

GRAIN LOGISTICS



TECHNOLOGY OF LOADING / UNLOADING THE GRAIN IN TO HOPPER CARS



**RVM - 180 -
UNLOADING TRAIN WAGON**

Basic equipment:

- peak of auger hydraulically adjustable;
- drive 380 V or tractor's PTO;
- 2 electrical engines with 30 kWt and 3 kWt power;
- mechanical drawbar support;
- horizontal augers 8 pcs. Ø 130 - 3000 mm;
- feeding auger Ø 300 - 2100 mm;
- towing eye, Ø 40 mm;
- autonomous hydraulic station for driving horizontal augers.

Basic equipment:

- three horizontal augers Ø 300 mm;
- vertical auger Ø 400/500 mm;
- two dosing sliding dampers;
- hydraulic mechanism transfer of the bunker from transport to working position;
- tires 10,0/75 - 15,3 - 4 pcs.;
- hydraulic board with rubber sealant;
- solid-rolled auger spiral (Italy);
- cardan shaft (Bondioli & Pavesi, Italy);
- towing eye Ø 40, 50 mm.



**BNP-12 "KOVCHEG" -
LOADING HOPPER CARS**



productivity 180 t/hour

productivity 300 t/hour

MOBILE UNLOADER FOR TRAIN WAGON



Principle of operation:

RVM-180 has 8 horizontal augers, which directs mass (grain) to one big horizontal auger, that directs grain in vertical auger to unload it. Augers driven by tractor's PTO or electrical motor through driven stars.

Additional options

- sleeve of PVC length 1,2;
- front wheels with hydro steering and electric;
- grain flow splitter;
- brake system Wabko;
- additional boards 500 mm;
- installation of a hydraulic motor.

Characteristics	RVM-180	RVM-180E (electric motor)
Diameter of unloading auger, mm	400	400
Productivity, t/h.	180	180
Unloading height, mm	5 300	5 300
Dimensions, LxWxH, mm		
- transport position	7780x2500x3135	7780x2500x3135
- workplace	8575x7780x6590	8575x7780x6590
- receiving tray (hopper)	3000x2100x400	3000x2100x400
Driven by	tractor's cardan (shaft (PTO)	Electric motor (30 kW + 3 kW for hydraulic machine) + from tractor's cardan shaft (PTO)
Power of tractor needed, H.P.	80	80
Tires	10/75 -15,3	10/75 -15,3



RVM-180E with self-propelled option



RVM-180



Horizontal screws Ø 130 mm - 8 pcs.



Working position under the wagon



Unloading of granular fertilizers



Hydraulic machine with a hydraulic distributor



Winch for installing sides



Support wheel



Loading train wagons



Unloading train wagons



Turntable



Electric box



Hydraulic cylinders for transportation

GROUND CHASER BIN BNP «KOVCHEG»



BNP-12 KOVCHEG Loading wagons perpendicular to the wagon



BNP-3 on the loading of the wagon parallel to the wagon

Principle of operation:

Three horizontal feeding augers transporting grain into unloading vertical auger, which reload it into other transport. Auger spirals made by special steel from Italy, which ideally centered before installation, so that grain not damaged. Augers work from tractor's PTO with 540 rpm or driven by electric engine 380 V. Machine used for reloading: grain, corn, sunflower, colza, mineral fertilizers.

The BNP-3 ground reloader, as well as the BNP-12 Kovcheg, is designed for loading wagons or simply reloading agricultural machinery products into a car. Constructive innovation is the presence of drawbar and turning wheels for transportation along the track.

The bunker has two directions of movement:
1 - transport, the size of 2.5 m on the roads;
2 - working, envelope along the path 4.5m.

The capacity of the reloader is 250 t / h, which allows to load the train in 20 minutes with a continuous supply of grain.



Loading of mineral fertilizer spreader



Packing grain into BigBags



Grain flow splitter



Additional front wheels option for transporting grain in hopper of BNP machine



Hydraulically opening slide gate. Gives grain to a screw conveyor.



Scale that shows opening of the slide gate

Characteristics	BNP-3	BNP-3/E	BNP-12		BNP-12/E (electric drive)		
Auger diameter, mm	500	500	400	500	400	400	500
Productivity, t/h	250	250	180	300	180	180	300
Height of unloading, mm	5 500	5 500	4 300 5 500	4 300 5 500	4 300 5 500	8 000	4 300 5 500
Hopper volume, m³	2,9	2,9	12	12	12	12	12
Hopper: length, mm	3 000	3 000	7 000	7 000	7 000	7 000	7 000
width, mm	2 125	2 125	2 500	2 500	2 500	2 500	2 500
height, mm	860	860	920	920	920	920	920
Unloading from a car	parallel to the wagon		perpendicular to the wagon		perpendicular to the wagon		
Driven from	tractor's cardan shaft (PTO)	Electric motor 37 kW + tractor's cardan shaft	tractor's cardan shaft (PTO)	tractor's cardan shaft (PTO)	Electric motor (30 kW + 3 kw for hydraulic machine) + tractor's cardan shaft	Electric motor (55 kW + 3 kW for hydraulic machine) + tractor's cardan shaft	
Power of tractor needed, H.P.	82	82	82	120	82	120	120

CONTAINER LOADING TECHNOLOGY



TOR-20 Capacity	up to 35 tons
Dimensions: - length, mm	8 770
- width, mm	4 450
Height with lowered lift, mm	2 885
Height with jack raised, mm	7 750
Container lifting angle	70 – 90°
Container size	20 feet



Independently removes and installs the container directly from the container ship

Equipment involved:

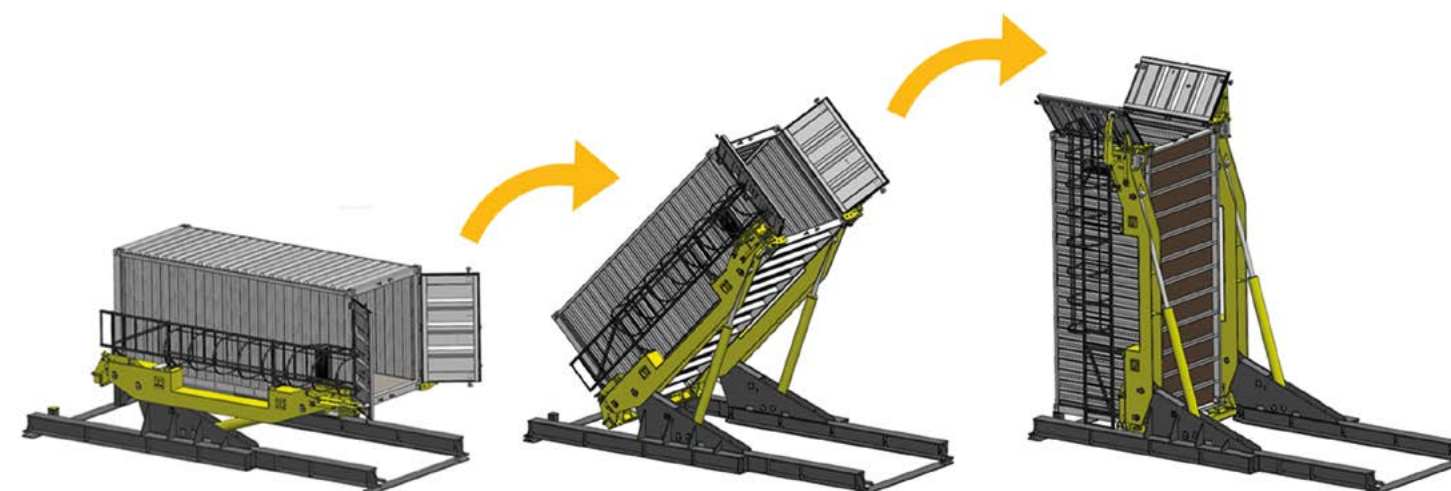
- TOR-20 container tipper
- BNP-12 ground chaser bin «KOVCHeg»
- ANP-55 Aluminum Tipper Semi Trailer

Efficient loading and unloading of 20-foot containers - TOR-20

- **Strength and power** - lifting capacity up to 35 t, the whole process is accompanied by 4 powerful hydraulic cylinders
- **Versatility** - lifting angle of the container up to 90°
- **Ease of use** - you can load the load up to 8 meters without much effort
- **Speed of work** - loading a 20-feet container in 15 minutes (together with BNP-12 Kovcheg)
- **Reliable power supply** - the edger works from the 380 Volt power network
- **Filling control** - weighing system is optionally mounted.

Principle of operation

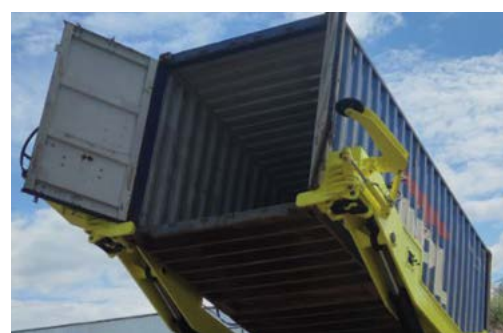
The TOR-20 edger independently removes the container from the platform of the container ship and lifts it at an angle of 90 degrees. In the working position, hydraulically opens/closes the door. The presence of a BNP-12 transshipment hopper allows you to quickly transship grain from a grain truck into a container. After loading with grain, the loader lowers the container into the transport position and installs it on the container ship.



Container tipping process



TOR-20



Hydraulic opening doors of the container



Operator service ladder



Reinforced hydraulic cylinders for lifting / lowering



Belt conveyor ST-22



Belt conveyor SN-350/25

BELT LOADERS



The length of the conveyor is 22 m.



The V-shaped chevron belt 1 250 mm does not damage the seeds



SN-350/25 at a grain loading of 3 t/m²



Turning of wheels

Working principle.

The belt conveyor is driven electrically. The grain is fed to the receiving hopper, and then to the belt conveyor conveyor to a given height. For ease of unloading, a corrugated or metal sleeve is attached to the upper chamber box
The chassis is springless, consists of a pair of wheels, with tires 14.0/65 – 16.

In the working position, the belt conveyor ST-22 has the possibility to adjust the unloading height within the limits of 4 to 9 m. Length from the front wheels to the unloading chamber 12-13 m. (depending on the angle of inclination of the conveyor). The lifting/lowering of the conveyor is provided by the reinforced ones hydraulic cylinders.
The belt conveyor is made of high-quality steel, which provides it with durability and resistance to wear.
It works from a drum electric motor.
Own weight of the transporter is 6,000 kg

Basic equipment:

- chevron tape does not damage the seeds;
- convenient electric control system;
- a hydraulic machine is installed to drive hydraulic cylinders for lifting, as well as a hydraulic cylinder for turning the front ones wheels and control of the drive wheel (self-propelled a car with a speed of up to 4 km/h);
- towing device for transport position;
- drive motor-drum.

SN series belt loaders are used for reloading grain and other bulk mixtures.
The unit has a variable angle of inclination and unloads the grain on 10-12 m high (depending on the selected model).
Loader productivity to 200 t/h (depending on angle of inclination).

Unhindered loading of barges, wagons, hangars, vehicles, as well as large vessels and ships.

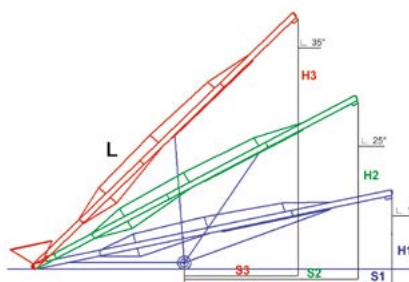
Basic equipment:

- chevron conveyor belt does not damage the seeds;
- convenient electric control system;
- a hydraulic machine is installed to drive hydraulic cylinders for lifting, as well as a hydraulic cylinder for turning the front ones wheels and one rear wheel drive;
- towing device for transport position.

	SN-350/22	SN-350/25	ST-22
Diameter, mm	350	350	-
Length of loader, m	22	25	22
Productivity, t/h.	up to 200	up to 200	up to 300
Height of unloading, m	min 4,5 max 10,3	min 5,2 max 11,9	min 4,0 max 9,0
Width of belt, mm	500	500	1 250
Wheels turnable by hydraulic (to 90°)	14.0/65-16	14.0/65-16	14.0/65 R16 10.0/75-15,3
Width of wheel base, m	4.45	4.45	4.2
Adoptive bunker, m	1.5x1.5 (3,0 x 1,5)	1.5x1.5 (3,0 x 1,5)	1.5x1.2
Driven by	22 kW electric motor	22/37 kW electric motor	11 kW electric motor

STATIONARY AUGERS

Diameter, mm	Length, L	Incline angle									Power of electric motor, kW	Auger lifting mechanism
		15° L			25° L			35° L				
		H1, m	S1, m	Productivity, t/h	H2, m	S2, m	Productivity, t/h	H3, m	S3, m	Productivity, t/h		
200	7,5	2,1	2,6	40	3,3	2,2	35	4,2	1,6	30	5,5	Winch
	10	2,7	2,4		4,3	1,8		5,8	1,0		7,5	Hydraulic hand jack rod 40mmh
	12,5	3,3	4,8		5,4	4,1		7,3	3,0		7,5	Hydraulic hand jack rod 40mm
	15	5,7	6,1		7,2	5,4		8,2	4,8		11	Hydraulic hand jack rod 35mm
	18,5	7,1	8,3		8,9	7,5		10,2	6,7		15	Hydraulic station
	24	6,2	13,6		12	11,2		16,9	7,4		22	Hydraulic station
250	7,5	2, 2	2,5	60	3,2	2,1	50	4,3	1,5	40	7,5	Winch
	10	2,7	2,3		4,3	1,8		5,8	0,9		11	Hydraulic hand jack rod 40mm
	12,5	3,3	4,7		5,4	4,0		7,3	2,0		15	Hydraulic hand jack rod 40mm
	15	5,7	6,0		7,2	5,3		8,2	4,7		18	Hydraulic hand jack rod 35mm
	18,5	7,0	8,3		9,0	7,3		10,4	6,5		22	Hydraulic station
	24	6,2	13,6		12	11,2		16,9	7,4		25	Hydraulic station



Adoptive bunker



Grain picking from the piles

Basic equipment:

- auger consist of several sections, the length of each - 2500 (6000) mm;
- screw of transporter if solidmade 4/2 mm;
- winch for adjusting incline angle;
- adoptive bunker 1000x1000.



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