Operator Manual DZ5 series

Single compact

Super compact

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Vredo
The fieldcare company

OPERATOR MANUAL - DZ5

(Original instructions)

This operator manual is part of the Single compact and Super compact overseeders.

Serial number:_____ Year of production:_____

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Table of contents

1. Introduction

Read the operator manual first before installing and use the overseeder. After reading the operating manual the user will become more familiar with the operation, the controls and its safe maintenance.

Remark:

In this operator manual the repair instructions are not described.

In this operator manual an overview of the series overseeders with most important characteristics and part names are add. For most important parts explanation is needed in order to understand their function.

This operator manual is applicable to the following overseeders models:

Single compact model	Super compact model
Single compact 100	Super compact 100
Single compact 140	Super compact 140
Single compact 180	Super compact 180
Single compact 220	Super compact 220

The Single compact and the Super compact are generally used for overseeding, reseeding of current grass fields or raw soil. Also these overseeders are applicable to lawns, public gardens, sports fields and golf courses.

The overseeders can be used for a wide range of grass seeds, and also for dry coated grass seeds.

The seeding elements in the overseeder are constructed by the use of suspension. With this construction each imperfection of the soil will be corrected to obtain a uniform seeding depth.

Target groups:

The target groups or users of the overseeders are in most cases agricultural contractors, field managers, gardeners and other employees. Those who use or operate agricultural machines must be qualified and well trained. They must be familiar to work and operate tractor vehicles including coupled machines.

Users:

The users which are operating a tractor vehicle or a tractor overseeding combination, must be in possession of a valid driver's license which complies the Highway Code of the specific country where they operate.

During operate or maintenance with the overseeder, the employee must wear protecting cloths according the EU 2016/425 regulations, and safety shoes class S2 or S3 according NEN-EN 345-1 standards.

2. Safety Requirements

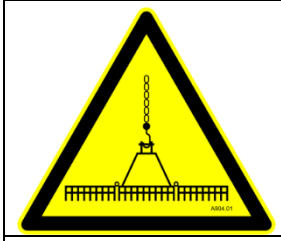
In order to operate with the overseeder in a safe way, some important safety requirements must be observed.

An overview of the applicable warning placards are shown and described at the next page.

- Unreadable and damaged warning placards must be replaced.
- Keep all warning and instruction placards free from mud and other dirt.
- Before the overseeder will join the public road, make sure that the rear lights works properly.
- During operating of the overseeder, keep always distance from rotating parts.
- If maintenance of the overseeder is needed, remove the ignition key from the tractor vehicle first and read the operator manual.
- During maintenance at de overseeder, always use genuine tools.
- All repairs and overhaul must be carried out by service engineers which are well trained by Vredo Dodewaard.
- If some maintenance must be carried out on a overseeder that is mounted at a tractor vehicle, make sure that the lifting mechanism is blocked. Use e.g. some chains or park stands beneath the machine.
- Be aware during operations to avoid contact with the cutter discs, they are sharp and can lead to injury or serious wounds.
- Before disconnecting the overseeder from the tractor vehicle, make sure that the park stands are in the lower position.

2.1. Danger and injury indicators

Image	Nomenclature	Level of danger and/or injury
	Caution	Be careful, injury is possible.
	Warning	Watch out, risk of dangerous situation or damage.
	Danger	Dangerous situation, risk of serious injury or worse.

	Advise how to lift the overseeder. Use a chain to the top link, the overseeder can be lifted
	To prevent serious injury, keep enough distance.
	To prevent serious injury, keep enough distance.
	Close the bottom flap only when the tray is empty
	It is forbidden to drive backwards or making turns when the overseeder is operating.
	If maintenance is needed, remove the ignition key from the tractor vehicle first and read the operator manual.

Explanation of the warning placards

3. Instructions

In this chapter a short description is listed about the use, the installation and the adjustment of the overseeder. The following terms will be discussed:

- Main parts
- The seeding principle
- How a calibration test is needed, and how it works
- The function of the bottom valves handles
- The use of the 3-point hitch
- The function of the drew bar/wheel set combination
- Options
- General inspection, cleaning and maintenance
- Technical information
- Electrical diagram
- Hydraulic diagram

3.1. Main parts and description of the overseeder

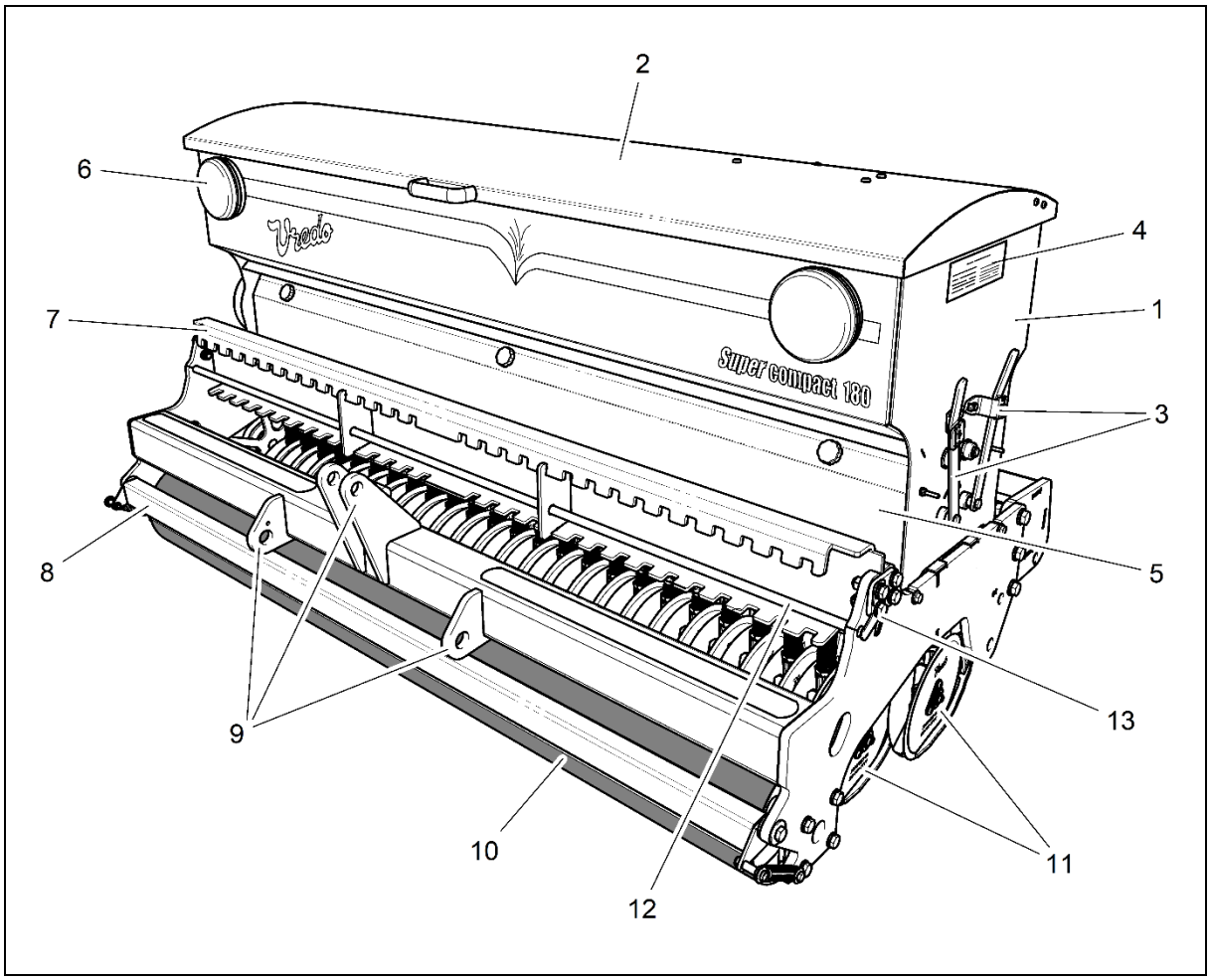


Figure 1 - Overseeder rear view

Item	Nomenclature rear view
1	Tray
2	Cover
3	Bottom valves handles
4	Warning placard “close the bottom flap only when tray is empty”
5	Winds shield
6	Rear lights to join the public road
7	Support frame to carry the ballast weights
8	Roll scraper
9	3-point hitch for wheel set (only optional from the Super compact 140)
10	Roller
11	Cutting discs (Single compact 1-row) (Super compact 2-rows)
12	Locking bar to secure the weights
13	Bracket for locking bar

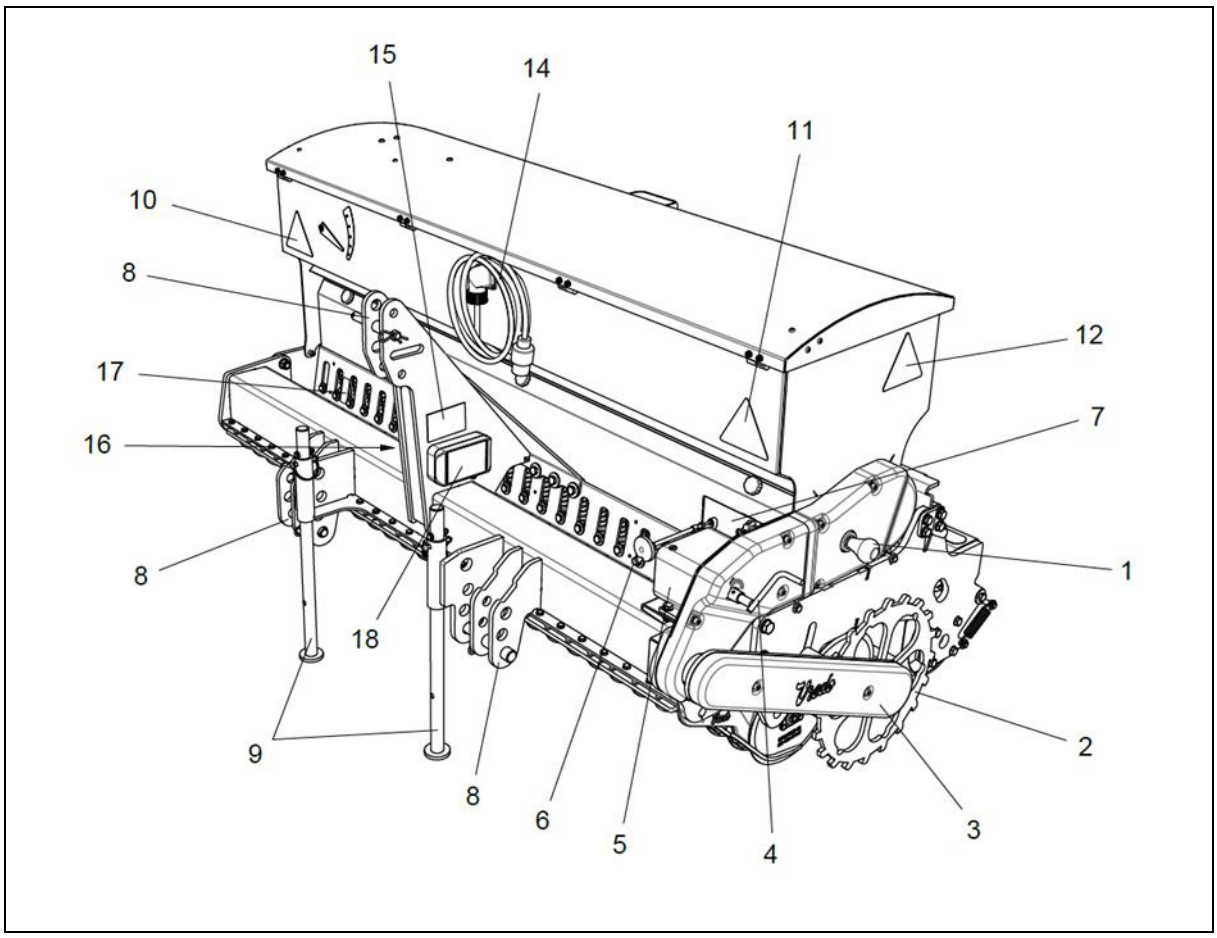


Figure 2 - Overseeder front view

Item	Nomenclature front view
1	Dosing axle release knob
2	Paddle wheel
3	Driving wheel guide
4	Calibration handle
5	Variator
6	Spindle variator
7	Hatch for tray compartment
8	3-Points universal hitch to attach to tractor vehicle
9	Park stands
10	Warning placard “keep distance”
11	Warning placard “keep distance”
12	Warning placard “remove ignition key before maintenance”
13	Level indicator
14	7-Pins connector for rear lights
15	Identification plate with manufacturer information
16	Warning placard “Advice how to lift the overseeder”
17	Placard to identify the spring pressure
18	Digital acre counter

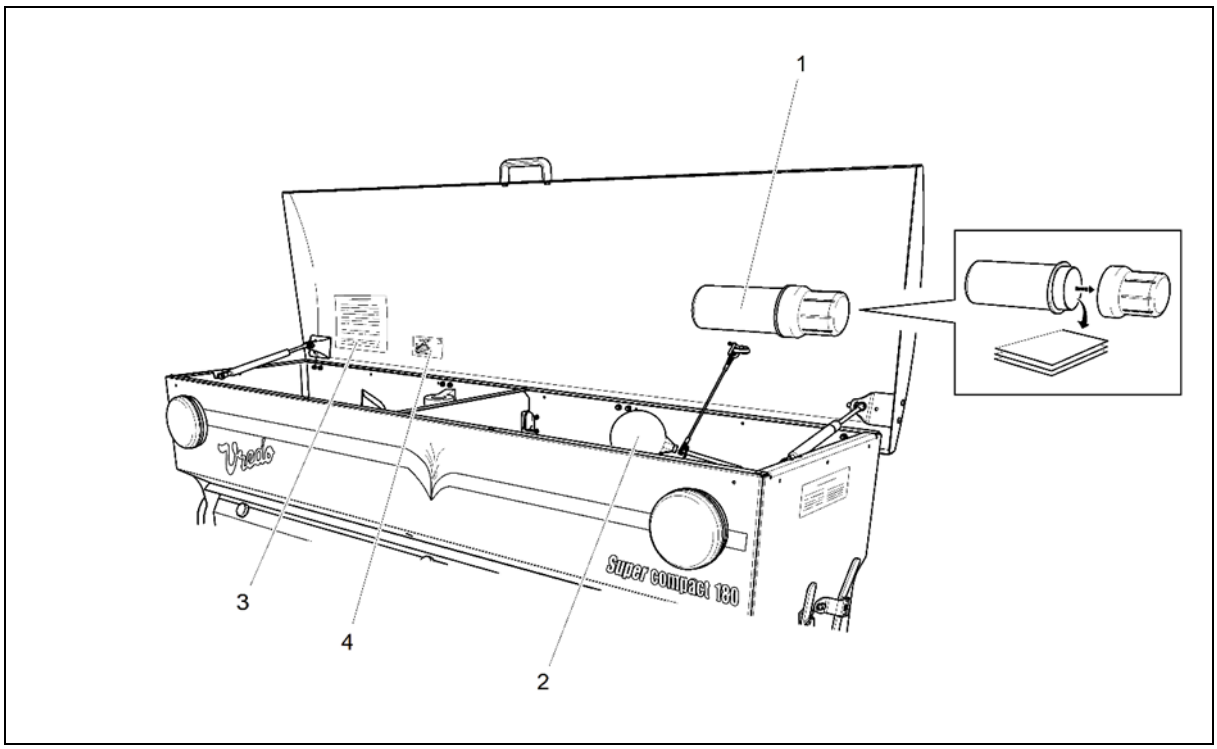


Figure 3 - Overseeder with open tray

Item	Nomenclature rear view with open tray
1	Document holder
2	Floater
3	Warning placard “Forbidden to drive backwards or turns”
4	Registration placard

3.2. The seeding principle

During the installation of the overseeder, we assume that the first calibration has been carried out, and the depth of the cutting discs compared to the ground surface is also adjusted.

The adjustment of the depth of the cutting discs depends of the type of seed that has to be used, because each type of seed has its own size and shape.

In general there is a golden rule which says, to obtain the best seeding depth, measure the average seed length and multiply by 2.5. Due to the growing conditions and the advice of the seed suppliers there might be deviated from. In formula:

Average seed length multiply by factor 2,5

Imagine that the average measured grass seed is approximately 6 mm in length, the size will be multiplied by 2,5. Therefore to adjust the correct cutting depth of the cutting discs, use the formula:

6 mm x 2,5 = 15 mm **Cutting depth = 15 mm**

The overseeder is correct prepared, adjusted and attached to the tractor vehicle, and the tray is filled up with the precalculated amount of grass seed.

During the seeding procedure (see figure 4) the dosing axle (single or double) will distribute the grass evenly through the dosing system to the cam wheel. The direction of rotation of the cam wheel doses the grass seed through the bottom flap through the funnel.

The grass seed which falls in the funnel will directly lead through the hose or so called seed pipes. From that point it automatically comes between the cutter discs which doses the seed in the correct pre adjusted depth into the soil. The soil will rebound and finally the roller will flatten the surface to cover.

The combination of double cutter discs, compression springs and skids will take care of the best seeding depth, which is the best way to use the grass seed.

Example grass seed dosage

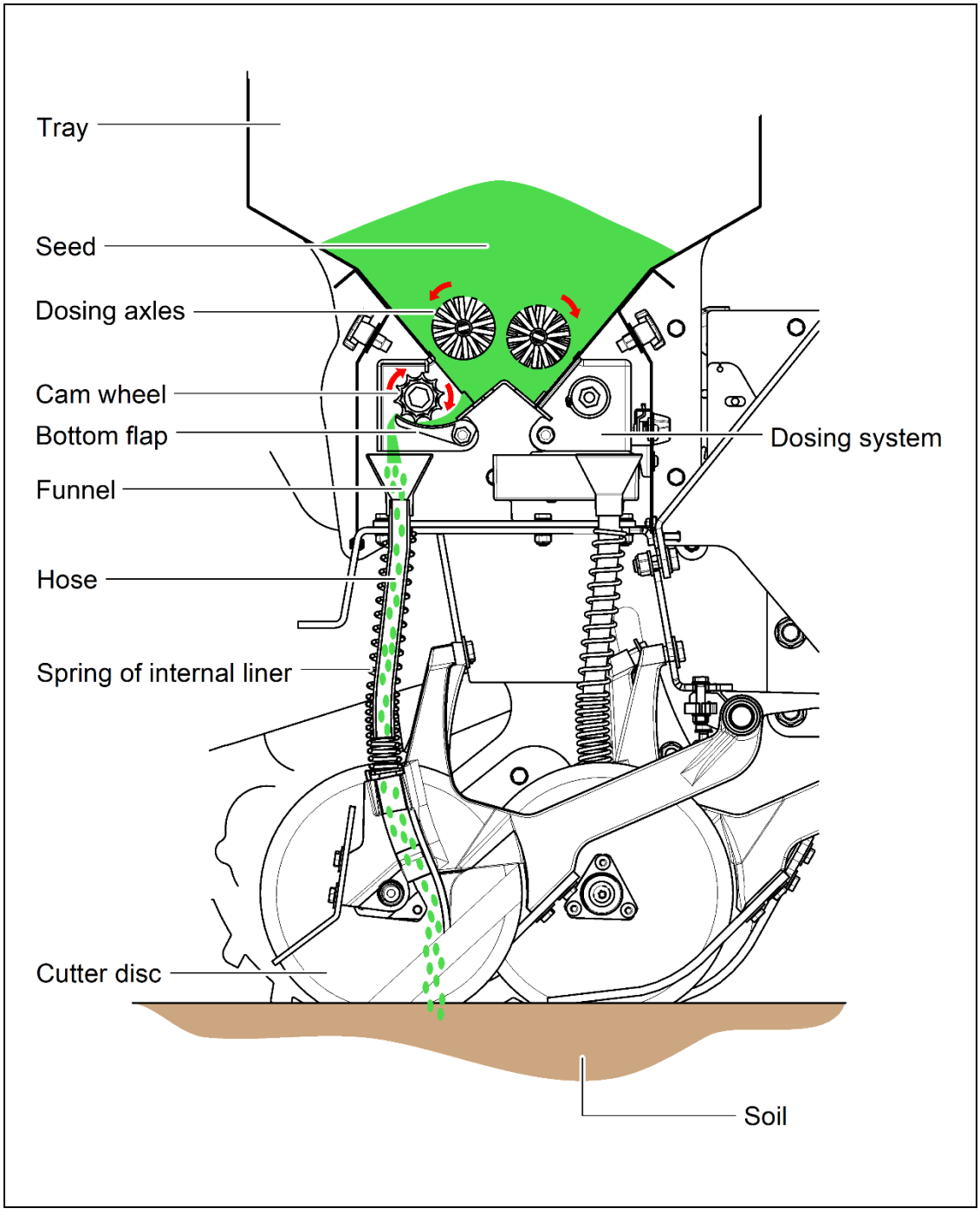


Figure 4 – Schematic view of seeding principle

3.3 Why a calibration test is needed, and how it works

By adjusting the correct amount of desired seed that is needed per square area, it is necessary to calibrate the overseeder.

For the Single compact and the Super compact a dosing chart is attached and located at the inside of the cover of the tray.

Vredo Single

Variator setting			
value	Position variator	value	Position variator
	0	1.92	2.3
-	0.1	1.78	2.4
36.49	0.2	1.69	2.5
24.63	0.3	1.55	2.6
14.59	0.4	1.51	2.7
12.22	0.5	1.46	2.8
9.67	0.6	1.41	2.9
8.21	0.7	1.37	3
6.84	0.8	1.23	3.1
5.84	0.9	1.19	3.2
5.29	1	1.17	3.3
4.74	1.1	1.11	3.4
4.20	1.2	1.06	3.5
3.83	1.3	1.02	3.6
3.65	1.4	0.99	3.7
3.10	1.5	0.97	3.8
2.92	1.6	0.91	3.9
2.83	1.7	0.87	4
2.65	1.8	0.84	4.1
2.37	1.9	0.82	4.2
2.28	2	0.80	4.3
2.10	2.1	0.77	4.4
2.01	2.2	0.73	4.5

Turn crank handle 10 revolutions
calibration weight (gr) / kg/Ha = value

Vredo duo

Variator setting			
value	Position variator	value	Position variator
-	0	0.96	2.3
-	0.1	0.89	2.4
18.24	0.2	0.84	2.5
12.31	0.3	0.78	2.6
7.30	0.4	0.75	2.7
6.11	0.5	0.73	2.8
4.83	0.6	0.71	2.9
4.10	0.7	0.68	3
3.42	0.8	0.62	3.1
2.92	0.9	0.59	3.2
2.65	1	0.58	3.3
2.37	1.1	0.56	3.4
2.10	1.2	0.53	3.5
1.92	1.3	0.51	3.6
1.82	1.4	0.49	3.7
1.55	1.5	0.48	3.8
1.46	1.6	0.46	3.9
1.41	1.7	0.43	4
1.32	1.8	0.42	4.1
1.19	1.9	0.41	4.2
1.14	2	0.40	4.3
1.05	2.1	0.38	4.4
1.00	2.2	0.36	4.5

Turn crank handle 10 revolutions
calibration weight (gr) / kg/Ha = value

Single compact	Super compact

DZ5 Single and Super dosing chart

The calibration (see figures 5 – 9) will be carried out as follows:

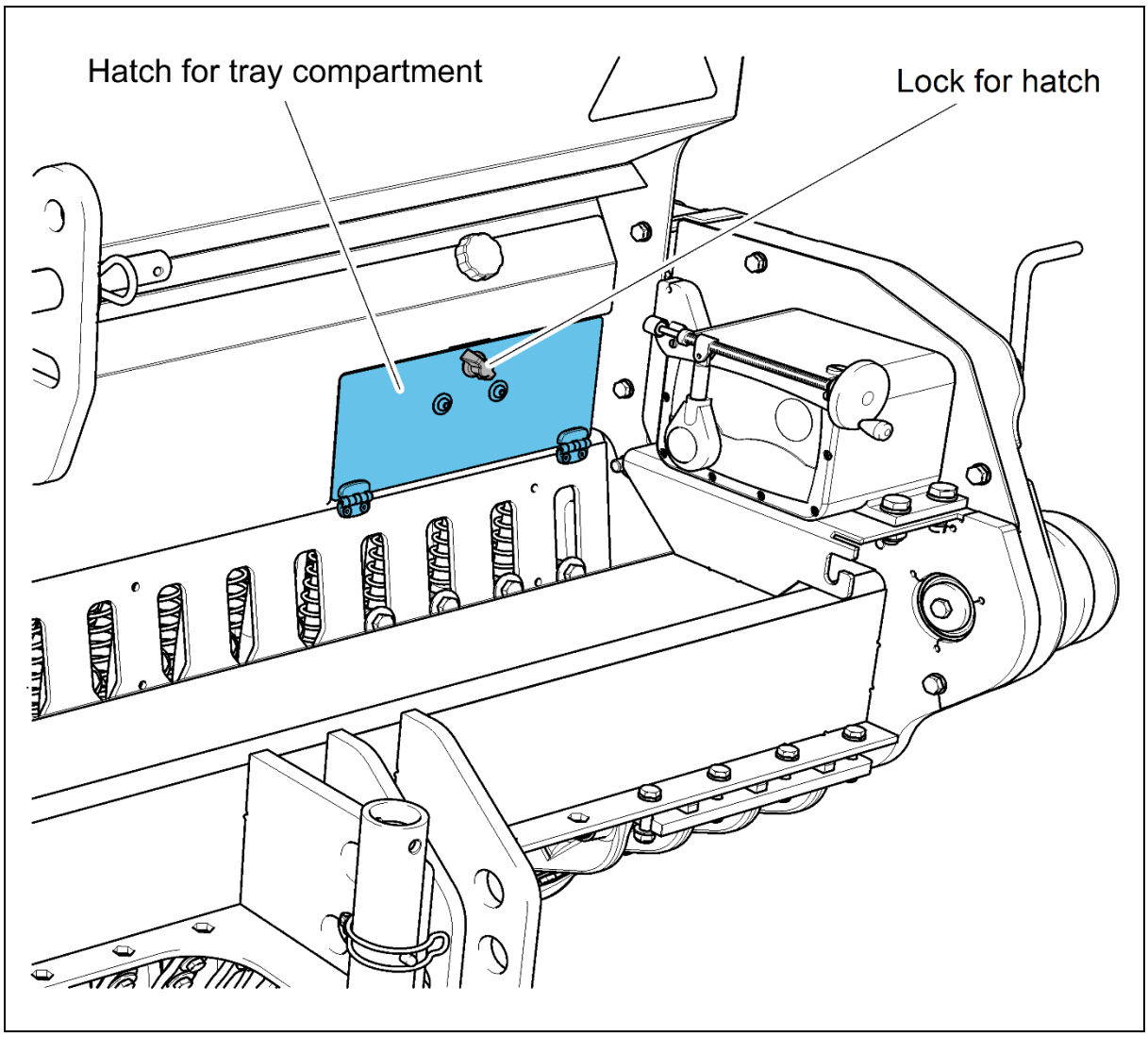


Figure 5 - The calibration

1. Fill the tray with the predefined amount of grass seed.

Remark:

For the best dosage of the seed it is recommended to fill up the tray with 5% more as needed. This is to keep the dosing axles covered with seed.

2. Turn the lock to open the latch of the tray compartment.

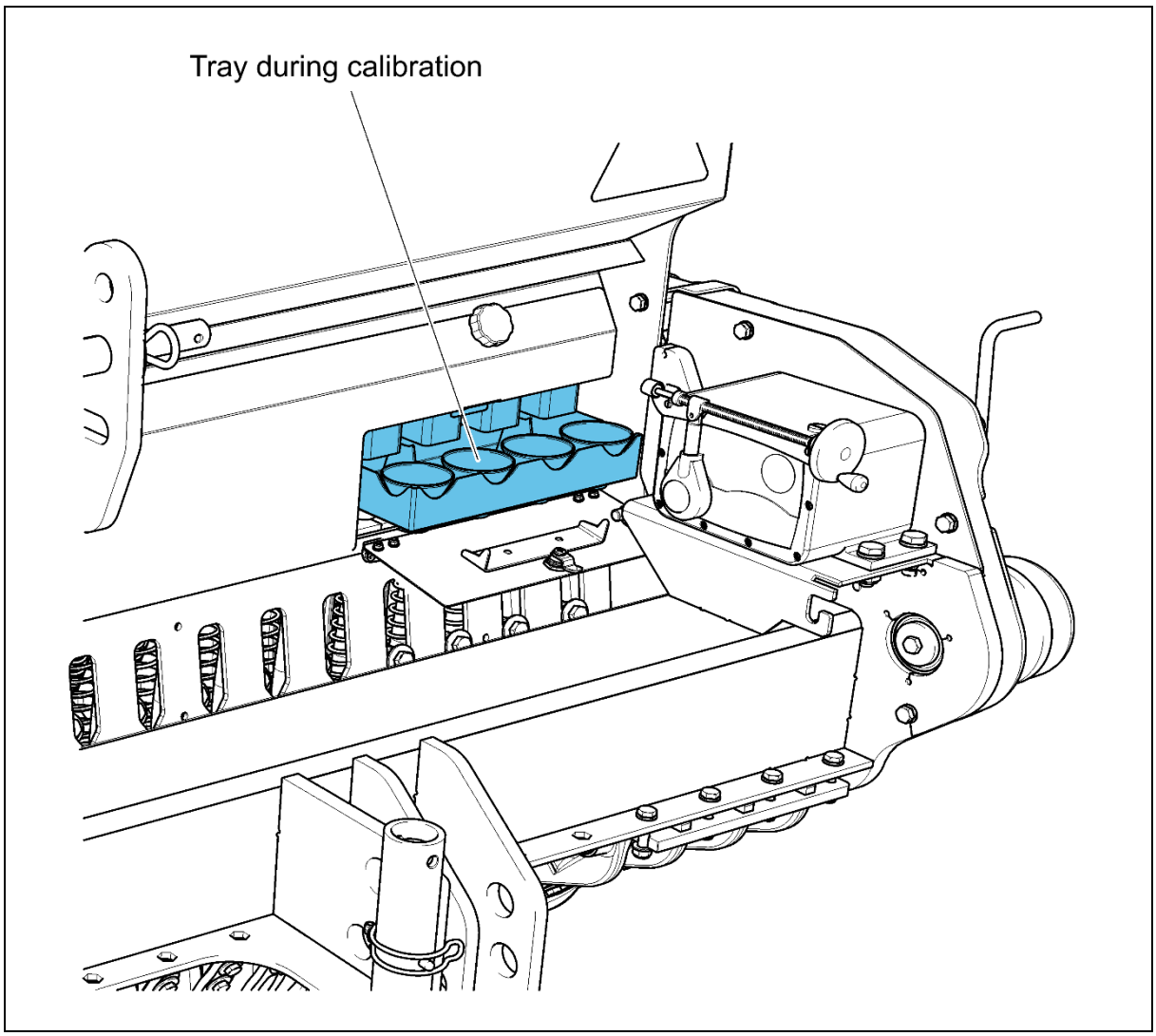


Figure 6 - The calibration

3. Open the hatch.

4. Slide the tray approximately 10 cm outwards, and make sure that the four (4) dose spouts are not above the funnels of the trays.

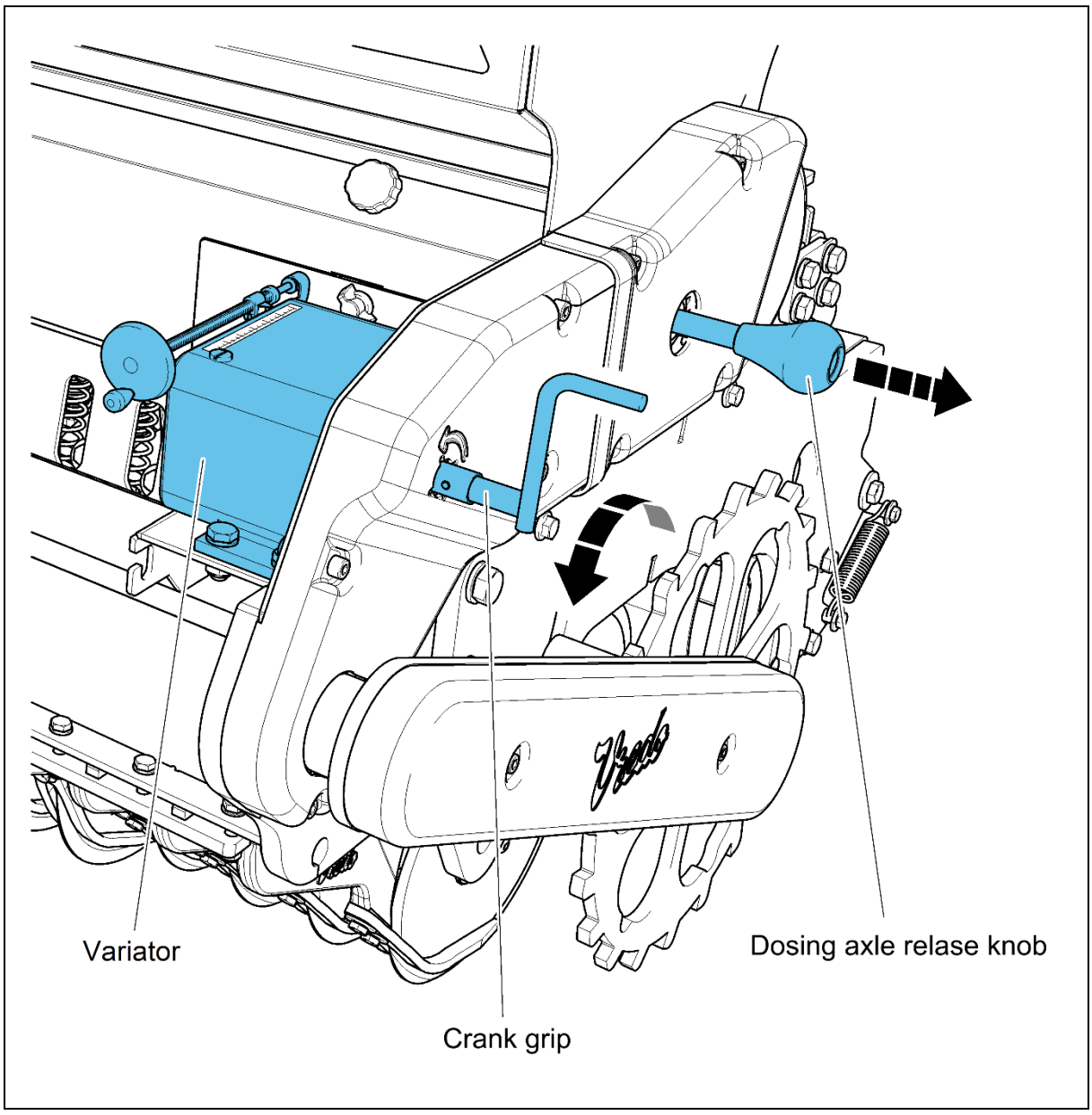


Figure 7 - The calibration

5. Pull the dosing axle release knob outwards.
6. Remove the crank grip out of the holder, located under the variator, and place it inside the right side of the frame.
7. Rotate the handle 10 times anti-clockwise to fill up the cam wheel and the seed case with grass seed.
8. Empty the tray, and replace the tray in position for the official calibration (refer to point 4).
9. Rotate the handle 10 times anti-clockwise for the official calibration.

Remark:

By unlocking the seed axle, only the location of the tray will be used to collect the grass seed during the calibration. The collected amount of grass seed is the specimen.

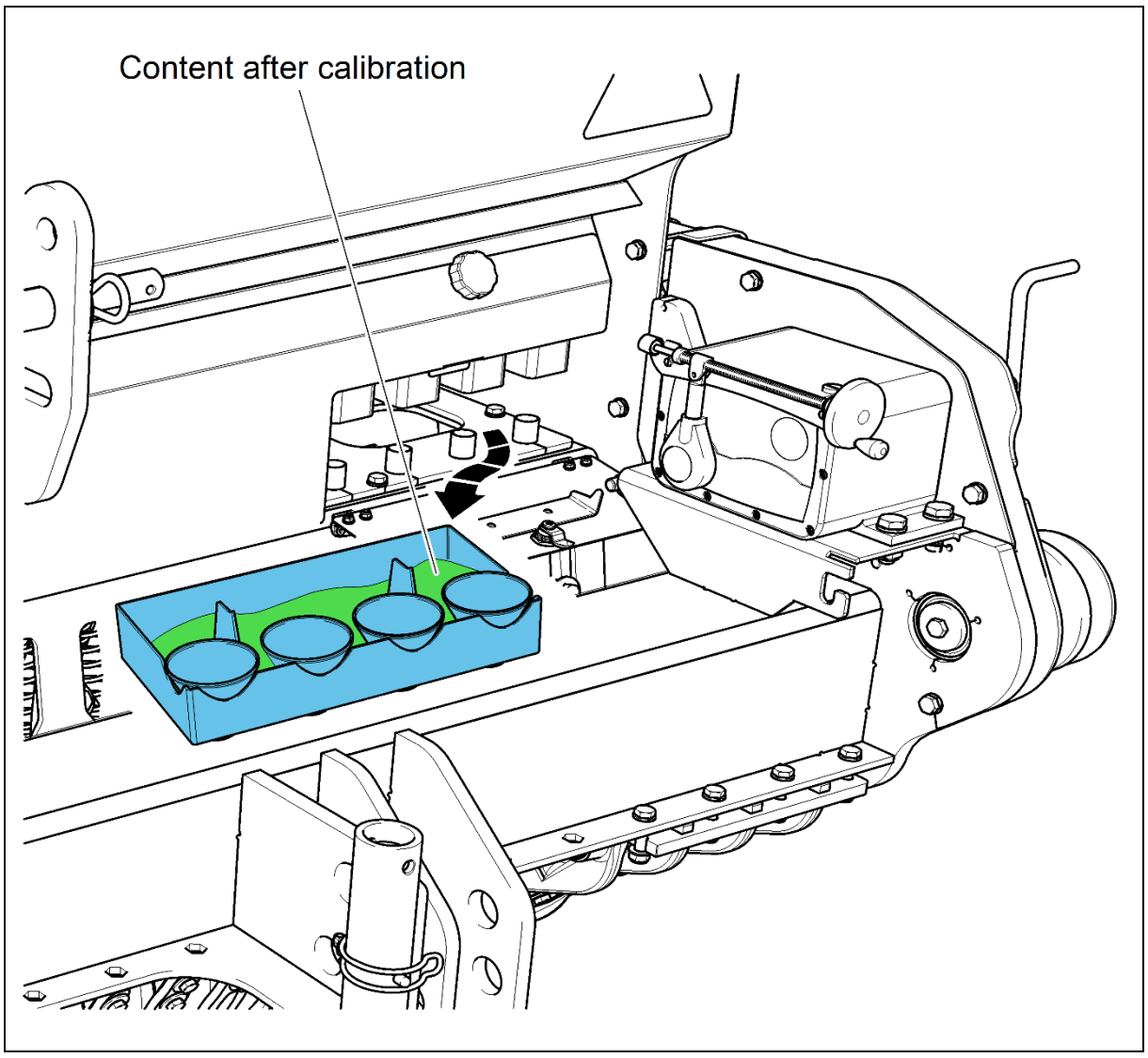


Figure 8 - The calibration

10. Remove the tray including the collected grass seed without spilling, carefully out of the compartment.

11. Empty the content in a cup to weigh the amount of grass seed.

Remark:

The amount of grass seed which is collected during the calibration, must be weighted e.g. with a digital scale.

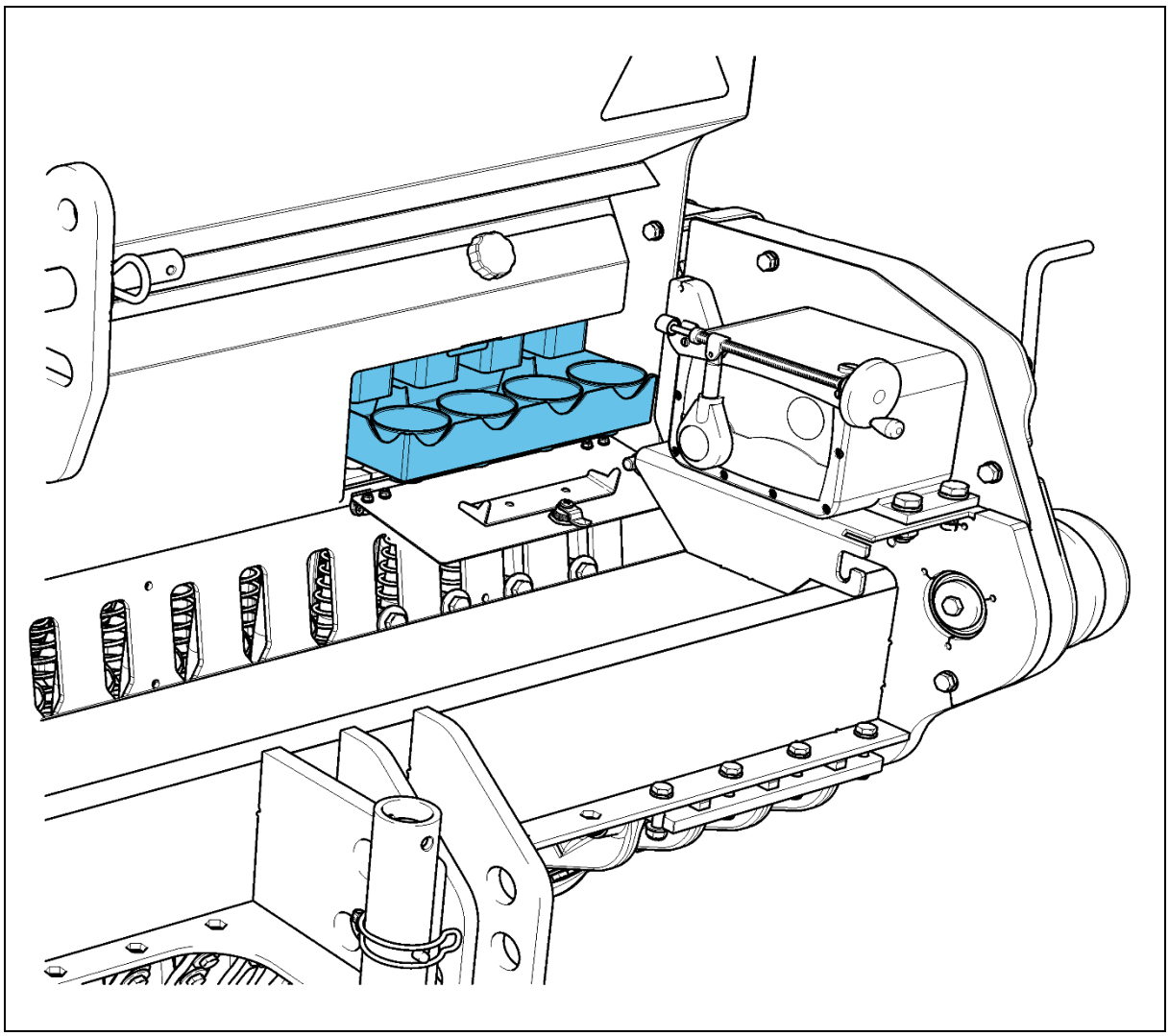


Figure 9 - The calibration

12. After weighing the content, place the tray back into the tray compartment.
13. Close the hatch.
14. Remove the calibration handle out of the frame, and place it in the holder under the variator.
15. Press the dosing axle shaft release knob back in its position, and check if the entire dosing axle will be driven.
16. The calibration is now completed.

The calibration is completed, and the amount of grass seed is weighed and listed and will be used in the formula. This formula will finally result by a dimensionless value. This value will be used to adjust the variator (see figure 7).

Before the calibration took place, the seed dosage per kilograms per square was calculated. Also the information listed on the packaging retrieved from the supplier gives us an estimated impression how much grass seed is needed. For the correct dosage the overseeder must be finally adjusted with the variator.

Depend on the type of grass, the amount which will be used to seed can be various. So for this example an amount of 110 grams of grass seed was collected during the calibration. The grass type that is needed per hectare is 80 kilogram. In order to adjust the variator the following formula is used:

x-gr / x kg (per ha) calculating **110 gr. / 80 kg (per ha) = 1.375**

This value can be used for both type of overseeders; the Single compact and the Super compact.

For the Single compact the variator will be adjusted on number 3.

For the Super compact the variator will be adjusted between number 1.7 and 1.8.

Vredo Single

Variator setting			
value	Position variator	value	Position variator
	0	1.92	2.3
-	0.1	1.78	2.4
36.49	0.2	1.69	2.5
24.63	0.3	1.55	2.6
14.59	0.4	1.51	2.7
12.22	0.5	1.46	2.8
9.67	0.6	1.41	2.9
8.21	0.7	1.37	3
6.84	0.8	1.23	3.1
5.84	0.9	1.19	3.2
5.29	1	1.17	3.3
4.74	1.1	1.11	3.4
4.20	1.2	1.06	3.5
3.83	1.3	1.02	3.6
3.65	1.4	0.99	3.7
3.10	1.5	0.97	3.8
2.92	1.6	0.91	3.9
2.83	1.7	0.87	4
2.65	1.8	0.84	4.1
2.37	1.9	0.82	4.2
2.28	2	0.80	4.3
2.10	2.1	0.77	4.4
2.01	2.2	0.73	4.5

Turn crank handle 10 revolutions
calibration weight (gr) / kg/Ha = value

Vredo duo

Variator setting			
value	Position variator	value	Position variator
-	0	0.96	2.3
-	0.1	0.89	2.4
18.24	0.2	0.84	2.5
12.31	0.3	0.78	2.6
7.30	0.4	0.75	2.7
6.11	0.5	0.73	2.8
4.83	0.6	0.71	2.9
4.10	0.7	0.68	3
3.42	0.8	0.62	3.1
2.92	0.9	0.59	3.2
2.65	1	0.58	3.3
2.37	1.1	0.56	3.4
2.10	1.2	0.53	3.5
1.92	1.3	0.51	3.6
1.82	1.4	0.49	3.7
1.55	1.5	0.48	3.8
1.46	1.6	0.46	3.9
1.41	1.7	0.43	4
1.32	1.8	0.42	4.1
1.19	1.9	0.41	4.2
1.14	2	0.40	4.3
1.05	2.1	0.38	4.4
1.00	2.2	0.36	4.5

Turn crank handle 10 revolutions
calibration weight (gr) / kg/Ha = value

Single compact	Super compact

3.4 The function of the bottom flap handles

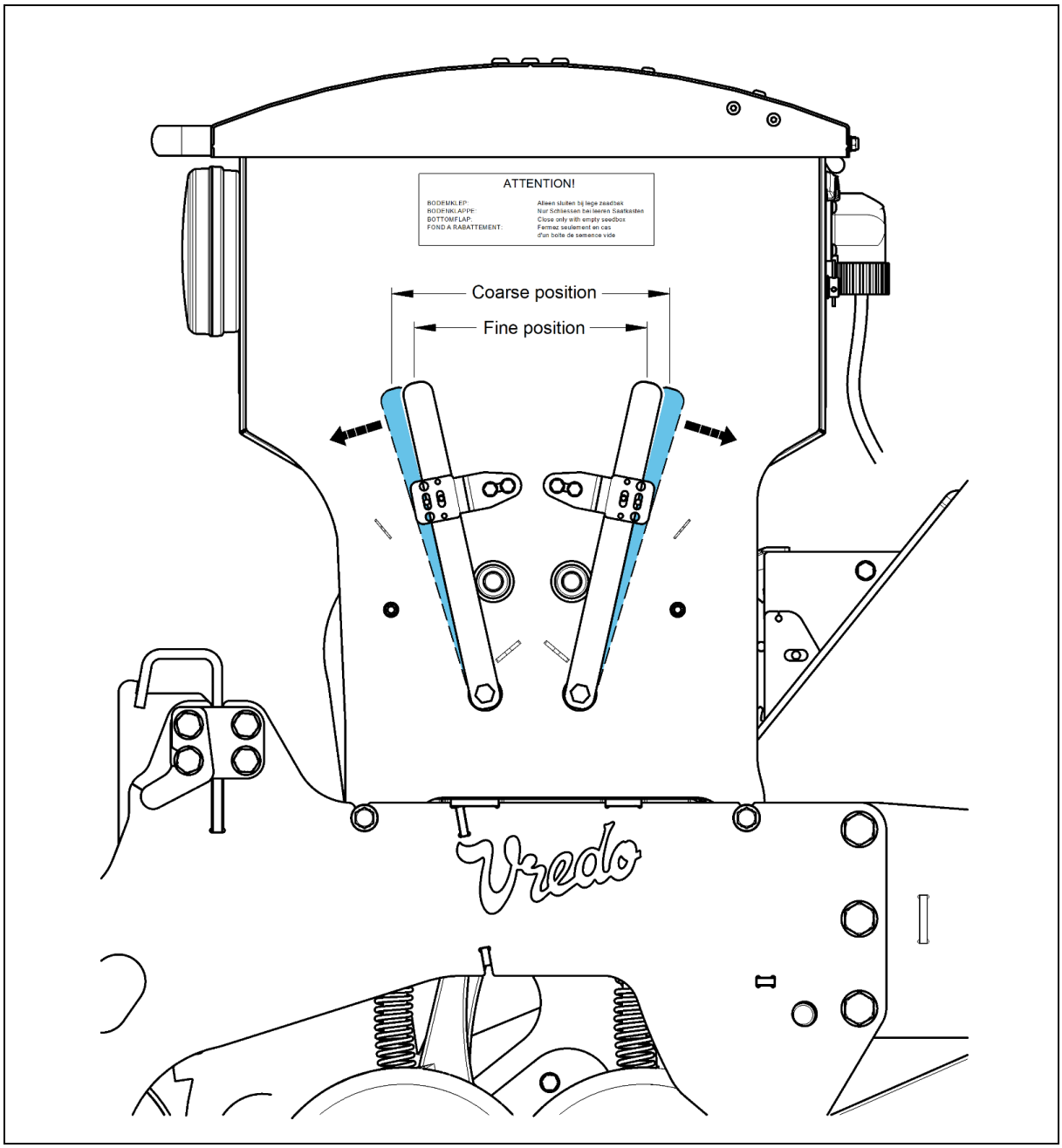


Figure 10 - Detail of the bottom flap handle(s) - side view

By using the bottom valve handle(s), the position of the bottom valve compared to the cam wheel can be adjusted. The adjustment of the handle(s) depends of the coarseness of the type of seed.

The Single compact series has one (1) handle, and the Super compact series has two (2) handles.

For the adjustment, please refer to figure 10.

Both handles must be moved out of the securing lock in order to adjust the coarseness. When both handles are positioned to the far right and left, the coarseness is adjusted to a coarse seed selection, e.g. peas. The bottom valve bracket is provided with a hole pattern that indicates the coarseness. The smaller hole pattern apply to fine seed, and the larger hole pattern apply to more coarser seed.

3.5 The use of the 3-point hitch

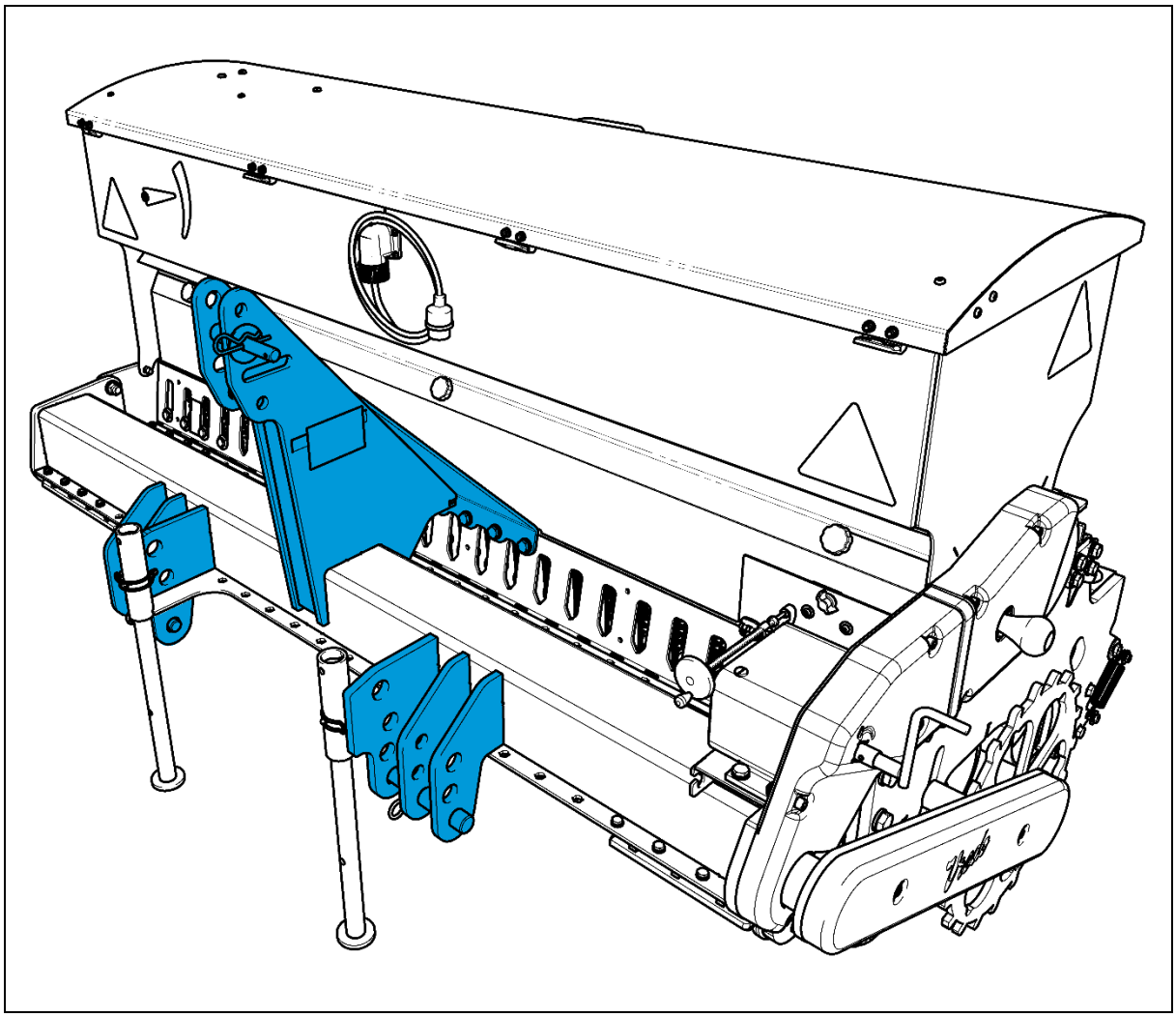


Figure 11 - Location of the 3-point hitch

The DZ5 overseeder is provided with a 3-point universal hitch. This 3-point universal hitch is a standard construction that can be used to mount the overseeder to any type of tractor vehicle.

3.6 The function of the draw bar/wheel set combination

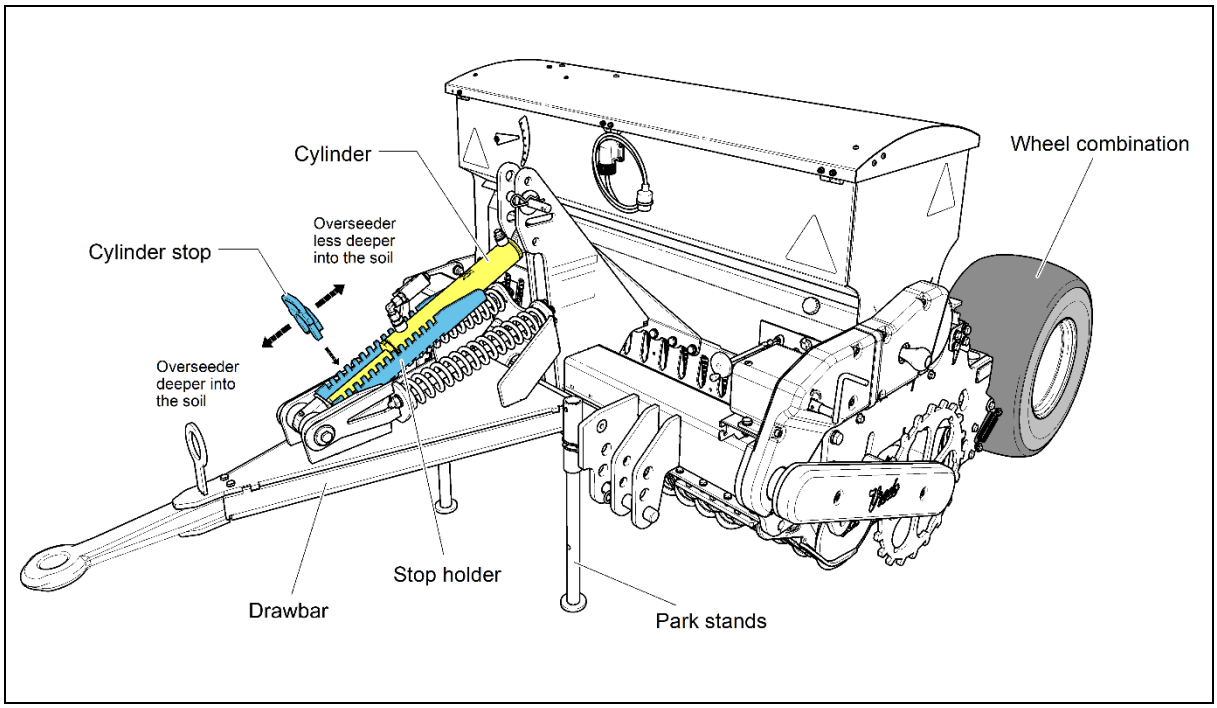


Figure 12 - Drawbar/wheel set combination

From the Super compact 140 overseeder, there is an option on a drawbar/wheel set combination. With this option the overseeder can be mounted e.g. onto a tractor vehicle, instead of using the 3-point hitch.

This drawbar/wheel set combination works as follows. When the tractor vehicle with the overseeder arrives at the field, the hydraulic system is activated from the tractor vehicle, and the wheel set will rise first followed by the drawbar. This will lower the overseeder to the ground.

Subsequently, the correct sowing depth (see formula 2.5 x seed length) must be adjusted through the drawbar. The correct sowing depth can be adjusted by moving the cylinder stop on the stop holder.

By removing the cylinder stop from the stop holder, it can be moved step by step closer or further from the cylinder. When the cylinder stop is placed further away from the cylinder in the stop holder, a higher spring pressure will arise.

If the cylinder stop is placed closer towards the cylinder, a lower spring pressure will occur. This will cause the overseeder to sow deeper or shallower. The cylinder stop has two sides used for whole or half steps.

Check the seeding depth after driving 10 meters and adjust if necessary. Check the sowing depth regularly, because the soil conditions may vary.

Remark

When decouple the overseeder from the tract vehicle, the ball valve must be closed first and finally all hydraulic hoses must be depressurized.

3.7 Options

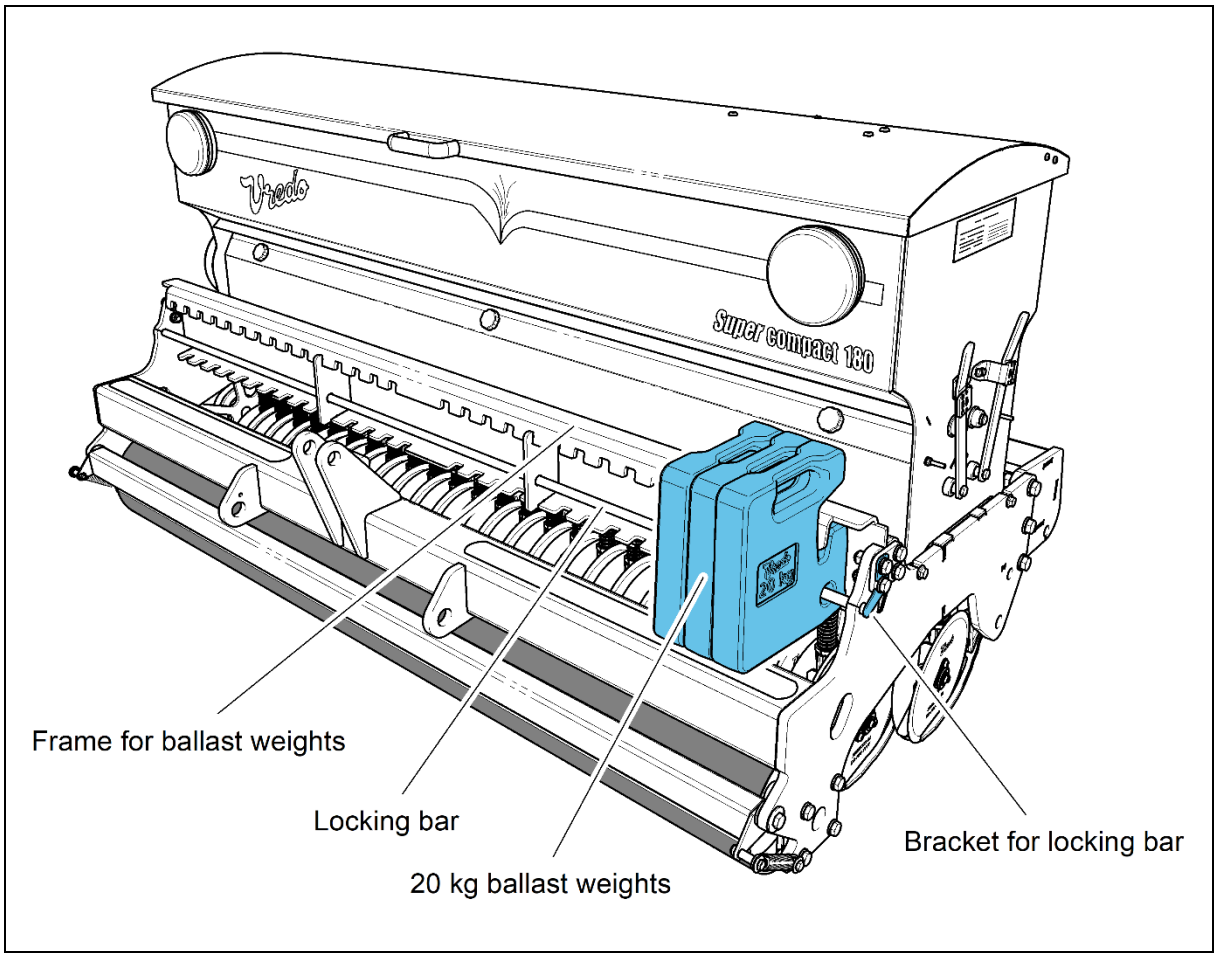


Figure 13 – Installation/removal of extra weights

There is an option to provide an overseeder with extra ballast weights, by adding 20 kg weights onto the frame at the rear side. With additional weights the cutting discs can cut deeper into the soil.

To install or remove extra weights, the following steps needs to be carried out.

1. Loosen the two (2) hexagon bolts that keeps the bracket of the locking bar in place.
2. Slide the bracket to the far right.
3. Slide the visible locking bar completely outwards the overseeder.
4. Install or remove the desired numbers of weights.
5. Slide the locking bar completely in the overseeder. Make sure that the locking bar goes through the hole pattern of each weight.
6. Slide the bracket of the locking bar back to its position.
7. Tighten the two (2) hexagon bolts to keep the bracket in place

4 Technical information

4.1 General dimensions

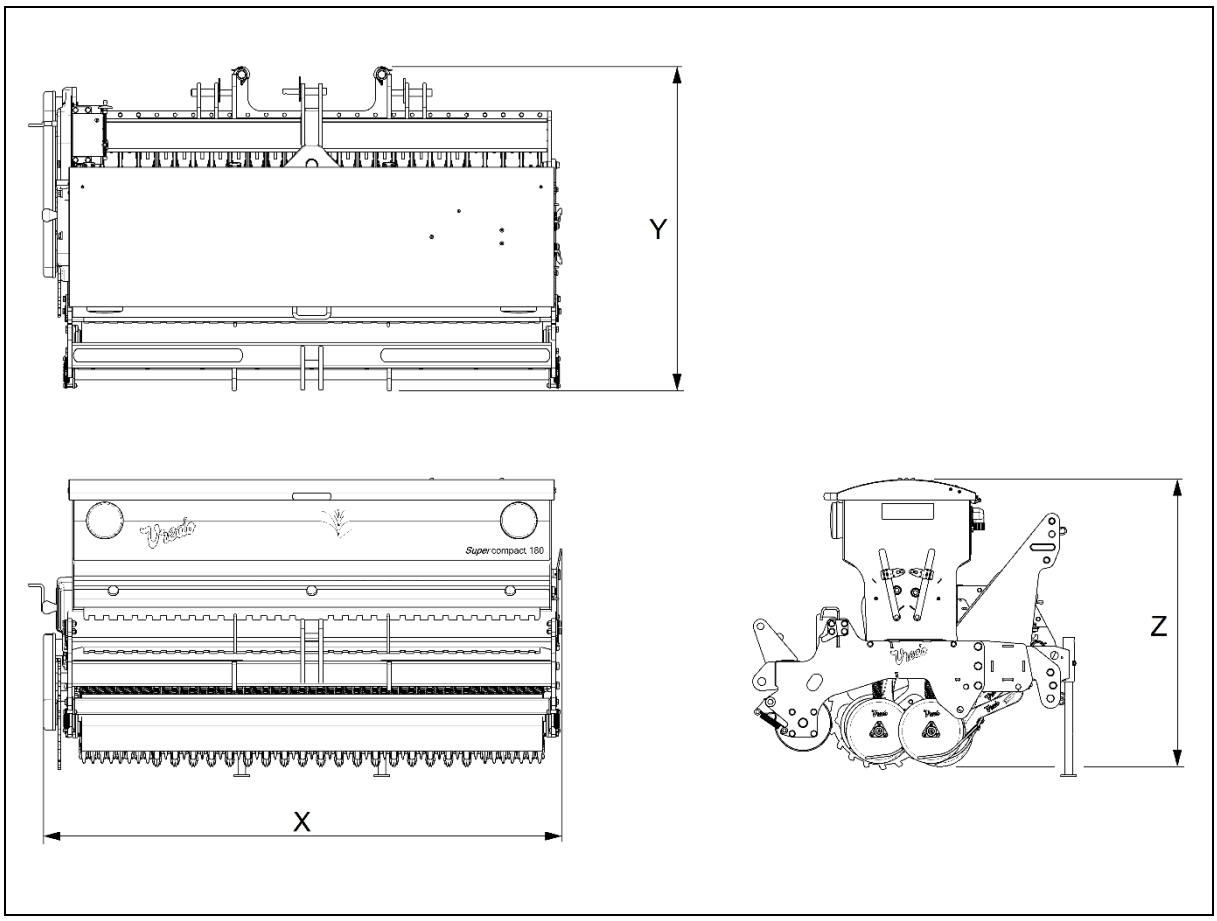


Figure 14 – General dimensions overseeders

Model	X	Y	Z
Single compact 100	1150	1055	1084
Single compact 140	1570	1055	1084
Single compact 180	1990	1055	1084
Single compact 220	2410	1055	1084
Super compact 100	1150	1234	1084
Super compact 140	1570	1234	1084
Super compact 180	1990	1234	1084
Super compact 220	2410	1234	1084
Remark: Dimensions are references and millimeters (mm)			

Table - Reference dimensions

4.2 Mass and weights

Model	Total empty weight (kg)	Maximum permitted 20 kg weights
Single compact 100	390	16
Single compact 140	490	22
Single compact 180	590	28
Single compact 220	700	36
Super compact 100	525	16
Super compact 140	680	22
Super compact 180	840	28
Super compact 220	990	36

Table - Mass and weigths

4.3 Working width, sow distance and content

Model	Workin width (meters)	Seeding distance (cm)	Content of tray (liters)
Single compact 100	0.98	7	164
Single compact 140	1.4	7	233.5
Single compact 180	1.82	7	303
Single compact 220	2.24	7	372.5
Super compact 100	0.945	3.5	167
Super compact 140	1.37	3.5	238
Super compact 180	1.79	3.5	309
Super compact 220	2.21	3.5	380

Table - Working width, seeding distance and content

4.4 Hydraulic diagram

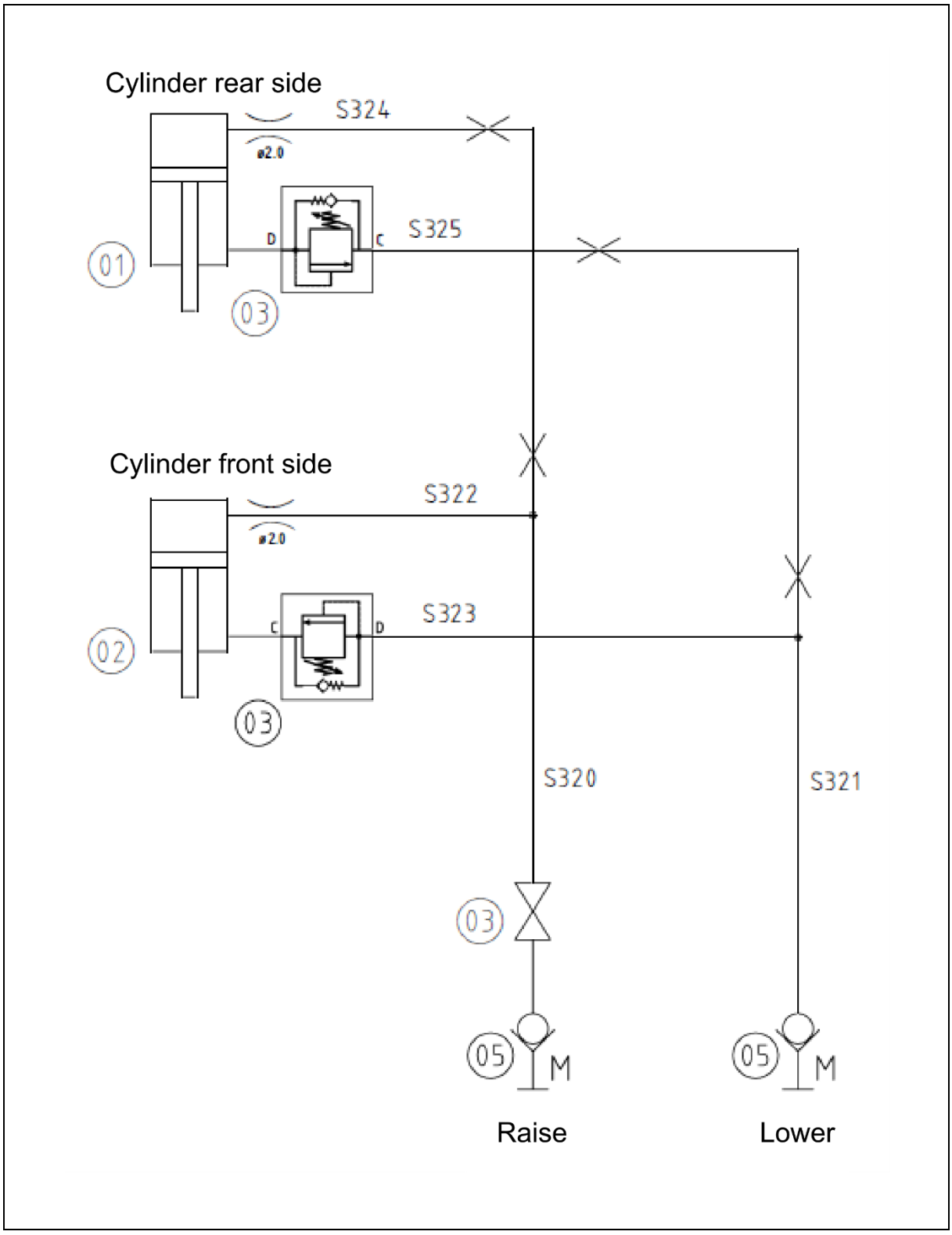


Figure 15 – Hydraulic diagram

4.5 Electrical diagram

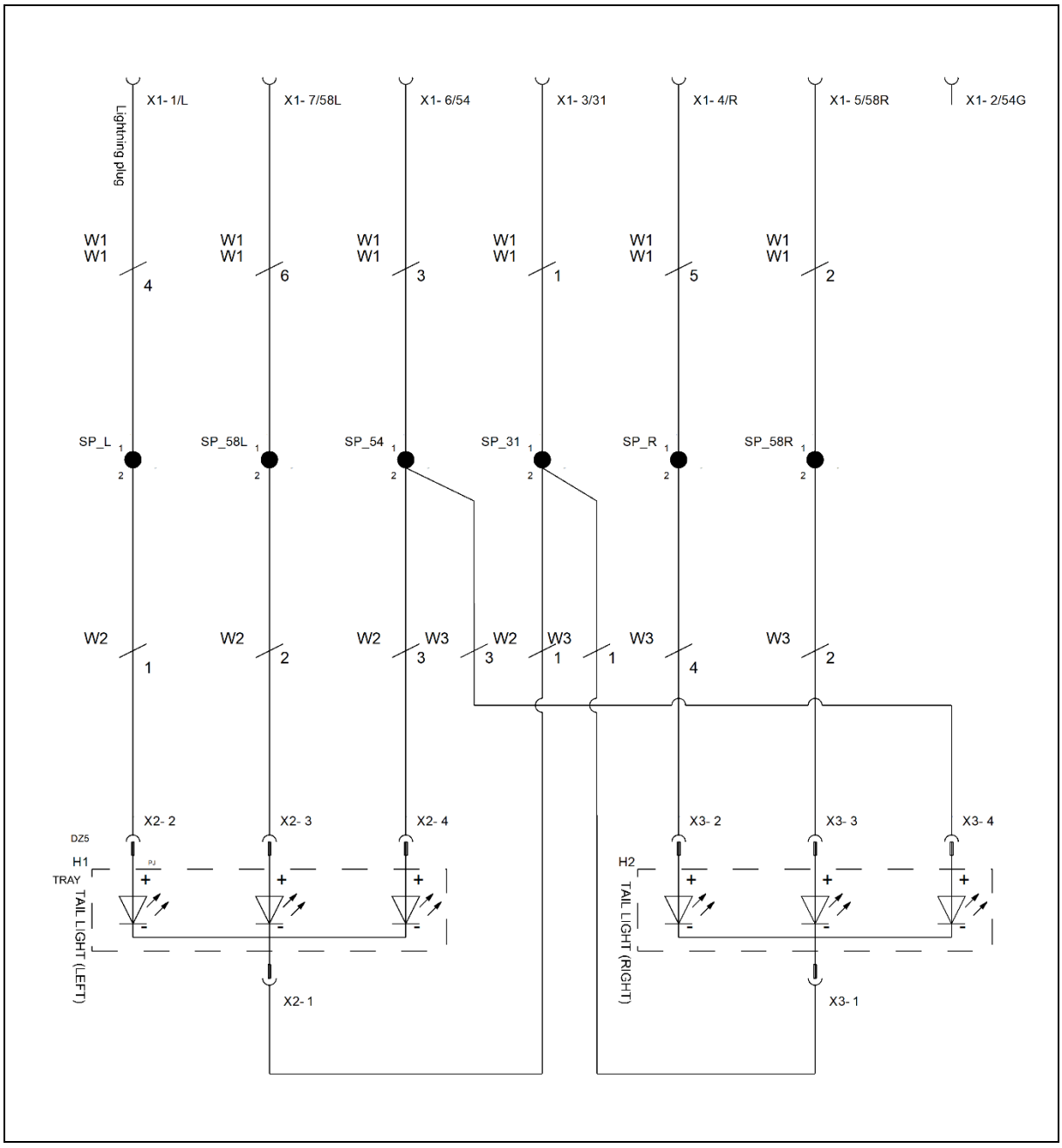


Figure 16 – Electrical diagram

5 General inspection, cleaning and maintenance

5.1 Visual inspection

Check the following parts of the overseeder:

- No damages at the overseeder are visible
- The overseeder is clean and dry
- No corrosion onto most essential components

- Check if there are no parts missing after transportation
- Readability of all placards
- A proper functionality of the rear lights

- The functionality of the chain tensioner
- The chain transmission from the paddle wheel to the transmission box
- The transmission from the seed axle to the dosing axle

- The seed pipes and pressure springs must be dry, and can be cleaned with compressed air
- The seed pipes must be free of blockage
- The seed axle must be inspected for heavy forced rotate and/or movement

- Tire pressure check (minimum 1,2 bar) (Only applicable for towed overseeders)
- Hydraulic hoses must be free of damages/leakages (Only applicable for towed overseeders)
- Check the drawbar eye for cracks and damages (Only applicable for towed overseeders)

Remark:

Malfunctions can occur due to improper/incompetence use or lack of maintenance.

Of

5.2 Cleaning the overseeder

When the seeding work is finished, it is very important to clean the overseeder on daily base. In particular, if the storage of the overseeder for a longer period of time is necessary, it is more important to pay sufficient attention.

There will always be residues of grass seed or another seeding medium in the lower part of the seed tray. These residues must always be removed, especially during storage where humidity is present. It is also recommended to store the overseeder in a dry and covered place.

Remark:

If the overseeder must be stored for a longer period of time, a stable support by the use of the adjustable park stands is recommended. Make sure that the cutter discs are not placed on the ground e.g. bricks or concrete.

Remark:

If an overseeder is not cleaned and stored on time properly, the seed residues in the seed box and tray will germinate. This can cause malfunctions and it will also make it very difficult to clean the seed box and other related components.

5.3 Lubrication of several parts

Lubricate the following parts of the overseeder:

Machine Part	Type of lubrication	Period
Driving chains	Oil	Frequently
Guide driving wheel carrier	Grease	Daily
Plastic cams	Grease	Daily
Transmission/Variator	Factory closed-circuit lubrication	Not applicable
Roller bearings	Grease	Frequently
Hinge points of hitch	Grease	Frequently
Drawbar eye	Grease	Frequently

Table – Lubrication overview

5.4 General torque value table for bolts and nuts

						
	Category 8.8		Category 10.9		Category 12.9	
	Lubricated	Dry	Lubricated	Dry	Lubricated	Dry
	N·m	N·m	N·m	N·m	N·m	N·m
M6	8.9	11.3	13	16.5	15.5	19.5
M8	22	27.5	32	40	37	47
M10	43	55	63	80	75	95
M12	75	95	110	140	130	165
M14	120	150	175	220	205	260
M16	190	240	275	350	320	400
M18	265	330	375	475	440	560
M20	375	475	530	675	625	790
M22	510	650	725	920	850	1080
M24	650	820	920	1150	1080	1350
M27	950	1200	1350	1700	1580	2000
M30	1290	1630	1850	2300	2140	2700
M33	1750	2200	2500	3150	2900	3700
M36	2250	2850	3200	4050	3750	4750

Table – Torque values for bolts and nuts

6 The digital acre counter

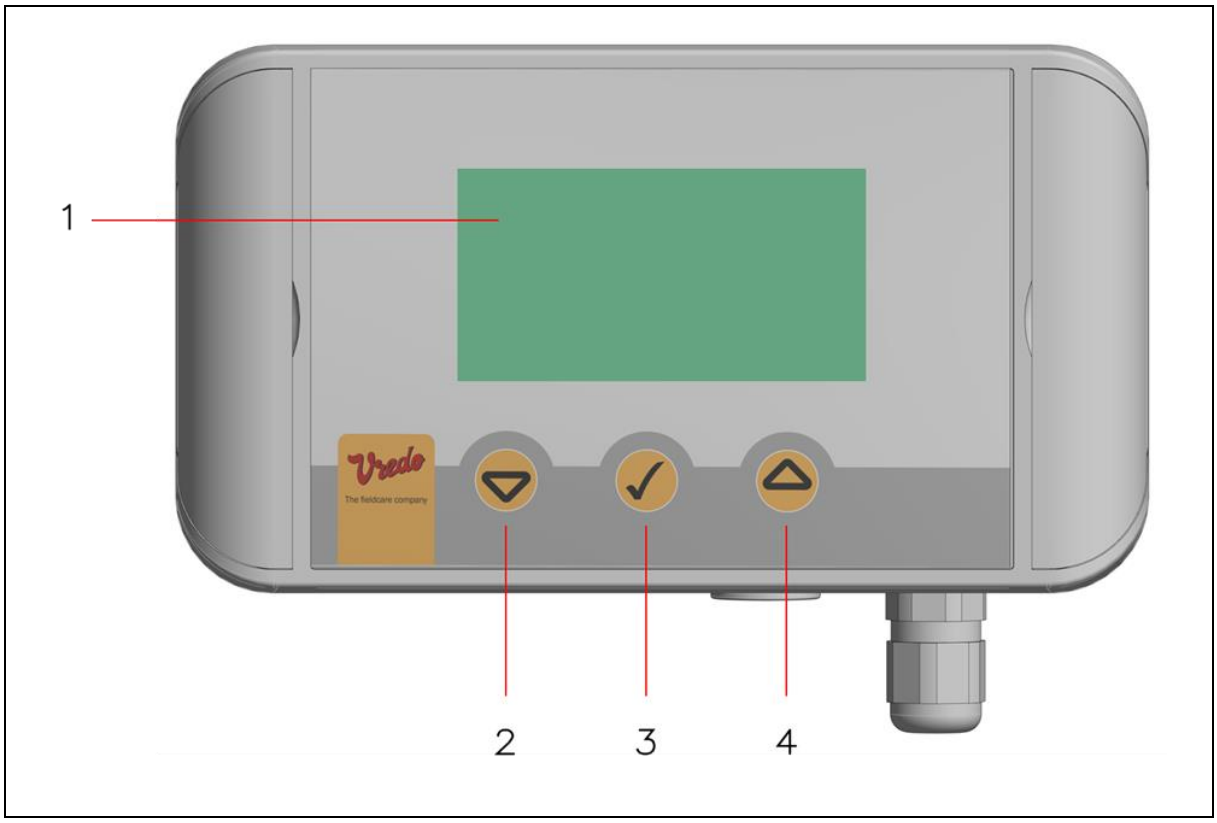


Figure 17 – Digital acre counter

Item	Description
1	Display
2	Button to scroll downwards through the menu
3	Button to confirm the selection
4	Button to scroll upwards through the menu

Table - Control buttons

Step	Settings of the overseeder working width in meters (m)			
		Value		Value
4	Single compact – 1.0 m	98	Super compact – 1.0 m	95
	Single compact – 1.4 m	140	Super compact – 1.4 m	137
	Single compact – 1.8 m	182	Super compact – 1.8 m	179
	Single Compact – 2.2 m	224	Super compact – 2.2 m	221

Table - Adjustable working width

Function	Description	Remark(s)
Welcome	Welcome screen with Vredo logo.	
Language	Select the desired language.	English ENG German DE Dutch NL
Contrast	Change the value to create a brighter or a darker display for a good visibility.	
View	Adjust the digits in the main menu.	Only 2 or 3 digits
Notation	Select the area into acres or hectare.	
Step	1 pulse is equal to 108 cm (4.252 inch).	Set value to 108 (standard)
Width	Setup the work width of the machine.	Refer to the overseeder table at the previous page. The width values are in cm.
	Press both buttons at the same time.	Only applicable to the Step and Width functions.

Table - Control functions digital hectare counter

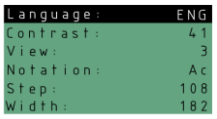
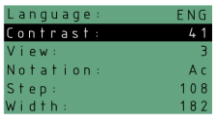
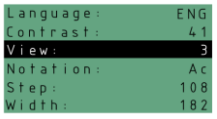
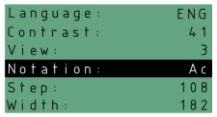
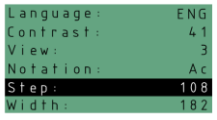
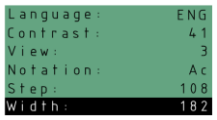
Step	Function	Button	Display
1	Welcome		
2	Menu		
3	Language		
4	Contrast		
5	View		
6	Notation		
7	Step		
8	Width		

Table - Settings digital hectare counter

6.1 Remove or install the batteries

Figure 18 – Location of the locking mechanism

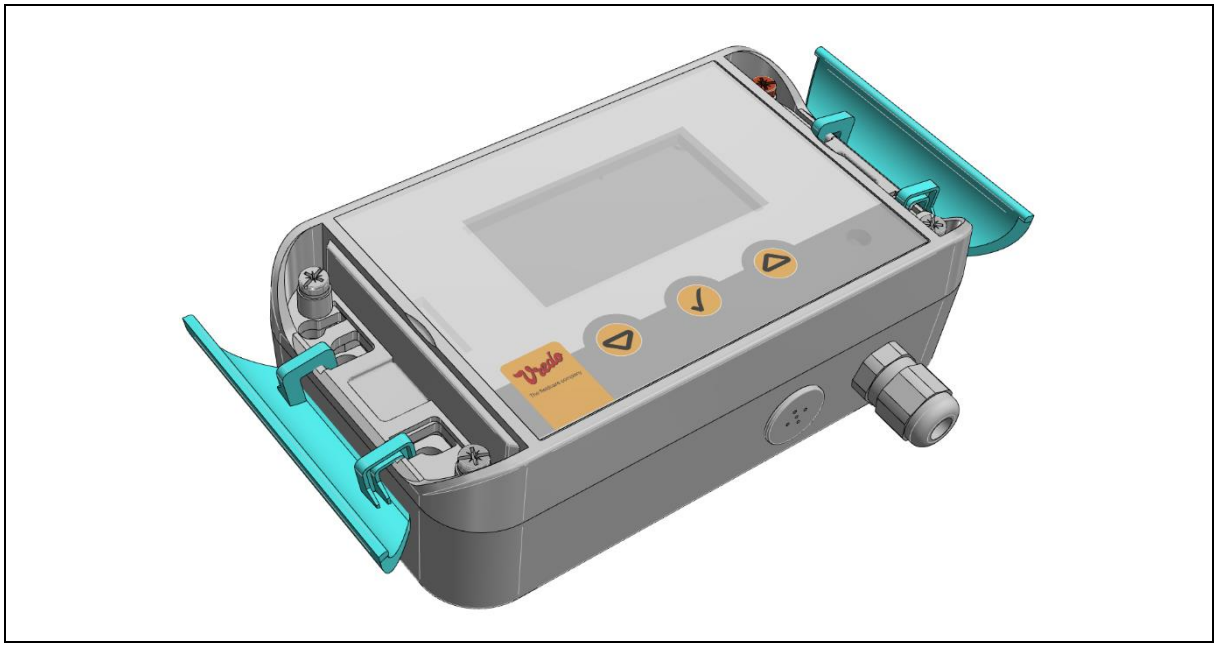


Figure 19 – Flip both locking mechanisms

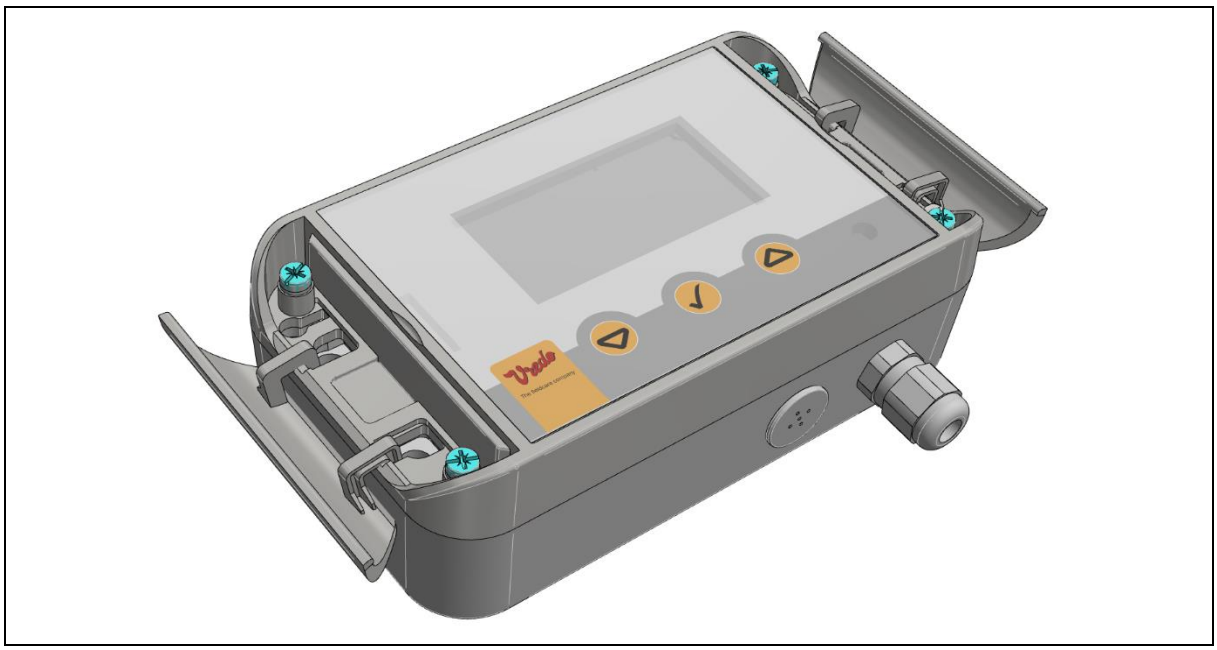


Figure 20 – Loosen the four mounting screws

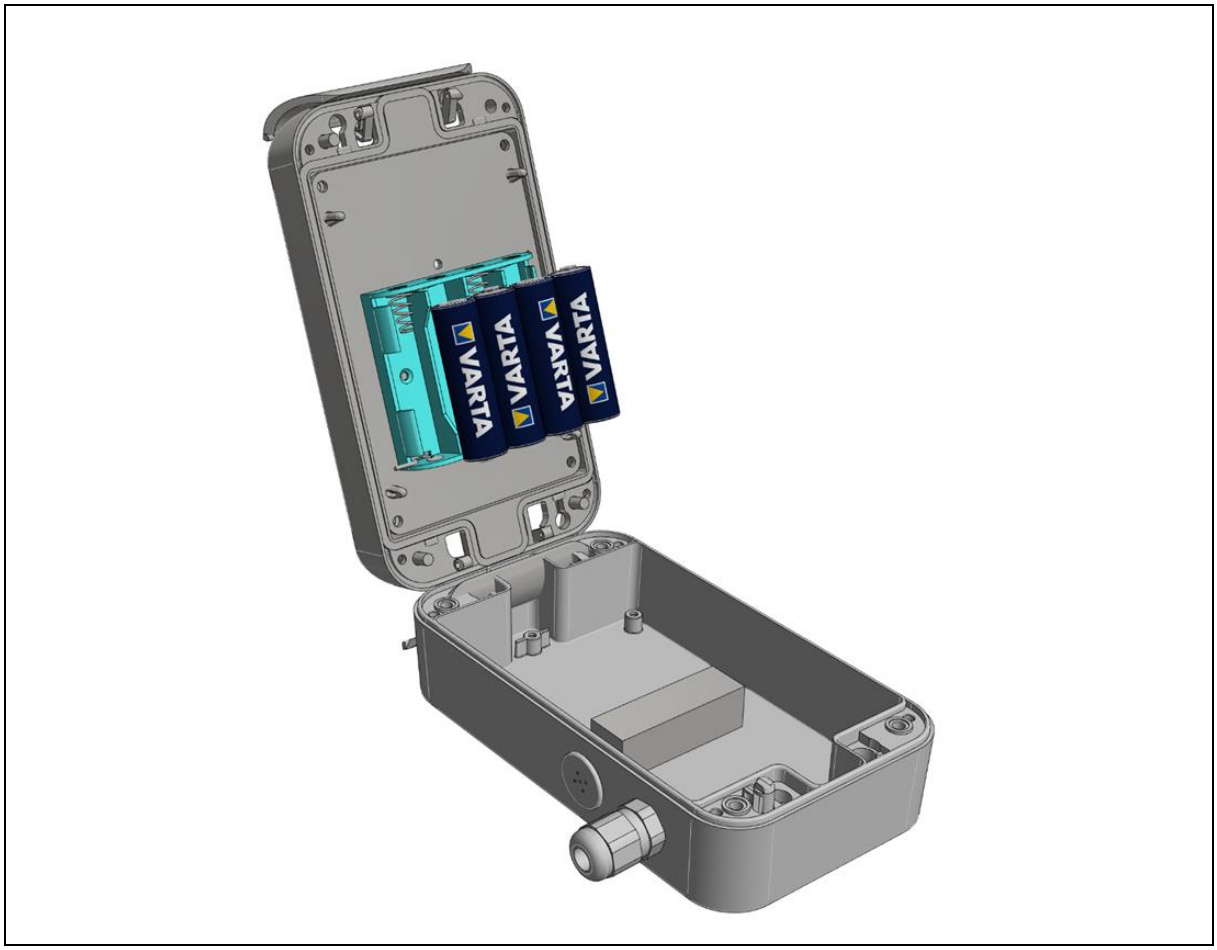


Figure 21 – Install or remove the batteries

7 EG Declaration

EG-DECLARATION OF CONFORMITY FOR MACHINERY

(according annex II A of the machine directive)

We,

VREDO Dodewaard BV
Welysestraat 25a
NL-6669 DJ Dodewaard
The Netherlands

Herewith we declare on our own responsibility, that the machinery:

Machine	: VREDO Overseeder
Series / family	: DZ5 / Single compact and Super compact
Type number	: DZ5xx.000

which this declaration refers to, is in accordance with the conditions of the following Directive(s)

Machinery Directive 2006/42/EG

And is in conformity with the following standard(s) or other such specifications:

NEN-EN-ISO 12100-1: 2003
NEN-EN-ISO 4254-1: 2002
NEN-EN-ISO 14018: 2000

The Netherlands, Dodewaard, 07-07-2021

J. de Vree, CEO - Vredo

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