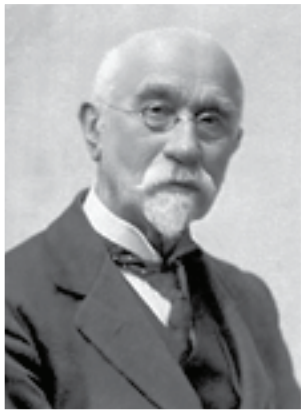
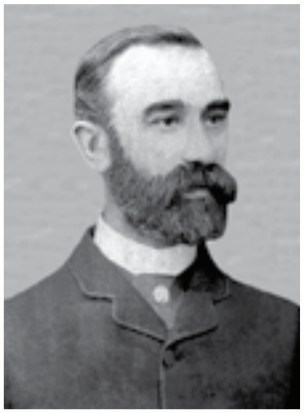

ELVORTI
SINCE 1874
PRODUCT CATALOG

Contents



Robert Elvorti



Thomas Elvorti

Robert Pearce Elvorti was born on March 28, 1846 in the family of a landowner from Devon County, Southern England.

In 1865, Robert's father sent him at Tuxford and Sons in Boston (Lincolnshire) for a three-year study - a company engaged in engineering, foundry. Robert was a landowner in Southern England, like his father and grandfather, but the industry was the main kind of his activity, so he leaned on the "pursuit of happiness" to the United States of America.

Thomas Elvorti was born in 1847. Thomas Elvorti travelled to Eastern Europe to make a career as an entrepreneur, but above all to earn start-up capital to establish his own business. He started his activities as a sales agent of a large British company, Clayton and Shuttleworth, a manufacturer of agricultural machinery in Romania.

The city of Elisavetgrad, located about halfway between Kharkiv and Odesa, had already a rail link with the main ports, industrial and commercial centres of Ukraine at that time, and in general was in the centre of the territories that had entered the era of rapid economic development.

These circumstances played a major role in the decision to establish their own independent business «R. and T. Elvorti, manufacturers and importers of agricultural machinery» in Elisavetgrad in

1874.

Robert became the designer, and Thomas - the manager, and Robert also performed some managerial roles.

Originally, the Elvorti brothers exported agricultural machinery from England and Germany, but Elisavetgrad was a powerful centre for cultivating grain crops on Ukrainian lands, and soon Elvorti began to manufacture their own machines, the demand for which was constantly growing.

After the death of Thomas in 1891, Robert becomes the sole business leader. Production is growing, an extensive network of branches is being formed, and in 1907 the Firm is transformed into a joint-stock company.

In the 80s of the 19th century the Elvorti factory was the first to manufacture grain seeders throughout Europe. At competitions and exhibitions for the period 1882-1911 the products of the Elvorti factory were awarded 37 gold and silver medals, and the factory received more than 50 awards.

In the pre-revolutionary period the factory alongside with seeders produced threshers, oil-presses, millet-scourers and other agricultural equipment. The factory extended intensively, increasing its capacity. By the end of 1917 more than 7,000 people worked at the factory.

The Elvorti factory was nationalized in April of 1919.

In 1929 the first tractor pulled grain seed drill T-1 was produced. In 1937 the T-7 seeder was also awarded the Grand Prix at the World Exhibition in Paris.

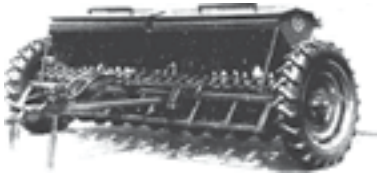
In August 1941 the factory was evacuated to the Region of Penza, where, in the premises of an unfinished sugar plant, it started production of mines and ammo, and the village of the war years turned into the town of Kamenka.

After the liberation of Kirovograd, the restoration of the Krasnaya Zvezda factory began, and a small group of specialists and personnel returned from evacuation.

There were destroyed for about 84 % of all production areas, nevertheless by the end of 1944 the factory had produced 262 horse pulled seeders. In 1945 there had been produced 1,500 seeders and lots of ammunition.

In the first decade after the war the special design bureau of the factory and technical services developed 45 new types of seeding machines. The productivity was annually rising and in 1955 the factory released 78,428 seeding machines. In 1966 the factory produced 108,877 seeding machines.

In the late 1960s and in the 1970s, the factory expanded significantly, which made it possible to create capacities for the production of new C3-3,6 grain seeders.



Until 1991 the factory produced 90-100 thousand seeders per year. The Krasnaya Zvezda factory provided for the issue of: grain seeders - more than 50 % of the all Soviet Union output, and seeders for corn, beet and vegetables - 100 %.

After the war period in July 1961 the one millionth seeder left the conveyor, in September 1971 - the two millionth and in July 1983 - the three millionth seeder.

In 1993 the Krasnaya Zvezda industrial association was transformed into the Open Joint Stock Company on manufacturing of agricultural equipment Krasnaya Zvezda, and since 2003 its name sounds in Ukrainian as the Chervona Zirka. This event became a new stage in history of the trademark.

On October 24, 2016 PJSC “Chervona Zirka” was renamed to PJSC Elvorti. The decision to rename the company was taken by the general meeting of shareholders on April 22, 2016.

In recent years the company has passed the replacement of production equipment: new lathes and machining centres with CNC, equipment for metal laser cutting were introduced, welding robots were implemented, a painting line for powder painting of machines which has no analogues in the CIS was put into operation.

The company’s distribution system consists of more than 50 dealers and service centres in various regions of Southern and Western Europe.

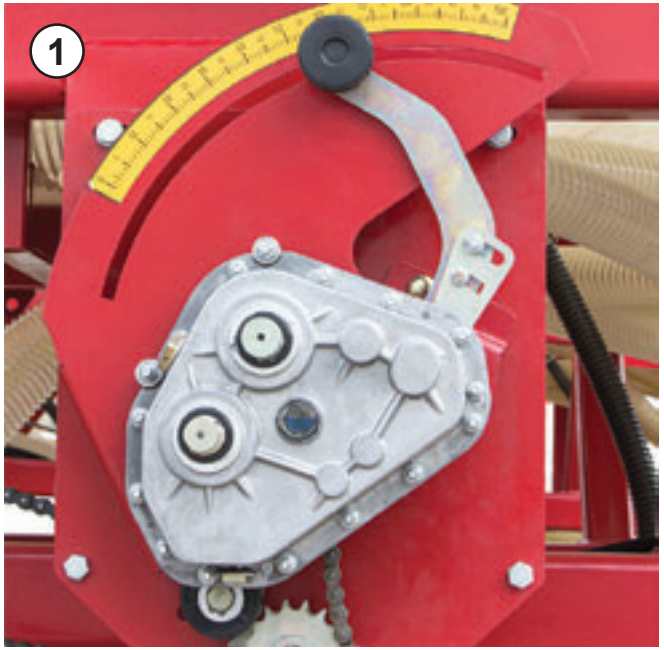
WIDE-COVERAGE SEEDING MACHINES

Wide-coverage seeding machines are designed for the seeding of grain, small- and medium-seeded legumes and other crops that are similar to grain crops in terms of the seed size and the seeding rate with simultaneous application of granulated mineral fertilizers into sown rows.

ELVORTI

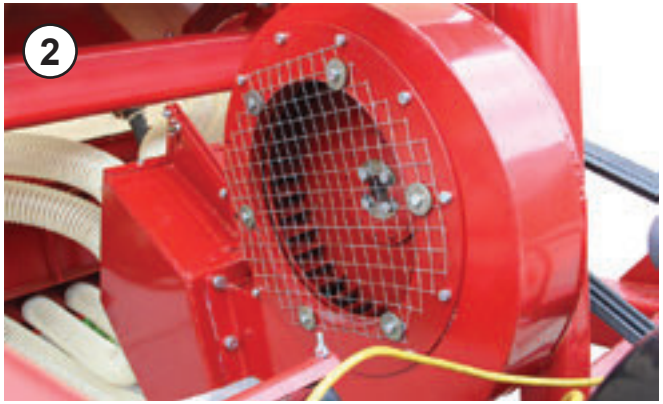
Model 9000

PNEUMATIC HOPPER



1. Variators

The tank features two variators: separately for seeds and for the fertilizers. The variators provide for a smooth adjustment of the seeding rate and the fertilizers application rate. It reduces the time required for the configuration of the sowing machine for use in the field.



The plastic tank (model **9000**) with a total capacity of 9,630 l (5,215 l + 4,415 l). To supply seeds to the coulters of the sowing part, the hopper has a simple and reliable system, which consists of:

- continuously variable transmission mechanisms (variators).
- a fan driven by an autonomous Lombardini diesel engine (power: 24 hp) with a fuel tank (capacity: 33 l) that provides for the operation over up to 50 ha per filling, or with a hydraulic motor drive connected to the tractor hydraulic system or connected by drive shafts to tractor PTO;
- a dual-circuit pneumatic system for the separate transportation of seeds and fertilizers to the tools;
- blocks of adjustable feed roller machines installed separately for the seed and the fertilizer hoppers;
- a pneumatically driven system of sleeves for seeds and fertilizers, and horizontal distribution heads. The horizontal distribution heads do not require a strong airflow to transport seeds even when sowing heavy seeds of legumes and leguminous crops;
- a hydraulically-powered screw loader.

1. Variator
2. Fan
3. Lombardini diesel engine
4. Hydraulic motor drive
5. Drive shaft

ALCOR 7,5 and ALCOR 10

PNEUMATIC SEEDER

ALCOR 7,5 and **ALCOR 10** pneumatic seeders are designed for strip planting of grain, legume and other crops using the minimum tillage (mini-till) and the traditional tillage techniques.

The operating width of **ALCOR** machines is 7.3 and 9.8 m. The high performance of **ALCOR 7,5** machines makes them an ideal tool for farms with a planted area of 500 to 2,000 ha, while **ALCOR 10** machines can be used in the areas from 2,000 to 5,000 ha.

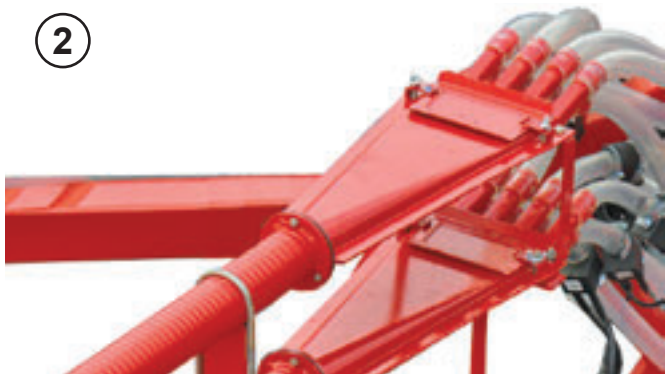
Mini -Till	7.3 m	8 10 km/h	6.0-7.3 ha/h	30 120 mm	24 pcs	min 180 hp
	Operating width	Operating speed	Performance	Seeding depth	Number of rows	Tractor power

375±5-mm wide A-blades mounted on C-shaped racks allow seeding without clogging the tools with stubble residues.

Spring harvesting harrows pull out the trimmed weeds and stubble residues, and evenly distribute them over the surface of the field. Removable tool brackets allow changing the soil tillage depth of the tines, which follow the tractor tracks, using shim plates.

1. Soil smoothing

To smooth the soil above the seed planted there are tension rods mounted behind the rollers.



2. Distribution heads

The horizontal distribution heads do not require a strong airflow to transport seeds even when sowing heavy seeds of legumes and leguminous crops.

3. Seeding control system

The **HELIOS** seeding control system by MONADA RPC controls the seeding process for each grain tube directly from the tractor cab during sowing and counts the sown area.

ALCOR pneumatic seeder performs 5 operations in one pass:

- tillage and 100 % undercutting of weeds in the seeding depth;
- strip seeding at the seeding rates from 3 to 450 kg/ha and the sowing strip width of 120-260 mm to a depth from 30 to 120 mm;
- application of granular fertilizer to the planted rows at the rate of 25–200 kg/ha;
- removal of cut weeds and even distribution of the same over the surface of the field;
- packing of seeds.

Using **ALCOR** sowing machines with the mini-till technique eliminates the performance of intermediate operations:

- plowing;
- pre-sowing treatment.

		ALCOR 7,5	ALCOR 10
Aggregate type		Semitrailed	Semitrailed
Seeding rate	kg/ha	3.0-450	3.0-450
Fertilizer application rate	kg/ha	25-200	25-200
Seeding row width	mm	120-260	120-260
Seed hopper capacity	l	5,215	5,215
Fertilizer hopper capacity	l	4,415	4,415
Tool mounting interval	mm	305	305
Distance between the tools in the same row	mm	915	915
Distance between tine rows	mm	650	650
Number of tine rows	pcs	3	3
Width of A-blades	mm	375±5	375±5
Tilling depth	mm	30-180	30-180
Overall dimensions for transport (LxWxH)	mm	12,650x5,540x3,390	14,970x5,540x4,050
Weight	kg	8,000	10,230

VIDEO

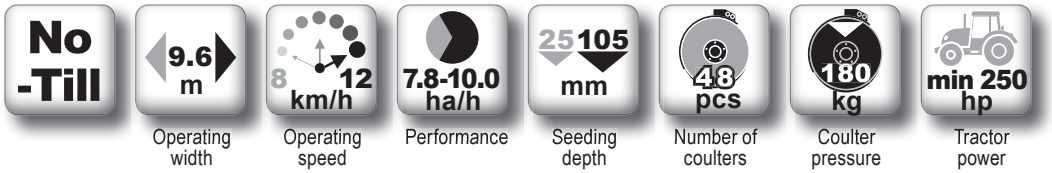
Plastic tanks

ALCOR 7,5 and **ALCOR 10** pneumatic seeders are equipped with plastic tanks (model **9000**) with the total capacity of 9,630 l (5,215 l + 4,415 l).

ORION 9,6

PNEUMATIC SEEDER

This seeder is used with the **no-till** seeding technologie.

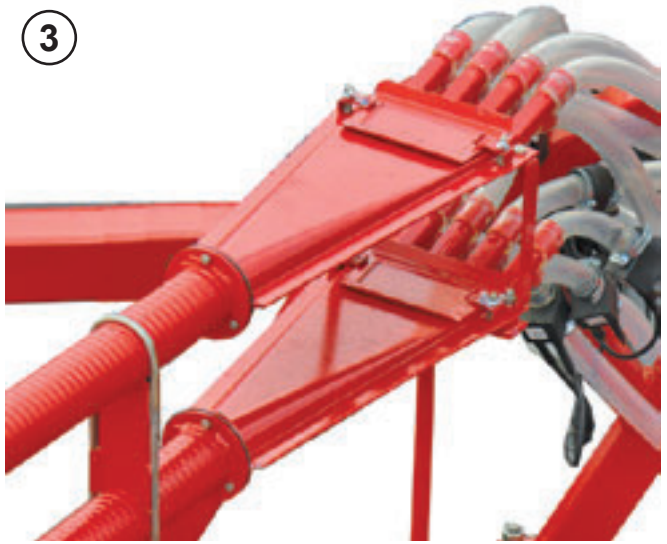


ORION 9,6 provides for the seeding of grain, medium- and small-seeded legumes, and other crops that are similar to grain crops in terms of the seed size and the seeding rate, as well as for the seeding of free-running hayseed, with the simultaneous application of fertilizers into sown rows and the packing of soil.

The operating width of the seeder, which is 9.6 m, and its high performance make **ORION 9,6** an ideal tool for farms with a cultivated area from 2,000 to 5,000 ha.

A 300 hp tractor can sow from 70 to 120 ha per day with a good quality.

ORION 9,6 pneumatic seeder is equipped with a plastic hopper (model 9,000) with the total capacity of 9,630 l (5,215 l+ 4,415 l).



1-2. Sowing part
Tracking the terrain

The use of the radial suspension of the seeding unit provides for the maximum tracking of the terrain.

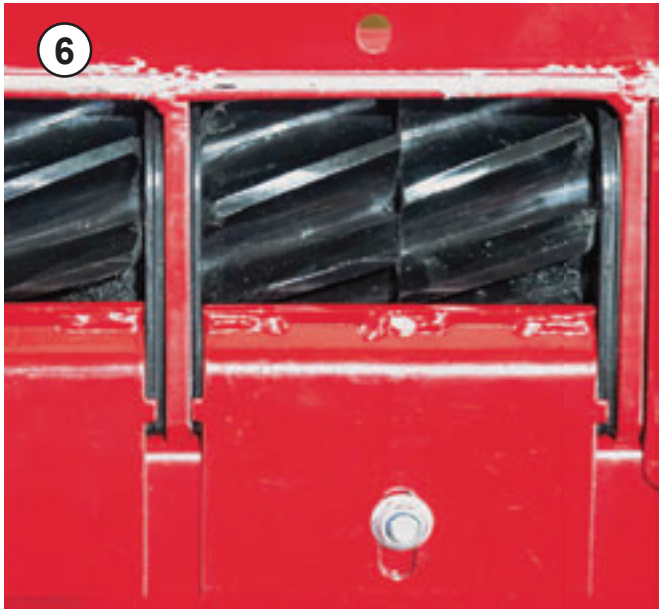
- 48 high-quality drill coulter points together with large diameter disk blades ensure the high quality of sowing on any background.
- The press wheel presses each seed to the bottom of the furrow to improve their contact with the soil.
- The compaction effort of up to 180 kg allows working in the fields with large volumes of stubble.
- The maximum coincidence of the seed discharge point and the tracking wheel bearing allows for accurate maintenance of the given planting depths and ensures the uniformity of germination.
- V-shaped cover wheels feature an adjustable approach angle and a step adjustment of the compaction effort, which provides for the high quality of sowing on soils of varying hardness and large volumes of stubble.
- The hydraulically set row spacing of 20 or 40 cm provides for the sowing of various crops.

3. Distribution heads

The horizontal distribution heads do not require a strong airflow to transport seeds even when sowing heavy seeds of legumes and leguminous crops.

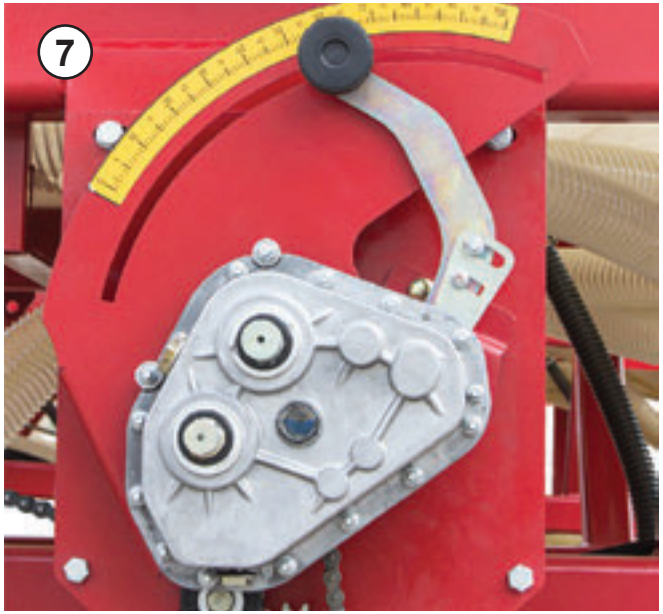
4-5. Seeding control system

The **HELIOS** seeding control system by MONADA RPC controls the seeding process for each grain tube directly from the tractor cab during sowing and counts the sown area.



6. Seeding unit coils

The polyurethane coils of seeding units have a higher working life. The screw design of the coil teeth ensures a continuous supply of seeds and fertilizers.



7. Variators

The tank features two variators. The variators provide for a smooth adjustment of the seeding rate and the fertilizer application rate. It reduces the time required for the configuration of the sowing machine for use in the field.

Number of rows of tools along the length of the pass	pcs	2
Distance between the rows of tools	mm	1,350
Row-width spacing	mm	200, 400
Seeding rate	kg/ha	0.5...400
Fertilizer application rate	kg/ha	25...200
Hopper capacity (total)	l	9,630
Seed hopper capacity	l	5,215
Fertilizer hopper capacity	l	4,415
Overall dimensions in position	mm	14,400x11,200x3,600
Overall dimensions for transport	mm	14,400x4,800x4,200
Weight (with diesel engine/hydraulic motor)	kg	15,300/15,170

VIDEO

Fuel consumption

When sowing with a 320 hp tractor: 5.9–6.3 l/ha.

STRIP GRAIN SEEDERS

Grain seeders are designed for the strip seeding of grain, small- and medium-seeded legumes, and other crops that are similar to grain crops in terms of the seed size and the seeding rate with simultaneous application of granulated mineral fertilizers into sown rows.

ELVORTI

ALFA 6

MECHANICAL CEREAL SEEDER

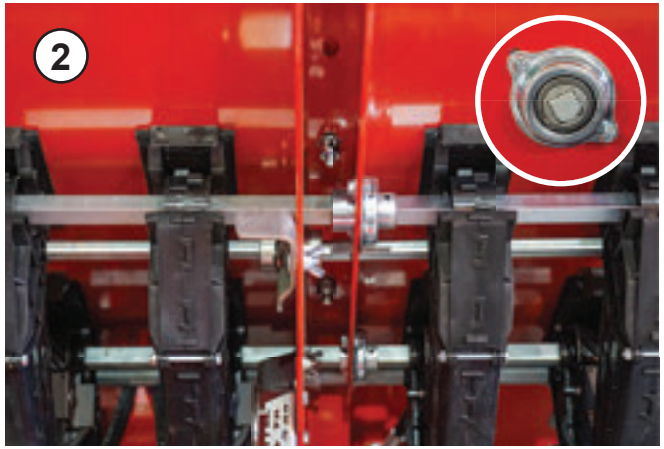
ALFA 6 grain seeder with double-disk single-row coulters and press rollers is intended for the strip seeding of grain, medium- and small-seeded legumes, and other crops that are similar to grain crops in terms of the seed size and the seeding amount, with the simultaneous application of granular mineral fertilizers into sown rows and the packing of soil after the mini-till or the traditional tilling techniques. It was created considering modern design solutions to significantly reduce the cost of agricultural products on the market.

Mini -Till	6.0 m	9 12 km/h	5.4-7.2 ha/h	20 80 mm	40 pcs	110 kg	min 90 hp
	Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

VIDEO

1. Seeding unit made of polymer materials

- The seeding rates range from 1.5 to 400 kg/ha.
- The coil design allows for seeding of small seeds.
- The gap between the valve and the coil is adjustable to facilitate the seeding of large seeds at high rates.
- The screw design of the seeding unit coil ensures a uniform supply of seeds.



2. Stainless steel shafts.

From 2019 stainless steel shafts are used for fertilizer seeding units.

These shafts are not exposed to corrosion, do not require constant maintenance and increase the seeder life in whole.

3. Wear-resistant double-disk single-row coulter

- Provides for the seeding on fields with a large number of stubble residues.
- The use of high-strength boron steels increases the coulter service life by 100 %.

4. The continuously variable transmission mechanism (variator)

It provides for a smooth adjustment of the seeding rate and the fertilizer application rate.

5. Unique swivel trailing arm

When transferring the seeder from the working to the transport position (and vice versa), there is no need to detach the seeder from the tractor, as well as to disconnect the hydraulic system elements and the seeding control system.

6. Seeding control system

The **HELIOS** electronic control system by MONADA RPC, which is mounted on **ALFA 6** and **ALFA 4** seeders, controls the sowing of seeds in each coulter and transmits the information to the monitor installed inside the tractor cab, to record the sown area.

8. Trailer

The trailer allows seeder transportation by public roads.

7. Improved frame

The new simplified frame made of high-quality European steels features a flat welded design with a tension rod on the front beam in the centre part. Large front and rear beams are connected together by sidebars and draughts (without the use of girders), which ensure the reliability and stiffness of the frame.

9. Hydraulic system

On **ALFA 6** and **ALFA 4** seeders hydraulic flow control is performed by a valve with two positions:

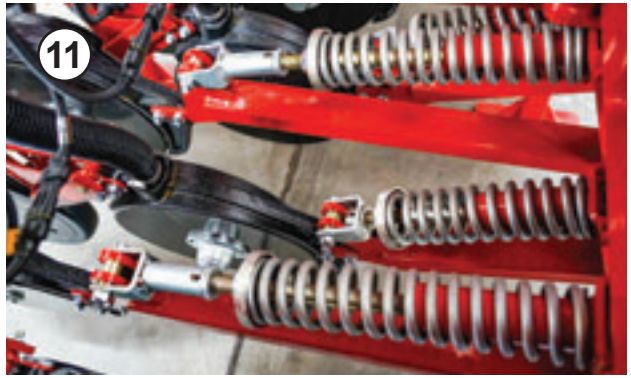
- Switching to the hitch frame and trailer control.
- Managing the depth of coulters and markers.

		ALFA 4	ALFA 6
Row-width spacing	cm	15	15
Seeding rates	kg/ha	1.5-400	1.5-400
Fertilizer application rates	kg/ha	25-200	25-200
Seed hopper capacity	l (dm^3)	1,200	1,860
Fertilizer hopper capacity	l (dm^3)	300	945
Dimensions		length x width x height	length x width x height
- in position (without the adjustment for the marker extension)	mm	4,950 x 4,910 x 1,980	5,250 x 6,950 x 1,980
- for transport (with adjustment for the marker)	mm	4,910 x 2,650 x 2,900	8,250 x 2,650 x 4,200
Weight	kg	3,300 ± 3%	3,915 ± 3%

10. Increased hopper

ALFA 6 seeder
has one of the largest hoppers on the market – 2,805 l (grain – 1,860 l, fertilizer – 945 l).

ALFA 4 seeder
has a hopper with capacity 1,500 l
(grain – 1,200 l, fertilizer – 300 l).



11. The coulter pressure on the soil

The hydraulic positive pressure valve, the increased stiffness of the spring, as well as the reinforced drive group design, provide for the coulter pressure of 80-110 kg, to sow using the mini-till technique and maintain a constant seeding depth.

ALFA 4

MECHANICAL CEREAL SEEDER

4.0 m	3.6-4.68 ha/h	26 pcs	110 kg	min 80 hp
Operating width	Performance	Number of rows	Coulter pressure	Tractor power

ELVORTI

ASTRA 6 PREMIUM

MECHANICAL CEREAL SEEDER

Grain seeder with double-disk single-row coulters and press rollers is intended for the strip seeding of grain, medium- and small-seeded legumes, and other crops that are similar to grain crops in terms of the seed size and the seeding amount, with the simultaneous application of granular mineral fertilizers into sown rows and the packing of soil after.

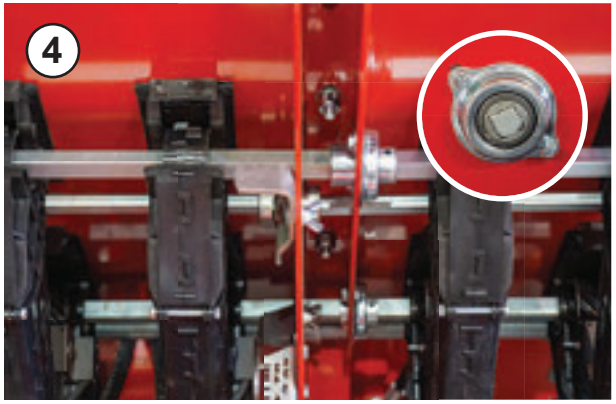
6.0 m	9 12 km/h	5.4-7.2 ha/h	20 80 mm	40 pcs	65 kg	min 90 hp
Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

VIDEO

1. Seeding unit made of polymer materials

Grain and fertilizer seeding units made of polymer materials eliminate the possibility of corrosion and increases the service life.

The flaps on the fertilizer and grain seeding units have seven positions to regulate the seed supply to the seeding coil.



4. Stainless steel shafts

From 2019 stainless steel shafts are used for fertilizer seeding units.

These shafts are not exposed to corrosion, do not require constant maintenance and increase the seeder life in whole.

2. Variators

Variators provide for a smooth adjustment of the seeding rate range:

- for seeds - 1.5 to 400 kg/ha;
- for fertilizers - 25 to 200 kg/ha

The seeders are fitted with separate variators for fertilizer and grain seeding units.

5. Hydraulic system

On **ASTRA 6 PREMIUM**, **ASTRA 5.4 PREMIUM** and **ASTRA 4 PEMIUM** seeders hydraulic flow control is performed by a valve with two positions:

- 1. Switching to the hitch frame and trailer control.
- 2. Managing the depth of coulters and markers.

3. Unique swivel trailing arm

When transferring the seeder from the working to the transport position (and vice versa), there is no need to detach the seeder from the tractor, as well as to disconnect the hydraulic system elements and the seeding control system.

6. Ease of transportation

A reinforced trailer with a wheel of increased diameter allows seeder transportation by public roads.

Standard trailers for ASTRA PREMIUM seeders

	Standard	Optional
ASTRA 6 PREMIUM	**ОЗШ 01.120***	
ASTRA 5,4 PREMIUM		**ОЗШ 09.000**
ASTRA 5,4 (T) PREMIUM		**ОЗШ 09.000**
ASTRA 5,4 STANDART		**ОЗШ 09.000**
ASTRA 4 PREMIUM	**ОЗШ 01.120***	
ASTRA 3,6 PREMIUM		**СЗГ 00.3300**

* The seeders include hydraulic lines with different lengths.

ASTRA 3,6 P PREMIUM

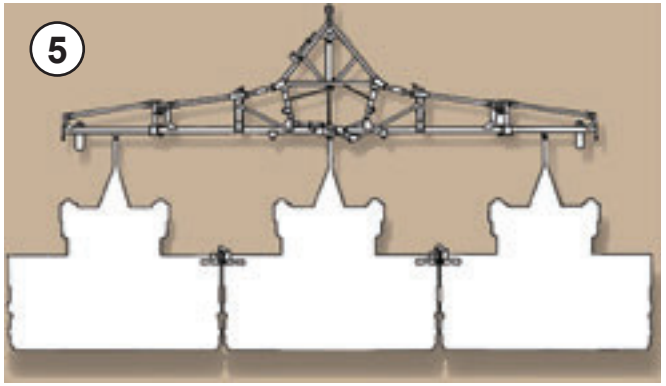
PRESSED MECHANICAL CEREAL SEEDER

3.6 m	9 15 km/h	3.6-5.4 ha/h	20 80 mm	24 pcs	65 kg	min 65 hp
Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

1. Modular design

The design of the seeder is based on the modular principle. The modules are interconnected in a single rank with the help of special tools creating the seeding units. The seeder is available in the following versions:

- with double-disc coulters on 4 support and drive wheels;
- with double-disc coulters on 4 support and drive wheels and packing rollers.



VIDEO

2-4. A wide range of accessories for seed covering

In addition to rubber press wheels or finger covering knives, heavy packing rollers can be used, which are installed instead of the drive wheels (for sowing under severe moisture deficit).

Rollers are available on request.

5. Hydraulically-driven wide-coverage units

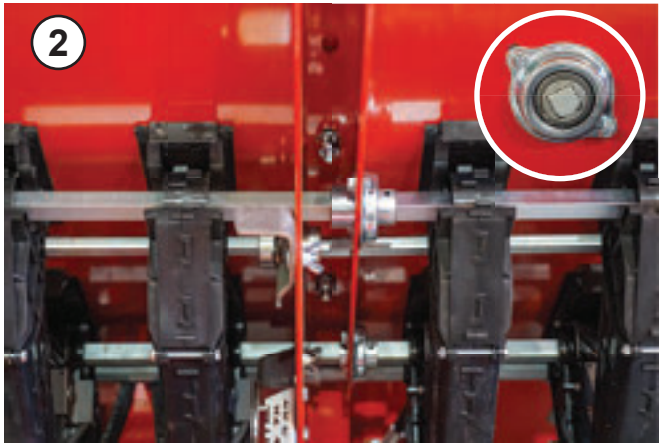
Tractor hydraulically-driven wide-coverage unit of three **ASTRA 3,6 P PREMIUM** seeders (seeders are connected in a single rank) saves time when overloaded with work.

Row-width spacing	cm	15
Seeding rates	kg/ha	1.5-400
Fertilizer application rates	kg/ha	25-200
Seed hopper capacity	l (dm^3)	638
Fertilizer hopper capacity	l (dm^3)	426
Dimensions (length x width x height)	mm	4,155 x 3,710 x 1,860
Weight	kg	1,640

FEATURES OF ASTRA PREMIUM SEEDER COMPONENTS

1. Seeding unit made of polymer materials

- The seeding rates range from 1.5 to 400 kg/ha.
- The coil design allows for seeding of small seeds.
- The gap between the valve and the coil is adjustable to facilitate the seeding of large seeds at high rates.
- The screw design of the seeding unit coil ensures a continuous and uniform supply of seeds.



2. Stainless steel shafts

From 2019 stainless steel shafts are used for fertilizer seeding units.

These shafts are not exposed to corrosion, do not require constant maintenance and increase the seeder life in whole.

3. Packing roller

The integral structure of the “coulter - press wheel” unit allows adjusting the coulter to a predetermined depth at 1 cm intervals.

		ASTRA 6 PREMIUM	ASTRA 5,4 PREMIUM	ASTRA 5,4 T PREMIUM	ASTRA 4 PREMIUM	ASTRA 3,6 P PREMIUM
Row-width spacing	cm	15	15	15	15	15
Seeding rates	kg/ha	1.5-400	1.5-400	1.5-400	1.5-400	1.5-400
Fertilizers application rates	kg/ha	25-200	25-200	25-200	25-200	25-200
Grass seeding rates	kg/ha	—	—	5 - 90		
Seeds tank capacity	l (dm^3)	1,245	1,000	1,000	830	638
Fertilizer hopper capacity	l (dm^3)	600	500	500	400	426
Grass seeds hopper capacity	l (dm^3)	—	—	130	—	—
Dimensions (length x width x height)						
- in position (without the adjustment for the marker)	mm	4,750 x 6,950 x 1,850	8,550 x 6,180 x 1,830	4,300 x 9,400 x 1,680	3,570 x 4,865 x 1,850	4,155 x 4,010 x 1,860
- for transport (with adjustment for the marker)	mm	7,520 x 2,950 x 3,435	6,750 x 2,950 x 2,850	6,750 x 2,950 x 3,550	5,440 x 2,950 x 3,435	4,155 x 3,710 x 1,860
Weight	kg	3,050±92	3,135±9	3,000±90	2,260±68	1,640

4. Finger covering knives

Finger covering knives replace the rollers in case of high soil moisture.

7. Seeding control system

The **HELIOS** electronic control system by MONADA RPC, which can be installed on various versions of seeders, controls the sowing of seeds in single coulter on each hopper, or in each seeder coulter, and transmits the information to the monitor mounted inside the tractor cab, to record the sown area.

5. New scrapers

The scrapers material on the packing wheels of the grain seeders was replaced. Scrapers are manufactured from DUROSTAT wear-resistant steel.

ASTRA PREMIUM seeder series

ASTRA 6 PREMIUM

ASTRA 5,4 PREMIUM

ASTRA 5,4 T PREMIUM

ASTRA 4 PREMIUM

ASTRA 3,6 P PREMIUM

6. Wear-resistant double-disk single-row coulter

- Provides for the seeding on fields with a large number of stubble residues.
- The use of high-strength boron steels increases the coulter service life by 100 %.

ASTRA 3

MECHANICAL CEREAL SEEDER

1. Small dimensions

With an operating width of 3 m and a row-width spacing of 120 mm, grain seeder ensure efficiency in small areas under conditions of intensive agrotechnology.

The mounted seeder design of only 985 kg makes the machine highly manoeuvrable in the field and during transportation.

The seeder includes a device for switching the seeding coils for the process track, installed in accordance with the width of the tractor tracks.

3.0 m	8 10 km/h	2.4-3.0 ha/h	20 80 mm	35 kg	min 70 hp
Operating width	Operating speed	Performance	Seeding depth	Coulter pressure	Tractor power

2. Seeding unit made of polymer materials

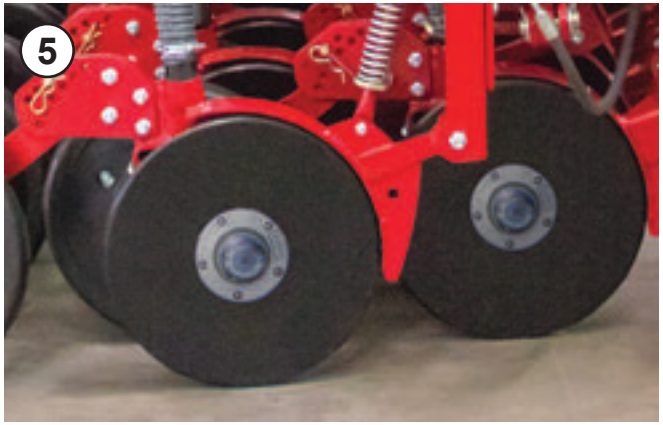
- The seeding rates range from 1.5 to 400 kg/ha.
- The coil design allows for seeding of small seeds.
- The gap between the valve and the coil is adjustable to facilitate the seeding of large seeds at high rates.
- The screw design of the seeding unit coil ensures a continuous and smooth supply of seeds.

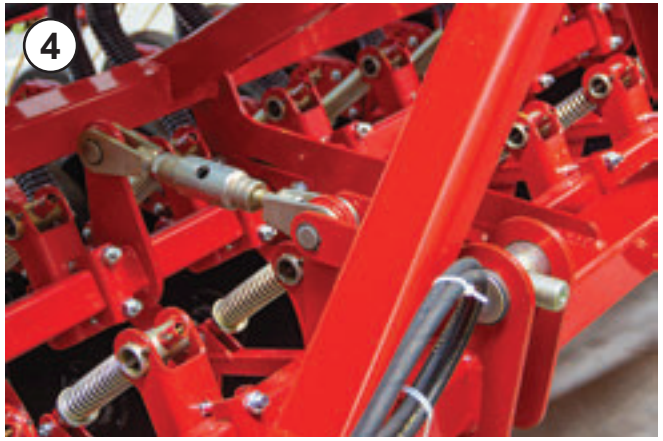
5. Wear-resistant double-disk single-row coulter

- Provides for the seeding on fields with a large number of stubble residues.
- The use of high-strength boron steels increases the coulter service life by 100 %.

3. The continuously variable transmission mechanism (variator)

It provides for a smooth adjustment of the seeding rate and the fertilizer application rate.





4. Depth adjustment

The front and rear shaft for coulter hanging are connected by screw rod. The screw is designed for group adjustment of the coulter depth.

6. Seeding control system

The **HELIOS** electronic control system by MONADA RPC, which is mounted on **ASTRA 3** seeders, controls the sowing of seeds and transmits the information to the monitor installed inside the tractor cab, to record the sown area.

Row-width spacing	cm	12
Seeding rates	kg/ha	1.5-400
Number of coulters	pcs	25
Seed hopper capacity	l (dm^3)	500
Dimensions		length x width x height
- in position (without the adjustment for the marker extension)	mm	2,220 x 3,000 x 1,450
- for transport (with adjustment for the marker extension)	mm	2,220 x 3,000 x 1,450
Weight	kg	985

VIDEO

ASTRA 5,4 STANDART

MECHANICAL CEREAL SEEDER

It is designed for the strip seeding of grain crops (wheat, rye, barley, oats), leguminous crops (peas, kidney beans, soybeans, lentils, beans, vetching, chickpeas, lupins) with simultaneous application of granulated mineral fertilizers.

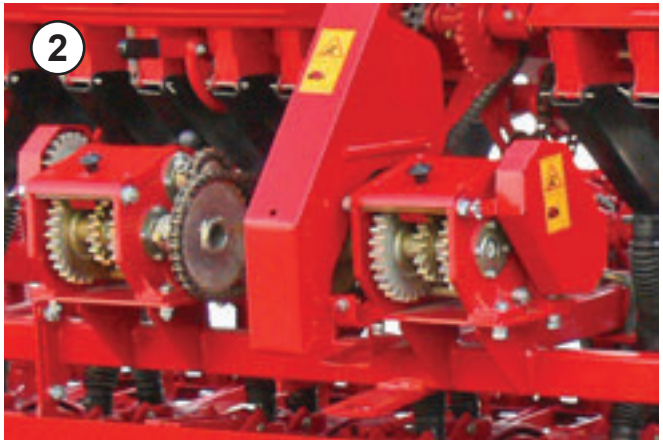
Seeder can be used for seeding of other crops that are similar to grain crops in terms of the seed size and the seeding rate (buckwheat, millet, sorghum, etc.).

5.4 m	9 12 km/h	4.9-6.5 ha/h	20 80 mm	36 pcs	30 kg	min 80 hp
Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

1. Seeding unit

The seeding rate is set by adjusting the working length of the coil, group adjusting of the seeding unit valves and changing the rotation rate of the seeding unit shaft.

The rate of fertilizer application is adjusted using a handle.

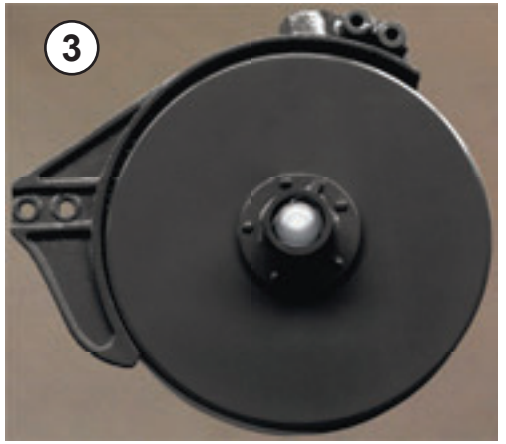


2. Gearbox

The gearbox has six transmissionratios. The gear shifting is carried out by pressing the level and its movement along the shaft of the gear train.

To extend the range of gears, variable gears are shifted.

Seeders are fitted with separate gearboxes for grain and fertilizer seeding units.



3. Wear-resistant double-disk single-row coulter

- Provides for the seeding on fields with a large number of stubble residues.
- The use of high-strength boron steels increases the coulter service life by 100 %.

4. Trailer

Trailer **ОЗШ 09.0000** is available on request.

ASTRA STANDART seeder series

ASTRA 5,4 STANDART

ASTRA 3,6 P STANDART

ASTRA 3,6 STANDART

VIDEO

Row-width spacing	cm	15
Seeding rates	kg/ha	1.5-400
Fertilizers application rates	kg/ha	25-200
Seeds tank capacity	l (dm^3)	1,000
Fertilizers hopper capacity	l (dm^3)	500
Dimensions		length x width x height
- in operating position	mm	8,550 x 6,180 x 1,830
- for transport	mm	6,750 x 2,950 x 2,850
Weight	kg	3135

ASTRA 3,6 P STANDART

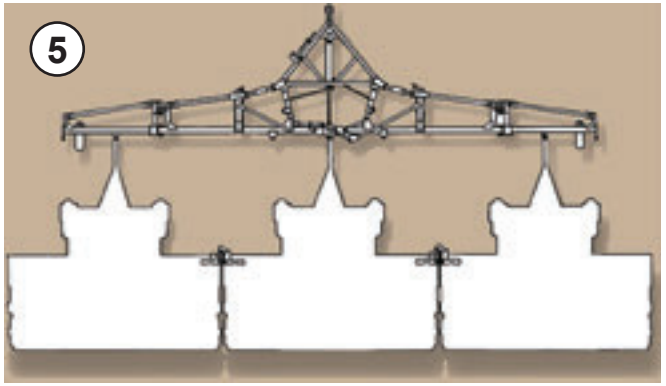
PRESSED MECHANICAL CEREAL SEEDER

3.6 m	9 15 km/h	3.6-5.4 ha/h	20 80 mm	24 pcs	30 kg	min 65 hp
Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

1. Modular design

The design of the seeder is based on the modular principle. The modules are interconnected in a single rank with the help of special tools creating the seeding units. The seeder is available in the following versions:

- with double-disc coulters on 4 support and drive wheels;
- with double-disc coulters on 4 support and drive wheels and packing rollers.



VIDEO

2-4. A wide range of accessories for seed covering

In addition to rubber press wheels or finger covering knives, heavy packing rollers can be used, which are installed instead of the drive wheels (for sowing under severe moisture deficit).

Rollers are available on request.

5. Hydraulically-driven wide-coverage units

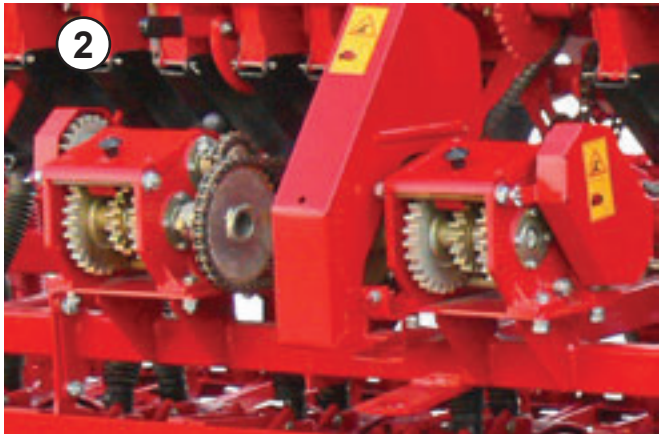
Tractor hydraulically-driven wide-coverage unit of three **ASTRA 3,6 P PREMIUM** seeders (seeders are connected in a single rank) saves time when overloaded with work.

		ASTRA 3,6 P STANDART	ASTRA 3,6 STANDART
Row-width spacing	cm	15	15
Seeding rates	kg/ha	1.5-400	1.5-400
Fertilizers application rates	kg/ha	25-200	25-200
Seeds tank capacity	l (dm^3)	638	638
Fertilizers hopper capacity	l (dm^3)	426	426
Dimensions (length x width x height)	mm	4,155 x 3,710 x 1,860	3,558 x 4,600 x 1,830
Weight	kg	1,640	1,640

FEATURES OF ASTRA STANDART SEEDER COMPONENTS

1. Seeding unit

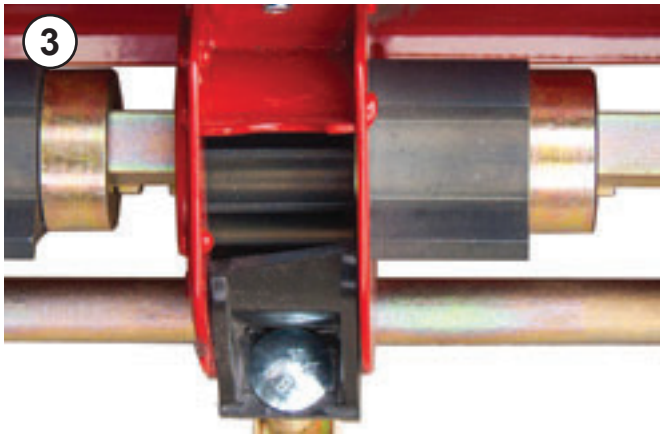
The seeding rate is set by group adjusting the working length of the coil, group adjusting of the seeding unit valves and changing the rotation rate of the seeding unit shaft.



2. Gearboxes

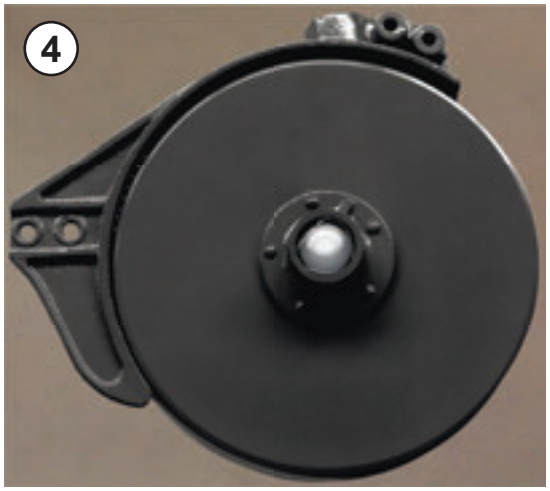
The gearbox has six transmission ratios. The gear shifting is carried out by pressing the lever and its movement along the shaft of the gear train.

Seeders are fitted with separate gearboxes for grain and fertilizer seeding units.



3. Multipurpose coil

The grain seeding unit has a grooved coil. The profiled clutch is pulled into the seeding unit box or is pulled out of the box, and changes the coil length, which reduces or increases the seeding rate



4. Double-disk coulters

The coulter hub design is practically maintenance-free.

TILLED CROP SEEDERS

Multipurpose pneumatic seeders are designed for high-precision seeding of calibrated seeds of corn, sunflower, castor beans, sorghum, soybeans as well as seeds of broad beans, kidney beans, and lupine with the simultaneous application of granular mineral fertilizer separately from seeds, and the packing of soil in rows.

ELVORTI

VEGA 16 PROFI
PRECISION DRILL

VEGA 16 PROFI drill has a frame of two equal parts, which ensures a large operating width and tracking of the terrain in the working position by 12 % up or down in a vertical plane.

		VEGA 8 PROFI with LMF	VEGA 8 PROFI with electric drive	VEGA 8 PROFI	VEGA 6 PROFI	VEGA 6 PROFI	VEGA 16 PROFI
Aggregate type		Semitrailed	Semitrailed	Semitrailed	Semitrailed	Mounted	Semitrailed
Row-width spacing	mm	700	700	700	700	700	700
Seeding rates	pcs/l.m.	1.4 - 51.4	1.4 - 51.4	1.4 - 51.4	1.4 - 51.4	1.4 - 51.4	1.4 - 51.4
Fertilizer application rates	kg/ha	23.5 - 245.4	23.5 - 245.4	23.5 - 245.4	23.5 - 245.4	23.5 - 245.4	23.5 - 245.4
Total seeds tank capacity	l (dm^3)	416 (52x8)	416 (52x8)	416 (52x8)	312(52x6)	312 (52x6)	832 (52x16)
Total fertilizers hopper capacity	l (dm^3)	1,100	720 (180x4)	720 (180x4)	360 (180x2)	560 (280x2)	1,440 (180x8)
Dimensions (length x width x height)							
• in operating position	mm	2,530 x 6,980 x 1,550	2,530 x 6,980 x 1,550	2,530 x 6,980 x 1,550	2,530 x 6,980 x 1,550	2,530 x 6,980 x 1,550	6,125 x 12,565 x 2,795
• for transport	mm	8,000 x 2,670 x 3,500	8,000 x 2,670 x 3,500	8,000 x 2,670 x 3,500	6,980 x 2,530 x 3,500	6,980 x 2,530 x 3,500	13,100 x 3,325 x 3,460
Weight	kg	3,818 ±3%	2,770 ±3%	2,770 ±3%	2,594 ±3%	2,350 ±3%	6,740 ±3%
Tractor power	hp	min 80	min 80	min 80	min 65	min 80	min 180

*** VEGA 16 PROFI** is also available without a fertilizer application system, which reduces the weight to 5,390 kg.

VEGA 16 PROFI

WITHOUT FERTILIZER APPLICATION SYSTEM

AGGREGATED WITH TRACTORS OF MIN 110 hp

In farms where liquid mineral fertilizers are applied, you can use the **VEGA 16 PROFI** seeder without fertilizer application system. This allows to aggregate it with tractors with the power of 110 hp and more.

VEGA 8 PROFI
with LMF*

VEGA 8 PROFI
with electric drive

VEGA 8 PROFI

VEGA 6 PROFI
semitrailed

VEGA 6 PROFI
mounted

VEGA 16 PROFI

VIDEO

*** LMF** – liquid mineral fertilizers.

VEGA 8 PROFI

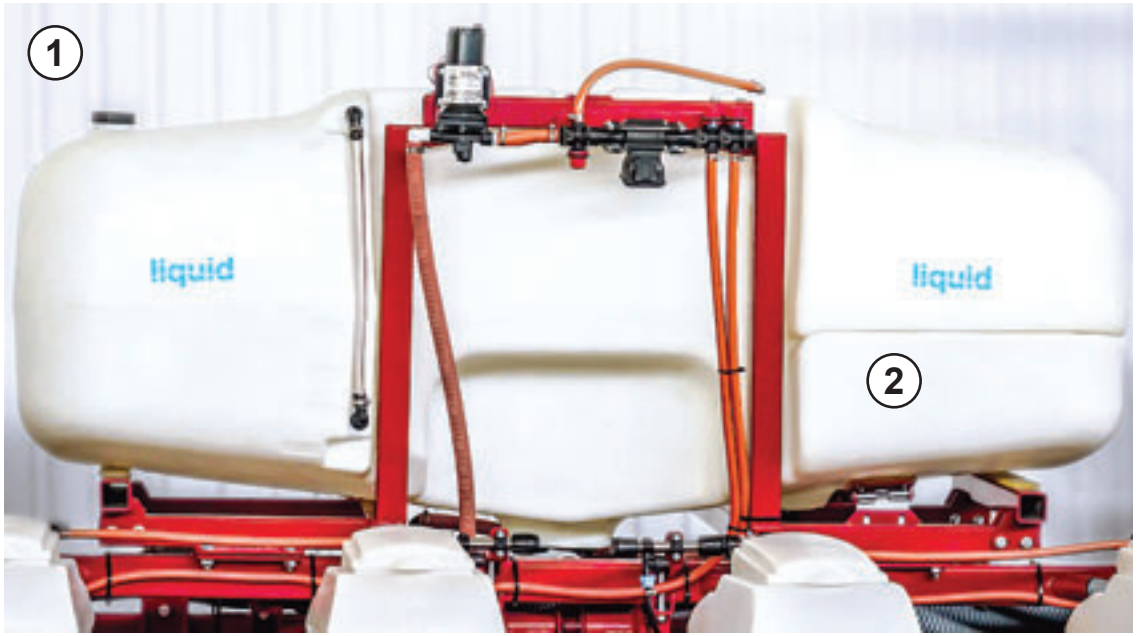
PRECISION DRILL WITH UNIT FOR APPLICATION OF LIQUID MINERAL FERTILIZERS

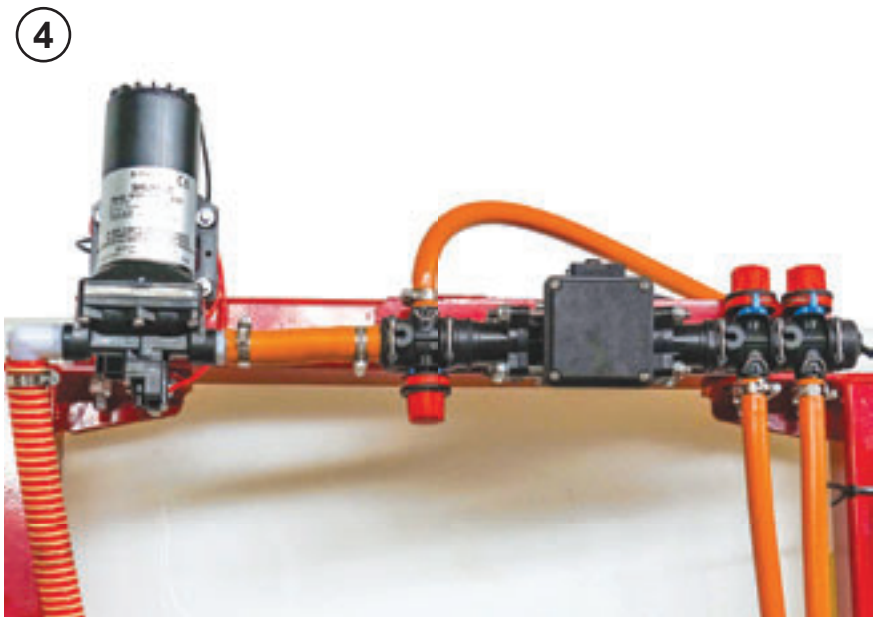
The new generation of Elvorti precision drills with a number of advantages, which make the work in the field more economical and profitable.

Mini -Till	5.6 m	2,5 9 km/h	3.02-5.04 ha/h	40 100 mm	1100 l	8 pcs	280 kg	min 80 hp
	Operating width	Operating speed	Performance	Seeding depth	Fertilizer tank capacity	Number of rows	Coulter pressure	Tractor power

VEGA 8 PROFI is designed for seeding of tilled crops with the simultaneous application of liquid mineral fertilizers.

It is also intended for application of urea-ammonium nitrate (UAN).





1. Application of liquid fertilizers

The capacity of **VEGA 8 PROFI** seeder tank for liquid complex fertilizers is 1,100 liters.

There is a valve for draining the remaining liquid fertilizer at the bottom of the tank.

2. Rinsing tank

The main tank with a capacity of 1,100 l includes a 50 l tank for rinsing the system.

3. Process water tank

A 15 l tank with process water for hand washing is mounted into the main tank.

4. Supply of liquid fertilizers

The tank supplies liquid fertilizers by means of the Pentair electric pump with a capacity of 21 l/min connected to the tractor power system through the filter to 3 regulated valves (one main and two additional). Fertilizer application rate in each row is set by the valves and a kit of calibration washers. Excess fluid returns to the tank through the reversing supply system.

5. Application of liquid fertilizers

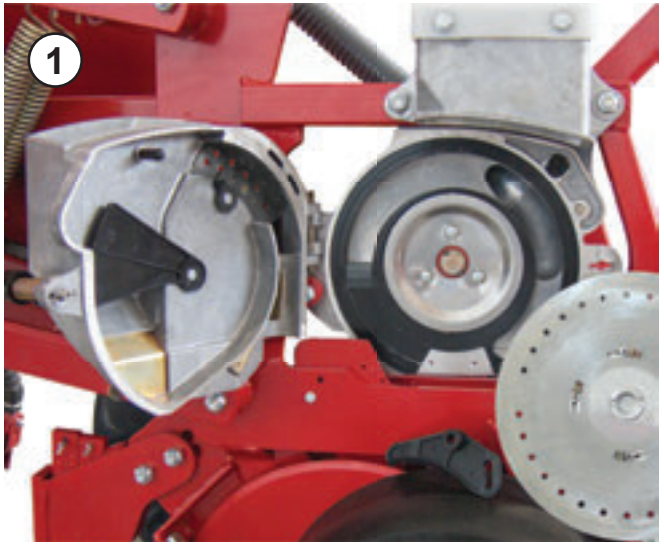
Liquid fertilizers are fed via the hose with a metal tip, located between a double-disc coulter and packing rollers.

VEGA 8 PROFI

PRECISION DRILL

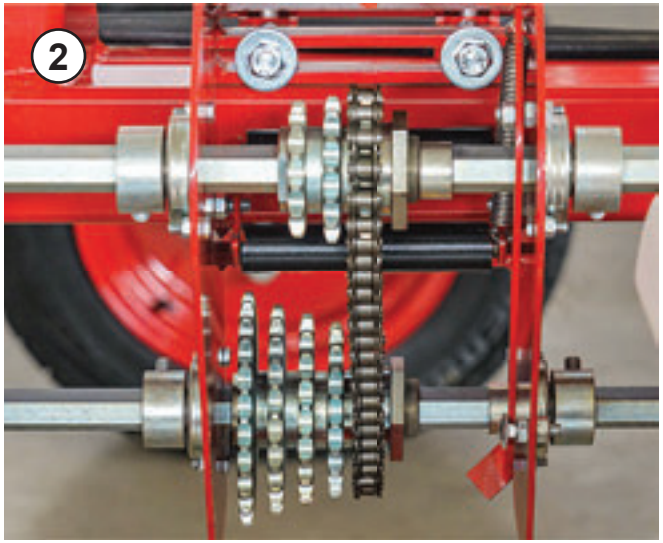
Mini -Till	5.6 m	2,5 9 km/h	3.02-5.04 ha/h	40 100 mm	8 pcs	280 kg	min 80 hp
	Operating width	Operating speed	Performance	Seeding depth	Number of rows	Coulter pressure	Tractor power

VIDEO



1. PROFI seeding unit

- the seeding unit provides for the single-seed sowing;
- the presence of the upper and the lower adjustable seed flickers: the absence of doubles;
- the amount of seeds that fall from the hopper into the seeding chamber is regulated by a flap;
- easy maintenance without tools;
- the presence of an inspection window: easy adjustment of seeding rates;
- the placement of the seeding unit on the frame excludes the impact of loads to the housing and ensures the long service life;
- a quick-mount agitator is installed on the distributor wheel to prevent compaction and hanging of seeds in the seeding unit chamber;
- a gasket is inserted in the housing and features a lip, which, when abraded, signals the need for replacement;
- an unloading hatchway is provided for quick removal of the seeds from the seeding unit chamber.

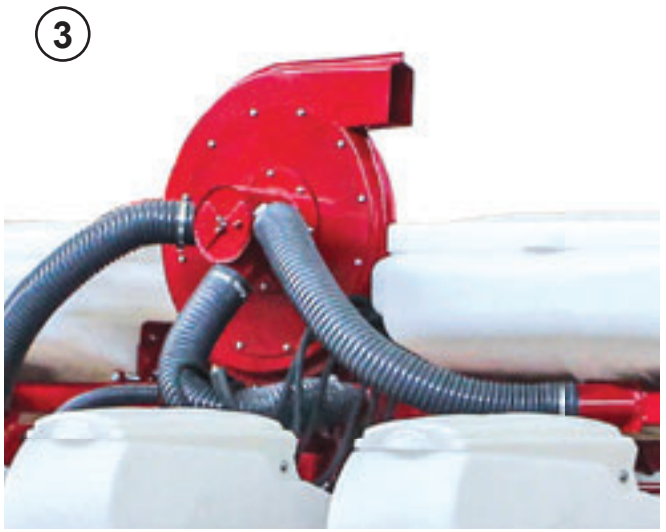


2. Gear shifting mechanism of seeding units

All **VESTA** and **VESTA PROFI** planter are equipped with a new gear shifting mechanism of seeding units. It uses collapsible blocks of steel gears according to the 3x5 scheme (formerly, welded blocks were installed). This improves the serviceability of the unit.

Gear shifting mechanism of fertilizer application units

Gear shifting mechanism of fertilizer application units has 12 transmission ratios.



3. Pneumatic system

The planter is fitted with a centrifugal fan driven by the tractor's PTO of 540 rpm.

There is a flap on the fan, which regulates the rarefaction of air flow.

The fan is equipped with a freewheel clutch that protects the belt drive from increased wear when the tractor's PTO is off.

4. Frame-receiver

The planter frame acts as a receiver with an individual diagonal output on the sections providing the same rarefaction in all seeding units and eliminating the air flow ripple.

VEGA 8 PROFI

PRECISION DRILL WITH ELECTRIC DRIVE

Mini -Till	5.6 m	2,5 9 km/h	3.02-5.04 ha/h	40 100 mm		8 pcs	280 kg	min 80 hp
	Operating width	Operating speed	Performance	Seeding depth	Electric motor drive	Number of rows	Coulter pressure	Tractor power

1. Electric motor drive

Seeding units are driven by electric drives with electronic and sowing control, which combines ease of maintenance, reliability and accuracy of sowing of corn, sunflower and other tilled crops. Adjustment of the seeding rate is carried out from the tractor cab by the operator using the buttons on the monitor.

This system ensures disconnection of the gearbox, shafts, chains and sprockets from the seeding unit drive, so there is no need to waste time changing the sprockets to set a different seeding rate.

Working speed increases.

2. Seeding control system

VEGA PROFI drill includes the **HELIOS** electronic seeding control system, controls the passage and the speed of seeds in each coulter and transmits the information to the monitor installed inside the tractor cab. This ensures accurate recording of the sown area.

Mini-till and traditional technique VEGA PROFI drills configuration

VEGA 6 PROFI
VEGA 8 PROFI
VEGA 16 PROFI

VEGA 6 PROFI, **VEGA 8 PROFI** and **VEGA 16 PROFI** drills are produced in a semitrailer version.

Semitrailer seeders do not require the use of high-power tractors, and feature a trailer to transfer the seeder by public roads.

The sowing section of **VEGA PROFI** seeders features:

- From 2019 a double-disc coulter with offset discs is used for fertilizer application;
- A double-disc coulter for sowing;
- The possibility to control the soil pressure of up to 280 kg;
- The possibility of using a clod sweep or a slotted disk;
- An adjustable V-shaped press wheel;
- Depth rollers to accurately track the field terrain.

The maximum combination of the seed discharge point into the seedbed and the lateral-wheel bearing point allows accurate maintaining the given depth of seed placement, ensures the uniformity of germination and increases the yield.

In case of direct sowing in stubble, an optional coulter (a slotted disk) can be used instead of the clod sweep.

Depth rollers are mounted on a rocker, which allows each roller to move independently and to overcome obstacles of 50 mm and higher without reducing the seeding depth.

All drive shafts for grain and fertilizer seeding units in **VEGA PROFI** seeders are mounted on ball bearings.

VEGA 6 PROFI mounted drill are equipped with tip coulters, installed on spring rack, instead of disc coulters for fertilizer application.

VEGA PROFI drill includes the **HELIOS** electronic control system, controls the passage and the speed of seeds in each coulter and transmits the information to the monitor installed inside the tractor cab. This ensures accurate recording of the sown area.

Seeders are equipped with durable hydraulic markers and a large diameter disk that can change the approach angle to produce a well visible track.

The powder coating of metal details guarantees protection against corrosion for at least 8 years.

VESTA 8 PROFI
PRECISION DRILL

VESTA and VESTA PROFI planters are mounted equipment and are aggregated with tractors with the power of min. 80 hp.

The positioning of the support and drive wheels inside the seeder ensures the synchronous terrain tracking by the frame as well as by the seeding section.

The low placement of the seeding unit ensures the minimum distance from the seed discharge point to the seedbed, and guarantees the accuracy of sowing in the row.

5.6 m	2,5 9 km/h	3.02-5.04 ha/h	20 90 mm	8 pcs	min 80 hp
Operating width	Operating speed	Performance	Seeding depth	Number of rows	Tractor power

VIDEO

Traditional technique VEGA PROFI drills

1. PROFI seeding unit

- The seeding unit provides for the single-seed sowing;
- The presence of the upper and the lower adjustable seed flickers: the absence of doubles;
- The amount of seeds that fall from the hopper into the seeding chamber is regulated by a flap;
- Easy maintenance without tools;
- The presence of an inspection window: easy adjustment;
- The placement of the seeding unit on the frame excludes the impact of loads to the housing and ensures the long service life;
- A quick-mount agitator is installed on the distributor wheel to prevent compaction and hanging of seeds in the seeding unit chamber;
- A gasket is inserted in the housing and features a lip, which, when abraded, signals the need for replacement;
- An unloading hatchway is provided for quick removal of the seeds from the seeding unit chamber.

2. Pneumatic system

The seeder is fitted with a centrifugal fan driven by the tractor's PTO of 540 rpm.

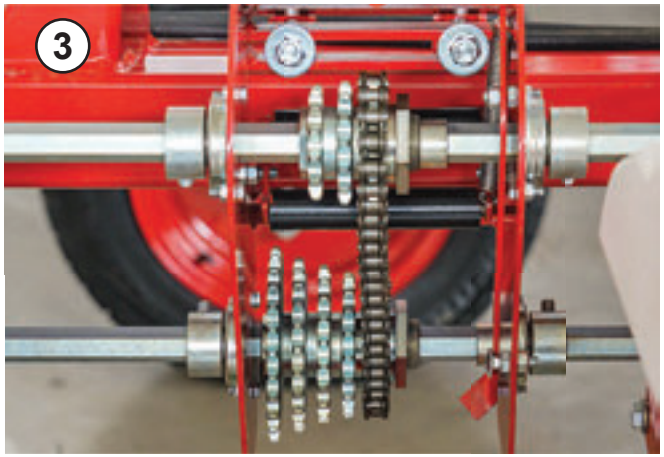
To hold heavy seeds of leguminous crops (soybean, etc.) on the holes of the sowing discs, the seeder fan is equipped with an additional air duct.

There is a flap on the fan, which regulates the rarefaction of air flow.

The fan is equipped with a special clutch that protects the belt drive from increased wear when the tractor's PTO is off.

4. Frame-receiver

The seeder frame acts as a receiver with an individual diagonal output on the sections providing the same rarefaction in all seeding units and eliminating the air flow ripple.



3. Gear shifting mechanism of seeding units

All **VESTA** and **VESTA PROFI** seeders are equipped with a new gear shifting mechanism of seeding units. It uses collapsible blocks of steel gears according to the 3x5 scheme (formerly, welded blocks were installed). This improves the serviceability of the unit.

Gear shifting mechanism of fertilizer application units

Gear shifting mechanism of fertilizer application units has 12 transmission ratios.

VESTA 8 PROFI

PRECISION DRILL WITH UNIT FOR APPLICATION OF LIQUID MINERAL FERTILIZERS

The new generation of Elvorti tilled crop seeders with a number of advantages, which make the work in the field more economical and profitable.

5.6 m	2,5 9 km/h	3.02-5.04 ha/h	20 90 mm	500	8 pcs	min 80 hp
Operating width	Operating speed	Performance	Seeding depth	Fertilizer tank capacity	Number of rows	Tractor power

VESTA 8 PROFI is designed for seeding of tilled crops with the simultaneous application of liquid mineral fertilizers.

It is also intended for application of urea ammonium nitrate (UAN).

1-3. Application of liquid fertilizers

The tank supplies liquid fertilizers by means of the Pentair electric pump with a capacity of 21 l/min. connected to the tractor power system through the filter to 3 regulated valves (one main and two additional). Fertilizer application rate in each row is set by the valves and a kit of washers with different diameters. Excess fluid returns to the tank through the reversing supply system.

Liquid mineral fertilizers

Liquid fertilizers are much easier to apply in the soil rather than granulated. They are applied into the soil in autumn for primary cultivation or in spring for presowing cultivation. Liquid fertilizers are also used for soil and foliar application during the growing period.

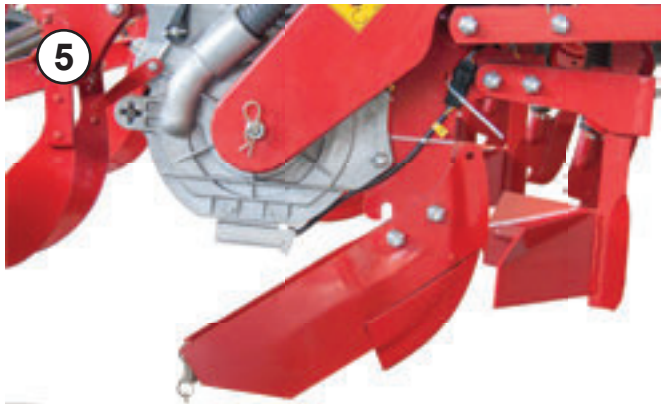
LMF are simple and easy to use, moreover, they are relatively inexpensive. Such fertilizers can be used in combination with pesticides, which significantly save money on fuel and lubricants. When using liquid fertilizers, the losses do not exceed 10 %, while in other fertilizers this index can reach 30-40 %.

4. VESTA PROFI sowing section

Low placement of the seeding unit – the minimum distance from the seed discharge point to the seedbed ensures the accuracy of sowing in the row.

Double-circuit drive
The sowing section is fitted with a double-circuit drive. Reliable drive protection ensures work in fields that are clogged with stubble residues.

Regulated clod sweep
The regulated clod sweep allows seeding even on fields with stubble residues and clods.



5. Multipurpose coulter

VESTA PROFI seeders can be equipped with multipurpose coulters with replaceable heels for the seeding of corn and sunflower seeds or with coulters for the seeding of beet seeds.

Sensors of the control system are installed inside each coulter.

Coulters for fertilizer application
VESTA PROFI planters for fertilizer application are equipped with tip coulters, installed on spring rack.

VESTA 8
PRECISION DRILL

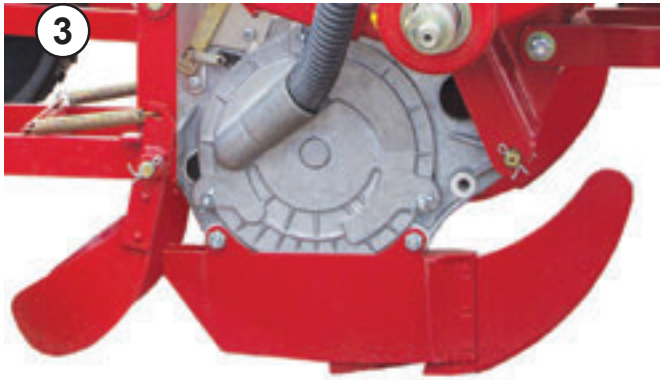
5.6 m	2,5 9 km/h	20 90 mm	3.02-5.04 ha/h	8 pcs	min 80 hp
Operating width	Operating speed	Seeding depth	Performance	Number of rows	Tractor power

1. Seeding unit

The amount of seeds that fall from the hopper into the seeding chamber is regulated by a flap.
The comb ejector of extra seeds provides accurate single-grain sowing.
The presence of an inspection window allows visual quality control of the seeding unit operation during the setting process.
An unloading hatchway is provided for quick removal of the seeds from the seeding unit chamber.

2. Sowing section

The sowing section is fitted with a coulter for the seeding of corn and sunflower seeds. The sowing section is fitted with a double-circuit drive. Reliable drive protection ensures work in fields that are clogged with stubble residues.
The fertilizer application system (using the fertilizer coulters) provides the possibility to apply mineral fertilizers aside from the row with the required offset, which eliminates the harmful effects of fertilizers on the seeds.



3. Coulter

VESTA planters can be fitted with replaceable coulters for the seeding of corn and sunflower seeds or with coulters for the seeding of beet seeds.

VESTA 8 PROFI with LMF

VESTA 8 PROFI

VESTA 6 PROFI

VESTA 8

		VESTA 8 PROFI with LMF*	VESTA 8 PROFI	VESTA 6 PROFI	VESTA 8
Aggregate type		Mounted	Mounted	Mounted	Mounted
Row-width spacing	mm	700	700	700	700
Seeding rates	pcs/l.m.	1.77 - 54.6	1.77 - 54.6	1.77 - 54.6	1.7 - 58
Fertilizer application rates	kg/ha	24-248	24-248	24-248	24-248
Total seed hopper capacity	l (dm^3)	288 (36x8)	288 (36x8)	216 (36x6)	216 (27x8)
Total fertilizer hopper capacity	l (dm^3)	500 (250x2)	320 (80x4)	560 (280x2)	192 (48x4)
Dimensions (length x width x height)					
• in operating position	mm	2,355 x 5,270 x 1,445	2,355 x 5,270 x 1,445	2,355 x 4,270 x 1,445	1,700 x 6,250 x 1,430
• for transport	mm	5,870 x 2,010 x 1,840	5,870 x 2,010 x 1,840	5,520 x 2,010 x 1,840	6,800 x 2,300 x 3,460
Weight	kg	1,278	1,278	1090	1,278
Tractor power	hp	min 80	min 80	min 75	min 80

***LMF** – liquid mineral fertilizers.

Control system

VEGA PROFI drills include the **HELIOS** electronic control system, **VESTA PROFI** seeders are equipped with **SPUTNIK** control system, **VESTA** seeders are equipped with **FAKT** control system, which control the passage and the speed of seeds in each coulter and transmits the information to the monitor installed inside the tractor cab. This ensures accurate recording of the sown area.

The basic configuration of **VESTA 6** and **VESTA 8** planters with disks for the seeding of various crops

	Sown crop	Diameter of holes, mm	Number of holes, pcs	Number of discs, pcs*	Number of discs, pcs**
1	Corn, castor beans, broad beans, kidney beans	5.5	30	6	8
2	Sunflower	3.0	30	6	8

* – 6-row seeders
** – 8-row seeders
*** – 16-row seeders

The basic configuration of **VESTA PROFI** and **VEGA PROFI** planters with disks for the seeding of various crops

	Sown crop	Diameter of holes, mm	Number of holes, pcs	Number of discs, pcs*	Number of discs, pcs**	Number of discs, pcs***
1	Corn, castor beans, broad beans, kidney beans	5.5	30	6	8	16
2	Sorghum, sunflower (fines)	2.2	40	6	8	16
3	Sunflower	3.0	30	6	8	16
4	Corn	4.0	30	6	8	16
5	Soybeans	4.0	80	6	8	16

VESTA, **VESTA PROFI** and **VEGA PROFI** series planters feature plastic hoppers.

VESTA seed hopper:
27 l.

VESTA PROFI seed hopper:
36 l.

VEGA PROFI seed hopper:
52 l.

VEGA 6 PROFI and **VESTA 6 PROFI**
fertilizer hopper:
280 l.

VESTA fertilizer hopper:
48 l.

VESTA PROFI fertilizer hopper:
80 l.

VEGA PROFI fertilizer hopper:
180 l.

Trailer

Included in the basic configuration of **VESTA PROFI** and **VEGA PROFI** seeders.

ROW CROP CULTIVATORS

Cultivators are designed for inter-row tilling and fertilization of tilled crops.

ELVORTI

ALTAIR 5,6-04
ROW CROP CULTIVATOR

ALTAIR 4,2-04, **ALTAIR 4,2-05** cultivators are used to till 6-row sowings of corn, sunflower and other crops sown with a spacing of 70 cm.

ALTAIR 5,6-04 cultivator with LMF is used to till 8-row sowings of corn, sunflower and other crops sown with a spacing of 70 cm.

ALTAIR 5,6-04, **ALTAIR 5,6-05** cultivators are used to till 8-row sowings of corn, sunflower and other crops sown with a spacing of 70 cm.

ALTAIR 5,6-02 cultivator is used to till 12-row sowings of soybean, beet and other crops sown with a spacing of 45 cm.

ALTAIR 8,4-04 cultivator is used to till 12-row sowings of corn, sunflower and other crops sown with a spacing of 70 cm.

The rigid parallelogram suspension of the tool sections excludes the damage to crops and ensures the terrain tracking.

All components are mounted using ball bearings.

Shovel ploughs and furrowing blade units can be purchased separately.

A trailer allows moving the cultivator on public roads with a width clearance of 2.1 m.

Models without a fertilizer application system are available.

5.6 m	5 10 km/h	2.8-5.6 ha/h	60 160 mm	384 l	8 pcs	min 80 hp
Operating width	Operating speed	Performance	Tilling depth	Fertilizer tank capacity	Number of rows	Tractor power

ALTAIR 5,6-04 with LMF*

*** LMF** – liquid mineral fertilizers.

ALTAIR 5,6-04

ALTAIR 5,6-02

ALTAIR 8,4

ALTAIR 5,6-04
without fertilizer application

ALTAIR 5,6-05

ALTAIR 4,2-04

ALTAIR 4,2-05

Модель	Perfor-mance ha/h	Operating width m	Number of tilled rows pcs	Row-width spacing cm	Fertilizer application rate kg/ha	Hopper capacity (total) dm^3	Opera-ting speed km/h	Tilling depth cm	Dimensions mm*	Weight kg	Aggregated with tractors hp
ALTAIR 4,2-04/(05)	4.2	4.2	6	70	50-250	288/510	5-10	6-16	4,875 x 2,100 x 1,700	660/920	min 65/80
ALTAIR 5,6 with LMF	5	5.6	8	70	50-240	800	5-10	6-16	6,367 x 1,886 x 1,919	880	min 80
ALTAIR 5,6-04/(05)	5.6	5.6	8	70	50-250	384/680	5-10	6-16	6,500 x 2,100 x 1,700	880/1300	min 80/90
ALTAIR 5,6-02	5.6	5.6	12	45	50-250	288	5-10	6-16	6,500 x 2,100 x 1,700	925	min 80
ALTAIR 8,4-04	8.4	8.4	12	70	50-250	576	5-10	6-16	9,240 x 2,050 x 1,700	1,950	min 100

VIDEO

ALTAIR 5,6

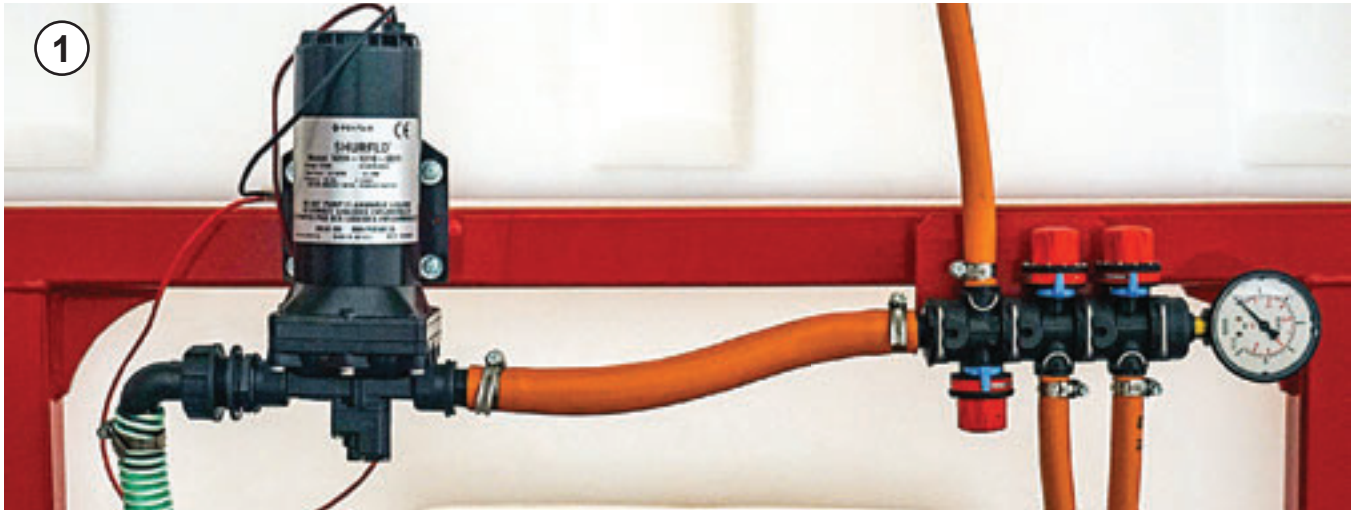
ROW CROP CULTIVATOR WITH UNIT FOR APPLICATION OF LIQUID MINERAL FERTILIZERS

ALTAIR – is a series of cultivators that are designed for inter-row tilling of tilled crops with the simultaneous application of liquid mineral fertilizers.

It is also intended for application of urea ammonium nitrate (UAN).

The cultivator provides for good loosening of the soil between the rows to the desired depth, eliminating the weeds.

5.6 m	5 – 10 km/h	2.8-5.6 ha/h	60 – 160 mm	800	8 pcs	min 80 hp
Operating width	Operating speed	Performance	Tilling depth	Fertilizer tank capacity	Number of rows	Tractor power



1. Application of liquid fertilizers

The tank supplies liquid fertilizers by means of the Pentair electric pump with a capacity of 21 l/min connected to the tractor power system through the filter to 3 regulated valves (one main and two additional). Fertilizer application rate in each row is set by the valves and a kit of calibration washers. Excess fluid returns to the tank through the reversing supply system.

2. Liquid fertilizer tank

The capacity of the liquid fertilizer hopper is 800 liters. The main fertilizer hopper includes an additional tank made of polymer materials for transportation of clean process water. There is a valve for draining the remaining liquid fertilizer at the bottom of the main hopper.

The basic configuration of the cultivator includes 4 sets of drainage washers with different diameter of the jet openings to provide different application rates of liquid fertilizers per 1 hectare.

Liquid fertilizer consumption – from 30 to 240 l/ha.

3. Suspension

The upgraded parallelogram suspension of the tool sections with increased rigidity excludes the damage to crops and ensures the terrain tracking. All components are mounted using ball bearings.

4. Configuration

The option of using a cultivator for general tillage with tines-razors, as well as for hilling.

ALTAIR 5,6-05

ROW CROP CULTIVATOR

5.6 m	5 10 km/h	2.8-5.6 ha/h	60 160 mm	680 l	8 pcs	min 80 hp
Operating width	Operating speed	Performance	Tilling depth	Fertilizer tank capacity	Number of rows	Tractor power

1

1. Increased hopper capacity

ALTAIR 5,6-05 and **ALTAIR 4,2-05** cultivators are fitted with 170 l hoppers for granulated mineral fertilizers, respectively, they **ALTAIR 5,6-05** has a total hopper volume of 680 l, and **ALTAIR 4,2-05** – 510 l. This saves time for loading and increases the productivity of working time.

2

3

2. Tools

Protective disks are designed to protect plants from covering with soil during inter-row tillage, destroy the upper soil crust formed after rain and ensure the preservation of cultivated plants during tilling, as well as for loosening the soil and destroying poorly weed weeds in protective zones when the machine is operating on high speeds of 8-10 km/h, if the height of the elevated part of cultivated plants does not exceed 22 cm, and the crown width is 14 cm.

3. Suspension

The upgraded parallelogram suspension of the tool sections with increased rigidity excludes the damage to crops and ensures the terrain tracking. All components are mounted using ball bearings.

ALTAIR 4,2-05

ROW CROP CULTIVATOR

4.2 m	5 10 km/h	2.1-4.2 ha/h	60 160 mm	6 pcs	min 65 hp
Operating width	Operating speed	Performance	Tilling depth	Number of rows	Tractor power

GENERAL-TILLAGE CULTIVATORS

Multipurpose cultivators are intended for the sustainable presowing and steam cultivation of soil, undercutting and removal of weeds, as well as for the flatting and packing of the soil surface for sowing.

ELVORTI

Multipurpose general-tillage cultivators

POLARIS PREMIUM

POLARIS 10 PREMIUM

This multipurpose semitrailer cultivator is designed for the sustainable presowing and steam cultivation of soil for grain, commercial and forage crops.

The cultivator performs undercutting and removing the cut weeds, as well as flatting and grinding of the soil for sowing.

The central frame of pipes with a section of 80x80x6 mm, made of European quality steels, provides a large degree of safety and high reliability when working in difficult conditions. The use of high-strength pipes allows reducing the weight of the frame design when increasing strength and rigidity, which reduces the fuel consumption of the tractor.

The new **POLARIS 10 PREMIUM** has an operating width of 10 m and 5 rows of tines to create a perfect seedbed.

10 m	up to 12 km/h	12 ha/h	60 120 mm	42 pcs	min 250 hp
Operating width	Operating speed	Performance	Tilling depth	Number of tines	Tractor power

Life
+100%
Service life

1. Tines and spring racks

The tines by **ELVORTI™** are made of high-strength boron steels that increased the tine service life by 100 %.

The spring rack by EUROZAPPA S.P.A. (Italy) is made of special high-elastic steel.

The angle of tine travel on the spring rack is 15°, which eliminates the possibility of damage to the rack when hitting an obstacle.

2. Tilling depth

Adjustment of the tilling depth is carried out by changeover of adjusting dural-aluminum rests (clips) on the rods of hydraulic cylinders of the central frame and wings, with an increment of 1 cm for tilling depth from 4 to 12 cm.

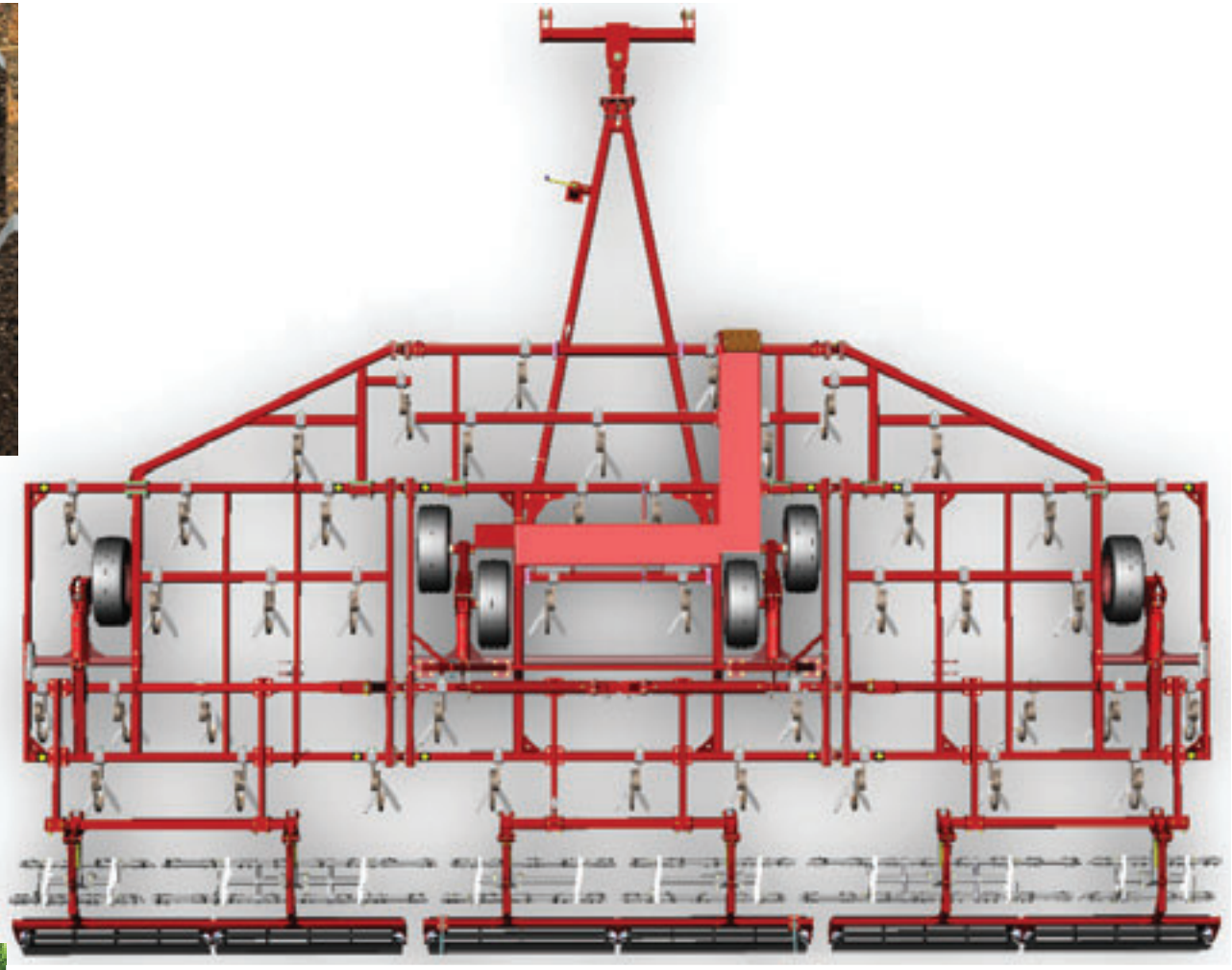
3. Spring harrows, rollers

Spring harvesting harrows pull out the trimmed weeds and stubble residues, and evenly distribute them over the surface of the field. The tilt angle of the harrow teeth is adjustable from 5 ° to 30 °, which allows tilling of heavy and wet soils without clogging them.

Packing rollers with Ø320 mm flat bars provide crushing and leveling of soil with a significant predominance of small clods (up to 25 mm in size) without compaction.

4. Tilling of stubble residues

The location of the **POLARIS PREMIUM** cultivator tines allows working without blockage with stubble residues and weeds to ensure the best pre-sowing preparation.



5. Folding up wings

POLARIS PREMIUM cultivators have wings that are folded up by the hydraulic system. The wings of the cultivator ensure tracking of the terrain relative to the horizon up to ±12 °. This allows the cultivator to maintain a constant cultivation depth in the fields with difficult terrain along the entire width of the machine.

Multipurpose general-tillage cultivators

POLARIS

POLARIS – are the multipurpose cultivators intended for the presowing and steam cultivation of soil for grain, commercial and forage crops, undercutting and removal of weeds, as well as for the flatting and packing of the soil surface for sowing.

The cultivator features spring rack tines by BELLOTA (Spain), rollers for compaction of soil, and a hydraulic system for folding to transport.

POLARIS 8,5

8.4 m	up to 12 km/h	10 ha/h	60 120 mm	31 pcs	min 150 hp
Operating width	Operating speed	Performance	Tilling depth	Number of tines	Tractor power

POLARIS 4

3.9 m	up to 12 km/h	4.8 ha/h	60 120 mm	15 pcs	min 80 hp
Operating width	Operating speed	Performance	Tilling depth	Number of tines	Tractor power

Land levelers, harrows and press rollers of **POLARIS 4** (**-8,5** and **-12**) cultivators ensure the crumbling of the soil with a significant predominance of small lumps (up to 25 mm in size), to obtain a flat field surface and an optimum density of the upper layer to the entire seeding depth.

		POLARIS 4	POLARIS 8,5	POLARIS 10 PREMIUM	POLARIS 12 PREMIUM
Aggregation method		Trailed	Trailed	Semitrailed	Semitrailed
Performance	ha/h	up to 4.8	up to 10	up to 12	up to 14.4
Travelling speed	km/h	up to 20	up to 20	up to 15	up to 15
Effective operating width	mm	3,895	8,380	10,000	12,000
Number of flat tines	pcs	15	31	42	56
Flat tine width	mm	270	270	270	270
Number of tooth harrows	pcs	2	4	6	6
Number of coulter-rollers	pcs	2	4	3	3
Overall dimensions in operating position	mm	4,470 x 4,100 x 1,550	4,470 x 8,380 x 1,480	8,350 x 10,295 x 1,470	8,350 x 12,050 x 1,470
Overall dimensions for transport	mm	4,470 x 4,100 x 1,850	4,470 x 4,220 x 2,450	8,350 x 5,060 x 4,150	8,350 x 5,060 x 4,300
Machine weight	kg	1,480	2,467	5,650	6,800
Tractor power (minimum)	hp	80	150	250	300

VIDEO

DOUBLE-ROW DISK HARROWS
FOUR-ROW DISK HARROWS

Disk harrows are designed for the sustainable presowing soil tillage for the sowing of grain, commercial and forage crops, the weed control, and the chopping of stubble residues after the harvesting of cultivated crops, as well as for the breaking, leveling, and pressing of soil after harrowing.

ELVORTI

Mounted double-row disk harrows

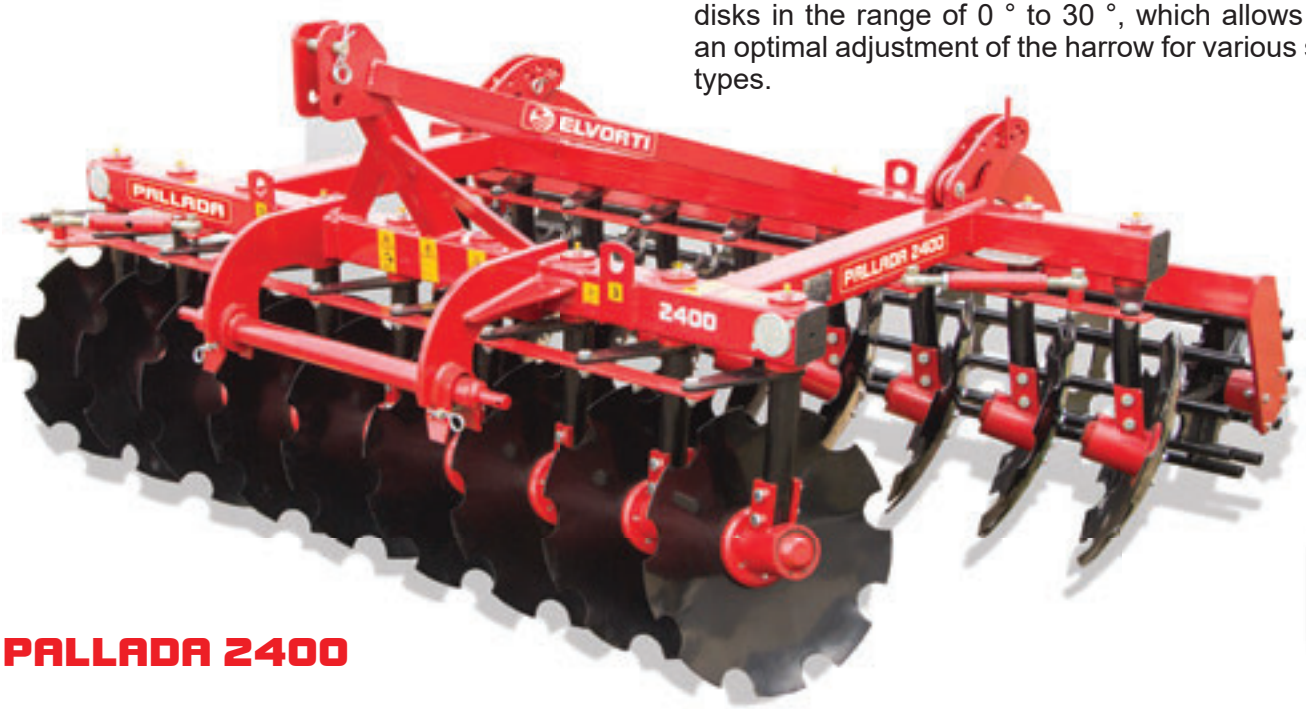
Disk harrows are intended for use under the soil and climatic conditions with the soil moisture of up to 27 % and in fields with a large amount of stubble residues.

Each harrow disk is mounted on an individual rack, which allows harrowing in the fields with a large amount of stubble residues and weeds due to the prevention of stubbles winding onto the disc shaft and plugging of the interdisk space, as well as provides for the high maintainability of the machine.

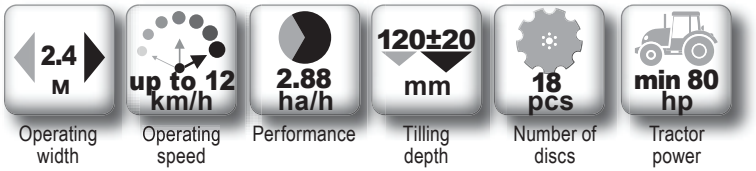
The machine design provides for a smooth adjustment of the approach angle of each row of disks in the range of 0 ° to 30 °, which allows for an optimal adjustment of the harrow for various soil types.

The disks for the double-row harrows of **PALLADA** series have a diameter of 560 and 660 mm. For harrows with 660 mm discs, the index **01** is added to the name.

For example, the diameter of **PALLADA 1800** discs is 560 mm, and the diameter of **PALLADA 1800 01** discs is 660 mm.

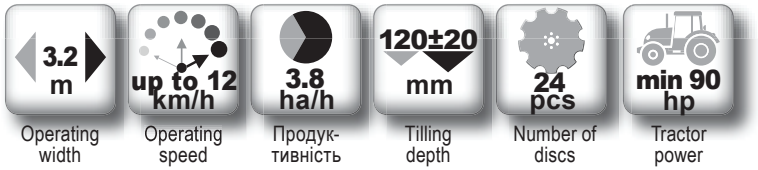


PALLADA 2400



PALLADA		1800	1800 01	2400	2400 01
Aggregate type		Mounted	Mounted	Mounted	Mounted
Operating width	m	1.8	1.8	2.4	2.4
Performance	ha/h	up to 2.16	up to 2.7	up to 2.88	up to 3.6
Tilling depth	mm	120±20	150±30	120±20	150±30
Disc approach angle	degree	0...30	0...30	0...30	0...30
Distance between disc rows	mm	950	950	950	950
Tool diameter	mm	560	660	560	660
Distance between disc blades	mm	250	300	250	320
Number of operating tools	pcs	14	10	18	14
Overall dimensions in position	mm	2,355 x 2,100 x 1,210	2,170 x 2,700 x 1,260	2,050 x 2,700 x 1,200	2,170 x 2,700 x 1,260
Constructional weight	kg	833	754	880	950
Tractor power (minimum)	hp	65	65	80	80

Trailed double-row disk harrows



PALLADA 3200

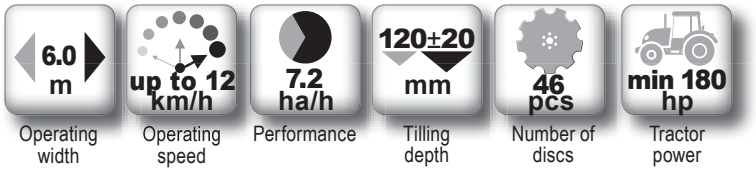
PALLADA		3200	3200 01
Aggregate type		Trailed	Trailed
Operating width	m	3.2	3.2
Performance	ha/h	up to 3.8	up to 4.8
Tilling depth	mm	120±20	150±30
Disc approach angle	degree	0...30	0...30
Number of cutting units	pcs	24	20
Distance between disc rows	mm	950	950
Tool diameter	mm	560	660
Distance between disc blades	mm	250	320
Overall dimensions in position	mm	4,430 x 3,350 x 1,520	4,650 x 3,350 x 1,930
Constructional weight	kg	1,612	1,700
Tractor power (minimum)	hp	90	90

VIDEO

PALLADA 4000

4.0 м	up to 12 km/h	4.8 ha/h	120±20 mm	30 pcs	min 120 hp
Operating width	Operating speed	Performance	Tilling depth	Number of discs	Tractor power

PALLADA 6000



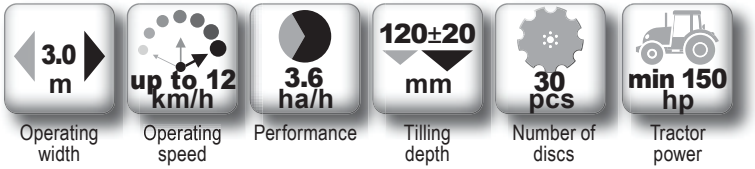
VIDEO

PALLADA		4000	6000
Aggregate type		Trailed	Trailed
Operating width	m	3.2	3.2
Performance	ha/h	up to 4.8	up to 7.2
Tilling depth	mm	120±20	120±20
Disc approach angle	degree	0…30	0…30
Number of cutting units	pcs	30	46
Distance between disc rows	mm	950	950
Tool diameter	mm	560	560
Distance between disc blades	mm	250	250
Overall dimensions in position	mm	4,900 x 4,110 x 1,295	4,900 x 6,110 x 1,295
Overall dimensions for transport	mm	4,555 x 2,880 x 1,565	4,555 x 2,880 x 3,650
Constructional weight	kg	2,130	3,208
Aggregated with tractors	hp	120	180

Trailed four-row disk harrowsi

Four-row disk harrows of the **ANTARES** series with the operating width of 3 m, 4 m, 6 m, and 8 m are used to prepare the field for sowing in one pass using the mini-till technique.

ANTARES 3x4



Fuel consumption *

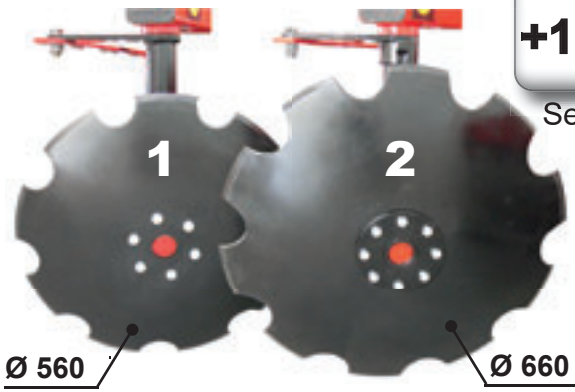
ANTARES 3X4 with a 150 hp tractor: 3.5-5.0 l/ha.
ANTARES 4X4 with a 220 hp tractor: 4.0-5.0 l/ha.
ANTARES 6X4 with a 300 hp tractor: 4.5-6.0 l/ha.
ANTARES 8X4 with a 400 hp tractor: 6.5-7.0 l/ha.

ANTARES 8x4

ANTARES		3x4	4x4	6x4	8x4
Aggregate type		Trailed	Trailed	Trailed	Trailed
Operating width	m	3,0	4,0	6,0	8,0
Performance	ha/h	3,6	4,8	7,2	9,6
Tilling depth	mm	120±20	120±20	120±20	120±20
Disc approach angle	degree	0...30	0...30	0...30	0...30
Distance between disc rows	mm	700	700	700	700
Tool diameter	mm	560	560	560	560
Distance between disc blades	mm	400	400	400	400
Dimensions					
- in operating position	mm	6,450 x 3,460 x 1,530	5,950 x 4,340 x 1,440	6,630 x 6,300 x 1,530	6,630 x 7,780 x 1,530
- for transport	mm	6,450 x 3,460 x 1,530	5,950 x 4,340 x 1,440	6,630 x 3,320 x 3,500	6,630 x 3,320 x 4,700
Constructional weight	kg	2,740	3,750	4,898	6,125
Aggregated with tractors	hp	150	200	300	400

VIDEO

Disks of different sizes



Life
+100%
Service life

Discs with diameters of 560 and 660 mm for double-row harrows of **PALLADA** series.

The service life of disks has been increased by 100 % due to the use of modern technologies for processing boron steels and the optimal sharpening angle.

3. Disc hub

The disc hub design with protection against ingress of abrasive particles allows tilling of up to 1,000 ha without repair.

1. Sturdy frame

The frame of pipes with a section of 100x100 mm on **PALLADA** harrows and 100x150 mm on **ANTARES** harrows, made of quality steels, provides a large degree of safety and high reliability when working in difficult conditions.

2. Disc approach angle adjustment

The group adjustment of the approach angle in the range from 0 ° to 30 ° on each row makes it possible to control the quality of tillage at different weed infestation and different soil moisture.

Tube rollers are included in the basic configuration of **PALLADA** series harrows and are used under the conditions of low moisture of the soil.

4-5. Selection of packing rollers

Spiral rollers are included in the basic configuration of **ANTARES** series harrows and provide for:

- The mixing of stubble residues and the soil;
- The leveling and compaction of the soil;
- The “combing out” of the weeds.

TRAILED SPRAYER

This machine is designed for the application of liquid fertilizers, urea ammonium nitrate (UAN) and plant protection agent into the soil. The sprayer can be used in all climate zones to carry out the following activities:

- Chemical protection of plants against pests and diseases;
- Chemical weed control.

ELVORTI

TETIS 18, (21, 24, 28)
TRAILED SPRAYER

This machine is designed for the application of liquid fertilizers, urea ammonium nitrate (UAN) and plant protection agent into the soil. The sprayer can be used in all climate zones to carry out the following activities:

- Chemical protection of plants against pests and diseases;
- Chemical weed control.

18.0 m
Operating width

up to 12 km/h
Operating speed

21.6 ha/h
Performance

3000
Об'єм баку для добрив

min 80 hp
Tractor power

The **TETIS sprayer tank** of 3,000 l is made of high-strength and stable plastic. Its smooth inner surface minimizes the deposition of used chemicals and provides for quick and easy internal cleaning. The special tank shape prevents rocking of the liquid and sprayer tipping.

1. The diaphragm piston pump

by Annovi Reverberi (Italy) allows for the application of the working liquid at the rate of 50 to 500 l/ha due to the operating pressure of 250 l/min. The working pressure of the pump ranges from 1 MPa to 1.5 MPa, and allows for spraying at wind speeds of up to 7 m/s. The pump is made of corrosion-proof and chemically resistant materials.

2-3. The **BRAVO computer** by Arag (Italy) is an electronic system for control and regulation of the working fluid consumption rates, and is designed for the automated adjustment and maintaining of the application rates per unit of the area. The system provides for a fully automatic support of preset fluid consumption rates. It allows the operator to monitor all the key parameters of the spraying. The system automatically controls the preset consumption rate per hectare regardless of the machine speed, and indicates the velocity, the processed area, and the remaining liquid in the tank.

2. BRAVO 180S is a three-section computer for sprayers **TETIS 18 (21, 24** and **28).**

3. BRAVO 400S – with a function of GPS-navigation (can be delivered on the customer's request).

5. The boom operation mechanism

allows for smooth changing of the boom mounting height from 0.6 m to 1.85 m, even while driving. The boom collision protection mechanism allows for the deviation of the boom for up to 15° vertically and up to 45° horizontally. After the passage of an obstacle, the boom returns to its initial position.

4. Nozzles

The basic configuration of the **TETIS** sprayer features 3-way nozzles by Arag (Italy), which ensure a uniform coverage over a wide range of pressure variation. The nozzle has a fixed spray angle (110°) and reduces the droplet drift phenomenon when operated under the pressure of 1-1.5 MPa, which ensures superior coverage.

ATOMIZERS are the most crucial tools, which operation affects the quality of the spray, the uniformity of application of the liquid on plants, and the cost efficiency of the performed operation.

The telescopic system of track width adjustment from 1,400 mm to 2,250 mm allows adjusting the track of the sprayer in accordance with the tractor track gauge.

6. The premixer with the working capacity of 35 l can be used to prepare the working solution or to pour the concentrate into the main tank. The nozzle for the rinsing of the tank eliminates the contact with hazardous substances during operation and allows for the use of its content without waste.

7. The rinsing tank of the system with a capacity of 200 l ensures the maximum cleaning of the sprayer system from the working fluid.

8-9. Lights

For work at night, sprayers are equipped with spotlights.

		TETIS 18	TETIS 21	TETIS 24	TETIS 28
Aggregate type		Trailed	Trailed	Trailed	Trailed
Number of atomizers	pcs	36	42	48	56
Working fluid application rate	l/ha	50-300	50-300	50-300	50-300
Width of the wheel track (adjustable)	m	1.4-2.4	1,4-2,4	1.4-2.4	1.4-2.4
Height of the boom (adjustable)	m	0.6-1.85	0,6-1,85	0.6-1.85	0.6-1.85
Pump speed	rpm	540	540	540	540
Operating pressure created by the pump, at most	MPa	1.5	1,5	1.5	1.5
Capacity of the tank for chemicals	l	3,000	3 000	3,000	3,000
Capacity of the tank for system flushing	l	200	200	200	200
Capacity of the handwashing tank	l	15	15	15	15
Mixer type		ejector hydraulic mixer			
Dimensions (length x width x height)					
- in operating position (length x width x height)	mm	5,800 x 18,000 x 3,300	5800x21000x3300	5,800 x 24,000 x 3,300	5,800 x 28,000 x 3,300
- for transport (length x width x height)	mm	5,400 x 2,600 x 3,500	5400x2600x3500	5,800 x 2,600 x 3,500	6,000 x 2,600 x 3,500
Road clearance	mm	300		300	300

VIDEO

FRONT-END LOADER

Front-end loader is designed for loading and unloading of agricultural bulk and volume materials as well as tare and piece goods in the course of construction and assembly works.

ELVORTI

FORTIS 1600
FRONT-END LOADER

1. The hydraulic accumulator is intended:

- To eliminate peak loads in the tractor's hydraulic system when the loader is operating at maximum load;
- To stabilize pressure in the hydraulic system of the loader;
- To extend the life of the hydraulic system components.

FORTIS 1600 is a front-end loader, designed for:

- Loading and unloading of agricultural bulk and volume materials as well as silage, hay, and stubble bales;
- Loading of stacks of hay, straw, corn and sunflower cormophytic mass, and other commercial crops into vehicles;
- Stacking of crushed or chopped hay and straw from the stacks and ties;
- Loading of coal, gravel, sand, silage, manure, mineral fertilizer, and grain;
- Loading of tare and piece goods in the course of construction and assembly works.

2. Bucket for bulk materials

3. Gripper for silage

4. Gripper for rolled bales

The hydraulic system of the loader is powered by the standalone hydraulic control valve of the tractor and is implemented through high-pressure connecting sleeves of the loader.

5. Control. order to improve the comfort of the loader operation, an electro hydraulic control system, in which the control element is a controller (a joystick) with a button, can be used. This system requires the fault-free operation of the electric drive system of the tractor.

Functional purpose of the joystick:

- Closing and opening of the grippers for rolled bales and straw;
- Clockwise and anti-clockwise turning of the frame with the tool;
- Upward and downward movement of the loader boom.

Axial load distribution. The loader poses a significant load on the front wheels of the tractor. For the transportation of materials in the bucket or the grippers over long distances, the rear of the tractor must be equipped with a ballast-filled counter weight.

Products are available upon consumer's request

Product name	Designation	Product code
Gripper for rolled bales	ПГФ 00.040	Р
Bucket for bulk materials	ПГФ 00.070	К
Gripper for silage	ПГФ 00.240	С
Ballast weight	ПГФ 00.650-01	Б6
Ballast weight	ПГФ 00.650	Б8

Type		Frontal
Maximum load	kg	1,600
Working pressure	MPa	16
Drive		From tractor's hydraulic system
Performance		
- at loading sand with the bucket	t/h	55
- at stacking hay	t/h	17
- at stacking straw	t/h	22
- at loading manure or silage	t/h	50
Nominal load capacity:		
- by gripper for rolled bales	kg	600
- by gripper for silage	kg	650
- by bucket for bulk materials	kg	950
Main bucket discharge angle, min	degree	37°±3°
Preservation of cargo, min	%	99.5
Weight:		
- loader	kg	620 ±3%
- counterweight and ballast	kg	650 ±3%
Total weight of counterweight and ballast	kg	820 ±3%
Weight:		
- gripper for rolled bales	kg	220 ±3%
- gripper for silage	kg	320 ±3%
- bucket for bulk materials	kg	200 ±3%
Aggregation class	pulling force	1.4
Lifting height	mm	4,000
Bucket loading height, for bulky materials	mm	3,070
Loader mounting height on the tractor	mm	1,650
Bucket capacity	m^3	0.57

For notes

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