MILL E3 – EFFICIENCY ON THREE LEVELS

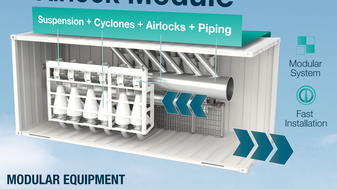
Bühler's Mill E3 is a new and efficient way of engineering, installing and operating a mill. It meets today's challenges of rising infrastructure costs and stricter labor regulations by being installed faster and more compact. Substantial energy savings help save costs and the environment.

10% energy savings
Compact mill design, tubular push conveyor TUBO and integrated grinding system Arrius enable energy savings of up to 10%.

30% faster installation
Arrius and preassembled and tested modules enable a quick plug & play installation.

-45% **30% less building investment**
Novel engineering, modular equipment and Arrius require up to 45% less building volume.

Airlock Module



MODULAR EQUIPMENT
Instead of single components preassembled and tested modules are supplied. E.g. the airlock module that includes piping, cyclones and airlock on a suspension. By reducing the number of parts from 108 to 2, a quick installation on site can be guaranteed.

NOVEL ENGINEERING
Much of the compact plant layout is owed to novel engineering approaches.
This includes break passages on the second floor and 3-dimensional pipe routing without air separation that is only possible with TUBO.

HYBRID TRANSPORT WITH TUBO

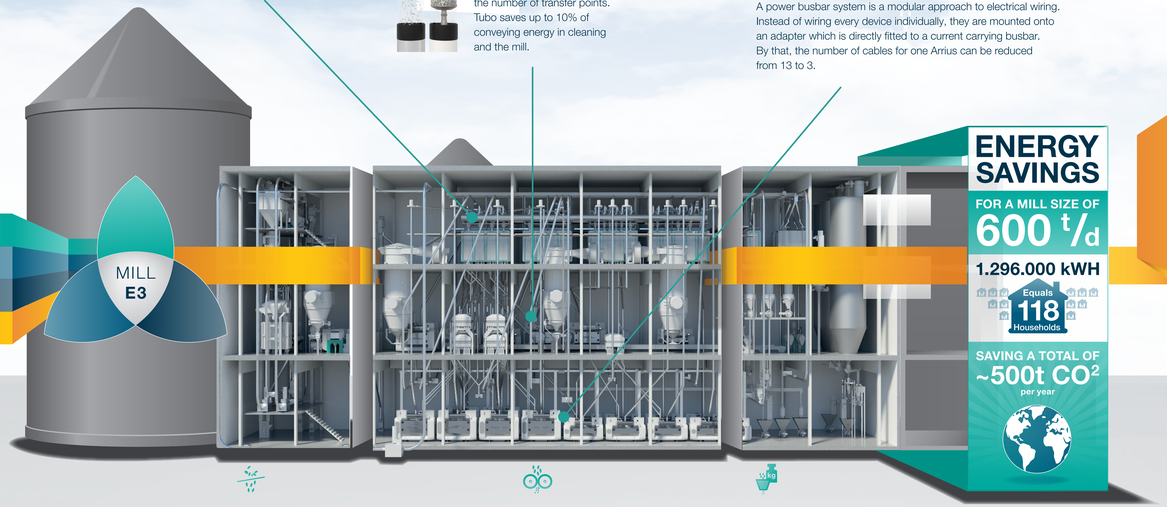
TUBO adds to pneumatic transports in the grist section. It allows a flexible plant design and helps to reduce the number of transfer points. Tubo saves up to 10% of conveying energy in cleaning and the mill.

INTEGRATED GRINDING SYSTEM ARRIUS
Arrius integrates drive and control cabinets into the machine housing. This enables a true plug & play installation where only spouting and three cables need to be connected to the machine.

6 times faster
electrical installation

POWER BUSBAR
A power busbar system is a modular approach to electrical wiring. Instead of wiring every device individually, they are mounted onto an adapter which is directly fitted to a current carrying busbar. By that, the number of cables for one Arrius can be reduced from 13 to 3.

ENERGY
TIME
SPACE
EFFICIENCY & QUALITY



ENERGY SAVINGS
FOR A MILL SIZE OF
600 t/d
1.296.000 kWH
Equals **118** Households
SAVING A TOTAL OF
~500t CO^2
per year

For wheat & durum wheat

250 t — 800 t PER DAY

Smart mill

Mill E3 is equipped with Bühler's latest automation system **Mercury MES**. Smart equipment and digital services from Bühler Insights help optimizing process efficiency and product quality.

Mercury MES | Bühler Insights | Intelligent roll | Downtime analysis | Yield Management

Four steps to a smart mill

Level 1	Level 2	Level 3	Level 4
Automation	**Assistance**	**Self-optimizing process loops**	**Smart mill**
	Data transparency for informed decisions and predictive actions	Machine and process optimization in closed loops	Fully autonomous mill operation
Machine and process automation	Machinery and production data	Product data, e.g. grain size and external data, e.g. weather	Intelligent, self-learning algorithms

Comparison: Autonomous driving

Systems with assistence function	Semi-automated systems	Highly automated systems	Autonomous systems
e.g. cruise control	e.g. driving behaviour analysis, lane assistant	„Autopilot" takes over vehicle control e.g. on motorways	The vehicle performs the driving task for the entire duration of the journey

MERCURY MES
Manufacturing Execution System

RECIPE MANAGEMENT
Consistent product quality through data consistency in all systems (e.g. ERP).

PRODUCTION SCHEDULING
Increased operator productivity – up to 60% less planning time.

TRACEABILITY
All process steps are archived and available in a central database. This reduces 80% of administration cost.

MAINTENANCE
Increase uptime thanks to preventive maintenance jobs.

ENERGY MANAGEMENT
Intelligent management of energy consumers to optimize energy costs.

OEE
Data is collected, analyzed and transformed to valuable information about your operation.

WAREHOUSE AND DELIVERY
Ensure production availability through transparent stock management.

ERP
Corporate Management

MES
Plant Management

MERCURY MES
Manufacturing Execution System

PROCESS MANAGEMENT
Process control and sequence planning

Bühler Insights

1 IOT PLATFORM
for Bühler's digital services

50 DIGITAL SERVICES
in operation or development

HIGHEST SAFETY STANDARD
ISO/IEC 27001

+1%
EDA - ERROR & DOWNTIME ANALYSIS
Efficient and lasting problem solving by identifying errors, anomalies and their root cause. Increase uptime by ~1%.

over 75 bn.
IRS - INTELLIGENT ROLL SERVICE
By 2025 over 75 billion devices will be connected. Among them our intelligent rolls which will provide valuable insights for the grinding process.

+1%
YMS - YIELD MANAGEMENT SYSTEM
Recipe based yield monitoring of different plants. Deviations become visible and comparable. React immediately and improve yield by ~1%.

BÜHLER