# MOLINS
## TOBACCO MACHINERY

# MTU 2000

## Product Description

Molins, one of the market leaders in filter handling equipment, introduces its concept in tray unloading, the MTU2000. With its exclusive inversion process unloads the full trays without the need to elevate them from the height of the in-feed conveyors. This design enables easy access from floor level to all mechanical and electrical components. This feature, in addition to those listed below; make the MTU2000 unique in the field of tray unloading:

- ❖ Virtual elimination of crossed rods during tray inversion & unloading
- ❖ Heavy duty conveyor system
- ❖ Positive and gentle tray control throughout the process
- ❖ Trays unload onto consistent and level platform
- ❖ No tray separation mechanism required
- ❖ State-of-the-art electronics and servo controls
- ❖ Operator friendly machine interface
- ❖ Full featured machine diagnostics
- ❖ Setup to handle either plastic or cardboard trays



## Machine Operation

Trays are manually loaded onto the full tray conveyor where they are then transported into the unloading area. Due to the unique inversion process no tray separation is required during tray pick up and inversion, eliminating the need for tray clamps on the full tray conveyor.

Next, the full tray is picked up and pneumatically clamped in position on the servo-controlled inverter carriage. With a combination of a horizontal and rotational motion, the full tray is inverted to a position slightly above the hopper bands. The release plate retaining the filter rods is then retracted, allowing the filters to drop a short distance onto the conveyor bands. The tray is then emptied by the counter rotating conveyor bands filling the buffer.

The final unloading sequence is programmed and controlled by a single sensor, ensuring that all filters are fed into the throat of the down drop. This presents a level, filter-free plane that is ready to accept the next full tray.

The empty tray retracts from the bands and is rotated back 180° to present the bottom of the tray to the elevator. It is then pneumatically clamped into position. The tray is then released from the inverter and the elevator lowers the tray onto the empty tray conveyor.

The trays can be a plastic or a cardboard tray, it is not possible to handle both types of tray on the same machine. However it is possible to use cardboard trays inserted into plastic trays under the right conditions.

Additional highlights:
- ❖ 16,000 FPM
- ❖ Link up to various downstream equipment
- ❖ MTU2000 Product video
  https://vimeo.com/79764929

Another key feature is the MTU 2000's inherent flexibility and its ability to easily handle filter length changes. Since the MTU 2000 uses the inside back of the tray as its datum, the machine can handle different depth trays of the same type without any adjustment or modification to the tray conveyors or inverter. For length changes within the setup range the only change parts required are inner window spacers for the buffer, hopper and mass flow elevator (MFE).

As can be seen in the accompanying diagrams, the MTU 2000 is available in four standard layouts. Because the majority of the machine is common to all configurations, the MTU can be quickly and inexpensively converted from right-hand to left-hand exit.

### Electrical specifications

The MTU 2000 employs readily available components to form a control system around a Siemens S7-300 series PLC. The operator interface is based on a graphical touch screen, which allows local language messages, comprehensive machine status, extensive diagnostic, and set-up information to be displayed.

The control PLC as well as all drives and encoders communicate over an industrial standard Profibus DP network. This allows extensive diagnostic and user information from all drives to be easily accessed.
The network is fully expandable to include an MIS connection and Siemens L2 connectivity. Full attention to operator safety and CE standards has been addressed with redundant monitored safety circuits.

a)

b)

c)

d)
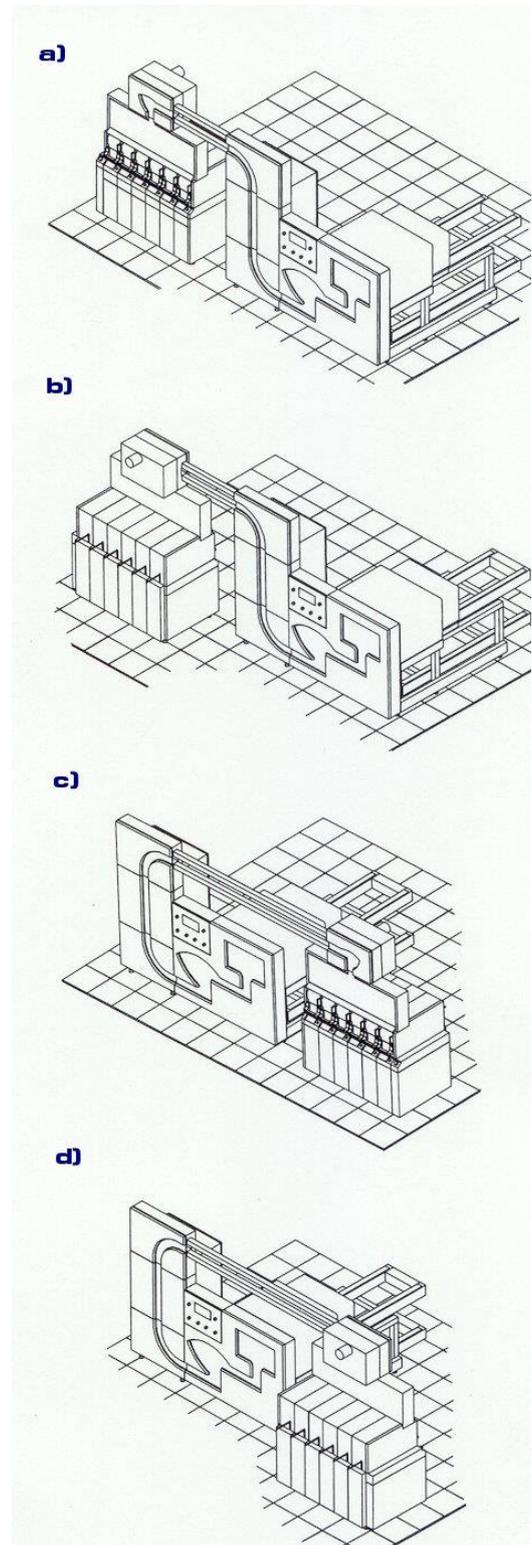
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## MTU 2000 SPECIFICATIONS

### TRAY UNLOADER
| | |
|---|---|
| Width | 1914mm |
| Depth | 2838mm |
| Height | 1593mm |
| Weight | 1004.5 kg |

### External Tray Dimensions
| | |
|---|---|
| Width | 720mm |
| Depth | 105 to 170mm |
| Height | 400mm |



### Tray handling Capacity
4 Trays/Minute: Approximately 16,000 rod/min
Dependent on rod diameter.
Plastic trays not to exceed 13.6 kg with filters.

### Product Handling Length Range
70 to 150mm filter rods

### MASS FLOW ELEVATOR
| | |
|---|---|
| Width | 1008mm |
| Depth | 796mm |
| Height | 2449mm |
| Weight | 600.9kg |

### LINKUP HEADBOARD
| | |
|---|---|
| Width | 794mm |
| Depth | 659mm |
| Height | 756mm |
| Weight | 115.6kg |



Noise Levels Not greater than 73dBA
Power Requirements  2.7 kVA
Air Requirement
1CFM @ 80 PSI

Machine sizes and power requirements are approximate.  Power requirements quoted are for machines running under normal and average operating conditions and balanced loads.  Output, efficiency, sound and other ratings are subject to machines being correctly installed, located, maintained, operated and fed with appropriate materials in a suitable environment.

The information contained in this literature is intended to convey a fair and reasonable idea of the equipment.

Continual research and development as well as particular customer requirements may result in some difference without, however, detracting from performance.