CT-2412

MANUAL

Please read carefully prior to operation





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T-2412 ØSOL

MAQUINARIA AGRÍCOLA



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6.DOSAGE

There are two ways of dosing:

- for **REGULAR SEEDS**.

- for **FINE SEEDS** with minimum flow rate.



1	Seed distributor
2	Dosing adjusting scale
3	Bolt N = regular seed F = fine or small seed
4	Spindle
5	Trap-door to empty the hopper and the seed distributor.

6	Venturi injector sluice
7	Quick emptying trap-door
8*	Clip pin of the air outlet to fan * N = regular seed F = fine or small seed

* (see next page)





WHEN CHANGING THE BOLT'S POSITION (3) IT IS ESSENTIAL THAT THE SPIN-DLE (4) CAN TURN FREELY AND THE HOPPER IS EMPTY.







6.1 REGULAR SEEDS (position N)

When sowing using REGULAR SEEDS, proceed as following:

- 1- Remove the safety fork (9, fig. 33)
- 2- Keep the bolt (3, fig. 33) in the position as indicated in the figure.
- **3-** Turn the spindle (4, fig. 33) to adjust dosing.



4- Place the clip pin of the air outlet to fan (8, fig. 34-35) at position N.

Fan in machines up to 5 metresFan in machines of 6 metreslength.length.







 Pinion gear n°10 must be fit into pinion gear n°11, as shown in figure 36.



6.2 FINE SEEDS (microdosing – Position F)

When sowing using FINE SEEDS, proceed as following:

- 1- Remove the safety fork (9, fig. 37).
- 2- Turn the spindle (4, fig. 37) to position 0 on the scale (2, fig. 37).
- 3- Turn the bolt (3, fig. 37) until it is inserted into axle slot, like to the picture.





4- Place the clip pin of the air outlet to fan (8, fig. 38-39) at position F (fine seed).

Fan in machines up to 5 metresFan in machines of 6 metreslength.length.



- 5- Turn the spindle (4, fig. 37) to adjust dosing between 0 and 25.
- **6-** Pull the pinion gear n°10 until it **is released** from the pinion gear n°11 and fit it into pinion gear n°12 (fig. 40).
- 7- Once the seed distributor is set in position F (microdosing), the ELECTRONICAL CONTROLLER needs to be configured (see page 54, working in micro mode).





The aim of microdosing is to better distribute both fine and regular seeds in small numbers.



The correct value for using microdosing F-system in fine seeds can be found in the dosing tables (see section 12 - DOSAGE TABLES).



CHECK THE CLEANING BRUSH IS IN GOOD CONDITION BEFORE BEGINING TO SOW FINE SEEDS.



WHEN MICRODOSING FINE SEEDS, DO NOT EXCEED NUMBER 25 IN AD-JUSTING SCALE (2, FIG.37) .



6.3 PREVIOUS FLOW TEST



IT IS ESSENTIAL THAT THE MACHINE, THE TRACTOR AND THE UNIVERSAL JOINT SHAFT ARE ALL SWITCHED OFF.

To perform the test, follow these instructions:

1- FILL THE HOPPER with seeds.

2- COUPLE the machine to the tractor in a SLIGHTLY ELEVATED PO-SITION (wheels should not be in contact with the ground).

3- Loosen the 2 knobs (1, fig. 43) that secure the venturi injector sluice.

Pull the venturi injector sluice into the machine.





4- Place the provided sack (2,fig. 44) or a container under the exit of the venturi injector sluice.



5- Next, place the crank (fig. 45) in the $fdS^{\circ}e_{-}$ [f[a^{\circ} wheel of the seed drill.

Turn it clockwise as many times as indicated below depending of the type of machine.



TYPE OF MACHINE	WHEEL
6 meters	32, 4 Turns
7 meters	27,8 Turns
8 meters	25,2 Turns
9 meters	22,4 Turns

- 6- Accurately weigh the collected seeds.
- **7-** At a selected opening, you can obtain the kilograms per hectare distributed by the machine, by MULTIPLYING the weight by 40.







You must turn the wheel uniformly using the crank at approximately ONE REVOLUTION PER SECOND.



The number of wheel turns to be performed depends on the land's characteristics, tyre manufacturer and tyre pressure. Therefore it is highly recommended to perform a field test as described in section <u>6.4 - Test to determine</u> <u>the number of wheel turns.</u>



If seeds show excess treatment powder, flow can be reduced, consequently a second control is recommended after sowing approximately three hoppers.



6.4 COMPLEMENTARY CHECKING TESTS

6.4.1- Test to determine the number of wheel turns.



If differences exist between the test and the actual dose distribution (due to a very uneven or light soil, low pressurised tyres, etc.), an experimental test can be performed.

1- First of all, the distance (in metres) as shown in the table below should be marked on the field's ground using a tape measure.

WORKING WIDTH / ROWS	METRES TO COVER
6 meters	41,7 meters
7 meters	35,7 meters
8 meters	31,3 meters
9 meters	27,7 meters





- 2- By means of a mark made previously on the tyre, count the number of turns performed in the covered distance.
- 3- Next, the seed drill in working position should cover that distance. By following these steps we can obtain the actual number of turns performed in the seed dosing test.

By performing the test using this obtained number of turns, we know the actual kilograms per hectare that will be distributed by the machine.



6.4.2- Seed dosing adjustments.

When using high quality certified seeds it is not enough to know the weight in kilograms distributed by the machine, as the final result of the harvest will depend on the number of plants which eventually ripen.

Every plant requires a certain amount of land from which nutrients will be absorbed. Therefore, both a low or an excessive plant density can be detrimental. To determine how many kilograms per hectare are to be sown, you should know the number of plants per square metre that are going to be planted.

As a guidance, the recommended number of plants per square metre when sowing wheat or barley in un-irrigated land can be found in following table:

AUTUMN	SPRING
Premature sowing, 200 plants per m ²	Premature sowing, 310 plants per m^2
Late sowing: 265 plants per m ²	Late sowing: 445 plants per m ²

Please note that in spring there is less tillering so more seeds should be sown.



MAQUINARIA AGRÍCOLA SOLA, S.L., RECOMMENDS THAT THE FARMER SEEKS PROFESSIONAL ADVICE ABOUT THIS SUBJECT FROM A TECHNICAL SOWING CENTRE.



SEED DOSING SHOULD BE ADJUSTED TO EACH TERRAIN, DEPENDING ON THE: TEXTURE, FERTILIZING LEVEL, PLUVIOMETER RESULTS AND SOWING SEASON, GRAIN QUALITY, GERMINATING AND TILLERING POWER, ETC.

It should be taken into account that a seed's germinating power is variable and dependant on multiple factors. It can be experimentally calculated to be between 70% and 80%, which is practically equivalent to multiplying the number of grains to be sown by 1,43 or 1,25 respectively.



Next, we describe a practical method to determine the number of kilos per hectare to be distributed once we know how many plants per square metre we want to obtain.

- 1- Insert the "seed counter" (fig. 50) into the seed sack to fill it.
- **2-** When taking the "seed counter" out, wipe the seed counter with your hand to make sure that there is only one grain per slot (100 grains in total).



- **3-** Do the same 10 more times to obtain 1000 grains.
- 4- Weigh these 1000 grains with the precision scales.

We call the result the OPERATIVE WEIGHT (gr.).

Once we know how many seeds per square metre we are going to sow, we should adjust the following kilograms per hectare in the dosing control:

kilograms per hectare = (grains per m2 x OPERATIVE WEIGHT) / 100



10. ELECTRONICAL CONTROLLER

10.1 FRONT PANEL DESCRIPTION.



The monitor provided comes programmed especially for your model of seed drill. The user will only need to observe the displayed values and no extra programming is required.

The monitor shows 6 different channels or readings, as well as 3 different arrows showing the states.

C1 shows forward speed in m/sec.

C2 shows two different hectares (for example on partial and one total hectare).

C3 not in use.

C4 shows the fan's rpm.

C5 shows the turning speed of the distributor's axle's in rpm.

C6 shows if the hopper's seed level is too low.



By default the forward movement speed is displayed on the monitor. When some abnormal readings are shown, the screen will display "**Alarm**" intermittently, the alarm will sound and the corresponding malfunction channel will be activated. The alarm will not stop until the malfunction is fixed.

To display a desired reading, press the central button and scroll to the required channel. After 10 seconds, the reading will change back to C1 again.

10.2 FORWARD SPEED – C1

Select a channel by using the central button. The alarm is activated when the speed is under 2.6 km/h and can be turned off using programming mode 2.

Calibrating the speed sensor

Theoretical calibration is achieved by entering a calibration factor in programming mode 2, as indicated in the following table.

MODEL	4M	4.5M	5M	6M
CALIBRATION FACTOR				

Selecting speed channel (C1)

1. Press to switch to mode 1. While holding the button, press the central button to modify the digit.

2. Hold the central button for some seconds to modify the flickering digit.

3. When the buttons are released, the monitor will return to its normal state.



PLEASE NOTE

THE IMPULSE NUMBER AUTO-CALIBRATION MODE IS MORE ACCURATE AND A FIELD TEST PERFORMANCE IS REOUIRED.

Auto-calibrating the speed sensor

- 1. Mark 100 metres.
- 2. Select channel 1 (speed) and hold it while pressing 3. Press The screen will display "Auto". Release it.

4. Cover the 100 marked metres. The monitor will count the sensor's impulses.

5. After finishing, press 🔊 again. By doing this, the monitor retains the impulse number in the memory.

10.3 TOTAL AREA / SEED DRILL WIDTH - C2

Two independent total areas can be marked.

Displaying the total area

1. Select channel 2.

 \mathbf{V} to display total areas 1 and 2 on the screen. **2.** Press (First, "tot. 1" will be displayed and immediately afterwards the value in Ha will be shown.

Setting to zero the total areas

- 1. Select channel 2.
- **2.** Press to display.
- 3. Press and hold for more than 5 seconds.



Programming the working width

1. Select channel 2 of the area.

2. Press and hold for more than 5 seconds until the width value is displayed and, without releasing it, press the central button to modify the flickering digit.

3. Press and hold the flickering digit for more than 5 seconds to modify its value.

4. Release all buttons to return to the normal state.

Working in micro mode

When working with the distributor in the micro-dosing mode (for small hoppers and minimal doses), press and hold button for more than 3 seconds until the arrow indicating the micro mode is displayed. In this situation, the monitor will keep the speed and actual real working area.

Press and hold for more than 5 seconds until the indicating arrow disappears to resume normal position.



10.4 PANEL DE CONTROL CON MARCADOR DE CAMINOS (OPTIONAL)



The monitor provided comes programmed especially for your model of seed drill. The user will only need to observe the displayed values and no extra programming is required.

The monitor shows 6 different channels or readings, as well as 3 different arrows showing the states.

C1 shows forward speed in m/sec.

C2 shows two different hectares (for example on partial and one total hectare).

C3 tramlining.

C4 shows the fan's rpm.

C5 shows the turning speed of the distributor's axle's in rpm.

C6 shows if the hopper's seed level is too low.



10.4.1 TRAMLINING - C3

The displays defaults to the block channels after 10 seconds (unless the Area Total was selected).

There are five systems of tramlining - symmetric, asymmetric left, asymmetric right, 10 bout and 18 bout. The tramline bout is programmable from 1 to 15 in symmetric, asymmetric left and asymmetric right sequences.

Selection of asymmetric tramlining is denoted by a decimal point on the display between the current bout number on the left and the tramline bout number on the right. Left or right asymmetric tramlininig is selected in the programming mode.

Manually advance the bout number

Press to advance the current bout number by 1.



Hold the bout number

Press to "hold" the current bout when the drill goes out of work.

The display will flash '**STOP'**. Press again to resume the normal bout sequence.

Symmetric Tramlining Sequence

2+2 seed spouts are closed during the tramline bout only.

The instrument will beep once the beginning of the tramline bout, and the display will continue flashing for the duration of the bout.

Tramline bouts

Asymmetric Left Tramlining Sequence

Two seed spouts are closed on the left hand side of the drill on the tramline bouts. The instrument will beep once the beginning of each tramline bout, and the display will continue flashing for the duration of the bout.

Asymmetric Right Tramlining Sequence

Two seed spouts are closed on the right hand side of the drill on the tramline bouts. The instrument will beep once the beginning of each tramline bout, and the display will continue flashing for the duration of the bout.

10 Bout Tramlining Sequance

For use with 4 metre drill/10 metre sprayer, or 8 metre drill/20 metre sprayer combinations. (2 x 2 left hand seed spouts are closed on bouts 4 and 7, and 2 x 2 right hand seed spouts closed on bouts 2 and 9). Starting on bout 1 requieres turning RIGHT at the end of the first bout.

NOTE

TO TURN LEFT AT THE END OF THE FIRST BOUT, ADVANCE THE BOUT NUM-BER TO 6 BEFORE COMMENCING DRILLING.

18 Bout Tramlining Sequance

For use with 4 metre drill and an 18 metre sprayer. $(2 \times 2 \text{ left hand seed spouts are closed on bouts 3 and 16, and <math>2 \times 2 \text{ right hand seed spouts closed on bouts 7 and 12}$. Starting on bout 1 requieres turning RIGHT at the end of the first bout.

NOTE

TO TURN LEFT AT THE END OF THE FIRST BOUT, ADVANCE THE BOUT NUMBER TO 10 BEFORE COMMENCING DRILLING.

The instrument will beep once the beginning of each tramline bout and the display will flash for the duration of the tramline bout.

Selecting the Tramline Sequence

Select the channel.
 Hold to enter programme mode 1.
 After 5 seconds the first two digits flash, indicating the tramline sequence currently set:

'SY' = Symmetric

'AL' = Asymmetric Left
'Ar' = Asymmetric Right
'AS' = Special Asymmetric sequence e.g. 10 bout and 18 bout.
3. Continue holding the button and press and HOLD the button

Setting the Tramline Bout

to select the required sequance.

1. PRESS and RELEASE the button to toggle between the tramline sequence and tramline bout number display.

The 3rd and 4th digits flash indicating the tramline bout number currently set.

2. PRESS and RELEASE the

button to cycle the tramline bout from 1 to 15.

10.5 FAN RPM / FAN ALARMS – C4

To display the fan's speed in rpm

Select channel 4 using the central button

Fan alarms

The fan's minimum turning speed can be programmed. Under 2 Km/h these alarms will deactivate.

Fan's minimum speed

1. Select channel 4.

2. Press and hold

 \mathbf{b} button for more than 5 seconds.

3. Hold it and press the O to change value and digits as explained in former cases. Default speed is 3800 rpm.

4. Release all buttons to resume the normal position.

Selecting the fan's number of impulses per revolution (default value is set to 2).

PLEASE NOTE

FAN'S NUMBER OF IMPULSES PER REVOLUTION SHOULD ALWAYS BE 2. ONLY USE THIS PROGRAMMING MODE IN CASE OF MALFUNCTION.

1. TO SELECT PROGRAMMING MODE 2, PRESS (MONITOR NEUMASEM) OR (MONITOR NEUMASEM PLUS) BUTTON WHILE SWITCHING ON THE SCREEN USING REAR SWITCH. _

2. PRESS (MONITOR NEUMASEM) OR (MONITOR NEUMASEM PLUS)" TO CHANGE THE CHANNEL AND SELECT CHANNEL 4 (FAN).

3. PRESS AND HOLD THE OF TO MODIFY THE FLICKERING DIGIT (IT SHOULD ALWAYS BE 2).

4. RELEASE THE BUTTON TO CHANGE BACK TO NORMAL POSITION.

10.6 SEED SHAFT RPM - C5

Select channel 5 using the central button

To turn off the beeping, switch off the screen and switch it on again. This alarm will deactivate under 2 Km/h.

The seed shaft's alarm can be deactivated by pressing the button for more than 5 seconds on the selected channel. The screen will display "Off". In this situation the alarm will not be activated even if the screen is switched off and on again.

10.7 HOPPER LOW LEVEL ALARM – C6

When the seed level is below the sensor, an alarm is activated and beeps 5 times consecutively. In this case the screen will display **«ALA**».

Activate and deactivate hopper level alarm

- 1. Select channel 6 using the central button 🙆 .
- 2. Press and hold button and...
- 3. Press the central button to select "0" (alarm is off) or "1" (alarm is on).
- 4. Release the buttons to change back to the normal position.

10.8 TOTAL SOWING SHUT-OFF (OPTIONAL)

NEUMASEM electronical controller

Press to **lock** the seed's exit. The screen will display the flickering text **«CORT**».

Press or again to **unlock** the seed's exit and return to a normal working position. The screen will display the flickering text **«OPEN»**.

NEUMASEM PLUS electronical controller

Press $\frac{1}{\sqrt{2}}$ to **lock** the seed's exit. The screen will display the indicating arrow and the text "CORT" will be displayed every 2 seconds **«CORT**». Press $\frac{1}{\sqrt{2}}$ again to **unlock** the seed's exit and return to a normal working position. The screen will display the flickering text **«OPEN**».

10.9 SHUT-OFF SOWING FROM FOLDING PARTS (OPTIONAL)

NEUMASEM electronical controller

Press \mathbf{x} to **lock** the seed's exit from the arms on the folding parts (exits on the left and right sides of the folding parts will lock). The screen will display the indicating arrow.

Press 🚽 again to **unlock** the seed's exit and change back to normal position.

NEUMASEM electronical controller for independent folding parts

To **lock** the seed's exit from the arms on the folding parts, press $\frac{1}{2}$ (to lock the left side in the driving direction) or $\frac{1}{2}$ (to **lock** the right side in the driving direction). The screen will display the indicating arrow.

Press $\frac{1}{\sqrt{2}}$ or $\frac{1}{\sqrt{2}}$ again to unlock the seed's exit and change back to normal position.

NEUMASEM PLUS electronical controller

Press $\frac{1}{x}$ to **lock** the seed's exit from the arms on the folding parts. The screen will display an arrow indicating the selected mode.

Press \overline{x} again to **unlock** the seed's exit and change back to normal position.

8- DOSAGE TABLE

INDICATED QUANTITIES SHOWN IN THE FOLLOWING TABLE SHOULD BE CONSIDERED FOR GUIDANCE ONLY, FORESEEN FLOWS CAN VARY DEPENDING ON THE ACCIDENTAL PRESENCE OF DISINFECTING PRODUCTS, UNEVEN SEED SIZE, DENSITY, HUMIDITY, ETC.

FOR PRECISION SOWING, FOLLOW DOSING PROCESS DESCRIBED IN SECTION 6 OF THIS MANUAL.

VERY IMPORTANT: THE DOSAGE WHICH IS IN THE FOLLOWING TABLE IS FOR A DISPENSER.

	-		MI	CRO - 6 METER	S										
SMALL SEEDS	RAP	ΡE	FIELD CLO	VER	GRA	SS	TURNIPS								
WEIGHT (Kg/L)	0,6	55	0,7	77	0,3	39	0,7								
Position	SMALL SEEDS (kg/ha)														
2,5	3,6	1,8	3,8	1,9			4,3	2,0							
5	7,7	3,8	8,8	4,3			7,7	4,1							
7,5	11,5	5,6	14,5	7,2	4,7	2,4	12,6	6,2							
10	15,3	7,7	20,4	10,2	8,8	4,3	16,9	8,5							
12,5	19,1	9,7	26,0	12,9	12,2	6,1	21,3	10,6							
15	23,3	11,5	30,4	15,3	15,6	7,8	25,3	12,6							
17,5	26,9	13,3	35,9	17,8	18,9	9,5	29,5	14,8							
20	30,8	15,3	40,6	20,4	22,4	11,1	33,9	16,9							
22,5	34,8	17,4	45,0	22,4	25,3	12,6	36,4	18,2							
25	38,6	19,1	46,4	23,3	27,5	13,8	38,9	19,5							

	GRASS	0,36				31,7	43,0	56,4	6'69	83,5															
	CORN	0,79			13,5	40,6	0'67	117	156	195	233	264	295	328	359	391	422	451	482	515	546	577	610	642	673
	CAROB	0,83			54,2	85,7	117	151	182	215	246	280	311	342	375	408	440	471	504	535	568	601	632	666	697
	LUPIN	0,76			47,3	76,8	103,7	133	163	191	218	248	278	308	335	366	395	424	453	482	510	542	568	599	628
S	PEAS	0,81	S (kg/ha)		36,0	67,7	99,4	131	165	198	229	262	293	328	360	393	424	455	488	524	555	586	619	652	684
MAL - 6 METEF	BEANS	0,85	NORMAL SEED		38,2	66)9	103,7	133	165	197	228	260	291	322	355	386	417	450	479	510	542	571	602	632	666
NOR	OATS	0,5			40,0	58,2	78,3	96,5	120	138	158	178	198	218	238	260	280	300	320	339	359	379	399	420	440
	BARLEY	0,68			54,2	81,2	108	133	160	187	215	242	269	293	322	348	375	402	426	453	480	508	535	562	590
	RYE	0,74			56,4	83,5	113	140	169	198	226	255	284	311	339	368	397	426	455	486	510	539	568	599	628
	WHEAT	0,77			56,4	85,7	117	145	176	207	237	266	293	326	355	386	417	448	477	504	535	566	595	624	655
	NORMAL SEEDS	WEIGHT (Kg/L)	Posituion	S	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	06	95	100	105	110

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			MI	CRO - 7 METER	S										
SMALL SEED	RA	\PE	FIELD CL	OVER	GR	ASS	TU	IRNIPS							
WEIGHT (Kg/L)	0,6	55	0,7	77	0,:	39	0,7								
Position	SMALL SEEDS (kg/ha)														
2,5	3,1	1,5	3,3	1,7			3,7	1,7							
5	6,6	3,3	7,6	3,7			6,6	3,5							
7,5	9,9	4,8	12,4	6,2	4,1	2,0	10,8	5,4							
10	13,2	6,6	17,5	8,7	7,6	3,7	14,5	7,3							
12,5	16,4	8,3	22,3	11,0	10,5	5,2	18,3	9,1							
15	20,0	9,9	26,1	13,2	13,4	6,7	21,7	10,8							
17,5	23,1	11,4	30,7	15,3	16,2	8,1	25,3	12,7							
20	26,4	13,2	34,8	17,5	19,2	9,5	29,0	14,5							
22,5	29,8	14,9	38,5	19,2	21,7	10,8	31,2	15,6							
25	33,1	16,4	39,8	20,0	23,6	11,8	33,4	16,7							

	GRASS	0,36				27,1	36,8	48,4	59,9	71,6																					
	CORN	0,79			11,6	34,8	67,7	100,6	134	167	200	226	253	281	307	335	362	387	413	441	468	495	523	551	577						
	CAROB	0,83									46,5	73,5	100,6	130	156	184	211	240	267	293	321	349	378	404	432	459	487	515	541	571	597
	LUPIN	0,76			40,6	65,8	88,9	114,2	139	164	187	212	239	264	287	314	339	363	388	413	437	465	487	513	538						
SS	PEAS	0,81	DS (kg/ha)		30,9	58,0	85,2	112,2	141	170	197	225	251	281	309	337	363	390	418	449	476	502	530	558	587						
RMAL - 7 METER	BEANS	0,85	NORMAL SEEI		32,8	59,9	88,9	114	141	168	195	223	250	276	304	331	357	385	410	437	465	490	516	541	571						
NOF	OATS	0,5			34,3	49,9	67,1	82,7	103	119	136	153	170	187	204	223	240	257	275	290	307	324	342	360	378						
	BARLEY	0,68			46,5	69,6	92,8	114	137	161	184	207	231	251	276	298	321	345	365	388	412	435	459	482	505						
	RYE	0,74			48,4	71,6	96,7	120	145	170	193	218	243	267	290	315	340	365	390	417	437	462	487	513	538						
	WHEAT	0,77			48,4	73,5	100,6	124	151	178	203	228	251	279	304	331	357	384	409	432	459	485	510	535	562						
	NORMAL SEEDS	WEIGHT (Kg/L)	Position	5,0	10,0	15,0	20,0	25,0	30,0	35,0	40,0	45,0	50,0	55,0	60,0	65,0	70,0	75,0	80,0	85,0	0'06	95,0	100,0	105,0	110,0						

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