## MOBILE ROLLER CRUMBLER OF WET GRAIN

# M2 PLUS

GRAND PRIX TECHAGRO

Crumbler ROmiLL M2 awarded with the main prize GRAND PRIX at the international fair TECHAGRO 2004 in Brno

Zlatý klas

The crumbler ROmiLL M2 was awarded with the main Prix "The Golden Spike" at the international show ZEME ZIVITELKA 2003 in České Budějovice

## SUMMARY OF ADVANTAGES:

- Throughput of 60 t/hr.
- The feed structure can be varied according to the requested fineness both for cattle and monogasters.
- The feeding value of the wet ensilled grain processed by roller method, boosts digestibility and also production effectivity.
- Costs savings reach up to 33 €/t.

| OPERATING SPECIFICATIONS | | M2 PLUS |
|---|---|---|
| tractor drive min | | 160 HP |
| throughput (wet maize grain) | cattle | 50 to 60 t/hr |
| | pigs* | 25 to 40 t/hr |
| hopper with bucket | | 9.0 $m^3$ |
| hopper without bucket | | 3.5 $m^3$ |
| curb weight | | 6200 kg |

* if the request for finer feed texture for pigs persists

### PRINCIPLE

The machine takes part in technology of the so-called split harvest of wet grain and its ensilage. It is used for processing maize and wet grain of various kinds of grains, legumes, mainly in colder regions where the crop doesn't mature. This is an economically highly effective method of post-harvest treatment. This method has found its first European use in Finland and England. Now it is spreading dynamically all over Europe, even in the very hot southern regions. Farmers, regardless of regional conditions and differences in breeding kinds, convert to this method of feed processing. Owing to significant costs savings, they can get ahead and gain competitive advantage at animal products market.

### SPECIFICATION

M2 model is the most powerful machine from the series designed primarily for wet grain crushing. It is fully professional machine used mainly by contractors doing harvesting service. It is designed for operation in the field directly, perhaps even at ensilling place. The machine is driven by at least 160 HP tractor, which is at the same time able to transport the machine as a semi-trailer. During the field operation, the crumbler's hopper is filled (up to 9 $m^3$) by passing the grain from harvesting thresher's hopper. One M2 crumbler fully covers continuous operation of three harvesting threshers, even at the highest yields. During operation at ensilling place, the hopper is filled usually by a front loader, with the possibility to remove the 3.5 $m^3$ hopper bucket. ROmiLL M2 PLUS covers three operations. The grain is crumbled according to required different product texture for cattle and monogasters by setting appropriate gap between rollers. After crumbling, the product is sprayed by preservant, which is located on the machine in 200-liter barrels or in IBC barrel (1000 l). Optionally, also water cab be addend if higher moisture is requested. The processed product is then ensilled by optimum 30 to 40% moisture – stored with maximum possibleremoval of air, for example by pressing to bags or by bedding in silo pits, etc.

### BENEFITS

Processing of grains by this method immediately after harvesting, enables to reach unrivally lowest costs. In the conditions and price relations of the Czech Republic, the savings by withdrawing the drying of maize grain are about 20–33 €/t. For about 9 t/ha yield, the costs range from 13 to 17 €/t. In summary, this method provides cost savings about 33 €/t. The diesel consumption of ROmiLL roller crumbler is about 0.5 l/t – that is by 2 l/t lower than by a hammer mill of equal throughput. The feed processed by the method mentioned, contains more water-soluble sugars, is better digestible an has higher usability of soluble nitrogen. It optimalizes starch ratio in paunch and small intestine. This lowers occurrence of paunch acidosis.

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**Mobile concept**
The frame of the machine with hopper is attached to the twoaxle chassis. All other machine components are attached to the frame and chassis. The semitrailer has pneumatic brakes connected with tractor. The machine ROmiLL M2 PLUS is approved for road traffic up to 40 km/hr. Three independent electric circuits for end, brake and direction lights - preservant sprayer pump, and electric accessories - are fed by tractor.

**Mechanical processing of grain**
Grain is crumbled by two ROmiLL roller mills series 1200, specially designed for processing of wet grain. Thanks to the ability of the two units to process up to 60 tons of material in an hour, the machine ROmiLL M2 PLUS belongs the top machines on the market. Unlike the machine ROmiLL M2, the dosing tourniques with the revolution adjustment are already included in the basic equipment. These tourniques are driven by hydromotor and are specially designed to ensure fluent feed of grain onto the rollers, which influences even wear of rollers and makes the machine operation more comfortable.

**Transport of processed product**
The discharge hopper located under the mills, vents to the collecting horizontal conveyer that transports grain to vertical discharge conveyer with possibility of positioning the outlet. Both tubular/worm conveyers are made of stainless steel. The torque from crumblers' drive is transferred to the conveyers mechanically through a security slip clutch.

**Preservation**
Preservants are sprayed on crushed grain in horizontal conveyer by acids applicator with a flow rate meter. Directly on the machine, an IBC barrel (volume of 1000 l) with preservant, eventually four barrels with total 800 l, is located directly on the machine. A lifting device makes for handling with full barrels.

**Optional moisturing**
Similarly as the preservant sprayer, a water inlet (usually from an independent tank) vents to the horizontal conveyer. It is used for optional moisturing of the processed grain.

**Basic accessories**
- cardan shaft
- dosing tourniquets
- preservant sprayer
- place for the 1000-litre tank (acid)
- foldable upper hoppre
- sound and light signaling of operational conditions that require an attendance intervention
- lighting for night operation
- 50 l tank for supply water for basic hygiene
- two lockable boxes for tools, supplies, etc.
- ladder for access to hopper

**LONG LIFETIME OF ROMILL ROLLER MILLS**

- robust design
- high abrasion resistance of rollers
- stabile alignment of rollers
- protection of rollers against damage by hard objects by an unique mechanism
- reliable gears