

Original operating instructions

PS120M1 - PS500M1

Read this carefully before operating!

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CE

It should NOT be

an inconvenience or a luxury to read and comply with the operating instructions; you cannot simply experience from others that something is a good product, then make the purchase and assume everything will be self explanatory. Those who go down this route not only inflict damage on their own property, but make the mistake of attributing the cause of any failure to the machine, and not to themselves. In order to be sure of success you must get into the spirit of the thing, by learning about the purpose of each individual device on the machine and by gaining experience in how to use it. Only then will you be satisfied both with the machine and with yourself. These operating instructions are intended to help you achieve this.

Leípzíg-Plagwítz 1872

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1 EC Declaration of Conformity

compliant with Directive 2006/42/EC

The manufacturer APV Technische Produkte Ges.m.b.H. Dallein 15, A-3753 Hötzelsdorf hereby declares that the product

Pneumatic seed drill "PS 120M1" 150 M1" "PS 200 M1" "PS 250 M2" "PS 300 M1" "PS 500 M1"

Designation of machine type / Product no. (see delivery declaration and title page)

to which this declaration of conformity refers, complies with all relevant basic health and safety requirements of the EC Directive 2006/42 EC, as well as to the requirements of any other relevant EC directives

2006/42/EG

When applicable, insert the title / number / version of other EC Directives

In order to properly implement the health and safety requirements in the EC Directives, the following standards and/or technical specifications will be consulted:

EN 12100/1; EN 1200100/2

When applicable, insert title / number / version

Your contact on CE matters at APV is Herr Ing. Jürgen Schöls. He can be reached by telephone at +43 (0) 2913-8001.

Dallein, 2012 Location, date

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Signaturet

Ing. Jürgen Schöls Management

2 Provisions

Dear customer!

Congratulations! We are pleased you have purchased our product and wish you much enjoyment and success working with it!

Please read all instructions contained in these operating instructions before using the device!

3 Guarantee

On acceptance, please immediately check for any damage incurred to the device during transport. Claims made for transport-related damage at a later date cannot be accepted.

We provide a <u>one year factory warranty</u> from the date of delivery (your invoice or delivery note serves as the warranty card).

This guarantee is limited to faults in material or design/construction and does not extend to parts that are damaged by normal or excessive wear and tear.

The guarantee is voided if:

- the damage is caused by external forces
- operator error is at issue
- the stipulated requirements are not fulfilled
- the device is modified, augmented, or fitted with third-party spares without our consent.

4 Accident prevention safety instructions

The generally applicable accident prevention regulations of the respective country in which the device is used must be observed.

The device may only be used by persons who have been informed of the possible dangers.

Check the danger area before starting up and commissioning! (Children!) Make sure you have a sufficient field of view!

The warning and safety stickers attached to the device provide important instructions for safe operation: Observing the safety instructions serves for your safety!

Before starting work, familiarise yourself with all equipment and actuating elements as well as with their functions.

5 Assembling the PS

5.1 Design and mode of operation

The pneumatic seed drill is a spreading and seeding device with 120/150/200/250/300/500 litres capacity.

The sowing wheel is driven by a 12° V electrical drive motor regulated by the controller. The sowing wheel speed can easily be regulated by the controller from the driver's seat.

As an option, the sowing wheel's speed can be synchronised with the speed of the tractor using either the APV ground wheel or the tractor's 7-pin standard socket.

A radar sensor, GPS sensor or wheel sensor combined with a hoist gear sensor can also be used (optional).

The control module's power supply can be established either over the 3-pin standard socket or directly over the battery.

5.2 Assembly on an attachment

To assemble the seed drill on a tiller use the standard counter plate included in the scope of delivery, which can be bolted to the various devices.

Stainless steel bolts with a diameter of 10 mm and the appropriate length should be used to assure that the machine part is properly and securely fastened.

Example:



Counter plate for assembly





ATTENTION: APV assumes no liability for incorrect assembly or improper use of the device.

5.3 Attaching to the tractor

For this method of attachment, you need a three-point support, available from APV as an accessory! You should use bolts with a diameter of 12mm and quality 8.8 or higher. As an example, you can also: use a pallet fork or a three-point loader (transport trough, tail shovel)! In this case, you must ensure that these devices are designed to carry a payload of one ton and that they are correctly fixed!





5.4 Assembling the baffle plates

The baffle plates can be fixed using 2 cable ties each so are designed for universal mounting. These special cable ties are equipped with a stainless steel locking tongue, are weather-resistant and have a tensile strength of at least 534 N (approx. 54.4 kg).

The following points must be observed when attaching to the working tool (cultivator, harrow, etc.):

- for easy installation of the baffle plates, the lateral "straps" can be bent to the rear (see photos) and then bolted or welded together with the hexagon shaft to the working tool.
- The baffle plates should be distributed evenly over the entire width of the working tool!
- The baffle plates should be approx. 20 40 cm from the ground!
- Pic.: 5
- The seed hoses connect with the baffle plates vertically, (at an angle of 90°). The baffles should therefore also be mounted vertically (at an angle of 90°) to the hexagon shaft! (see illustration)



5.5 Fastening the control module



ATTENTION: If possible, do not roll the cable into a coil!

A 3-pin plug (= connection to the continuous positive), a 6-pin plug (= connection of seed drill to control module) and a 12-pin plug for the sensors are attached to the underside of the control module. Ground wheel or cable for 7-pin standard socket, etc.).

On request, these are available as an accessory to the PS 120/150/200/300/500M1 and PS 250 M2 seed drill!

There is 30A fuse on the right side of the control module.

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TIP: Take the angle at which you view the module into account so that you are sure to be able to read off from the display optimally. You might have to bend the mount slightly to set the correct angle.

5.6 Electrical connections



You can connect the standard cable included in the scope of delivery directly to the 3-pin standard socket in the tractor cab. Connect the other end with the control module.

The fuse (30A) is on the right side of the control module.

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TIP: If the tractor has a standard socket, it can be be retrofitted with the Complete Cable Kit for Power Sockets (Art. no. 201921)(accessories).



ATTENTION: The 12 Volt power supply may NOT be connected to the cigarette lighter! After using the device, the controller should be disconnected (for various safety reasons).



ATTENTION: Failure to observe these instructions can result in damage to the control module!



ATTENTION: If the battery is charged by a charger which is in the operating mode "Start", this may result in voltage peaks! These can damage the control module's electric system if the control module is also connected when charging the battery!

6 Hydraulic fan drive

6.1 Connecting the fan (HG)

With the PS 120/150/200/300/500 M1, PS 250 M2, you can convert from an electric fan to a hydraulic fan, which is driven directly by the tractor's hydraulics.

There are 3 standard size 3 connectors on the HG 300 M1 hydraulic fan!

The line which comes directly from the oil motor is a tank line and must be pressureless when connected to the tank!

The two tubes with the flow control valve and manometer are connected to a control block (ideally with locking function) of the tractor!



ATTENTION: Close the flow control valve completely before using the fan! This prevents unintentional fan overspeed!

6.2 Universal joint fan

Always ensure that you drive with the correct universal joint speed, in order to prevent any blockage of the hoses.

Furthermore, check the direction of rotation of the universal joint.

Setting values:

Working width	1-5m	5-12m
Speed setting	540 rpm	1000 rpm





6.3 Setting values (HG)

The fan generates an air current that conveys the seeds via the hoses to the baffle plates. The required air pressure and the air volume depend to a great extent on the seed (type and weight), the volume, working width and speed. It is therefore impossible to provide an exact specification for the fan setting; this must be determined in field trials!



ATTENTION: The air pressure, however, may never be set too low. If the air pressure is too low, the seed will remain in the hoses and jam them! This would result in a considerable amount of work because the hoses must then be removed and emptied manually. Moreover, the dosing unit could end up grinding the seed! If the air pressure is too low, this may also have a negative effect on seed distribution! Therefore, the highest possible air pressure should therefore be maintained!

The air volume is limited by the scattering medium used. This must not be damaged when bouncing off the scattering plate and also must not bounce too high in order not to miss its targeted location.

The fan speed rises proportional to the oil flow.

6.4 Setting procedure (HG)

Method 1 (without load sensing):

- 1. Tighten the flow control valve completely (closed).
- 2. Start the fan (tractor motor speed as in field operation).
- 3. Set the fan speed with the flow control valve as indicated in the table below.
- 4. Reduce tractor motor speed to ³⁄₄ of field operation setting. At this speed, the fan monitoring system must not trigger; however, if it does, increase the flow control valve's setting!

Method 2 (with load sensing):

- 1. Open the flow control valve completely.
- 2. Set oil volume to lowest level at the tractor.
- 3. Start the fan (tractor motor speed as in field operation).
- 4. Adjust the fan with the oil volume of the LS system to the required value! Reduce tractor motor speed to ³/₄ of field operation setting. At this speed, the fan monitoring system must not trigger; however, if it does, increase the flow control valve's setting!



ATTENTION: This setting only applies to the tractor used. The fan must be readjusted if another tractor is attached!

The correct setting is essential to prevent possible sowing errors at underspeed or damage to the fan at overspeed!

Table:

		3m		6m	12m		
	bar	rpm	bar	rpm	bar	rpm	
Rough seed	30-40	2000-2600	40-60	2600-3400	60-100	3400-5400	
Fine seed	20-30	1200-2000	30-40	2000-3400	40-60	2600-3400	

6.5 Diagram (HG)



6.6 Hydraulics (HG)

ATTENTION: The hydraulic system is under high pressure! Reversing the connections results in reverse function and/or certain destruction of the hydraulic motor! (e.g. lifting/lowering) - accident hazard!

- Observe the specified connection for the hydraulic hoses when connecting hydraulic motors!
- When connecting the hydraulic hoses to the tractor's hydraulic system, make sure that the hydraulics on both the side of the tractor and of the device is pressureless! When establishing functional hydraulic connections between the tractor and the device, coupling sleeves and connectors must be labelled in order to prevent any operating errors!
- Regularly check hydraulic hose lines and replace them if they are damaged or old/worn! The replacement lines must comply with the technical requirements specified by the device manufacturer!
- To prevent accidents, use suitable equipment when looking for leaks!
- Fluids escaping under high pressure (hydraulic oil) can penetrate your skin and cause serious injuries! Consult a doctor immediately in case of injury! (risk of infection!)

NOTE: Before working on the hydraulics system, set down the device, depressurise the system and turn off the motor!

7 Settings

7.1 Selecting the correct sowing wheel

Before filling the container with seed, make sure you have chosen the correct sowing wheel (rough, fine, or dummy).

The correct choice is made according to the quality of the seed and the amount to be discharged and applied.

Types of sowing wheels

Types of sowing whe	els: Standard equipment
fb-f-fb-fb	GGG
fine dummy	ROUGH
fine	ROUGH
fine dummy	ROUGH
fine dummy	

	Types of sowing	g wheels: Optio	nally available	
fb-fb- <i>ef-eb</i> -fb	ffff	GB - G - GB	Flex20	Flex40
fine dummy fine dummy <i>extra fine</i> <i>extra fine dummy</i> fine dummy	fine fine fine fine	ROUGH DUMMY ROUGH ROUGH DUMMY	fine dummy Flex20 fine dummy	Flex40

2 completely assembled sowing wheels are included in the standard scope of delivery for the PS 120/150/200/300/500 M1, PS 250 M2

1 sowing wheel with rough-toothed sowing wheels (RRR) 1 sowing wheel with fine sowing wheel for each procedure (fd-f-fd-fd)



Generally used for large volumes or large grain sizes.

Examples.: Grass mixes, rye, barley, wheat, oats, pea mixtures, etc.

Area of application of the fine-toothed sowing wheel:

Generally for small volumes or small grain sizes. Small seed such as, e.g.: rape, clover, phacelia, slug pellets, etc.

Area of application for Flex20 and Flex40 sowing wheels:

Damage can be avoided to the sowing wheels as they can be bent. Please also refer to Point 7.5 below for extra-large seed, such as peas, sweet peas, fertiliser etc.



<u>TIP:</u> Dummy or extra fine sowing wheels can considerably reduce the amount sown.



ATTENTION: Make sure to select the combination of sowing wheels so that the sowing wheel setting at the control module lies ideally between 20% and 80%. This ensures that even in cases where sowing is speed-dependent at very low or high speeds, the sowing speed can be easily adjusted and the seed can be conveyed evenly!





7.2 Replacing the sowing wheel

Replace the sowing wheel as follows:

 $\underline{\wedge}$

NOTE: Make sure when replacing the sowing wheel that the container is completely empty. Make sure the machine runs smoothly after installing the sowing wheel.

- Refer to the sowing table and select the desired sowing wheel with the respective sowing amount.
- completely empty the container.
- Remove the side cover for the drive rollers.
- Remove the round belts from the drive rollers.
- Remove the nuts from the sowing wheel's side cover plate.
- Now remove the complete sowing wheel together with the side cover plate.
- The new sowing wheel can now be installed in the device.
- The new sowing wheel can now be installed in the device.







7.3 Flap (sweeper adjustment)

A sweeper is mounted above the sowing wheel. This sweeper can be adjusted by a lever on the frame on a scale of +4 to -5.

If the sweeper is pressed closer to the sowing wheel by the lever (scale values -1 to -5) the sowing volume decreases slightly. If the sweeper is raised (scale values +1 to +4) you can sow slightly more seed.

The basic setting of the ground flap is 0. This setting is used for the seed rate calibration tests in the sowing tables.

As a rule, the ground flap sets the device to the seed to be spread.

With the use of fine seeds which must flow freely, the sweeper must usually be retracted, that is set to minus, and for larger seeds, it must be extended, that is set to plus on the scale!





TIP: You can also dose the sowing rate even finer using the ground flap!

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7.4 Mixer

The mixer is only necessary for seed types which tend to form bridges or for very light seed (i.e.: for grasses).

If the mixer is not required, you only need to remove the O-ring tensioned between the mixer and the sowing wheel.

7.5 Wheel air sheet

NOTE: With larger seeds such as sweet peas, peas, horse beans or similarly large seeds, it is necessary to remove the wheel air sheet (also with a hydraulic or universal joint fan) in order to prevent damage to the sowing wheels.

	(screwed with 4 hexagon screws M6x12mm
_	
TIP: We also recommend Elex sowing wheels	as they can be bent and cannot break
(see below, Point 7.1)	

7.6 Sensor

Fill level sensor (standard with the PS 500 M1, special attachment with the PS 120/150/200/300 M1, PS 250 M2)

The level sensor reacts when it is no longer covered by seed! Its height can be adjusted depending on how much seed you want left in the container after the sensor triggers.

The intensity of the sensor can also be adjusted to the respective seed. This is set using the small slotted screw at the rear of the sensor!

The sensor lights up when connected through and the container is full!

You can test this by covering the front of the sensor with your hand; it must now start to light up.

In this way, you can easily check whether the sensor is functioning and the intensity is correct!





0

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Pic.: 18

7.7 Working width / sowing tables

The PS 120/150/200/300/500 M1, PS 250 M2 can be used for a maximum working width of up to 6m (with electric fan) and up to 12 m with the HG 300 M1 (hydraulic fan).

The spreading quantity depends on the speed of the sowing wheel and the driving speed during sensor operation. To determine the required sowing volume, you should calibrate the seed rate before commencing work.

The seed tables show you the sowing volumes for the individual seed types in kilograms per minute (= sowing volume of calibration test for seed rate).



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NOTE: These tables can be used as benchmarks but cannot be applied equally in all circumstances because many factors play a role and significant changes can arise (e.g.: thousand-seed weight, dampness of the seed, changes in flow characteristics, and much more).

The sowing volume is determined according to the following formula:

desired output quantity [kg/ha]× drivingspeed [km/h]× workingwidth [m] = weight [kg/min]

600

Example:

 $\frac{5[kg/ha] \times 12[km/h] \times 12[m]}{600} = 1.2[kg/min]$



TIP: You can find sowing tables for other seed materials on our homepage <u>www.apv.at</u> .

Gras Grass Herbe			Weizen Wheat Blé Triticum			Gerste Barley Orge Hordeum	X	1		Rett Rad Rac Rapha raphan	i ch ish dis anus istrum		
Quantity	kg/min	kg/min	kg/min	Quantity	kg/min	kg/min	Quantity	kg/min	kg/min		Quantity	kg/min	kg/min
Sowing wheel	ffff	GB-G-GB	GGG	Sowing wheel	ffff	GGG	Sowing wheel	ffff	GGG		Sowing wheel	ffff	GGG
2	0,06	0,26	0,27	2	0,13	0,52	2	0,18	0,54		2	0,24	0,66
5	0,22	0,45	0,61	5	0,16	1,18	5	0,48	0,87		5	0,62	1,18
10	0,49	0,76	1,17	10	0,20	2,30	10	0,97	1,41		10	1,27	2,05
15	0,76	1,07	1,73	15	0,24	3,41	15	1,47	1,96		15	1,91	2,92
20	1,03	1,39	2,30	20	0,28	4,52	20	1,96	2,51		20	2,55	3,79
25	1,30	1,70	2,86	25	0,32	5,64	25	2,45	3,06		25	3,19	4,66
30	1,38	1,98	3,42	30	1,58	6,70	30	2,95	3,61		30	3,60	
35	1,47	2,26	3,98	35	2,85	7,76	35	3,44	4,16		35	4,29	
40	1,55	2,54	4,55	40	4,11	8,82	40	3,94	4,71		40	4,98	
45	1,64	2,83	5,11	45	5,37	9,88	45	4,43	5,26		45		
50	1,72	3,11	5,67	50	6,63	10,94	50	4,93	5,81		50		
55	1,82	3,30	6,23	55	6,96	11,21	55	5,02	6,70		55		
60	1,93	3,50	6,79	60	7,28	11,48	60	5,12	7,59		60		
65	2,03	3,69	7,36	65	7,61	11,76	65	5,22	8,48		65		
70	2,13	3,89	7,92	70	7,93	12,03	70	5,32	9,38		70		
75	2,23	4,08	8,48	75	8,26	12,30	75	5,41	10,27		75		
80	2,34	4,28	9,05	80	8,58	12,57	80	5,51	11,16		80		
85	2,44	4,47	9,61	85	8,91	12,84	85	5,61	12,05		85		
90	2,54	4,67	10,17	90	9,23	13,12	90	5,71	12,95		90		
95	2,67		10,73	95	9,86	13,93	95	5,80	13,84		95		
100	2,81		11,30	100	10,48	14,75	100	5,90	14,73		100		



Hafer Oat Avoine Avena			Senf Mustard Moutarde Sinapis Alba	A CAR		Luzerne Alfalfa Luzerne Medicago Sativa		Rotklee Red Clover Tréfle Rouge Trifolium		A CON	
Quantity	kg/min	kg/min	Quantity	kg/min	kg/min	Quantity	kg/min	kg/min	Quantity	kg/min	kg/min
Sowing wheel	fb-f-fb-fb	GGG	Sowing wheel	fb-f-fb-fb	ffff	Sowing wheel	fb-f-fb-fb	ffff	Sowing wheel	fb-f-fb-fb	ffff
2	0,01	0,15	2	0,04	0,33	2	0,10	0,30	2	0,04	0,56
5	0,02	0,46	5	0,15	0,75	5	0,21	0,70	5	0,15	1,37
10	0,04	0,98	10	0,33	1,45	10	0,40	1,38	10	0,33	2,72
15	0,06	1,50	15	0,50	2,15	15	0,60	2,05	15	0,51	4,06
20	0,07	2,02	20	0,68	2,86	20	0,79	2,73	20	0,70	5,41
25	0,09	2,54	25	0,86	3,56	25	0,98	3,40	25	0,88	6,76
30	0,12	3,03	30	1,00	4,23	30	1,15	4,05	30	1,06	6,99
35	0,14	3,52	35	1,15	4,89	35	1,32	4,71	35	1,23	7,22
40	0,17	4,01	40	1,29	5,56	40	1,49	5,36	40	1,41	7,45
45	0,19	4,50	45	1,43	6,22	45	1,65	6,01	45	1,58	7,68
50	0,22	4,99	50	1,58	6,89	50	1,82	6,67	50	1,76	7,91
55	0,23	5,42	55	1,65	7,25	55	1,86	7,03	55	1,82	8,14
60	0,24	5,85	60	1,72	7,61	60	1,90	7,40	60	1,87	8,36
65	0,25	6,29	65	1,79	7,97	65	1,93	7,77	65	1,93	8,59
70	0,26	6,72	70	1,86	8,33	70	1,97	8,14	70	1,98	8,82
75	0,27	7,15	75	1,93	8,69	75	2,01	8,50	75	2,04	9,05
80	0,27	7,58	80	2,00	9,05	80	2,04	8,87	80	2,09	9,28
85	0,27	8,02	85	2,07	9,41	85	2,08	9,24	85	2,15	9,51
90	0,27	8,45	90	2,14	9,77	90	2,12	9,61	90	2,20	9,74
95	0,28	8,73	95	2,31	10,35	95	2,24	10,33	95	2,33	10,34
100	0,31	10,23	100	2,48	10,92	100	2,36	11,06	100	2,46	10,94

Phacelia Phacelia Phacélie	A.	
Phacelia tanacetifolia		Y
Quantity	kg/min	kg/min
Sowing wheel	fb-f-fb-fb	ffff
2	0,14	0,34
5	0,31	0,77
10	0,61	1,49
15	0,90	2,22
20	1,19	2,94
25	1,49	3,66
30	1,52	
35	1,56	
40	1,59	
45	1,63	
50 55	1,00	
60	1,75	
65	1 94	
70	2.04	
75	2,13	
80	2,23	
85	2,32	
90	2,42	
95	2,52	
100	2,62	

Rap Rap Colz Brassica	s e za Napus		Y.
Quantity	kg/min	kg/min	kg/min
Sowing wheel	ffff	fb-f-fb-fb	bd-fb- <i>ef-eb</i> -fb
2	0,180	0,110	0,037
5	0,588	0,211	0,060
10	1,269	0,380	0,099
15	1,949	0,548	0,138
20	2,630	0,717	0,177
25	3,310	0,885	0,216
30	4,947	1,031	0,294
35	6,583	1,178	0,371
40	8,220	1,324	0,449
45		1,470	0,526
50		1,617	0,603
55		1,685	0,636
60		1,754	0,669
65		1,823	0,701
70		1,892	0,734
75		1,960	0,766
80		2,029	0,799
85		2,098	0,831
90		2,167	0,864
95		2,303	0,908
100		2.440	0.952

Mohn Poppy Pavot Papaver	e Pressing					
Quantity	kg/min					
Sowing wheel	fb-fb- <i>ef-eb</i> -fb					
2	0,029					
5	0,049					
10	0,083					
15	0,116					
20	0,150					
25	0,183					
30	0,260					
35	0,336					
40	0,412					
45	0,489					
50	0,565					
55	0,602					
60	0,638					
65	0,675					
70	0,/11					
/5	0,748					
80	0,784					
CS	0,821					
90	0,000					
90	0,900					
100	0,942					

Chia WITHE			Florex	DC3	7-lose	NACK	AS-lose	DC25-lose		
Quantity	kg/min	kg/min	Quantity	kg/min	Quantity	kg/min	Quantity	kg/min	Quantity	kg/min
Sowing wheel	fb-f-fb-fb	fb-fb- <i>ef-eb</i> -fb	Sowing wheel	fb-f-fb-fb	Sowing wheel	GGG	Sowing wheel	GGG	Sowing wheel	GGG
2	0,050	0,029	2	0,00	2	0,60	2	1,27	2	0,90
5	0,119	0,049	5	0,08	5	1,64	5	2,25	5	1,81
10	0,235	0,082	10	0,21	10	3,05	10	3,67	10	3,82
15	0,351	0,115	15	0,33	15	4,54	15	5,38	15	5,18
20	0,467	0,149	20	0,46	20	6,25	20	6,73	20	6,90
25	0,614	0,182	25	0,59	25	7,72	25	7,94	25	8,56
30		0,249	30	0,72	30	9,16	30	9,54	30	10,08
35		0,316	35	0,85	35	10,60	35	10,66	35	11,56
40		0,383	40	0,98	40	12,02	40	11,95	40	13,11
45		0,450	45	1,10	45	13,15	45	13,52	45	14,64
50		0,517	50	1,23	50	14,67	50	14,80	50	16,15
55		0,550	55	1,36	55	15,69	55	16,11	55	17,63
60		0,583	60	1,49	60	16,99	60	17,46	60	18,85
65		0,615	65	1,62	65	18,65	65	18,79	65	20,99
70		0,648	70	1,75	70	19,68	70	19,78	70	22,08
75		0,681	75	1,88	75	20,81	75	20,38	75	23,16
80		0,713	80	2,00	80	21,73	80	20,99	80	23,91
85		0,746	85	2,13	85	22,36	85	21,69	85	24,66
90		0,779	90	2,26	90	22,84	90	21,90	90	25,41
95		0,790	95	2,39	95	23,26	95	22,31	95	26,15
100		0,797	100	2,52	100	23.51	100	22,72	100	26.90

7.8 Calibration test for seed rate / regulating the seed volume

To determine the required sowing volume, you should calibrate the seed rate.

Proceed as follows to carry out a seed rate calibration test:

- 1. Remove the turning plate located above the partitioning plates and below the fan (see illustration).
- 2. Attach the turning plate to the seed drill and secure it with the star knob bolts. (see illustration).
- 3. When calibrating the seed rate, please use a sack or another container to catch the seed.
- 4. Using the formula under Point 7.6, calculate the required sowing volume per minute.



- 5. Please refer to the respective sowing tables for the Pic.: 21 Pic.: 21 Regulating the seed volume).
- 6. Use the control module to set the calculated speed for the sowing wheel (you can find precise instructions in the original operating instructions for the control module 5.2).
- 7. The seed rate calibration test is now run automatically (for exactly one minute), during which time the seed runs over the turning plate without loss.
- 8. You must now weigh the turned and caught seed.
- 9. The required setting can be found by correcting the speed for the sowing wheel and by turning the seed once more.
- 10. You can also adjust the sowing volume slightly using the ground flap (for sweeper adjustment, see Ground flap (sweeper adjustment).
- 11. The points listed must be repeated until the required sowing volume has been reached.
- 12. After commencing work, you should field check the quality of sowing. Special attention should be paid to the driving speed, the sowing volume and the distribution of the baffle plates.

7.9 Use on a field

When you start to sow, proceed as follows:

- o Start your tractor.
- Switch on the control module with the "On/Off" button.
- o Switch on the fan with the "Fan" button.
- To begin seeding, press the "Sowing wheel" button to start the drive motor.



Note: The next two items can be disregarded if you are working with a hoist sensor (7 pin plug, hoist sensor). In this case however, a 5.2 control module must be installed.

- When turning at the end of each row, just press the "Sowing wheel" button until the green LED goes off.
- On completion of work, first switch off the sowing wheel, then the fan and finally the entire control module using the "On/Off" button.

The following points should be observed when working in the field:

- The fans should always be switched on when working in the field.
- Check the required sowing volume.
- o Check for identical width distribution (spacing) of the baffle plates.
- Check the height of the baffle plates: Distance from ground approx. 20 40 cm.
- Angle of baffle plates: Fixing plate for baffle plates mounted approx. 90° (at right angles) to the ground.
- Sowing hoses should be tilted slightly downwards or routed horizontally on the working tool.
- The container lid must be closed tightly.

7.10 Emptying the container

To ensure that the container is completely emptied, you must also remove the turning lid located below the fan, turn it over and then attach it at the front above the partitioning plate so that it now functions as a chute! Then press the "Empty" button menu item in the control module! This menu item then automatically turns the sowing wheel. Now let the sowing wheel run until the container is completely empty and the sowing wheels no longer convey any seed.

TIP: You can use the turning plate instead of the turning lid! It has the advantage of being larger and is easier to place a sack or container underneath it!





8 Maintenance and care

8.1 General instructions

To maintain the device in good condition after many hours of operation, please always observe the following instructions:

- ✓ Basic safety instructions for maintenance are included in the "For your safety..." enclosure.
- ✓ Original parts and accessories have been specially designed for the machines or devices.
- We draw express attention to the fact that original parts and accessories that we have not delivered have also not been checked and approved for use by us.
- ✓ Under certain circumstances, the installation and/or use of such products may therefore negatively change or impact on the stipulated design characteristics of your device. The manufacturer is not liable for damage caused by use of non-original parts and accessories.
- Unauthorised modifications, as well as the use of parts and attachments on the machines, void the liability of the manufacturer.
- Retighten all screw connections at the latest after 3 operating hours and again after approx. 20 operating hours, and check them regularly thereafter (loose screws may result in serious damage which is not subject to warranty).

Attention: No water may get into the container or into the device. The interior of the device may only be blown out with compressed air!

- ✓ Paint damage may occur when cleaning at too high a pressure.
- During winter, protect the device from rust using an environmentally-friendly agent.
- ✓ Park the device in a weather-protected area

8.2 Location of the type plate

The type plate is on the motor cover to the right of the device (when viewed from the front)!



9 Technical data

Name:	PS 120 M1	PS150M1	PS 200M1	PS250M2	PS 300M1	PS500M1
Tank volume:	120 litres	147 litres	205 litres	249 litres	298 litres	492 litres
Weight:	45 kg	45 kg	60 kg	55 kg	70 kg	100 kg
Dimenstions (H x W x D, in cm):	80x60x88	95x62x75	100x70x88	130x65x65	110x77x100	117x80x122

Recommended scatter width: Max. scatter width (elec. fan): Max. scatter width (hydr. fan): Max. scatter width (universal joint width): Power supply: Power consumption of the electric fan: Attachment category: 1 - 6 m 1 - 6 m up to 12 m up to 12 m 12V, 25A 25A upon start-up Kat. I - III (only with accessory, three-point support)

130 bar 32,5 l/min 20 kg Tank line 5 m Supply line for motor 5 m Pressure line 0.5 m Return connection 0.5 m 400 x 460 x 270 mm

Dimenstions (W x D x H):

Hydraulic supply with HG

Length of hydraulic hoses:

Max. pressure:

Net weight:

Max. oil quantity:

Hole pattern for all PS:



Units in mm

The footprint must be a minimum of 413 x 461 mm!



10 Accessories

10.1 HG 300 M1

The HG 300 M1 is a hydraulically driven radial fan for working widths up to 12m or for larger sowing volumes, such as for wheat.

It is especially resistant to dust and foreign objects.

A separate installation kit with connector and nozzle for assembly on the PS 120/150/200/300/500 M1, PS 250 M2 is available from APV.



- <u>Scope of delivery:</u> 1 HG 300 M1 with connector, 1 support and complete hosing incl. flow regulator.
- <u>Order number</u>: PS 120/150 / 200 / 300 / 500 M1, Art. no.: 201891 / 04009-2-001 PS 250 M2 - Art. no.: 201890 / 04005-2-001

10.2 Fill level sensor

This sensor can be retrofitted on the PS 120/150/200/300 M1, PS 250 M2. In this case however, a 5.2 control module must be installed. It measures the amount of seed in the tank and triggers an alarm in the control module if there is too little seed. The intensity of the sensor can also be adjusted to the respective seed. This is set using the small slotted screw at the rear of the sensor!



Scope of delivery: 1 fill level sensor incl. 1 assembly plate

Order number: Art. no.: 202131 / 04000-3-704

10.3 Cable extension 5m (6-pin)

This is a cable extension (5m) for the device cable (6pin connector).

This extension cable is necessary if the tiller is longer than the factory fitted 6m cable or to make it possible to route the cable in a more practical way.

Scope of delivery: 1 extension cable Art. no.: 202063 / 00410-2-015 Order number:

10.4 Complete cable set for power socket to retrofit the tractor

There is a retrofit-kit as an accessory for the control module power supply equipped without the standard 3-pin socket on the tractor. This consists of an 8m long cable.

At the battery, this is screwed right to the battery terminals, and at the other end is a standard threepin socket.

Scope of delivery: 1 cable set Art. no.: 201921 / 00410-2-023 Order number:

Three-point bracket for the front assembly

You can connect the PS 120/150/200/300/500 M1, PS 250 to a CAT 1 - CAT 3 tripod with the three-point bracket . Four support legs are optionally available for this three-

Scope of delivery: 1 three-point bracket Order number: Art. no.: 04000-1-003









11 My idea

The PS 120/150/200/300/500 M1, PS 250 M2 has been in development and and been tested for a long time. A lot of time passed between the initial concept and series production. This required a lot of commitment from individual staff and the whole of the development team.

We cooperate with test centres and experienced specialists.

Nevertheless, practice is the most valuable experience. Our motto is:

"Inspired by farmers & realised by professionals."

This means that YOU are also the most important person in the development of an agricultural machine that is to be used in practical applications.

Without responding to your opinions, experiences, enthusiasm, wishes and even your frustrations, and then taking them seriously, it would not be possible to continue to develop and improve our machines.

We would like to give you the opportunity right here to take an active part in the development and improvement of our machines.

Write to us telling us about the positive and negative experiences you have had with the machine.

Write to us with your suggestions for improvements and with your requests!

Take photos or make drawings - we are open to all information and appreciate any submission, no matter what form it comes in.

Please send this information to <u>meineidee@apv.at</u>, fax us at +43/(0)2913/8002, or send a letter to our address. The heading/subject should be "My idea".

The information is passed on directly to our design department, where it will be discussed and taken into consideration. Please do not forget to indicate the serial number of your machine.

Please understand that we cannot accept suggestions for improvements on the telephone because of how costly and time-consuming this is to arrange. However, if you still wish to talk to someone face-to-face then you can discuss your experiences with our sales staff at trade fairs and field days. If there are urgent problems then of course we will be right there for you. Please call us or address your query to our sales partner in your area.

Good ideas are important to us - and they will therefore be rewarded. If one of your ideas is implemented than you will receive recognition for this.

Thank you in advance for your constructive suggestions.

Kind regards,

Gregor Wiling

Ing. Gregor Witzmann Development/Engineering

		29
	Quality for Professionals	
12 Safety instructions		
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For your s	satety	
This enclosure to the operating instructions cor	tains general rules of conduct on	the

This enclosure to the operating instructions contains general rules of conduct on the correct use of the device as well as safety instructions which you must always observe for your own personal protection.

The list is quite exhaustive, so some of the instructions do not exclusively refer to the delivered device. However, the summarised instructions can often remind you of safety regulations that you have unintentionally forgotten in your daily work with such machinery.

12.1 Intended use

The device has been built exclusively for its customary use in agricultural work (the intended use).

Any other use of the device is deemed to be not as intended. The manufacturer is not liable for any damage occurring therefrom; the user alone assumes this risk.

Intended use also entails observance of the operating, maintenance and repair requirements stipulated by the manufacturer.

The device may only be used, maintained and repaired by persons who are acquainted with it and who have been informed of the dangers and risks. All safety instructions must be passed on to any and all other users.

The relevant accident-prevention regulations as well as other generally-recognised safety, occupational health and road traffic regulations must be observed.

Unauthorised modifications to the device preclude the manufacturer from liability for any damage resulting therefrom.

12.2 General safety instructions and accident-prevention regulations

- Every time before starting up the device and the tractor, check that they are roadworthy and safe for operation!
- Observe the generally applicable safety and accident-prevention regulations!
- Warning and instruction plates/signs attached to the device provide important instructions on safe operation; observe them for your own safety!
- Observe all appropriate regulations when using public roads!
- Before starting work, familiarise yourself with all equipment and control elements as well as with their functions. It is too late to do this when you are already using the machine/device!
- The user must wear tight-fitting clothes! Avoid loose clothing!
- Keep machines clean to avoid the risk of fire!
- Before starting up and commissioning, check the vicinity! (Children!) Make sure you have a sufficient field of view!
- Passengers are not allowed during work and the working tool should not be used for transport!
- Connect the device in accordance with the instructions and only attach it to the prescribed equipment!
- Special care must be taken when connecting and disconnecting devices to or from the tractor!
- Always attach weights in accordance with the instructions, at the prescribed fixing points!
- Observe the permitted axle load, overall weight and transport dimensions!
- Check and attach any transport equipment such as, e.g. lighting, warning equipment and any protective equipment!
- Release parts for quick-release couplings must hang loosely and must not selfactuate if positioned low down!
- Never leave the driver's cab when driving!
- Driving performance, steering and braking are also affected by devices and ballast attached or hitched to the device. Therefore, make sure that there is sufficient steering and braking ability!
- When cornering, take into account the width of the overhang and/or the centrifugal mass of the device!
- Only put the machine into operation after all protective equipment has been attached and is in its protective position!
- It is forbidden to remain within the working area!
- Do not linger within the swivel and rotating area of the device!
- Folding hydraulic frames may only be actuated when there are no persons within the swivel area.
- There are crushing and cutting zones on power-operated parts (e.g. hydraulics)!
- Make sure you have a firm footing when operating manual folding devices!
- For fast-driven devices with ground-driven tools: Danger after digging from residual inertial forces! Only approach the device after all parts are at standstill!
- Before leaving the tractor, set the device down on the ground, switch off the engine and remove the ignition key!
- No-one should be located between the tractor and the device without first having secured the vehicle against rolling with the handbrake and/or with chocks!
- Secure folded frames and digging equipment in transport position!

- Swivel in and lock grabber arms before road transport!
- Lock track marker in transport position!
- When filling the tank with slug pellets and similar poisonous compounds, only fill as much as is required for the task at hand. Wear protective clothing, protective gloves as well as face and eye protection when filling.
- Observe the warning instructions of the manufacturer on the package. The seeds used by your spreader may be poisonous!
- Never place your hands or clothes, etc. in the vicinity of rotating parts!
- Keep your distance when the machine is switched on!
- Never look into the scattering cone!
- Leftover product should be returned in their original packaging. They must not be disposed of unchecked in the environment.
- There are no known negative effects on the materials used from approved pesticides.
- Repairs, maintenance and cleaning work, as well as remedying of functional faults must always be carried out after the drive has been switched off and the engine has reached standstill!

12.3 Attached devices

- Before attaching and removing devices to the three-point support, put operating equipment into a position in which unintentional lifting or lowering is excluded!
- In order to use the three-point attachment, the attachment categories of the tractor and the device must be identical or must be adapted to each other!
- There is a hazard posed by cutting and crushing zones in the area of the threepoint linkage!
- When using the external controls for the three-point attachment, do not step between the tractor and the device!
- When the device is in transport position, always make sure there is sufficient sidelocking of the tractor three-point linkage!
- When driving on the road with the device lifted, the operating lever must be locked to prevent lowering!

12.4 Maintenance

- Repairs, maintenance and cleaning work, as well as remedying of malfunctions must always be carried out after the drive has been switched off and the engine has reached a standstill! remove the ignition key! switch off the device!
- Regularly check nuts and bolts for tight seating and retighten if necessary!
- During maintenance work when a device is lifted, always secure using suitable supporting elements!
- When replacing blades in working tools, use suitable tools and gloves!
- Dispose of oils, greases and filters correctly!
- Always disconnect the power before working on electrical systems!
- When carrying out electrical welding on the tractor and its attached devices, disconnect the cable on the generator and the battery!
- Spare parts must comply at the very least to the technical requirements stipulated by the device manufacturer! This is guaranteed by using original spare parts!



Attention: Printing errors reserved, all information is subject to change.

13 Safety signs

Please observe these stickers on the device! They indicate particular risks and dangers!

Before operating, read and take note of the operating instructions!!!





Do not stand on the machine while it is moving!!!





Before maintenance work, the engine must be switched off and the key removed!!!





Never reach into the area where there is a risk of crushing when the parts are moving!!!



When hitching and operating the hydraulic system, no-one should be standing between the machines!!!



Be careful of fluid escaping at high pressure!!! Pay attention to information in the operating instructions!!!





Do not climb on rotating parts; use the ladders provided!!!



Hazard from parts being flung out; Observe safety distance!



	Quality for Professionals				
14 Notes					

Inspired by farmers & realised by professionals



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