

# RSM 1403 Forage Harvester



**ROSTSELMASH**  
*Professional Agrotechnics*



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## **RSM 1403 - ADVANCED FORAGE HARVESTER, CAPABLE FOR MASSIVE HIGH-QUALITY FORAGE PRODUCTION ON A TIGHT SCHEDULE**

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## ROSTSELMASH GLOBALLY

### RUSSIA

#### **Rostov-on-Don Rostselmash**

Produces Rostselmash grain and forage combine harvesters, VERSATILE tractors and sprayers.

#### **Rostov-on-Don Klever**

Manufactures adapters for combine harvesters, trailed and mounted forage harvesters, grain storage and processing devices, municipal machinery and snowplows.

#### **Morozovsk, Rostov oblast Morozovskselmash**

Manufactures adapters for combine harvesters, as well as towing and attached forage harvesting equipment.

### CANADA

#### **Winnipeg VERSATILE**

Manufactures VERSATILE tractors with power from 190 to 575 hp. Here, there is the central warehouse of spare parts for VERSATILE machinery.

#### **Morden Farm King**

Produces grain handlers, grain-cleaners, snowplows and compact tillage equipment. The central warehouse of Farm King spare parts.

#### **Vegreville BUHLER EZEE-ON**

Produces tillage and sowing machinery.

### USA

#### **Salem Feterl Manufacturing Corp**

Produces grain storage and processing devices introduced in the Russian market under the brand name ROSTSELMASH.

#### **Fargo Farm King**

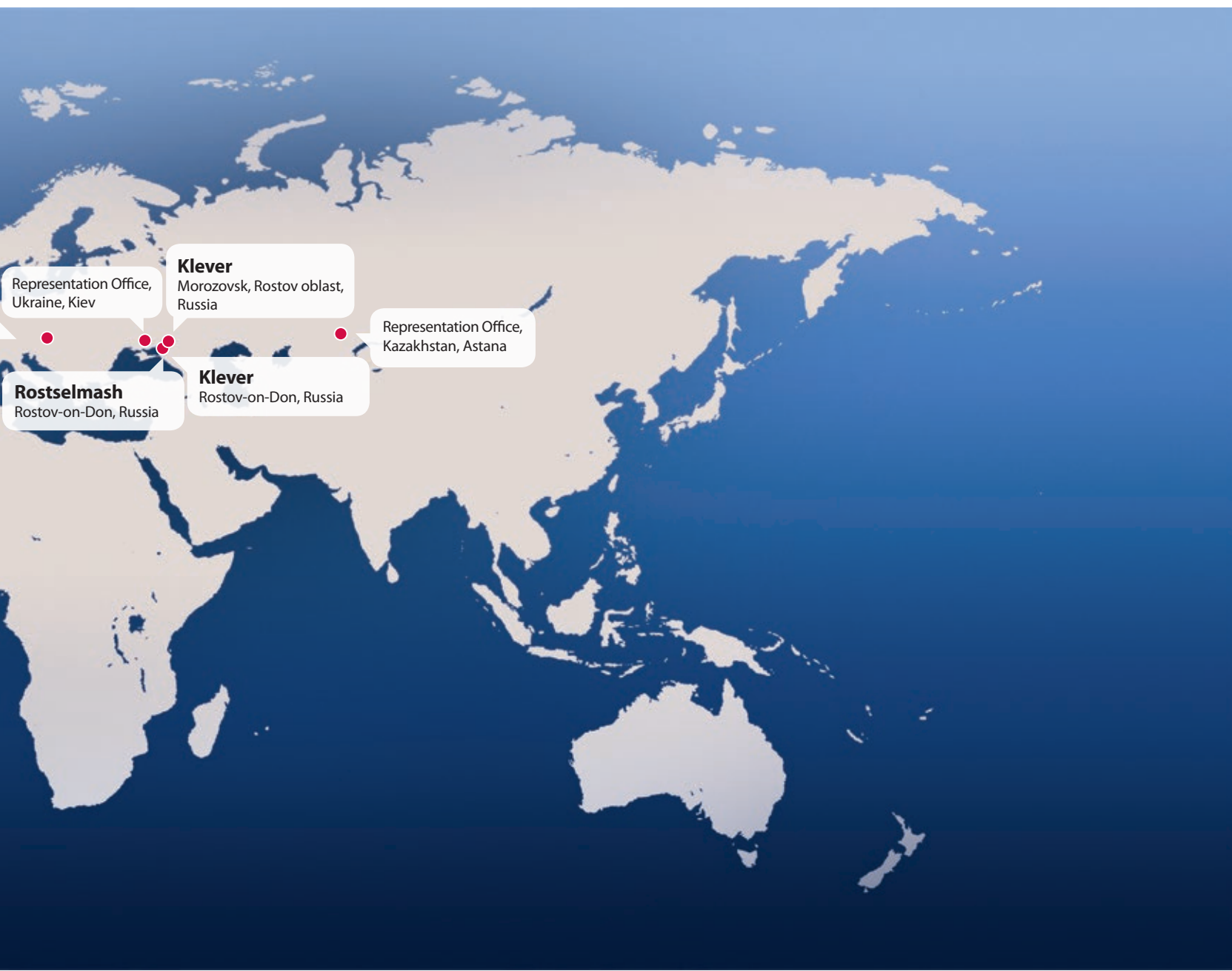
Produces bales transport trolleys, grader blades, wheel loaders introduced in the Russian market under the brand name ROSTSELMASH.

#### **Willmar VERSATILE**

Manufactures towing and self-propelled sprayers introduced in the global market under the brand name VERSATILE.

Representation Office  
Europe, Gyor, Hungary





## EXPERIENCE. INNOVATION. SUCCESS

For many years Rostselmash has produced the globally renowned agricultural machinery. Our expertise is based on extensive experience.

Today, Rostselmash comprises 13 companies located throughout the world, simultaneously aimed at the production of reliable and efficient equipment capable of being the best assistant at every farm.

Today, Rostselmash offers 24 types of agricultural and municipal machinery. Each client – from the owner of a small farm to the head of a large agricultural holding – may select the most effective machinery from the available product range of more than 150 models and modifications.

# MULTIPURPOSE MACHINERY FOR EFFICIENT HARVESTING



Forage conservation is one of the most responsible sectors of agriculture. Here both quantity and quality are the governing factors. That is why the machinery is to be unexceptionable. It is necessary to be confident that the harvester meets the challenges efficiently within designated period of time.

Top performance and flexibility are the most important requirements to agricultural machinery. Rostselmash offers machinery which fully and perfectly complies with these requirements. Minimum costs, schedule assurance and high performance are the main advantages of RSM forage harvester.







**RSM is an advanced series of forage harvesters** featuring high performance, excellent chopping quality, efficiency, flexibility, and, of course, operator's comfort. These multipurpose machines are capable of providing any farm with high-quality forage in large amounts and on a tight schedule.

RSM is the next stage of evolution in Rostselmash forage harvesters. It's weight balancing is perfect, no counterweights needed. It has sufficient power for productive harvesting under any conditions.



# ONLY HIGH-QUALITY FORAGE



## FORAGE PROCESSING

1. The crop is cut or picked up depending on the mounted adapter and then transported into the feeder intake.
2. The feeding unit compresses the flowing crop and accelerates it by active feedroll parts with simultaneous synchronization.
3. High speed chopping drum grinds the crop and accelerates the flow for its further transportation to the unloading zone.
4. Active corn seeds cracker with 20% difference in rotations speeds crushes seeds (applied only for corn at the stage of milky-wax ripeness).
5. In the contraction section chopped forage is transported into the accelerator.
6. The accelerator increases velocity of the flow and transports crop into the silage duct.

The silage duct directs the flow into a truck or trailer for its further transportation to the place of storage or processing.



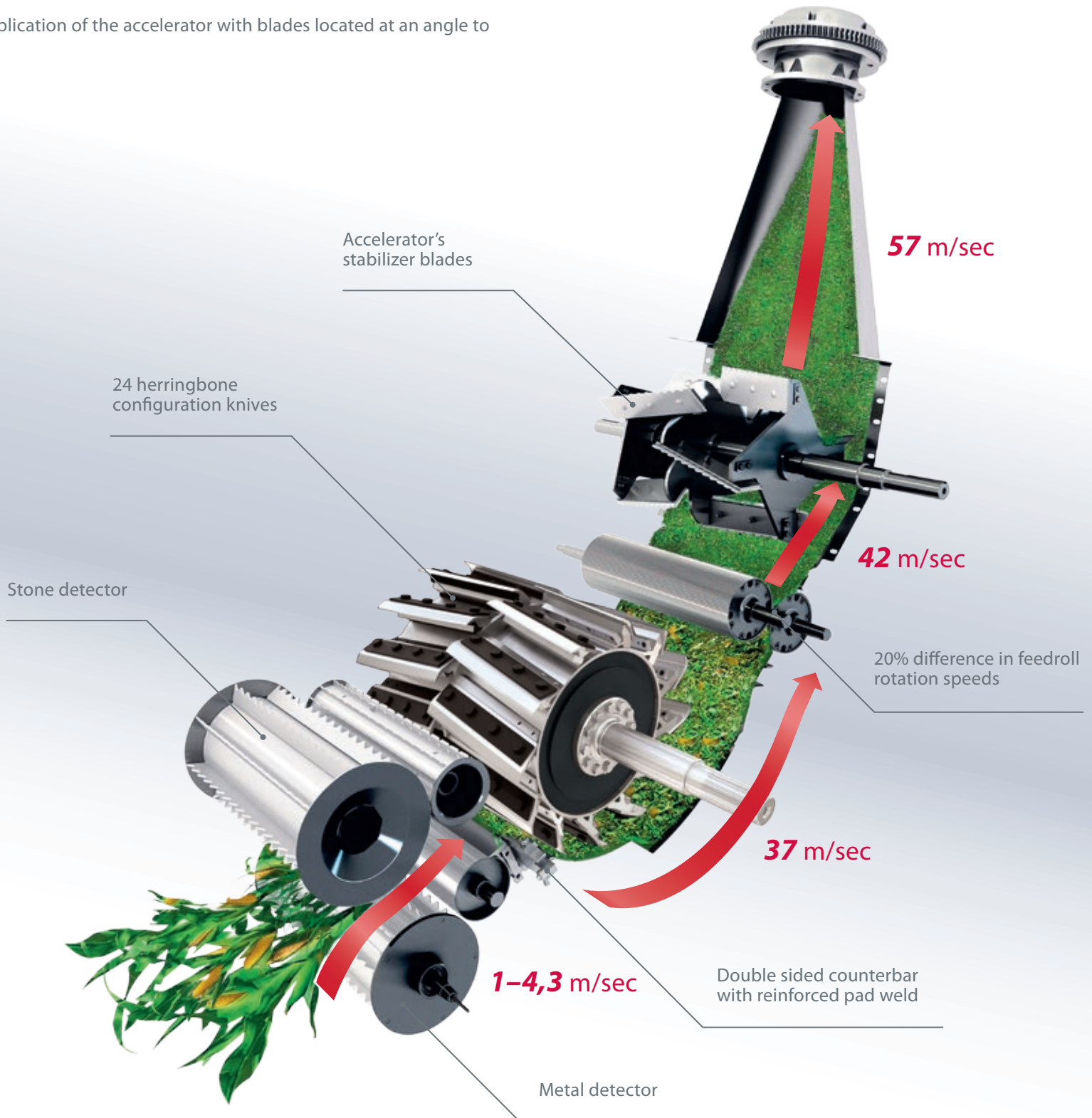
## FLOW SPEED

Form of each component of harvester's feedpath enables chopped pieces to move with minimal changes of moving direction, which reduces power consumed by crop transportation. The main channel may be optionally equipped with a feedroll-type corn cracker (two feedrolls rotating towards each other at different speeds).

In order to achieve stable flow and, as a consequence, to obtain excellent forage, each of the following operations must be done at a greater linear speed than the preceding one.

Application of the accelerator with blades located at an angle to

the longitudinal axis of the drum allows to direct the crop to the center of the feedpath with minimum power consumption and dense crop flow leaving the silage duct. Thus, transport trailers may be loaded evenly and tightly.





# FINE CHOPPING



The machine is equipped with chopping system comprising a drum with 630 mm in diameter and rotation speed of 1 200 rpm, which minimizes the load on the feeding unit and increases efficiency of small cutting lengths. The chopper is equipped with automatic sharpening for drum knives.

## CHOPPING SYSTEM

Chopping drum

Automatic sharpening device

Shear bar adjusting lever

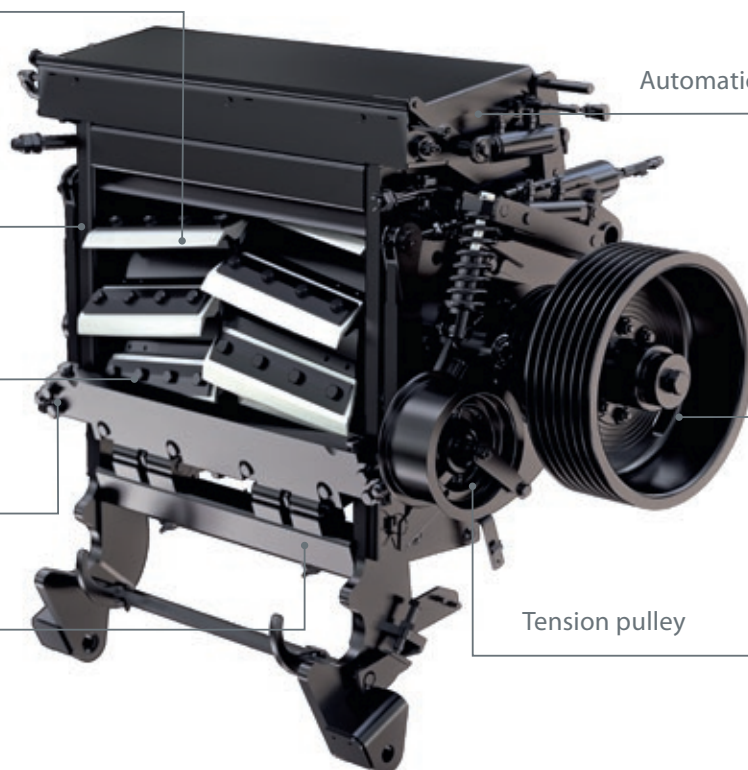
Reverse counterbar

Counterbar orientation sensor

Drive pulley

Counterbar bearing

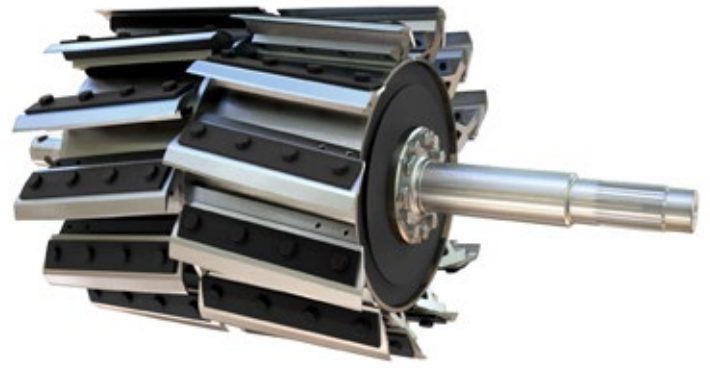
Tension pulley



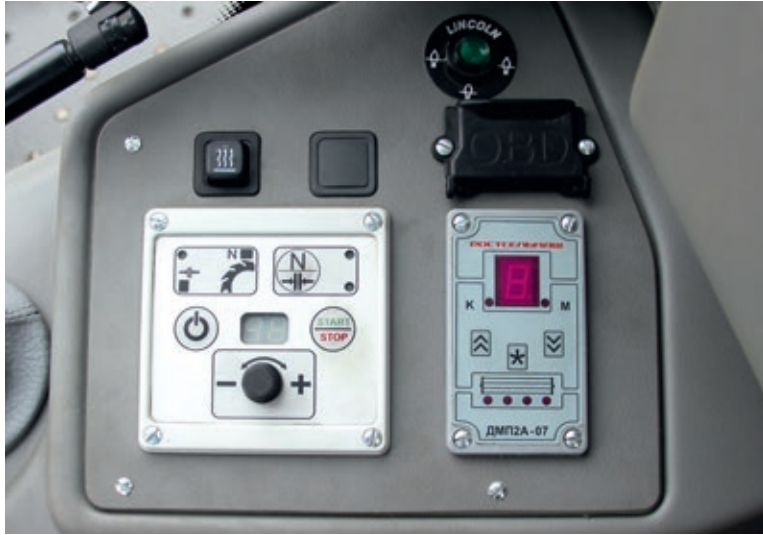


Chopping system of RSM forage harvester is based on an advantageous power consumption of the beveled cut. Because we all know that it is much easier to cut with scissors than to chop off a piece with the same length, while the former is classified as a beveled cut. And at the same time herringbone configuration of knives centers chopped crop preventing walls from excessive wear.

**Chopping drum** of Rostselmash forage harvester has a V-form configuration of knives, which provides constant cut of crop, because one of the herringbone-configured knives always engages the counterbar.



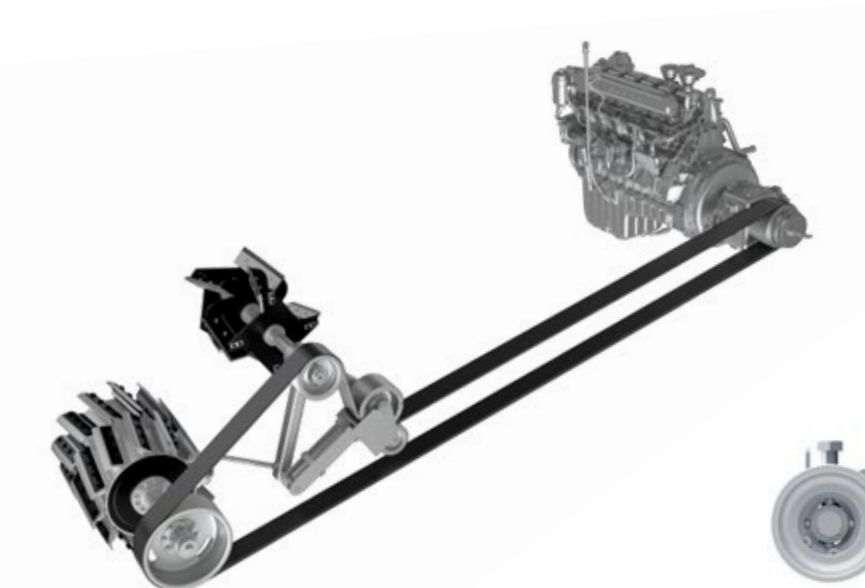
**Chopping drum**



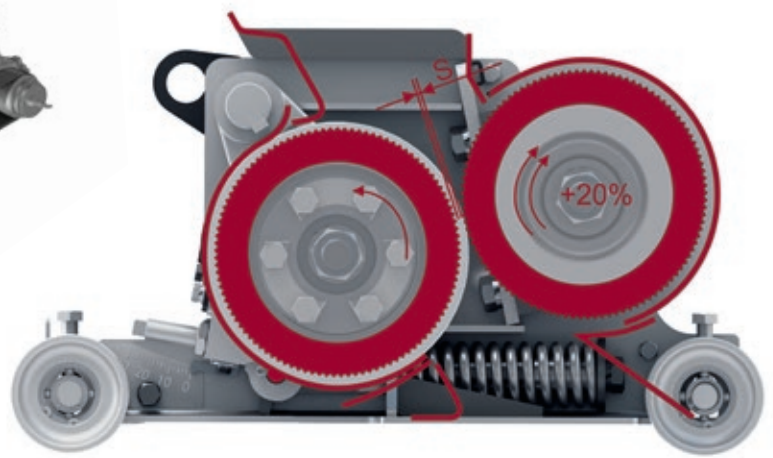
Automatic sharpening and clearance adjustment **panel** is located in the cab and equipped with digital display and bright marking. This enables the operator to adjust sharpness of the cutting knives and clearance between the chopping drum and the counterbar, thus controlling the quality of chopping.



**Automatic sharpening** allows not only to sharpen the knives but also to set the gap between them and the counterbar without leaving operator's seat. All of the above increases output per shift, saves fuel and facilitates operator's work. Use of unsharpened knives may increase power consumption by up to 30%.



**Chopping drum direct drive** implies that power is transferred directly from the engine to the chopping drum with minimum losses. This design makes it possible to apply all engine power to forage processing and to save fuel.



The channel may be optionally equipped with a feedroll-type **corn cracker** (two counter rotated feedrolls rotating at different speeds).



# PERFECT POWER AND HIGH PERFORMANCE



Harvester's design aimed at maximum performance, minimum power consumption and efficient forage processing: straight crop flow, direct drive, chopping drum accelerator. This arrangement is time-proved. Process flowsheet contributes to low power consumption: the engine increases fuel economy, while chopping drum, accelerator and corn cracker are driven directly by the engine.

## HARVESTER'S MIGHTY HEART



MTU (Mercedes) turbocharged in-line diesel engine provides optimal use of harvester's power and reduces costs of forage processing under different conditions of operation. The engine is equipped with a reducer and clutch coupling. The reducer drives HST pump and hydraulic system pumps. Application of the coupling allows to drive movable parts (drum, accelerator and corn cracker) directly from the engine's crankshaft without intermediate constant-tensioned V-belts.



If **stone or metal detectors** are activated, crop feed is stopped immediately. Foreign object may be removed by reverse mode.



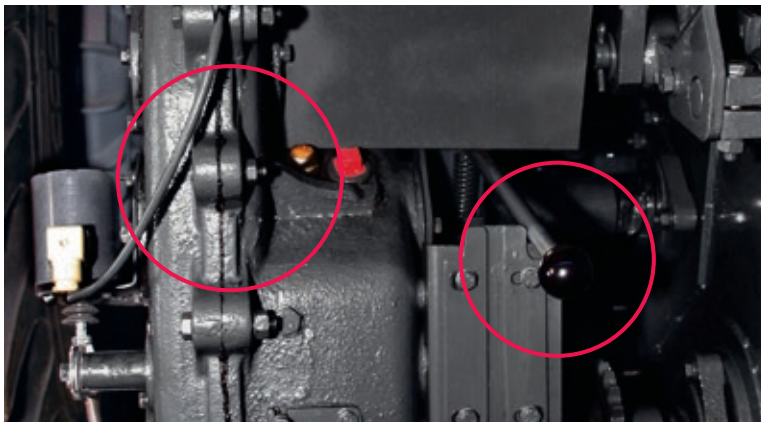
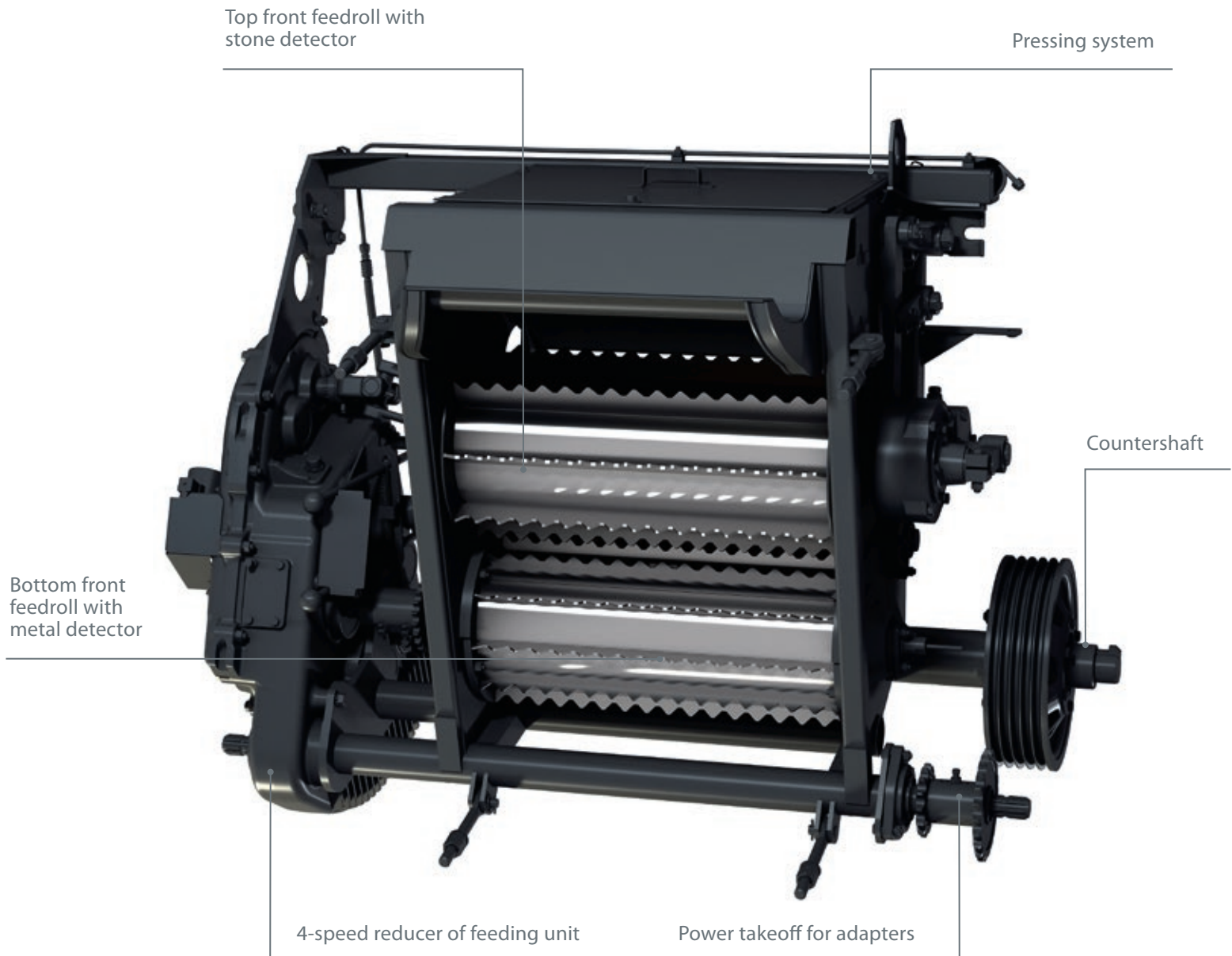
Feeding unit protection **control panel**.



## FEEDING UNIT

The reliable feeding device is installed on RSM1403 – 4-rolls (4 speeds of the feeding, i.e. 4 cutting lengths). The gap between the top and lower rolls is 24 mm, it increases the operability of the metal detector. The transmission of the rolls and adapters is equipped by the tooth gearings and hydromechanical drive.

The Adviser displays the location of the detected metal. The sensitivity of stone-metal-detector can be tuned.



**Feedroll drive reducer** on the left, **cutting length adjustment levers** on the right.



**Feedroll springs.**



# MAXIMUM CONVENIENCE IN OPERATION



RSM harvester is equipped with a spacious **Comfort Cab** providing all-round visibility, ergonomic controls, additional seat, powerful climate system, refrigerator and audio system. In a word the cab is designed for continuous comfortable operation for a long period of time.

**Discharge video monitoring system** allows the operator not to take eyes off the working zone.



**Adjustable steering column** and driver's seat may be easily adjusted to anatomic features of any operator.







**Control panel** with easy-to-access buttons, user-friendly symbols and bright marking.

**Ergonomic control joystick** with control hot keys.



**Refrigerator, air conditioner and audio system.**



**Sun blind.**



# MODERN APPROACH TO EQUIPMENT



It is already hard to imagine how to operate a modern agricultural vehicle without electronic assistance. RSM forage harvester is equipped with Adviser automated control system. Convenient location of the output panel doesn't distract the operator from driving.



## ADVISER FUNCTIONS:

1. Self-testing of the on-board equipment with displaying of the parameters.
2. Automatic warning of emergencies and failures by icons and voice announcement.
3. Calculation, storage and output of all basic operating parameters for a specified period of time.
4. Automatic warning for upcoming routine maintenance.
5. Displaying text operating instructions.
6. Informing operator on incorrect operations or invalid operating modes.

For the sake of operator's convenience the **Adviser III System** displays only those parameters which are applicable for active task.



## OPTIONAL EQUIPMENT

The following two parameters are of a great importance in forage processing: crop humidity and distribution of preservatives.

**Advanced preservative applicator** mounted on RSM forage harvester makes it possible to solve both these problems simultaneously. The system is based on spraying of bacterial mist by a nozzle.

Preservative applicator capabilities

- a. Concentrated from 0.3l to 6l per hour
- b. Diluted from 10l to 300l per hour



## Video monitoring system

Video monitoring system allows to keep track of truck loading while operator being focused on the working zone.

This system

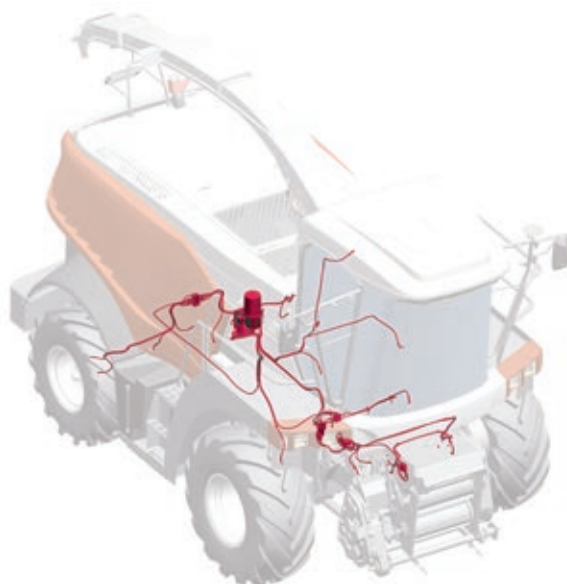
- increases operator's fatigue resistance
  - decreases time spent on harvesting
  - reduces loses of forage in the process of loading it into a truck.
- All of the above enhances output per shift.



**Air compressor** is a standard equipment for convenience and quicker daily and service maintenance. Easy-to-access pneumatic connectors and handy pneumatic tools make this task ever easier.

## Automatic lubricating system

Lubricant is supplied to define points in accordance with the special program. The process is managed by an electronic controller.





# A REAL ALL-ROUNDER



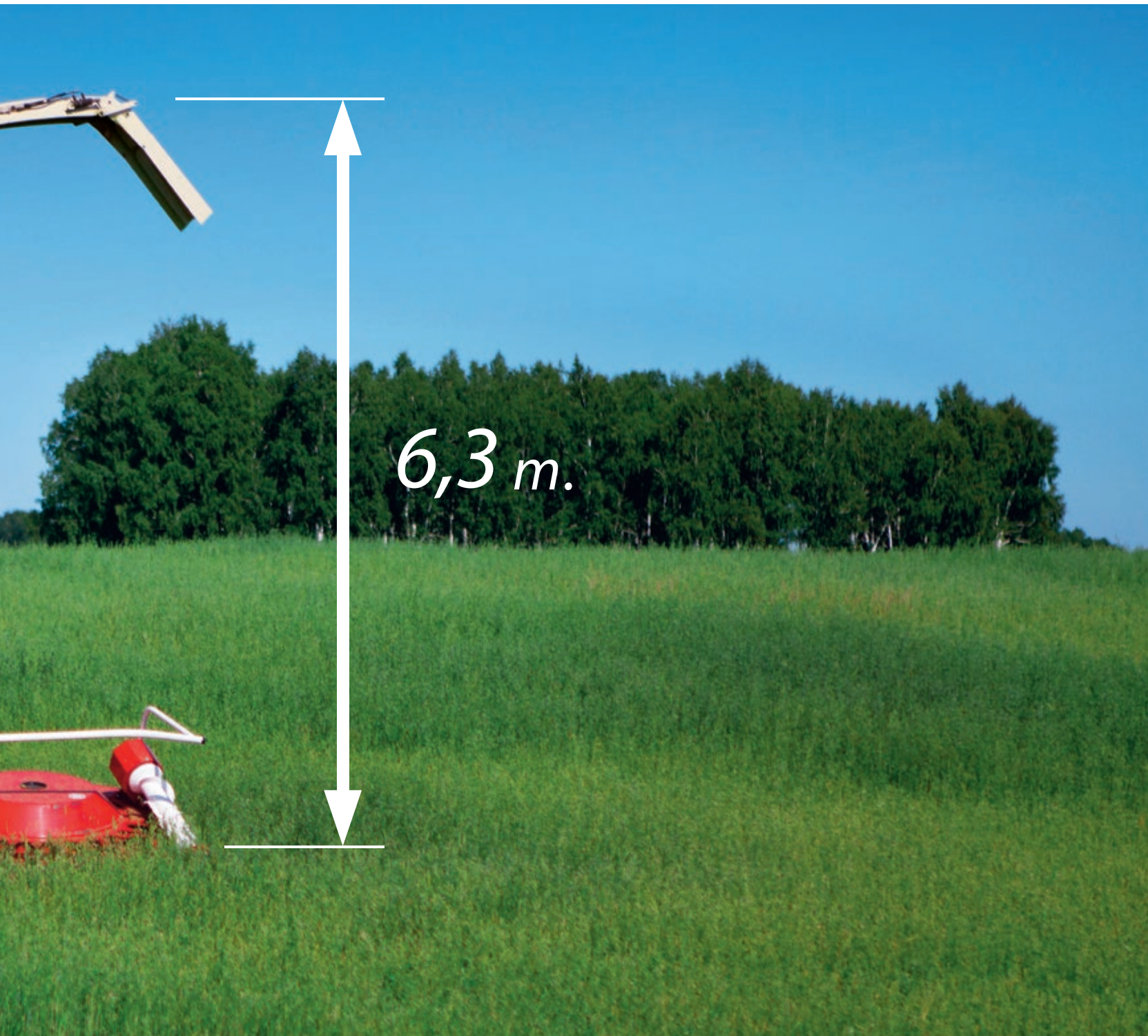
RSM series harvesters are multipurpose machines: forage mowing (including corn at the stage of waxy ripeness, perennial and annual grasses, mixtures, sorghum, sunflower and other crops), chopping, simultaneous loading into trucks & trailers and pick up of prewilted crop from windrows. Wide range of high performance adapters, such as headers for grass/corn and pickups enables the harvester to manage any task.



## **KEMPER 445 ROTARY CORN HEADER**

The header with an unsupported cutting table for harvesting corn. May be mounted on DON 680M and RSM harvesters. Operating width equals to 5 meter.





**GRASS HEADER 500R**

The grass header (front, with pivot suspended balanced part) with operating width of 5,0 m is designed for mowing grass crops with height of up to 1,5 m.



**PICKUP R3000**

It is used for haying by picking up previously mowed and windrowed grasses (drum-rake configuration with narrowing of the flow), operating width equals to 3 m.



# USER FRIENDLY



Folding design for convenient maintenance.



Easy-to-clean radiator screen filter with rotating suction hose.



Replaceable silage duct plates reduce time spent on service.



Opening of the folding cab roof section by a press of a button.



Filter cab.



Parts warehouse.

**Air compressor** is a standard equipment for convenient maintenance and quickening its process. The pressure of the air tank is enough for four minutes of operation with a shut-down engine, which is quite enough for daily maintenance.

Maintenance of the compressor consists of only one operation, that is draining condensate from the receiver after each 50 working hours by simply pushing the valve.



Engine	
Manufacturer/make	MTU OM-460 LA
Engine type	L6
Output, kW (hp)	368 (500)
Fuel tank	1 080 (2*540)
Air compressor	●
Fuel consumption metering	●
Feeding unit (intake)	
Width, mm	680
Number of feedrolls	4
Reverse	mechanical
Metal detector	●
Stone detector	●
Stone detector with auto start	●
Chopping system	
Diameter/length, mm	630/700
Number of knives	24 (V-form configuration)
Rotation speed, rpm	1 200
Automatic sharpening system	●
Automatic bar adjustment	●
Cutting length, mm	4/ 7/ 10/ 17
Manual cutting length	adjustment by reducer
Automatic central lubricating system	●
Corn Cracker	
Type	toothed feedrolls
Feedroll diameter, mm	190
Rotation speed difference, %	20
Unloading unit	
Accelerator's rotor diameter, mm	510
Rotor speed, rpm	2 160
Silage duct turning angle, deg.	226
Preservative applicator	●
Preservative tank capacity, l 5x2	●
Water tank capacity, l 390	●
Video control system (unloading chute and rear view)	●
Chassis	
Transmission	hydrostatic power
Traveling speed, km/h,	up to 20
Operating speed, km/h,	up to 15
Clearance, mm	367
4WD	○
Cab	
Comfort Cab <sup>1</sup>	●
Adviser III <sup>2</sup> information system	●
Overall dimensions (without header)	
Length/width/height, mm	6 170/3 250/3 800
Weight without adapter, kg	9 900
Adapters	
Corn header, m	4,5 (6 rows) and 6,0 (8 row)
Grass header, m	5,0
Windrow pickup, m	3,0

<sup>1</sup> **Comfort Cab** - spring-mounted airtight two-seat cab with improved noise insulation, air conditioner, heater, refrigerator and audio system

<sup>2</sup> **Adviser III** – information system with LCD monitor, situational framing and voice announcement.



FOR NOTES

Handwriting practice lines consisting of 40 horizontal dotted lines.









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