix B to the standard PN-EN ISO 4254-1:2006, at engine nominal rotation noise was 83 dB (A).

There is no threat caused by vibration when working with the spreader because the operator's workplace is located in the tractor cabin where the seat is amortized and properly ergonomically shaped.

3.9. Safety signs and captions

One disc spreaders of company are equipped with all devices that ensure safe work. Where it is not possible to entirely secure dangerous places due to the proper operation of the spreader, there are warning signs – pictograms which indicate for possibility of danger and present manners of avoiding it.

In table 1 pictograms placed on the machine and their meaning have been specified. Safety signs shall be protected against being lost and against loss of legibility. Lost or illegible signs and captions shall be replaced with new ones. It is required that new assemblies employed during repair were marked with all safety signs predicted by the manufacturer.

If you want to buy pictograms, write to the manufacturer's address or send information to the e-mail address and give the sign number (according to the table 1), version and year of issuing this manual.

Table 1. Safety signs and captions

No.	Pictogram	Meaning	Location
1	2	3	4
1.	(Rating plate)	Rating plate	In the front part of the frame on the left side
2.		Before operating the machine, read the manual.	On the spreader tank.
3.		Caution. Before operation turn the engine off and remove the key from the ignition switch.	On the spreader tank.
4.		Keep a safe distance from the working machine (min 20 m). Threat of hitting with items ejected by the machine. Threat posed to the whole body.	On the spreader tank.
5.		Do not stay near the lift rods, while controlling the lift.	On the spreader tank.
6.		Do not touch the machine parts until all of them have stopped. Do not put hands into the tank.	On the spreader tank.

7.		Vapors or toxic gases poisoning hazard. Keep a safe distance from the working machine.	On the spreader tank.
8.		Eating, drinking, smoking at work is prohibited. After work change the clothing, wash your hands with soap and rinse your mouth.	On the spreader tank.
9.		Speed limit.	At the back of the spreader.
10.		Never exceed 540 rpm.	On the shield of power input connection.
11.		Marking the place of loading hooks.	On the frame elements.
12.		Solid grease point.	At solid grease places.
13.		Logo	On the spreader tank.

4. USAGE REGULATIONS

4.1. General information

Suspended, one disc fertilizer spreaders are suitable for use on terrain slope not exceeding 8° and can be mounted on appropriate class tractors, see point 'Technical characteristics', equipped with standard ballasts of front axle and rear wheels.

To the spreader disc drive it is necessary to use PTO shaft of parameters given by the manufacturer and having the required CE safety marking (see Technical Characteristics). Due to the risk of overloading the shaft, it shall not be employed for drive in other machines.

4.2. Construction and operation of the machine

Fertilizer spreaders N020 series can be equipped with a tank made of plastic or steel sheet, of different capacities, in a shape of a truncated upturned cone. Because the construction of spreaders with a plastic or metal tank is the same, the description of construction of suspended one disc spreaders has been limited only to N020/5 (JM 650) spreader with capacity of 650 kg.

The main part of the spreader is a tank, screwed to the frame suitable for mounting on a three-point suspension tractor system. Dosage of the fertilizer is made through two charging openings placed at the bottom of the tank. In the front part of the tank there is a system regulating doses of seeding, consisting of two levers, rods and bolts covering charging openings. Spreading fertilizer is performed due to centrifugal force, created by a rotating disc with four spreading blades. The disc receives drive through the angular gear and PTO shaft from a tractor power with a take-off shaft.

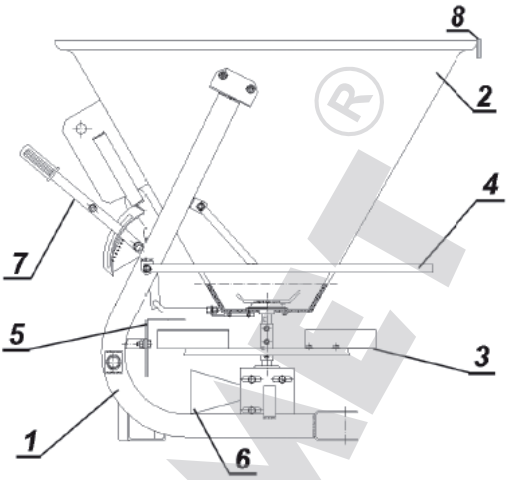


Figure 1. Fertilizer spreader with a metal tank N020/5 (JM 650 kg): 1-frame, 2-metal tank, 3-spreading disc, 4-deflecting bar, 5-front shield of the spreading disc, 6-shield of power input connection, 7-levers of seeding dose regulation, 8-handle to fix the bracket for light and warning devices and a triangular sign for low-speed vehicles

At the back of the spreader, on the bracket there are attached handles employed for fixing light and warning devices and a triangular sign for low-speed vehicles.

REMEMBER
Before filling the tank with fertilizer, close the dispensing openings, by setting lever of seeding regulation system to the lower-most position.

4.3. Equipment and fittings

Manual with spare parts catalogue and a warranty card comprise basic equipment of the spreader.

Basic equipment of the machine **DOES NOT INVOLVE** PTO shaft, portable light and warning devices and a triangle sign for low-speed vehicles. The equipment is available for additional charge at the manufacturer or at the agricultural equipment storehouse. Each user of a spreader shall have light warning signs, in working order, and a triangular sign for low-

speed vehicles (sign description is available in the chapter 'Spreader transportation on a tractor suspension system'). Not having them during transport may result in accident. For damage incurred only the user of the machine is responsible.

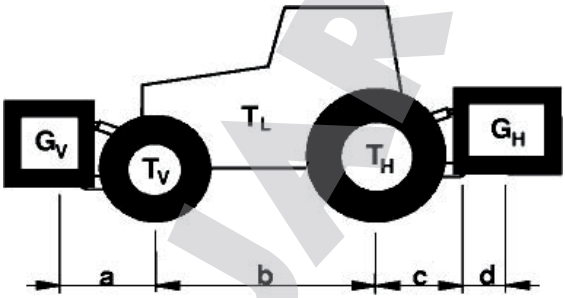
4.4. Preparing the tractor to work

Preparation of the tractor to cooperation with the spreader consists in checking its general efficiency in accordance with the tractor manual (pay particular attention to the proper operation of tool suspension system). It is mandatory to aggregate the spreader with recommended tractors equipped with standard ballasts of front axle and rear wheels in accordance with data given in the technical characteristics of the tractor.
Air pressure, particularly in rear tires of the tractor must be equal in both wheels and in accordance with the tractor's manual!

Before suspension of the machine, lower rods of the tractor's suspension system shall be in lower position on the same height (distance between joints and ground is minimum 200 mm). Rods located on the equal height from the ground facilitate suspending the spreader on the tractor.

4.4.1. Front axle ballast

Suspension of devices on the front or rear three-point suspension system cannot lead to exceed permissible load on the axle or capacity of the tractor's tires. The tractor's front axle must be always ballasted with minimum 20% of the weight of, ready to work, tractor itself.
Method of determining the minimum of the front ballast is described in detail below:



G_V – Weight of the front pressure or ballasts on the front axle
T_V – Pressure on the tractor front axle, without the device hitched at the back
T_L – Tractor net weight
T_H – Pressure on the tractor rear axle, without the device hitched at the back
G_H – The machine weight

Calculating the minimum front pressure G_v min:

$$G_{V\min} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{a+b}$$

Calculating the required front minimum pressure assumes that all the above given dimensions and weights are known. If they are not known, however, and cannot be determined, there is only one safe and precise method of determining controllability factor.
It is necessary to weigh the tractor front ($\mathbf{T_{vo}}$) with the hitched and lifted spreader to the working position with the load. Afterwards, knowing the weight of the tractor itself ($\mathbf{T_L}$) ready for operation, determine controllability factor for the given tractor with the spreader.

$$\textbf{Controllability factor} = \frac{T_{vo}}{T_L}$$

Controllability factor should amount more than 0.2 which means that pressure of the front axle of the tractor with the spreader and maximum load should comprise more than 20% of the total weight of the tractor itself, ready for work. If the controllability factor is less than 0.2, it is necessary to put additional ballasts of the front axle.

4.4.2. Assembly of the PTO shaft

For one disc spreaders of JAR-MET company, it is recommended to use PTO shafts, which carry minimum power 14 kW and torque 250 Nm. Detailed data is given in the technical characteristics.
Each time before starting work, it is necessary to check fastening of PTO shaft endings at the end of the power take-off shaft (of the tractor) and power input connection PIC (of the spreader). Fasten the chain of PTO shaft shields to the power take-off shaft shield and PIC shield. Make sure the assembled PTO shaft is of the proper length. At not sufficient length, disconnection of the shaft may occur and at its excessive length its bending will occur.

CAUTION
Inclination angle of the PTO shaft on joints in working position cannot exceed 25°. It is forbidden to disassemble the shaft shifts.

4.5. Preparing the spreader to work

Preparation of the spreader to work consists in checking its technical condition, in particular:
- check screw connections, in case of backlash tighten the screw nuts,

- check the completeness of the disc blades and their condition; replace them with new ones if necessary,
- check if spreading disc rotates easily and without jamming,
- check the tightening of the gear unit,
- lubricate the spreader in accordance with the lubrication table.

REMEMBER	Improper preparation of the machine to work may result in lowering the quality of the spreader work.

4.6. Suspension the spreader on the tractor

DANGER
It is forbidden to connect the spreader to the tractor when the tractor engine is running. It is forbidden to use other parts to secure the spreader suspension than recommended by the manufacturer.

Mounting the spreader on the three-point suspension system of the tractor, perform the following activities:
- disassemble tool drawbar from the lower rods of the tractor three-point suspension system,
- drive the tractor closely enough to the machine frame,
- **turn off the engine, remove the key from the ignition switch and pull handbrake,**
- put lower rods of the tractor(first left, then right one) onto spreader studs and secure them with typical pins,
- to avoid side deviations of the spreader, tighten side chains of tractor lower rods,
- using a pivot, link upper connector of the tractor with an upper opening of the spreader suspension system and secure with the typical pin,
- put PTO shaft onto the ending of the spreader power input connection and the ending of the tractor power take-off shaft, fasten the chain of shaft shield to the power input connection shield of the machine and the tractor,
- lift the spreader to the transportation position, maintaining recommended minimum transportation clearance 0.3,
- perform transversal leveling with the use of the right hanger of the tractor suspension system,
- perform initial longitudinal leveling i.e. setting the spreading disc in the horizontal position to the ground with an upper connector of the suspension system,
- fasten portable light and warning signs and a sign distinguishing low-speed vehicles.

CAUTION
Lift the spreader to the transportation position 0.3, further lifting may damage the open rear window of the tractor cabin.

4.7. Filling the tank

After mounting the spreader on the tractor and performing functional attempts, you can start filling the tank. The spreader tank can be filled with front loaders, grab cranes or pneumatic loaders. When the spreader is lowered to the ground, the machine construction allows for hand loading – directly from the means of transport (trailers).

CAUTION
The spreader shall be filled directly on the field. When transporting the spreader with a full tank, it may damage the tank.
Keep extreme caution while working with loaders.

REMEMBER
While working with tractors of:
- 0.6 class permissible capacity of the spreader should equal 300 kg,
- 0.9 class permissible capacity of the spreader should equal 400 kg,
- 1.4 class permissible capacity of the spreader should equal 800 kg.

4.8. Spreader adjustment regulations

To properly carry out fertilization, the machine must be carefully adjusted. Regulation of the spreader includes:
- transversal leveling,
- longitudinal leveling,
- setting seeding dose,
- choosing seeding type,
- choosing seeding width,
- setting blades on the spreading disc.

Transversal leveling – by regulating length of the tractor right hanger, set the machine so that the frame is parallel to the ground.
Longitudinal leveling – is done by setting the machine in such a position that when viewed from the side, the spreader frame is parallel to the ground. To do this, lift the spreader on the height of 0.3 m above the surface of the field, then using the upper connector carry out the regulations.
Seeding dose regulation (figure 2). Fertilizer tank has a system of seeding regulation in the front part. It consists of two latches driven by the right and left rods, ended with two levers. A special bracket, with openings for a cotter (figure 3) as protection against self-activating shifting of the lever, is welded to the frame. Levers P and L are employed for setting the seeding norm (in kg/ha) by opening and closing two dosing openings and blocking them in the required position by the cotter pin in the proper opening. Position ‘0’ means full closing of the dosing openings, while position ‘10’ – their maximum opening.

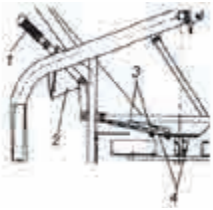


Figure 2. System of seeding dose regulation: 1-levers, 2-bracket, 3-rods, 4-latches

Choice of seeding type. Suspended one disc spreaders of N020 series enable gaining basic seeding (on both sides) and asymmetrical seeding (on the right and left side). The basic seeding (on both sides) is gained by blocking, with the use of knob **C**, levers **P** and **L** in the same position.

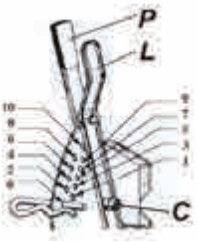


Figure 3. Seeding dose regulation: P and L – regulation levers, right and left, C – blocking knob

Asymmetrical seeding on the left side is gained by blocking lever **P** in the "0" position. Asymmetrical seeding on the right side is gained by blocking lever **L** in the "0" position.

Choice of seeding width. To gain the required seeding width, raise the spreader in the working position and with the use of the upper connector, set inclination of the spreading disc at the proper height (figure 4). Heights of the disc for particular seeding widths and setting of the seeding norm have been given in the tables of seeding norms. Then, so as to prevent from side deflection of the spreader during operation and transport, tighten chains of side lower rods of the tractor.

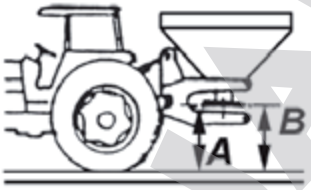


Figure 4. Setting the inclination of the spreader disc;
A and B – height of the disc over the ground in the working position

The construction of the spreader enables additional regulation of the seeding width by shifting blades of the spreading disc.

Setting the blades on the spreading disc. Each blade is fixed to the disc with two screws – internal and external. External screws can be placed in three positions. Shifting the blades in the direction opposing the direction of the disc rotation increases seeding width on the left side. Shifting the blades in the direction consistent with the direction of the disc rotation increases the seeding width on the right side.
When seeding powder fertilizer, turn the blades of the disc in the direction opposing the direction of disc rotation. When seeding granular fertilizer, turn the blades in the direction consistent with the direction of the disc rotation.

4.9. Work with fertilizer

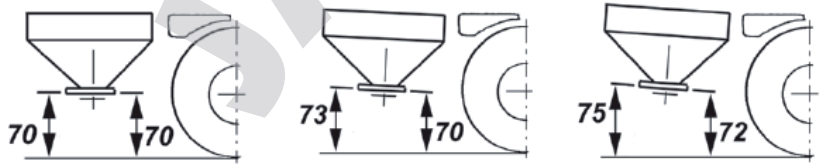
Fertilizer spreader spreads the fertilizer not only behind itself but also to the sides in relation to the longitudinal axle of the assembly. By doing so, the amount of the spreader fertilizer is reduced in the end distances from the symmetry axis of the assembly. Therefore, during work it is necessary to drive the spreader to obtain seeding 'tab' by double spreading the stripes, on which the least fertilizer was spread.
During work, the operator shall maintain the equal distance between working passages in the field. The spreader driving speed at work shall equal 6-14 km/h. It has to be adjusted to the field surface.

DANGER
All maintenance (for example when jammed) should be done with the spreader lowered to the ground, the tractor engine stopped, the key removed from the ignition switch and the handbrake pulled.

4.10. Table of seeding norms

Tables of seeding norms for various types of fertilizer were made as a result of field test conducted by the manufacturer at different heights of lifting the spreading disc, in various conditions and at setting the blades in the central position.
Due to external factors (wind, fertilizer humidity etc.) seeding parameters gained during work, may vary from these in the table. In such a situation, at setting the seeding dose, a huge role will play the operator's experience at work both with a spreader and the fertilizer type.
Table 2. Seeding norms for NPK mix

Fertilizer type:	NPK mix 12.12.12 (1.12 kg/l)
Rotational speed of power take-off shaft:	max 540 rpm

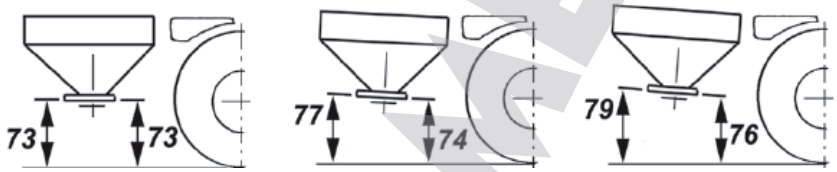


A	Seeding width 10 m					Seeding width 12 m					Seeding width 14 m				
	km/h					km/h					km/h				
	6	**8**	**10**	**12**	**14**	**6**	**8**	**10**	**12**	**14**	**6**	**8**	**10**	**12**	**14**
2	101	76	60.8	50.7	43.4	84.2	63.3	50.7	42.2	36.2	72.1	54.3	43.4	36.2	31
3	171	128	102	85.3	73.1	142	107	85.3	71.1	61	122	91.4	73.1	61	52.2
4	297	223	178	149	127	248	186	149	124	106	212	159	127	106	91
5	475	356	285	237	203	396	297	237	198	170	339	254	203	170	145
6	671	503	402	335	287	559	419	335	279	240	479	359	287	240	205
7	755	566	453	377	323	629	472	377	314	270	539	404	323	270	231
8	865	649	519	433	371	721	541	433	361	309	618	464	371	309	265
9	944	708	566	472	405	787	590	472	393	337	674	506	405	337	289
10	1072	804	643	536	459	893	670	536	447	383	766	574	459	383	328

A-setting the lever of seeding dose regulation (levers P and L)

Table 3. Seeding norms for **ammonium sulfate**

Fertilizer type: ammonium sulfate 20-21% N (1.16 kg/l)
Rotational speed of power take-off shaft: max 540 rpm



A	Seeding width 10 m					Seeding width 12 m					Seeding width 14 m				
	km/h					km/h					km/h				
	6	**8**	**10**	**12**	**14**	**6**	**8**	**10**	**12**	**14**	**6**	**8**	**10**	**12**	**14**
2	105	79	63.2	52.7	45.1	87.8	65.8	52.7	43.9	37.6	75.2	56.4	45.1	37.6	32.2
3	177	133	106	88.7	76	148	111	88.7	73.9	63.3	127	95.1	76	63.3	54.3
4	308	231	185	154	132	257	192	154	128	110	220	152	132	110	94.3
5	492	369	295	246	211	410	307	246	205	176	351	243	211	176	151
6	695	521	417	347	298	579	434	347	289	248	496	324	298	248	213
7	781	586	469	391	335	651	488	391	326	279	558	494	335	279	239
8	896	672	538	448	384	747	560	448	373	320	640	505	384	320	274
9	979	734	587	489	419	816	612	489	408	350	699	545	419	359	300
10	1111	833	666	555	476	926	694	555	463	397	793	595	476	397	340

A-setting the lever of seeding dose regulation (levers P and L)

5. WORK WITH FERTILIZER

5.1. Fertilizer mixing

Procedure often used, aiming to simplify work associated with fertilization, is mechanical mixing of fertilizers. This is undoubtedly a beneficial procedure, because it speeds up spreading fertilizers, ensures its even seeding and limits number of passages in the field – limiting field compaction.

When preparing a mixture it is necessary to comply with certain rules. Components of the mixture must be loose, not clumped, keeping strict proportions predicted in fertilization. Not all fertilizers can be mixed together and some can be mixed directly before seeding (table 4).

Urea cannot be mixed with ammonium nitrate, nitro-chalk, superphosphate, because it may lead to clumping or forming slime. Seeding is difficult with such mixture and sometimes it worsens its chemical composition. Due to the loss of nitrogen, ammonium fertilizers cannot be mixed with alkaline-reaction fertilizers. Unfavorable changes may occur when mixing superphosphate with fertilizers containing calcium, such as nitro-chalk, ground phosphate rock. It can be then transformed into two- or even tricalcium phospate which is much harder adoptable for plants.

Table 4. Table of mixing mineral fertilizers

	Urea 46%	Ammonium nitrate 34%	Nitro-chalk 25 %	Ammonium phosphate 1-46-0	'Polifoska' 8-24-24	Granular superphosphate 19% and 46 %	Potash salt 57-60 %	Ammonium sulfate 20 %	Powder superphosphate 18 %	Ground phosphate rock 29 %	Potash salts 38-62 %	Magnesium kainite 12-15 %	Potassium sulphate 48-52 %	Carbonate lime to 50 %	Oxide lime 65- 85 %
	granular							powder and crystal							
Urea 46 %	○	■	■	○	○	■	○	□	■	○	□	■	○	○	■
Ammonium nitrate 34 %	■	○	○	□	□	□	□	○	■	□	□	□	□	□	■
Nitro-chalk 25 %	■	○	○	□	□	□	□	□	■	□	□	□	□	□	■
Ammonium phosphate 1-46-0	○	□	□	○	○	■	○	○	■	■	○	○	○	■	■
'Polifoska' 8-24-24	○	□	□	○	○	■	○	○	■	■	○	○	○	■	■
Granular superphosphate 19% and 46 %	■	□	□	■	■	□	○	■	○	■	○	○	○	■	■
Potash salt 57-60 %	○	□	□	○	○	□	○	○	○	○	○	○	○	○	■
Ammonium sulfate 20 %	□	○	□	○	○	■	○	○	■	■	○	○	○	■	■
Powder superphosphate 18 %	■	■	■	■	■	○	○	■	○	■	○	○	○	■	■
Ground phosphate rock 29 %	○	□	□	■	■	■	○	■	■	○	○	□	□	○	○
Potash salts 38-62 %	□	□	□	○	○	○	○	○	○	○	○	○	○	○	■
Magnesium kainite 12-15 %	■	□	□	○	○	○	○	○	○	□	○	○	○	○	■

Potassium sulphate 48-52 %	○	□	□	○	○	○	○	○	○	□	○	○	○	□	■
Carbonate lime to 50 %	○	□	□	■	■	■	○	■	■	○	○	○	□	○	○
Oxide lime 65- 85 %	■	■	■	■	■	■	■	■	■	○	■	■	■	○	○
■ – cannot be mixed □ can be mixed directly before seeding ○ – can be mixed at any time															

REMEMBER	It is prohibited to mix fertilizers which in the mixture increase their hygroscopicity. It is forbidden to mix powder and fine-crystalline fertilizers with granular ones.

5.2. Safe work with mineral fertilizers

DANGER
All fertilizers are generally harmful to human health.

All fertilizers are generally harmful to human health. Many of them have onerous dusty and caustic properties. Beyond temporary effects, they may also cause over time skin diseases, respiratory diseases and even gastrointestinal diseases. Therefore, when working with fertilizer use suits, gloves and protective shoes and also goggles and dust masks. Hands and face should be well put on with cream or Vaseline and after work it is necessary to wash the body carefully.

All people working with fertilizers should be thoroughly familiar with properties and potential impact of fertilizers on human as well as being familiar with current fire protection guidelines.

REMEMBER	When working with mineral fertilizers it is necessary to use protective clothing: rubber: boots, gloves, coat, hat, glasses and half mask.

5.3. Fertilizer storage

Storage of fertilizers on farms, usually requires an appropriate adaptation of substitute rooms. Such rooms should be dry because in case of excessive humidity fertilizers clumping or unfavorable changes occur. The rooms must be large enough to allow for convenient reloading of fertilizers and they must allow for avoiding accidental mixing of different assortments. They must also, especially if you store ammonium nitrate and oxide lime, have fire protection.

The user should be equipped with fire-fighting equipment and first-aid kit, placed in a visible place and in a close distance from fertilizers.

DANGER
It is forbidden to store fertilizers with flammable materials and in the warehouse and its close surrounding smoking is prohibited.

Fertilizers supplied in sealed plastic bags are the easiest to store, fertilizers supplied loose are more difficult to store. The room must be completely dry and sealed with the possibility of periodic ventilation on a sunny day, with a concrete or brick floor, with good insulation.
On the floor, on special timbers, there are platforms made of planks or boards laid, clearance under the platform should equal 10-20 cm. On the platform are placed bags or raised piles from the fertilizers supplied loose.

REMEMBER	Keep stock in order, carefully remove any rubbish – it helps avoid clogged exhaust in the spreader.

For a short period of time fertilizers in bags can be stored in the open air, using a suitable ground and additional foil or roofing paper cover. However, lime fertilizers in carbonate or siliceous form can be stored on piles in fields where they are going to be employed.

6. SPREADER TECHNICAL OPERATION

6.1. Lubrication instruction

Basic lubrication activities are keeping lubrication periods and using appropriate types of grease. Before lubrication all the points of lubrication should be cleaned of contamination. Lubrication should be performed according to the table 5.

Used oil and lubricants should be passed to a chain of points collecting them, where they are processed in order to be re-used.

Table 5. Lubrication points

No.	Lubrication points	Points number	Frequency	Grease or oil type
1.	Angular gear	1	Every 200 h of work	Gear oil GL 3 80W/90
2.	Seeding dose regulation system	2	Every 10 h of work	"ŁT – 12"

6.2. Possible failure

To ensure a lasting and reliable operation of the spreader, condition of screw connections should be checked and tightened in case of loosing. After work, the spreader should be cleaned thoroughly. Worn or damaged working parts should be replaced. Most common causes of failure, their symptoms and ways of removal are listed in table 6.

Table 6. Causes of failure and ways of removal

No	Symptoms	Causes	Way of removal
1.	Fertilizer stream is not constant	Opening blocked by fertilizer lumps or contamination	Temporarily increase the opening by opening valve
		Sticking of too humid fertilizer in the tank	Stir 'stuck' fertilizer in the tank
2.	Noisy gearbox operation	Low oil level or no oil	Fill up oil
		Damaged gear	Repair the gearbox
3.	Spreading disc not rotating	Beheaded security bolts	Replace the bolts into new ones.

6.3. After-operation maintenance

Each time, after work, set the spreader on the flat and solid ground, clean of fertilizer, and inspect connections of parts and units. Damaged and worn parts should be replaced with new or regenerated ones. All loose screw connections should be tightened.

Light and warning signs and a triangular sign for low-speed vehicles should be kept clean.

6.4. After-seasonal maintenance

After season, the spreader should be washed with warm water with some soda, dried with compressed air if possible, and then all not painted parts covered with a fine layer of grease. The size of the spreader allows for cleaning it without necessity of going inside the tank. Worn or damaged working parts should be changed and all loose screw connections tightened. Loss occurred in paint coat should be cleaned and filled by covering with fresh layer of protective paint. The spreader should be stored under a roof on the flat, solid ground in a place not posing threat to people and surrounding.

6.5. Spreader storage

The spreader should be kept in a place not posing threat to people and surrounding. Before storing the spreader for a longer period of time (for example winter time) it should be washed with warm water with some soda, dried with compressed air if possible and then all not painted parts covered with a fine layer of grease. The spreader should be kept under a roof on flat, solid ground in a place not posing threat to people and surrounding. It is possible to keep it outside, in such case maintenance should be repeated when the protective layer is abraded. The ending of power input connection shall be cover with a layer of grease. Every loss in the paint layer should be filled.

Light and warning tables and a triangular sign for low-speed vehicles should be disassembled from the spreader and stored in a dry room, being protected from damage. After the period of storage, before starting work, the spreader must be greased and screw connections inspected.

7. SPREADER TRANSPORTATION

7.1. Spreader transportation by means of transport

One disc spreaders N020 series can be transported from the manufacturer to the sales person or client by trucks. Spreaders are transported without being disassembled. Spreaders are loaded onto truck trailers with lifting devices after installing lines or chains in places marked by the manufacturer. The spreader should be secured still on means of transport. The transporting person is responsible for proper securing the spreader.

DANGER
When loading spreaders on means of transport, lines or chains should be mounted in places marked by pictograms.

7.2. Spreader transportation on a tractor three-point suspension system

One disc spreader transported on public roads on a tractor suspension system should be equipped with portable light and warning devices having at the back combination lamps with lights: side and red brake, yellow turning and red reflective one. On the machine there must be a triangular sign for low-speed vehicles placed. Besides, the tractor on which the spreader is suspended should comply with conditions allowing it to move on public roads in compliance with binding requirements.

DANGER
It is forbidden to move on public roads without the proper marking and lights in accordance with applicable regulations (Ordinance of Minister of Infrastructure of 31 December 2002 Journal of Laws ("Dziennik Ustaw") No 32/2003 item 262 with later amendments of 2004 Journal of Laws No 169 item 1773).
Fertilizer spreader transported on a tractor suspension system, on public roads must be obligatory equipped with portable light and warning devices and a triangular sign for low-speed vehicles fixed in special handles at the back of the machine. It is forbidden to transport people or cargo on the frame of the machine.

During transport the spreader should be lifted up to the position ensuring required transportation clearance. When turning, pay attention to "overlapping" of the machine. Light and warning signs and a triangular sign for low-speed vehicles should be kept clean.

8. Disassembly

CAUTION
Before starting to disassembly, disconnect the spreader from the tractor.

Disassembly of the machine should be performed by people previously acquainted with its construction. These activities should be done after setting the machine on a flat and solid ground. Disassembly and changing the working parts should be done according to the tables included in the spare parts catalogue. In case of worn parts, follow 'Totaling' point.

Due to a number of spreader parts exceeding 20 kg (frame), during disassembly use lifting devices.

CAUTION
Lifting devices used during disassembly can be operated by only one person properly authorized and qualified

9. TOTALING

Totaling of the spreader should be performed after its previous complete disassembly and inspection of the machine parts. During disassembly, parts should be grouped according to the material type: plastic materials, ferrous metals.

Parts made of plastic shall be passed to be used (processing or utilization) to the companies possessing proper devices.

Used oil and lubricants should be passed to a chain of points collecting them, where they are processed in order to be re-used. Used parts made from ferrous metals should be grouped and passed to points purchasing these metals.

REMEMBER	Burning plastic materials in devices not designed for this purpose leads to environmental pollution and violates existing law.

10.TECHNICAL CHARACTERISTICS

Technical data of suspended one disc spreaders with a plastic tank are listed in table 7 and with a metal tank in table 8.
Table 7. Technical characteristics of spreaders with a plastic tank

No	Specification	Unit of measure	Data		
1.	Machine symbol	-	N020	N020/1	N020/9
	Marking	-	JP 300	JP 400	JP 500
2.	Admissible capacity	kg	300	400	500
3.	Machine type	-	suspended		
4.	Overall dimensions (transport and working dimensions)				
	- length	mm	1385	1375	1485
	- width	mm	1115	1260	1370
	- height	mm	1015	1130	1110
5.	Machine weight	kg	55	58	60
6.	Driving speed				
	- transport	km/h	15		
	- working	km/h	6-14		
7.	Dose range	kg/ha	50-1110		
8.	Aggregating with a tractor				
	- tractor class	-	0.6	0.9	0.9
	- pulling force	kN	6	9	9
	- power demand	kW	22	28	35
9.	Transport clearance	mm	300		
10.	Fertilizer tank	-	plastic		
	a) overall dimensions				
	- length	mm	1115	1260	1070
	- width	mm	1115	1260	1070
	- height	mm			
	b) tank capacity	dm^3	200	320	430
	c) cargo height	mm	1015	1130	1350
11.	Dosing assembly – type	-	slotted		
12.	Seeding apparatus				
	- type	-	disc		
	- disc drive	-	power take-off shaft		
	- disc number	item	1		
	- blade number on the disc	item	4		
	- disc diameter	mm	560		
13.	Operating people number	-	1		
14.	PTO shaft				
	- type		1		
	- size	-	2		
	- torque	Nm	250		
	- transmitted power	kW	14		
	- retracted shaft length between crosspieces	mm	560		
	- ending (inlets) - from the tractor side - from the machine side	 - -	 6 6		
	- power take-off shaft working rotations	rpm	540		
	Shafts used should have CE mark				

Measurements of geometric dimensions and weights are given in the technical characteristic to an accuracy of 1%.

Table 8. Technical characteristics of spreaders with a metal tank

No	Specification	Unit of measure	Data				
1.	Machine symbol	-	N020/2	N020/3	N020/4	N020/5	N020/6
	Marking	-	JM 300	JM 400	JM 500	JM 650	JM 800
2.	Admissible capacity	kg	300	400	500	650	800
3.	Machine type	-	suspended				
4.	Overall dimensions (transport and working dimensions)						
	- length	mm	1085	1145	1220	1495	1500
	- width	mm	1070	1120	1200	1400	1450
	- height	mm	960	980	1070	1110	1210
5.	Machine weight	kg	46	47	50	80	85
6.	Driving speed						
	- transport	km/h	15				
	- working	km/h	6-14				
7.	Dose range	kg/ha	50-1110				
8.	Aggregating with a tractor						
	- tractor class	-	0.6	0.9	0.9	1.4	1.4
	- pulling force	kN	6	6	9	9	9
	- power demand	kW	22	28	35	45	45
9.	Transport clearance	mm	300				
10.	Fertilizer tank	-	metal				
	a) overall dimensions						
	- length	mm	1070	1120	1200	1400	1450
	- width	mm	1070	1120	1200	1400	1450
	- height	mm					
	b) tank capacity	dm^3	230	270	380	500	600
	c) cargo height	mm	960	980	1070	1110	1210
11.	Dosing assembly – type	-	slotted				
12.	Seeding apparatus						
	- type	-	disc				
	- disc drive	-	power take-off shaft				
	- disc number	item	1				
	- blade number on the disc	item	4				
	- disc diameter	mm	540				
13.	Operating people number	-	1				
14.	PTO shaft						
	- type		1		1		
	- size	-	2		2		
	- torque	Nm	250		250		
	- transmitted power	kW	14		14		
	- retracted shaft length between crosspieces	mm	560		990		
	- ending (inlets) - from the tractor side - from the machine side	 - -	 6 6		 6 6		
	- power take-off shaft working rotations	rpm	540		540		
	Shafts used should have CE mark						

Measurements of geometric dimensions and weights are given in the technical characteristic to an accuracy of 1%.

11.Alphabetical index

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V

Y

SPARE PARTS CATALOGUE

How to use the catalogue.

Spare parts catalogue includes figures and tables of spreader assemblies.
The catalogue should be used as follows:
- determine the proper assembly the fixed part belongs to according to the tables,
- find the needed part on the assembly table following the reference number from the assembly drawing.

Spare parts can be purchased at the spreader manufacturer, by writing to his address or by calling; then you are supposed to specify:
- the exact address of the client,
- spreader serial number,
- spreader symbol,
- year of production,
- manual issue number,
- the exact name of parts or assembly,
- catalogue symbol (KTM), spare part number or standard,
- number of pieces,
- payment terms.

All standard parts can be purchased in the public sale.

Table 1. Tank and complete frame

Position	Part name	Catalogue symbol (KTM), or standard	Number of pieces
1.	Complete frame (metal tank)	8223-242-001-001	1
	Complete frame (plastic frame)	8223-242-001-002	1
2.	Metal tank	8223-242-001-003	1
	Plastic tank	8223-242-001-004	1
3.	Screw M10x20	PN-74/M-82105	3
4.	Nut M10	PN-75/M-82144	3
5.	Hole plug	8223-242-001-005	2
6.	Screw M10x25	PN-74/M-82105	5
7.	Nut M10	PN-75/M-82144	10

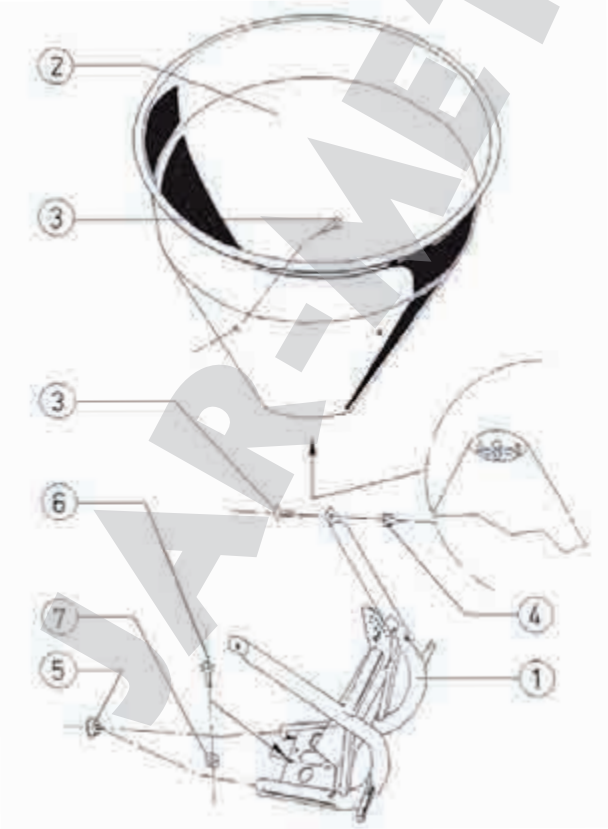


Table 2. Spreading assemble and the stirrer

Position	Part name	Catalogue symbol (KTM), or standard	Number of pieces
1.	Gear	8223-242-002-001	1
2.	Lower stirrer	8223-242-002-002	1
3.	Spreading disc	8223-242-002-003	1
4.	Blade	8223-242-002-004	4
5.	Nut M10	PN-75/M-82144	1
6.	Screw M 10x25	PN-74/M-82105	1
7.	Rawlplug 8x40		2
8.	Rawlplug 5x40		1
9.	Screw M 8x16	PN-74/M-82105	8
10.	Nut M 8x15	PN-75/M-82144	8

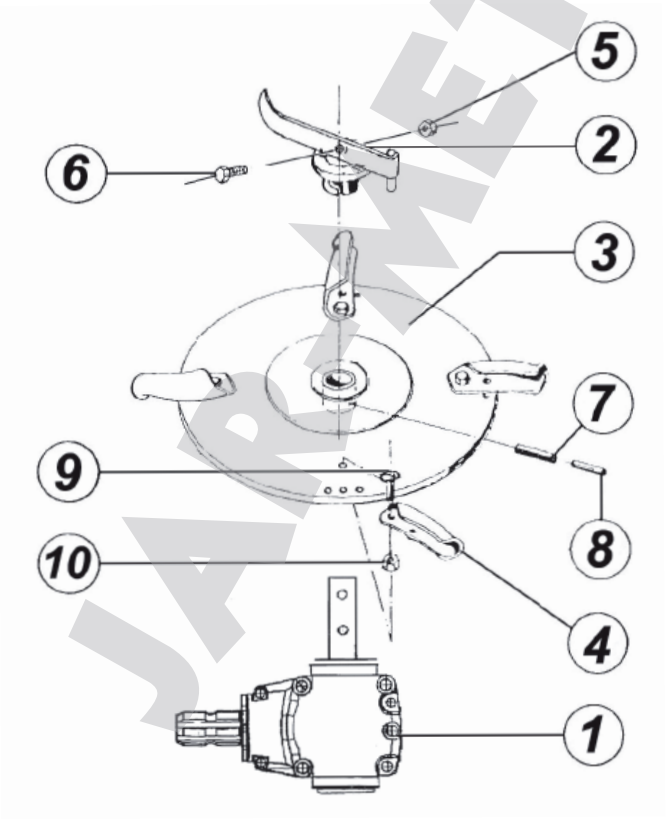
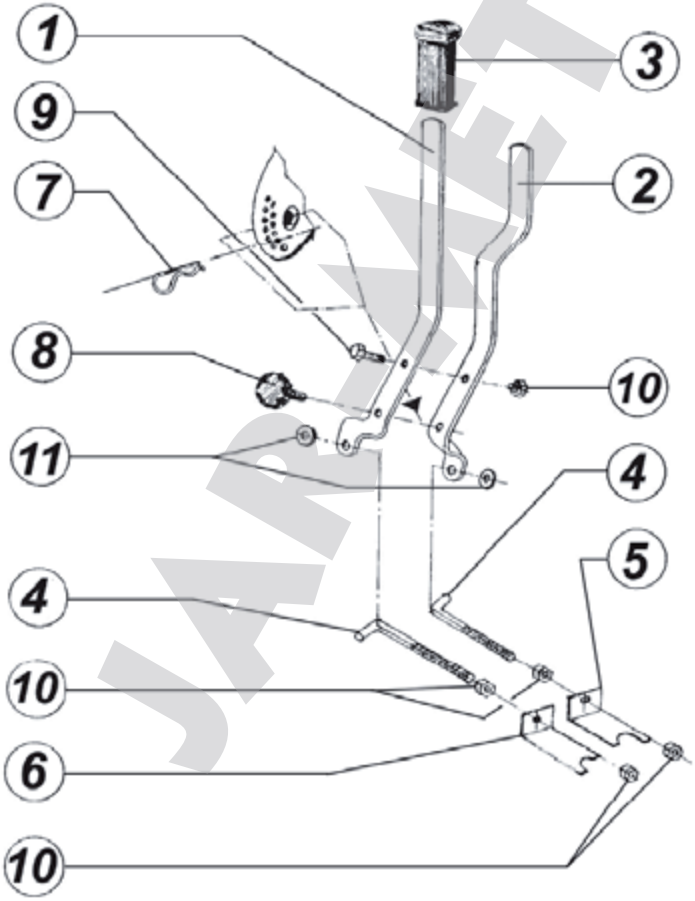


Table 3. Seeding regulation system

Position	Part name	Catalogue symbol (KTM), or standard	Number of pieces
1.	Right lever	8223-242-003-001	1
2.	Left lever	8223-242-003-002	1
3.	Gum handle	8223-242-003-003	1
4.	Rod	8223-242-003-004	2
5.	Left slider	8223-242-003-005	1
6.	Right slider	8223-242-003-006	1
7.	Cotter pins Ø 4.5 mm		1
8.	Blocking knob	8223-242-003-007	1
9.	Nut M 10	PN-75/M-82144	1
10.	Screw M 10x30	PN-74/M-82105	5
11.	Washer 10.5x21		1



NOTES

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WARRANTY CARD

SUSPENDED ONE DISC SPREADER

Machine symbol …….
Serial number …….
Year of production …….
Date of sale …….
Seller signature ……. …….
Seller stamp

CAPTION: It is seller's obligation to fill in the warranty card and complaint forms carefully (legibly). Lack of for example date of sale or stamp of sales point will put the user at risk of not acknowledging possible complaints. Warranty card with any written corrections or filled in illegibly – is invalid.

Warranty proceedings rules

1. A user is understood as a natural or legal person purchasing an agricultural equipment and a seller – as a corporate unit providing equipment to the user and a manufacturer - as a producer of agricultural equipment.
2. Manufacturer ensures good quality and efficient operation of the spreader, to which the warranty card is attached.
3. Any defects or damage of the spreader shall be fixed free of charge at the place of the purchaser in the period of 12 months from the sales date.
4. Any revealed defects or damages shall be reported in person, by post mail or by phone.
5. If during warranty period, occurs a necessity of performing 3 warranty repairs and the product will still reveal defects disabling its usage according to its intended use, the purchaser is entitled to have the product exchanged into a new, flawless one or refund.
6. If manufacturer, seller and user will not establish another deadline for considering the complaint, exchanging the product or refund, it should be made within 14 days from the date of reporting it by the user.
7. If due to the warranty, a part of the machine has been exchanged or repaired and its cost exceeds 30% of the value of the new machine, warranty period starts all over again from the date of giving the new or repaired part.
8. Warranty repairs do not cover repairs caused by:
   - using the spreader inconsistently with the manual and intended use,
   - acts of God or others for which the guarantor does not take responsibility.

   After warranty repairs can be performed only at the user/purchaser cost.
9. Guarantor can cancel warranty on the product in case of stating:

- introducing structural changes and interference in internal parts of the spreader,
- occurring any damages caused by acts of God,
- lack of necessary records or made by one's own any records in the warranty card,
- using the spreader inconsistently with intended use or manual.

Complaint form no 1

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..

Complaint form no 2

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..

Complaint form no 3

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..

Complaint form no 1

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..

Complaint form no 2

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..

Complaint form no 3

Suspended fertilizer spreader type……
Serial number…… Date of purchase……...

…….
Seller's signature and stamp

Complaint protocol number……..