

Mega metal d.o.o.

FOR MANUFACTURE, TRADE AND SERVICES

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MINERAL FERTILIZER SPREADER

RG 300 - RG 400 – RG 500

***INSTRUCTION AND MAINTENANCE MANUAL AND LIST OF
SPARE PARTS***



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1. INTRODUCTION.

DEAR BUYERS!

We thank you for giving us your trust and selecting **mineral fertilizer spreader** from the range of products of “Mega metal d.o.o.”

Before the beginning of the machine operation, please read the following installation, maintenance and safety operation instructions in a detailed manner and with full attention so as to avoid dangerous situations and possible injuries of users or other people or animals.



Please read carefully these operation instructions so that the machine operation is safe to our mutual pleasure

Always keep the instructions close and in visible place in case you need additional information.

In case of any ambiguities or malfunctions or damaging please contact the technical service of the manufacturer “Mega metal d.o.o.” or dealer.

Read the Safety Operation Instructions with a special attention (p. 4).

Safe and effective machine operation is only possible in accordance with the instructions.

We wish you success in operating our machine.



Manager:
Tomica Novak
„Mega metal” d.o.o.
40305 NEDELISCE, Varazdinska 45
Croatia

Statement No: /2012.

CERTIFIKATE OF CONFORMITY

Manufacturer:



MEGA METAL d.o.o.

**40305 NEDELISCE, Varazdinska 45,
CROATIA**

OIB (identification number): 51210172934

With full responsibility confirms that the following product

PRODUCT TYPE:	NAME	SERIAL NUMBER
RG	MINERAL FERTILIZER SPREADER	*****

(Serial number and production year are printed on the machine identification plate)

FULFILLS

all basic safety and health requirements and is in accordance with the following documents

on marking the conformity of machines, i.e. with basic safety and harmless health requirements for machines according to legal guidelines from the Machine Safety Directive –MD 98/37EC I 2006/42 EC

and provisions from the following regulations:

- HRN EN 349:1993+A1:2008-Safety of machinery – Minimum gaps to avoid crushing of parts of the human body
- HRN EN 953:1997+A1:2009- Safety of machinery -Guards- General requirements for the design and construction of fixed and movable guards
- HRN EN 1037:1995+A1:2008- Safety of machinery - Prevention of unexpected start-up
- ISO 4254-1:2010- Agricultural machinery-Safety-General requirements
- ISO 4254-5:2010- Agricultural machinery-Safety – Mobile machines and soil working machines
- HRN EN ISO 12100:- Safety of machinery - General principles for design, risk assessment and risk reduction

Nedelisce, _____

Person responsible:

Novak Tomica
(Manager)

3. SAFETY OPERATION INSTRUCTIONS



Meaning of this symbol: **WARNING: Dangerous situations that can cause serious injuries**



Most of the accidents at work during the maintenance or during the transport are caused by the failure to adhere to basic safety regulations and provisions. So it is extremely important that every person working with the machine pays special attention to the safety operation, in that way injuries of people and animals and the damaging of the machine can be avoided. It is necessary to take into account other health and safety instructions along with the above mentioned instructions and warnings.



Before the beginning of operation check the technical correctness of the tractor and machine – mineral fertilizer spreader. Make sure that unauthorized persons or animals are not present in the working area.



Pay special attention to proper connection of the machine to tractor and never leave the operating machine without surveillance.

Before putting the machine into operation, make sure all three points of connecting the machine to tractor are properly connected and check the proper connection of cardan shaft.

All protective elements of the machine must be installed. In case of damaging, be sure to replace them. Also, all safety elements of cardan shaft must be connected and secured from rotation with appropriate chain.

THE MACHINE CANNOT BE PUT TO OPERATION AND CANNOT BE TRANSPORTED WITHOUT BELONGING PROTECTIVE AND SAFETY ELEMENTS.

For road traffic transport, the machine tank (spreader hopper) has to be empty.



Always adjust the driving speed to current conditions and avoid sudden machine turns and rotations. **IT IS STRICTLY FORBIDDEN TO DRIVE OTHER PEOPLE AND TO RIDE ON THE MACHINE OR TRACTOR'S DRAWBAR!**



Warning and safety instructions attached to the machine (see p. 7) provide important information on safety operation and take them into account for your own safety.



Always use personal protective equipment (gloves, hat, closed-toe shoes, respiratory protective clothes, etc.) when working with mineral fertilizers.

It is forbidden to throw the remainings of the fertilizer and packaging to the environment, it is necessary to dispose waste according to regulations.



It is strictly forbidden to stay in the working area and to stay in the vicinity of rotating and turning parts. Do not place your hands under the protective tin. Pay special attention when working near the road because even when working properly there is always a possibility of ejection of rocks or the other material.



All the repairs and cleaning of the machine are forbidden until the machine is in stationary and stable condition, and until the tractor engine is switched off, handbrake tighten and key taken out. Make sure you remove cardan shaft.



ATTENTION: After switching off the tractor, the cardan shaft continues to rotate for several moments and it is forbidden to approach the machine working area during that period. When the cardan shaft is completely stopped you can approach the machine and its working area.



Before you get off the tractor, it is necessary to place the machine on the ground, turn off the tractor engine, tighten the handbrake, take out the key and secure the machine from the movement.

4. IDENTIFICATION, MARKING

Nameplate, which can be found in the attachment, has a purpose of identifying the product.

-It marks: manufacturer, product type, product serial number, production year, product weight and capacity


MEGA METAL d.o.o. 40305 NEDELISCE, Varazdinska 45, Croatia	
TYPE:	RG-.....
SERIAL NUMBER:	
PRODUCTION YEAR:	
WEIGHT (kg):	
CAPACITY:	

Located on

5. TAGS – WARNING SIGNS

For the purpose of protection get to know the signs which warn you to dangers and protective measures you must adhere to.

	WARNING DANGEROUS SITUATIONS THAT CAN CAUSE UNDESIRE EFFECTS		PRODUCT CONFORMITY TAG
	OBAVEZNO READ AND STUDY THESE INSTRUCTIONS FOR USE		WARNING! MACHINE MAINTENANCE, CLEANIG OR REPAIR – ONLY WHEN THE MACHINE ENGINE IS SWITCHED OFF AND KEY TAKEN OUT
	CARDAN SHAFT -P.T.O. SPEED AND ROTATION DIRECTION		WARNING! MAXIMUM RECOMMENDED MOVING SPEED
	WARNING! DO NOT TOUCH THE ROTATING PARTS OF THE MACHINE!	0 1 2 . . . 6	ADJUSTMENT OF THE SPREADING AMOUNT
	DANGER! CARDAN SHAFT – KEEP SAFE DISTANCE!		IT IS STRICTLY FORBIDDEN TO RIDE ON THE MACHINE AND TRACTOR'S DRAWBAR

			<p>WARNING! SPREADING WIDTH 15 M</p> <p>IT IS FORBIDDEN TO STAY IN THE MACHINE WORKING AREA 25 M</p>

6. DESCRIPTION OF THE MACHINE OPERATION PURPOSE

Mineral fertilizer spreader (**RG**) is intended for spreading of dry, mineral and granulated fertilizer. It is constructed so as to ensure equal spreading OF the entire area and especially to the left and right side. The spreader has the installation possibility of special accessory which enables spreading in four lines with the adjustment of line width. Device (accessory) installation for interline fertilization is fast and simple.

The spreader itself is suitable for sowing of wheat and other crops, as for salt spreading in winter conditions. Every use other than mentioned ones is considered inappropriate.

The manufacturer is not liable for the damage caused by irregular usage and bears no liability if the user doesn't adhere to instructions and warnings for safety operation and by doing so endangers himself and other people or animals, and causes damage to the machine itself.



WARNING: Excessive moisture of material for spreading can cause clogging or incorrect or inaccurate dosing.

7. TECHNICAL DATA

	NAME		
	<i>RG 300</i>	<i>RG 400</i>	<i>RG 500</i>
Dimensions:- length (mm)	1000	1125	1250
- width (mm)	1000	1125	1250
- height (mm)	1000	1125	1250
Volume (litre):	300	400	500
Weight (kg):	47	58	64
Capacity (kg):	250	350	450
Dissemination – spreading width (m):	5-15	5-15	5-15
Max. no. of rotations on drive shaft (r/min)	540	540	540
Working speed (km/h)	5-15	5-15	5-15
Necessary power-tractor (kw)	18/25	18/25	25/40

8. TECHNICAL DESCRIPTION OF THE MACHINE

Basic structural units of mineral fertilizer spreader are: (see p. 9.-10).

- Bracket
- tank (hopper)
- machinery for width and spreading adjustment
- disc
- shielding
- gearbox

Fertilizer spreader is designed for portage, that is connection to tractor with cardan shaft that has max.540 r/min, and connection system of three (3) points.

For more precise dosage of mineral fertilizers during the nutrition of crops, the following items were designed:

- nutrition accessory – 4 lines which enable precise dosage of mineral fertilizers per lines



- nutrition adapter for orchard or vineyard which enables feeding in one or two lines



- also adapter for salt spreading in winter conditions



-all mineral fertilizer spreaders are made from quality tin and are plasticized, and can be made from inox.

ACCESSORY INSTALLATION IS QUICK AND SIMPLE!

9. CONNECTION OF MACHINE TO TRACTOR

Adjust the size of tractor, its power and equipment to the type of spreader you are using – according to the table (see Technical Data – 7).

All types of our spreader can be connected to the tractor with the cardan shaft that has max. 540 r/min and connection system of three points.

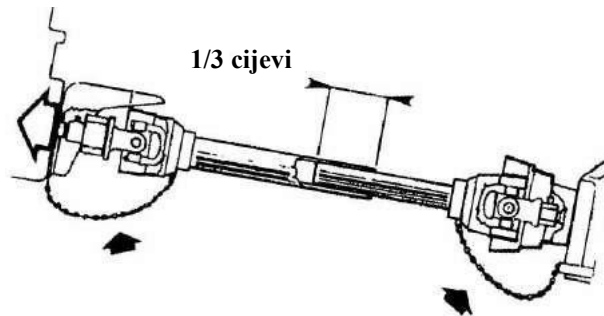
Before connection to the tractor make sure you check the state of the spreader itself – if everything is secured properly, lubricated and in correct state.

The spreader has to be connected to the tractor via two lower levers of hydraulics and pulling lever from the upper side and they have to be secured properly with retaining rings.

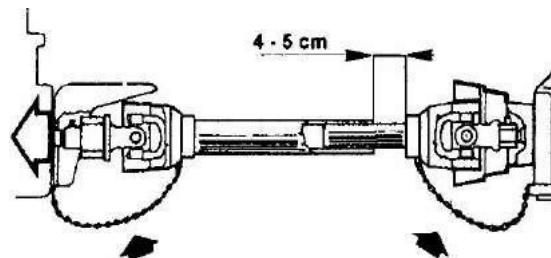
-ADJUSTMENT OF THE CARDAN SHAFT SIZE-

Connect the machine to the tractor firstly. Dismantle the cardan shaft and place each part of cardan shaft – one on the tractor and the other one to the machine which is placed on the ground and make sure that the retainers get into place. Then put the parts of cardan shaft next to each other and measure how much they overlay. When doing that, make sure that in position when cardan shaft is maximally pulled out, the pipe is at least 1/3 covered – see picture.

If the pipe is too long, mark it and cut the excessive length. It is also necessary to correspondingly shorten the outer plastic cover of cardan. In the end abrade the sharp edges of cut pipes and lubricate the sliding spots. Now connect the cardan shaft again and protect it (make sure the retainer gets in). Secure the cardan cover with suspended chain.



It is also necessary that in position when cardan shaft is maximally pushed together, that is when the machine is lifted, at least 40 – 50 mm of space should remain – see picture.

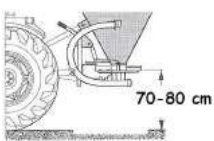


Too long cardan shaft can damage the machine or tractor!

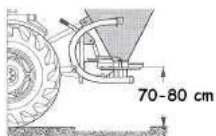


The cardan shaft has to be connected to tractor in its complete state and with plastic cover!

10.

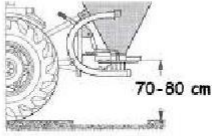
DOZING TABLE**LARGE GRANULATED MINERAL FERTILIZER-kg/ha**

NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREA DING	Speed Km/h	Position of the adjustment lever				
			2	3	4	5	6
540	15 m	4	109	326	506	738	916
540	15 m	8	55	161	253	372	474
540	15 m	12	42	109	172	255	316
540	15 m	16	27	84	135	190	236

MEDIUM GRANULATED MINERAL FERTILIZER -kg/ha

NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	Position of the adjustment lever				
			2	3	4	5	6
540	13 m	4	138	368	583	746	900
540	13 m	8	83	186	296	378	458
540	13 m	12	58	129	200	256	315
540	13 m	16	42	91	150	194	232

FINELY GRANULATED FERTILIZER – kg/ha



Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	10 m	4	97	268	435	608	788
540	10 m	8	48	140	221	313	394
540	10 m	12	32	96	152	207	268
540	10 m	16	24	69	108	158	202

WHEAT- kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	15 m	4	85	138	190	250	
540	15 m	8	43	68	95	125	
540	15 m	12	28	45	62	83	
540	15 m	16	20	34	47	61	

OAT –kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	8 m	4	65	108	162	218	
540	8 m	8	32	54	80	109	
540	8 m	12	21	36	46	73	
540	8 m	16	15	26	39	54	

RYE - kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	15 m	4	109	170	236	287	
540	15 m	8	57	85	117	144	
540	15 m	12	35	57	78	96	
540	15 m	16	23	44	58	72	

BARLEY – kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	12 m	4		113	138	141	234
540	12 m	8		56	68	95	117
540	12 m	12		36	45	64	77
540	12 m	16		28	34	46	56

MEADOW FESCUE; ITA AND ENG. RYEGRASS - kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	5 m	4	14	45	94		
540	5 m	8	8	23	48		
540	5 m	12	6	15	32		
540	5 m	16	4	11	24		

RED CLOVER; ALFALFA - kg/ha

Position of the adjustment lever							
NO. OF CARDAN ROTATIONS r/min	WIDTH OF SPREADIN G	Speed Km/h	2	3	4	5	6
540	6,5m	4	18	61	152		
540	6,5m	8	8	31	75		
540	6,5m	12	6	20	51		
540	6,5m	16	5	16	38		

Spreading amount and width tables with our spreader are made on the basis of cardan rotation numbers of 540 r/min and according to optimal height of spreader carrying of 70-80 cm.

Stated positions in tables are meant to be a guide since it is hard to establish the exact spreading widths because they depend on many factors:

- Quality of min. fertilizer, type, moisture, etc,
- Fertilizer granulation or seeds that are spreading,
- Spreader carrying height,
- Number of rotations of cardan, etc.

To help you establish the exact amount of spreading per surface unit of certain types of mineral fertilizers or seeds, we are giving you the following examples so that you can make the calculation of amount adjusted to your tractor, type and quality of fertilizer or seed that you are spreading.

1. Control example:

-Use the data listed in our orientation tables –

For a test ride determine the amount of fertilizer (or seed) which is to be put in spreader hopper (for example 10 kg) and measure the width of spreading (regarding the speed of your tractor and the number of cardan rotations that you used), and measure the effective length in meters that you crossed.

For the calculation use formula:

$$\text{Kg/ha} = \frac{\text{Proportional table number} \times 100}{\text{Crossed meters}} = \frac{83 \times 100}{25 \text{ m}} = 332 \text{ kg/ha}$$

$$\text{-The proportional number is gained: } \frac{\text{Fertilizer amount (or seeds)} \times 100}{\text{Spreading width}} = \frac{10 \text{ kg} \times 100}{12 \text{ m}} = 83$$

Table on the basis of using 10 kg of test mineral fertilizer (or seed):

Spreading width (in m)	6	7	8	9	10	11	12	13	14	15
Proportional number	166	142	125	111	100	91	83	77	71	67

2. Example for control calculation of consumption per surface unit

Fill the spreader hopper with the certain amount of mineral fertilizer or seed (for example 50 kg) and determine the speed of tractor movement (km/h), and measure how long it takes (in minutes) to spend a certain amount of fertilizer (for example 4 min.) and check the effective width of spreading (for example 10 m)

- Amount of spent fertilizer = 50 kg
- Time spent = 4 min.
- Effective width of spreading = 10 m
- Tractor speed = 8km/h

$$\text{Calculation formula: } \text{kg/ha} = \frac{\text{Spent amount of fertilizer (kg)} \times 600}{\text{Spent time x spreading width x tractor speed}} = \frac{50 \times 600}{4 \times 10 \times 8} = 93,75 \text{ kg/ha}$$



Salt dosing table

SMALL SALT

-SPREADER WITH SALT ADAPTER

Position of the adjustment lever	Amount g/m²				
	Speed 5 – 25 Km/h				
	5	10	15	20	25
1	40	20	15	12	10
2	120	60	45	36	30
3	186	93	70	56	46
4	240	120	90	72	60
5	272	136	102	81	68
6	312	156	117	93	78

COARSE SALT

Position of the adjustment lever	Amount g/m²				
	speed 5 – 25 Km/h				
	5	10	15	20	25
1	34	17	12	10	8
2	106	53	40	32	26
3	168	84	62	50	41
4	216	108	80	65	53
5	246	123	91	73	61
6	280	140	104	83	69

Maintenance

At the end of the working day it is necessary to completely empty the tank and thoroughly wash it with water. After the washing, it is necessary to wipe the machine with cloth and if necessary lubricate the mobile parts.

It is especially necessary to clean and lubricate thoroughly at the end of season.

Storage in dry and closed area. The longer life and more economical operation are achieved in such a way.



Cleaning, lubrication or setting the machine that is driven by cardan can be done only when the drive is turned off, engine switched off and ignition key taken out of the tractor.

Lubrication

-The machine doesn't require inner lubrication. All moving parts of the machine are lubricated while manufactured. It is just necessary to check the outer parts and clean them after the usage and at the end of the season lubricate them.

-In the reducer (p. 12) there is oil HYPENOL 90 – it is necessary to check the level occasionally and if needed refill it.

- It is necessary to lubricate drive cardan shaft: 1. cardan cross, 2. moveable axle; 3. retainer and ring. In such a way premature tear and wear are prevented and it will always be easy to move the control of mechanics.



When lubricating the machine it is necessary to use protective gloves and wash hands after doing that!



We can use lubricants of LIS 3 quality!



Respect the environment!

Never throw and do not spill the polluting matters to the ground or environment (oils, grease, packaging and similar), dispose them to specified locations according to regulations.

12. Catalogue of parts

With the Catalogue of parts the manufacturer wants to help buyer to quickly and efficiently order the spare parts.



When replacing the damaged or aged spare parts, use only the original spare parts from the catalogue.

Order example:

When ordering spare part it is necessary to give the following data:
(See attached picture)

SPREADER:

- type
- serial number
- production year
- spare part name
- catalogue number

example:

RG 300

001399

2011

vane

9

WARRANTY CERTIFICATE

-WARRANTY PERIOD: 1 YEAR

The manufacturer obliges to bear all the costs regarding the removal of malfunctions made when using the machine in its normal conditions, in the warranty period and under the following conditions:

- The user has to show the purchase invoice upon request**
- If the user shows the valid warranty certificate during the repair and without the purchase invoice, the warranty is valid from the day of the product testing**
- If the product is not mechanically damaged**

THE WARRANTY DOES NOT INCLUDE:

- Malfunctions caused by improper installation and maintenance
- Mechanical malfunctions caused by the user
- Malfunctions by force majeure

If we do not fix the product in the warranty period, 90 days from the day of the malfunction report, or if we are unable to remove the malfunction, the product will be replaced.

Made and tested on the day:	Stamp and signature of the manufacturer:
Day of selling:	Stamp and signature of the seller: