

K R M Z
i n n o v a t i o n

ADVANCED
ENGINEERING
SOLUTIONS
FOR ENSURE
HIGH-QUALITY
FEEDS AND
ANIMAL HEALTH





DMITRY TEPOV

Feedstuff is the most expensive item in the animal industry, because they largely determine how profitable the husbandry will be. High-quality feed increases the productivity of animals, while reducing the cost of feeding rations and improves the quality of milk. Therefore, stable and efficient forage conservation is one of the most important tasks for farmers of any country.

The booklet you are holding in your hands simply and clearly tells about KRMZ forage conservation machinery that represents innovative solutions for forage conservation using the «Haylage in packaging» technique.

KRMZ is a solution for modern agriculture and for farmers who need to improve the quality of processes and get high-quality feeds, without spending significant funds and without overpaying for the brand of the world's leading manufacturers of agricultural machinery.

KRMZ is an advanced mechanical engineering and digital technology from Russia, it is a transparent and managed at all stages process for forage conservation. We offer farmers the best engineering solutions in the world that can preserve the health of animals and improve the quality of milk.

KRMZ forage conservation machinery have already proven its efficiency in farms of different size: from small family farms to major agricultural holdings.

You can purchase the whole set of our farm machinery or supplement your fleet of forage equipment with KRMZ solutions. Exploit the innovation for development and growth of your farm profitability.

Best Regards,
Dmitry Teplov,
CEO KRMZ.

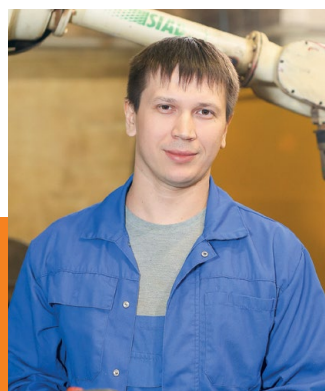
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K R M Z
knowledge people

**ROMAN BREDIKHIN,
DESIGN ENGINEER,
TECHNOLOGIST**

Development and design documentation, certification, selection of components, manufacturing and assembly technologies

«KRMZ innovations are not just efficient solutions, they are also **technologies that change the quality of equipment**, raise productivity and functionality to another level. But an engineer has not enough courage and imagination to implement the innovations, so the enterprise's productive capacities and the quality of components - that's important!»



**NIKOLAY CHEREMNYKH,
ENGINEER FOR MECHANIZATION
AND AUTOMATION OF WELDING
PRODUCTION**

Designing attachments for welding parts on SIAD Italargon robotic welding machine

«**I set tasks for the welding robot**, and it performs its work efficiently and beautifully. After all, robotic welding is a guarantee of reliability of finished structures and strength of seams on them.»

KEY EXPERTS



OLGA CHAZOVA,
EXPORT MANAGER

Dealer network and export development, **training for dealers**

«KRMZ agricultural machinery opens up a new opportunity for farmers. Our machinery means complete feed, healthy animals and profit for your husbandry. That's what we really sell



SERGEY ULITIN,
HEAD OF SERVICE CENTER

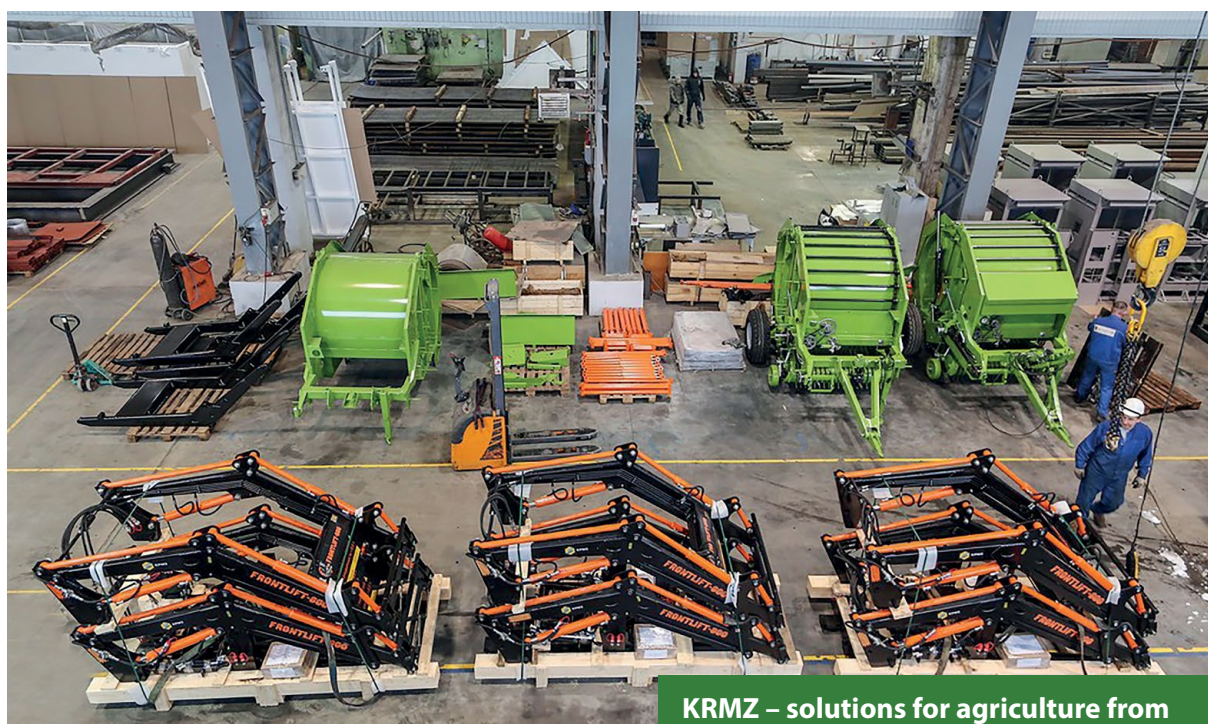
Warranty maintenance. **Service and repair.** Spare part supply

«It is not enough just to sell an equipment; it is important to maintain its smooth operation. Any machine is valuable only when it performs its tasks. Every day counts during the period of forage conservation, so we are always within call for customers who seek to buy our agricultural machinery»

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K R M Z
ussian factory

SINCE 1973



**KRMZ – solutions for agriculture from
the engineering center of Russia:
one step from idea to manufacturing**

«Green equipment» of KRMZ is manufactured in Krasnokamsk, a suburb of Perm city. The large Russian engineering and industrial center is known throughout the world for production of rocket engines and advanced IT-developments.



SIAD Italgorgon robotic welding machines:
high-quality welding.



DMG-Mori Seiki turn-milling machine:
High-precision machining of components for high quality units.



Laser cutting of steel sheets:
Due to the high preciseness and computer processing of the trajectory laser cutting makes it possible to produce parts with a complex contour with a tolerance of 0.1 mm.



All KRMZ solutions comply with European Union (CE) standards.



KRMZ machinery are capable to harvest high-quality haylage in countries with long dry summers, and where endless rains pour.



FRONTLIFT:
Low alloy steel for strong frame and wear resistant steel for working tools.

Purchase the whole set of machinery or supplement your fleet of forage equipment with KRMZ solutions.

i n n o v a t i o n

K R M Z

modernized product

**BALE CUTTER**

No analogues among specialized machinery of the world's leading brands;

Efficient way to distribute feed:
5 minutes – 1 bale;

Capable of feeding up to 2000 animals per day with 1 operator.

**HIGH SPEED BALE WRAPPER**

Up to 80 bales per hour;

Autonomous operation without tractor;

Automotive;

50% saving on film.



FRONTLIFT FRONT LOADER

20 attachments for agricultural needs;
Joystick;
Non-greased bushings;
Load-carrying capacity 1200/1600 kgs.



BALER

Up to 35 bales per hour;
Haylage/hay/straw;
Wrapping with twine or net;
Operating width of 1.5 and 2 meters.

i n n o v a t i o n

K R M Z oo care



Haylage, harvested using KRMZ solutions, represents a carefully conserved grass, as if it was taken directly from sunny fields: no preservatives, no loss of nutrients.



Simultaneous sugar
and protein fermentation
means healthy
and active animals.

The use of KRMZ solutions in forage conservation will provide animals with complete feed all year round, as well as:



Increase milk yields
by 20-25%



Increase the grade
of milk



Preserve productive longevity
(up to 4-5 lactations)

**Power and energy: sugar,
protein, carotene, metabolic
energy up to 10.7-13.5 MJ/kg
of dry matter.**



DIGITAL SOLUTIONS (KRMZ MONITORING)

KRMZ remote monitoring system is an on-line control over machinery operation, quality of future feeds and performance of operators. Data are transmitted via GPRS or LoRaWan wireless protocol.

The remote monitoring complex includes sensors, controller, monitor, base station and server with personal cabinet.

Online statistics of field work and personalized record-keeping for full transparency of the process of forage conservation and reducing losses from a «human factor».



Sensors measure moisture content, density, weight and number of finished bales.



Controller, a heart of the remote monitoring system, is installed on baler, bale packer or loader. It is powered by an on-board network of the agricultural machine, processes sensor data and sends the data to the server database via GPRS or LoRaWan wireless protocol.

Controller sends data via Wi-Fi wireless protocol to **a monitor** located in the operator's cab. Machine operator sees up-to-date information/receives signals about violations of the forage conservation technique.

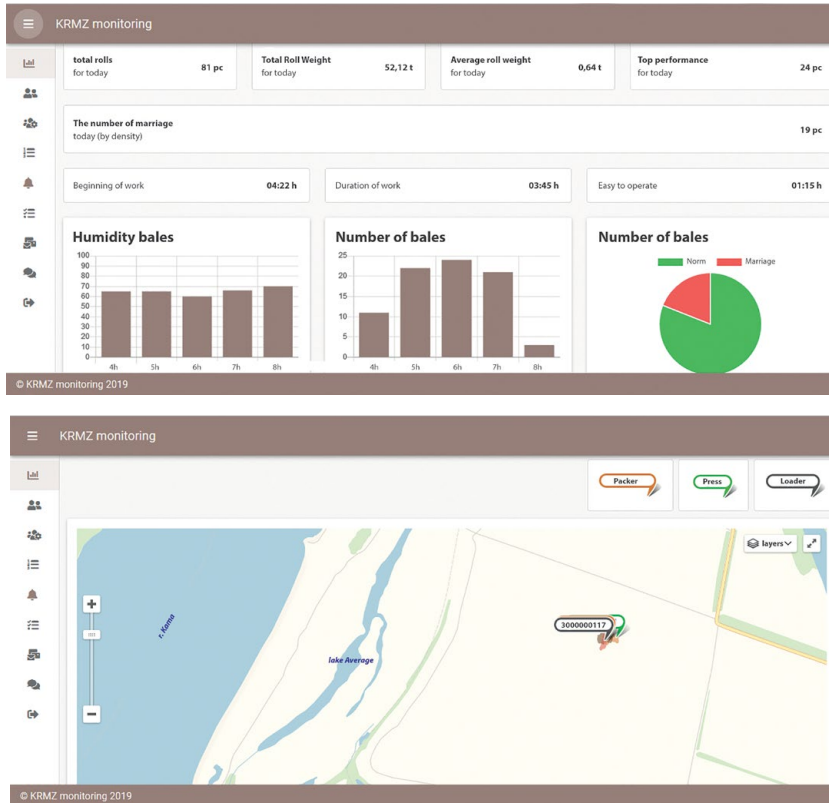


Base station is designed to transmit data from the controller to the server, if there is no GPRS-network coverage in the place of forage conservation.



Server is a place for storing and processing of data, providing analytical reports on forage conservation and the quality of the forage conservation for the entire time of operation of the equipment.

The practice of individual farms in Russia and Europe shows that digital solutions in forage conservation can increase milk yields up to 70%.



LORAWAN: NO WIRES, NO LIMITS

Agriculture means fields and farms that are remote from cities. Traditional channels of communication in such places are not always available. If there is no GPRS coverage, then LoRaWAN data transfer protocol will come to the rescue.

It will provide connection and collection of information from remote sensors within a radius of 20 kilometers in open space. LoRaWAN sensors are able to operate autonomously for up to ten years.

	BALER	BALE WRAPPER	FRONTLIFT LOADER
Density of bale compacting	+	-	-
Bale moisture	+	+	+
Quantity of wrapping film	-	+	-
Bale weight	+	+	+
Number of bales	+	+	+
Operator's identification	+	+	+

KRMZ remote monitoring system is an online field work statistics and personalized record-keeping for full transparency of the process of forage conservation and reducing losses from a «human factor».

KRMZ BALE CUTTER

The bale cutter cuts compressed bales into grass feed (haylage, hay, straw). Weight of bales – up to 850 kilograms (optional – up to 1100 kilograms).

The machine simultaneously unwinds the bale and cuts the compressed mass into segments of equal thickness.



Reserved by KRMZ only: KRMZ cutter has no analogues among agricultural machinery of famous international brands.



TAKE THE BALE AND GO BACK

Self-loading:

Machine takes the bale from its storage location afield and delivers it to the place of feeding the animals. Self-loading control with the remote controller.

Ecology and fuel economy:

Tractor with a capacity of not more than 60-80 h.p. is required to transport the cutter.

Any road conditions:

Reinforced frame withstands constant off-road driving, and increased diameter of the wheels provides good roadability.



EFFECTIVE FEEDING

Adaptation to farm conditions: height of the equipment varies with the help of adjustable wheel hubs it can be lowered to work in low premises. Optional removable tray is provided for high feeders.



Cutting thickness: 9-15-22 cm/5-10-15 cm;

Productivity: 5 minutes – 1 bale during travel through feed passage of the farm;

Up to 2000 animals per day with a help of one operator.



LONG SERVICE LIFE

Up to 7 years of service in daily operation.

Only blades should be changed once a year.

Operating experience of KRMZ cutter showed: uniformity of cutting is fundamentally important for the bacterial flora of the gastrointestinal tract of animals. Feeding with ragged grass mass reduces milk yields, but stable feeding with equal segments of feeds provides an increase in milk yield volumes.

TECHNICAL PARAMETERS

	IRK-01.1 (2-wheels)
Bale dimensions (height and diameter, mm)	1200±50, 1450-1800
Cutting width, mm	1400
Cutting thickness, mm	90-150-220, 50-100-150 (optionally)
Number of knives	5
Number of contrary knives	10
The maximum rpm of the PTO	540
Bale weight, kg	up to 850, up to 1100 (optionally)
Dimensions in transport position (length, width, height), mm	4300x1880x2230
Weight, kg	1480
Productivity per hour, not less than, bales / hour	7-10



Manufacturers of traditional parmesan cheese feed their animals only with hay/haylage without concentrates, so the KRMZ cutter is ideal for working on cheese farms.

SW120 HIGH SPEED BALE WRAPPER

KRMZ SW120 high speed bale wrapper stacks the haylage bales in a line, wrapping them in a «sleeve» of agro-stretch film. It can be used in any weather conditions to prepare high-quality plant feed and preserve its properties up to 2-3 years.



Eco-friendly approach: 50% wrapping film savings compared to individual packaging of each bale.



EFFICIENT PACKAGING

Economical self-propelled machine with 13 h.p. engine.

Productivity – 80 bales per hour (up to 10 times more efficient than individual packers).

Packaging without holes and damages: the packer carriage is equipped with a tensioning device for tight winding.

Tilt mechanism rapidly switches the packer into transport position and back.

Reliable components: Italian hydraulics and Japanese motor.

Any storage environment: it is possible to store bales after packaging directly afield, there is no need to turn the bales and to have a flat platform.

Digital control: remote monitoring of the number of packed bales, their moisture and weight, as well as the number of layers of wrapping film.



COMPATIBLE WITH ADVANCED TECHNOLOGIES

KRMZ SW120 high speed bale wrapper can be used to pack round haylage bales and square bales of hay and straw formed by balers provided by world's leading manufacturers.



Fast packaging prevents the grass mass from heating, supports conservation of sugar, protein, carotene, vitamins and accelerates the onset of natural conservation.

TECHNICAL PARAMETERS

	SW120 high speed bale wrapper
Weight, kg	2200±50
Width of the used film, mm	750
Transport speed, km / h, max	10
Dimensions in transport position (length, width, height)	6690±25 / 2500±10 / 2920±10
Productivity per hour, bales / hour	up to 80
The diameter of the bale, mm	1550±50
Width of the bale, mm	1200±50
Loss during wrapping, due the weight of the bales, %	не более 0,1 no more than 0.1

Bales should be packed as soon as possible after their formation. The maximum time between pressing and packaging is 2 hours, and at a temperature of more than 25°C – 1.5 hours.

KRMZ BALER

KRMZ balers pick up and press into bales the mown grass mass (haylage, hay, straw), wrap it with twine or polypropylene net.



KRMZ baler represents advanced engineering solutions for guaranteed density of green mass pressing and conservation of useful properties of future feed.



UNIQUE DESIGN

43 pressing shafts ensure the pressed density of bales up to 350 kg/m³.

Wrapping with net or twine.

Productivity – up to 35 bales per hour.

Under field conditions: works steadily even on uneven ground.

You can control the operation of the equipment from the tractor cab using the remote control.

Modifications with operating width of 1.5 and 2 meters.

Optional: automatic lubrication of chains and bearings.

Digital control: remote monitoring of moisture content, density, weight and number of packed bales.



KRMZ baler relieve your farm from the necessity to measure the density and weight of bales manually, eliminating the risk of «human factor».

TECHNICAL PARAMETERS

	Baler KRMZ R12/155	Baler KRMZ R12/2000
Power	29 kW	38 kW
Pickup width	1,5	2,0
The pressing elements	chain	chain
Number of shafts	43	43
The frequency of rotation of the PTO, rpm	540	540
The size of the bales, m	D1.55*h1.2	D1.55*h1.2
Pressing density, kg / m ³	350	350
Bale weight, kg	up to 850	up to 850
Size	4,13*2,22*2,22	4,13*2,45*2,45
Weight, kg	2060	2550
Productivity per hour, not less, bales / hour	up to 35	up to 35

Pressing density of 350 kg/m³ ensures maximum displacement of air, and the remaining oxygen will be just enough that the residual respiration of plants uses it up, replacing with carbon dioxide. If there is more air, bacteria will begin to multiply in the future feed.

FRONTLIFT FRONT LOADER

KRMZ FRONTLIFT front loader is capable of performing a wide range of works at any agricultural enterprise: transportation and loading of haylage bales, taking out of silage, grain and fertilizer reloading. It also can help level up the site, dig a shallow hole, move loose building materials.



FRONTLIFT loader is a reliable assistant at an agricultural enterprise of any size: from a small family farm to a large agricultural holding.



FRONTLIFT – TECHNOLOGIES AHEAD OF THEIR TIMES

Welded by robot: SIAD robotic welding machine (Italy) provides high-precision welding for reliability of the loader structure and strength of its joints.

Easy to maintain: non-lubricated polymer bushings are installed in friction assemblies, so the loader does not need to be constantly serviced.

Any weather conditions: it is made of low-alloy steel with a thickness of 6 mm, which allows it to work without losing strength at temperatures from + 50 to - 40°C.

Strong frame: box-shaped tube connection profile doubles the thickness of the steel at bends, increasing the structural strength of the FRONTLIFT loader.



Easy mounting: use of jacks allows to mount the FRONTLIFT loader on a tractor without lifting devices.

Care of tractor: rigid subframe mounting design (three mounting points) relieves tractor's front axle from bending forces.

European components: Italian loader hydraulics, German fasteners and inflexible peaks of working tools.

Convenient operation with a help of joystick.

Digital solution: remote control of weight and number of units of cargo, tracking the moisture content of bales during loading.



REALLY EUROPEAN LOADER

FRONTLIFT M.EURO modification is equipped with a gripper complying with European standard and is compatible with the working tools of all leading European manufacturers.



2 types of forks, a bale tipper and a unique silage cutter represents a ready set of working tools for a loader at any agricultural enterprise.

TECHNICAL PARAMETERS

Load capacity with the weight of the working accessories, t (depending on the model of the tractor and the attached attachments)	1,2-1,6
It is aggregated with tractors of 1.4 traction class	MTZ-80(82), MTZ-892, MTZ-920, MTZ-952, YTO 780, YTO 880, YTO 980, DEUTZ-FAHR Agrolux 4.80
It is aggregated with tractors of 2.0 traction class	MTZ-1220, MTZ-1221, Ant ZETOR 4135F

Proper use of the FRONTLIFT loader allows to serve you for at least 7 years, and ensures 2-year warranty period.

KRMZ academy

Our experts in KRMZ equipment and «Haylage in packaging» technique offer all the purchasers of KRMZ solutions to be trained in the form of seminars or online courses. Attendees of the seminars or courses will learn:

- How to cease to depend on the weather during forage conservation.
- How to provide animals with first-class feed all year round.
- How to increase milk yields and weight of animals without additional costs.



Feeds is the most expensive item in animal husbandry, they determine whether farming will be profitable or not. High-quality feed contributes to productivity of animals, while reducing the cost of feeding rations and improves the quality of milk.



KRMZ online course and seminars are aimed at all professionals whose activities affect the quality of harvested feed: heads of farms, agronomists, zootechnicians and machine operators.



The online course is available on the following web-sites in Russian: Haylage.online and Senazh.online. You can register and take the course with the help of an interpreter, and KRMZ service dealers in your country will help you find him/her. The online course will be available in other languages in future.



KRMZ seminars are face-to-face meetings of experts with users of agricultural machinery. They invite farmers from one or two regions and talk about all the subtleties and advantages of using KRMZ machinery and «Haylage in packaging» technique. Often such seminars are held directly in the farms, demonstrating all the processes on the basis of the purchased equipment. You can place a request for the seminar through dealers in the region where the agricultural machines were purchased.

KRMZ experts have already helped a large number of farms improve the quality of harvested feed, increase the efficiency of forage conservation by 20-25% and reduce costs.

KRMZ service

KRMZ service center is a partner and assistant in implementation, operation, maintenance and repair of KRMZ machinery for harvesting of haylage in packaging.



TRAINING FOR DEALERS

Specialists from dealer companies undergo special training courses with KRMZ service center and become our authorized representatives. They do not just sell KRMZ solutions, but are also responsible for successful launch of them at a farm.

All KRMZ service dealers:

- Go to visit a farm to talk about functionality of each machine, its role in a chain of processes for harvesting and conservation of high-quality forage, about safety;
- Conduct the first run;
- Establish processes of daily and off-season maintenance.

The task of KRMZ dealers is to make sure that the farm workers have mastered the operation of new equipment and control the working processes.



WARRANTY AND MAINTENANCE

Purchasers can adjust the processes and carry out daily maintenance of the machinery without assistance with the help of simple instructions of the service center.

If problems arise, our customer can contact his dealer for free remote assistance. In complicated cases, specialists from the dealer company will visit the farm and solve the problem at site.

REPAIR



Each day of clear weather is valuable when harvesting packaged silage, so an idle machine is a direct threat to the quality of feed, and therefore to the entire life of the farm in autumn and winter.

KRMZ service center provides conditions under which the delivery of spare parts from dealers in Europe and all over the world takes 24 hours, and from the manufacturer in Russia – one week.

Every day counts during the period of forage conservation, so the service center and KRMZ dealers are always within reach for our customers and ready to give a helping hand.



Nothing will stop you from preparing the perfect nutritious feed for livestock with KRMZ solutions, because automated processes and online control reduce the risks of the «human factor».

KRMZ is always nearby: training, assistance in implementation and service from the manufacturer and dealers.



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