

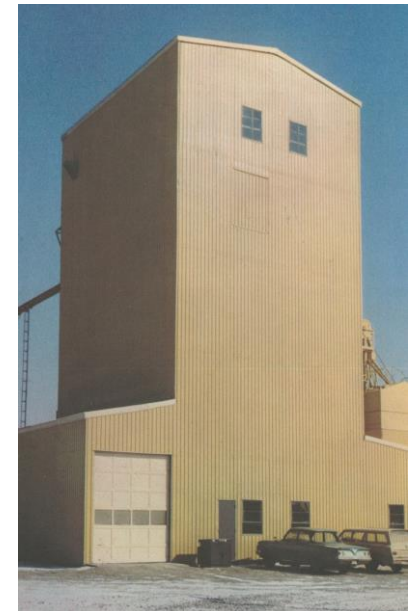
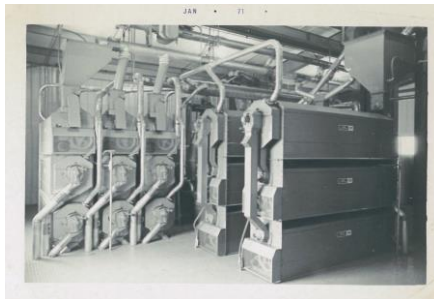


# **IAOM Flour City District Meeting**

## **August 9, 2018**

# THE BEGINNING

- Founded in 1964 in Des Moines, Iowa by Ken and Ann Bratney.
- Began business in seed, grain, and food related industries with commitment and respect for the relationship with the customer.
- Focus on equipment sales and design. Quickly grew to include engineering and construction services by the mid 1970's, and today includes milling and manufacturing services.
- Ken Bratney: ***"Your word is your bond."***
- We live by this motto even today



# Today

- Full service company with more than 145 full time employees with office locations in:
  - Des Moines, Iowa (corporate office)
  - Fargo, North Dakota
  - Boise, Idaho
  - Kansas City, Missouri
  - Sacramento, California
  - Colon, Argentina
- Primary Area of Coverage:
  - United States
  - Argentina, Uruguay and Brazil
- Disciplines:
  - Process Equipment Sales
  - Design / Engineering / Construction Services
  - After Sales Service and Support

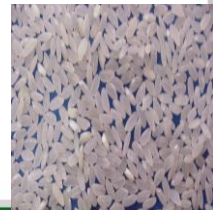


- ☆ Field Sales Manager
- Technicians
- ★ Offices
- ★ Southeast accounts handled from Des Moines



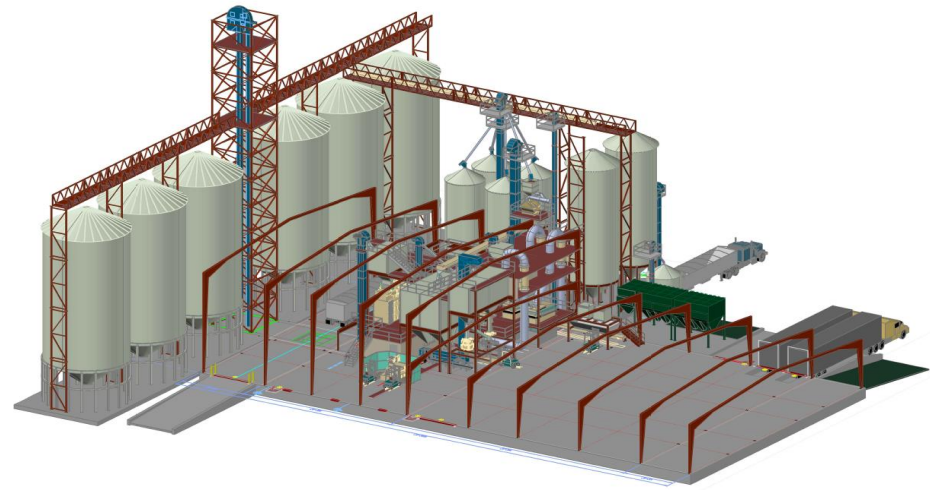
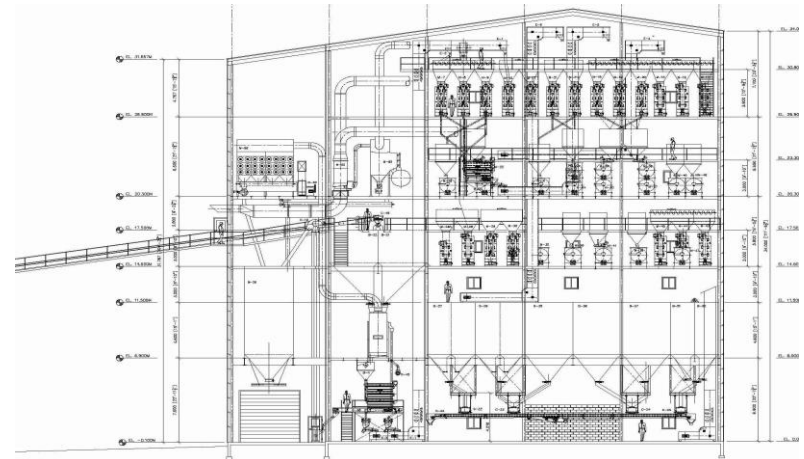
# DIVERSE APPLICATIONS EXTENSIVE EXPERIENCE

- Wheat seed conditioning plants
- Export wheat cleaning facilities
- Malting Plants for Breweries
- Edible bean conditioning
- Feed Mills
- Hybrid Seed Corn plants
- Native and lawn grass seed plants
- Oat mills
- Grain & process drying facilities
- Edible corn conditioning
- Green coffee bean conditioning
- Popcorn conditioning facility
- Rice Milling Systems
- Soybeans – seed, edible & organic
- Breweries – malt storage systems
- Bird Food Plants
- Flour mills
- Hop pelleting plants
- Spice cleaning and blending
- Packaging all types of free flowing materials
- Split pea processing
- Sunflower processing plants
- Almond sizing
- Salt and specialty minerals



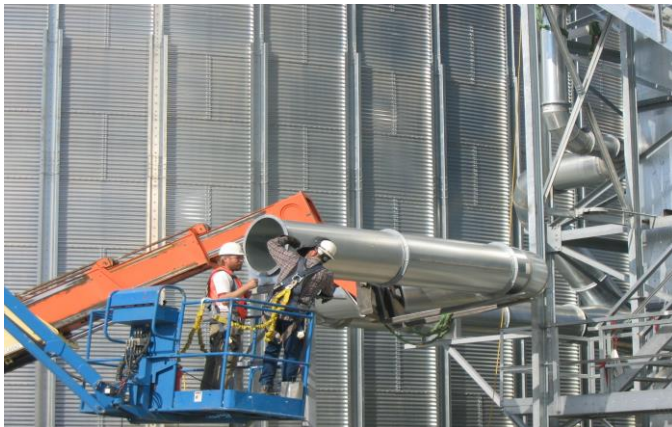
# ENGINEERING AND DESIGN SERVICES

- Design Build Services
- Plant/Equipment Layout
- Process and Material Handling
- Civil/Structural/Mechanical
- 3D Computer Aided Design (AutoCAD & SolidWorks)
- Scheduling and Coordination
- Startup and Commissioning
- Manuals – O&M, Safety, Quality
- As-Built Documents



# CONSTRUCTION SERVICES

- Construction Managers (2)
- Millwright Superintendents and Crews (8 crews)
- Fully Equipped Concrete Crews(1 crews)
- “Fireman Crew for rapid response for breakdown and small projects. Goal 24 hour response with portable trailers.
- Work schedule 10 days on and 4 days off.
- Site Superintendents have an average of 20+ years of experience.
- Millwright Subcontractors – Bratney Approved



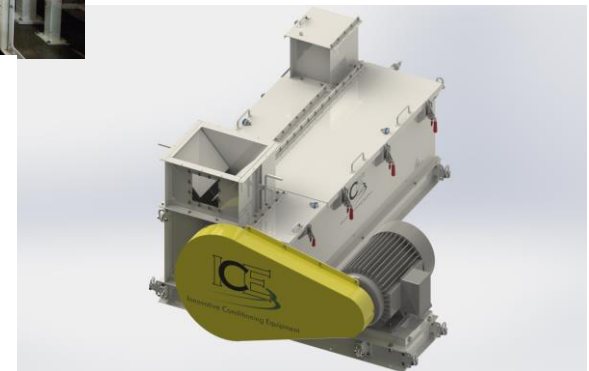




# CUSTOM EQUIPMENT

Innovative Conditioning Equipment  
[www.innovativeconditioning.com](http://www.innovativeconditioning.com)

- A Bratney Company
- Developed to fill the role of developing solutions for our clients that manufacturers would not pursue.
- Utilize our resources to work with existing and new partners to develop and integrate a value added solution.





ITALIAN EXCELLENCE

PERFORMANCE  
EVOLUTION  
IN THE ART  
OF MILLING







ITALIAN EXCELLENCE

- Founded in 1966. Over 50 years of milling experience.
- More than 60 milling plants worldwide.
- 2 manufacturing facilities in Italy.
- Manufacturing and innovation is their passion.
- Most innovative milling technologies in the market.



## FACILITIES: August 2015

- 11,000 m<sup>2</sup> (118,000 ft<sup>2</sup>) total.
- 1,800 m<sup>2</sup> (19,000 ft<sup>2</sup>) of new offices and meeting rooms
- New manufacturing facilities
- New test facility inside the factory for testing new technology and new machines
- Quality and testing laboratory, with new instruments



ITALIAN EXCELLENCE



# Leonardo

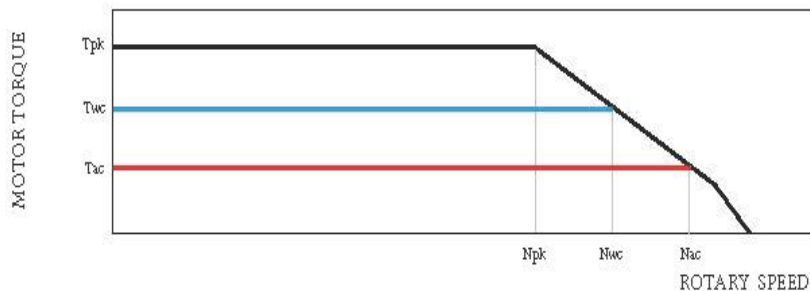




# KEY CONCEPTS

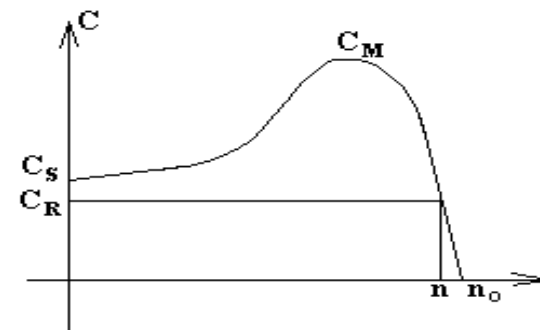
## OMAS TORQUE MOTORS

- High and steady torque at any speed (in a range from 0 to 550 RPM)



## ASYNCHRONOUS MOTORS (CONVENTIONAL)

- Nominal torque only within a very narrow range of speed



# KEY CONCEPTS

## OMAS TORQUE MOTORS

- Have low consumption when not grinding: 0.8-1.0 A
- Are able to generate electrical current, thus energy, if decelerated or used as dynamo since they are permanent magnet synchronous motors
- Can be overloaded over the nominal values, even for an indefinite period, if cooled

## ASYNCHRONOUS MOTORS (CONVENTIONAL)

- Consume 45% of nominal value in empty condition, corresponding to 13.5 A
- Are damaged if used as generators;
- Tolerate only the short-time overloading

# KEY CONCEPTS

## LEONARDO S ROLLER MILL

**OMAS**

- 2 **TORQUE** motors for every milling passage, 1 on each roll.
- Variable speed
- Vary differential as needed and automatically, with no downtime
- Possible to make the front or back roll the fast roll

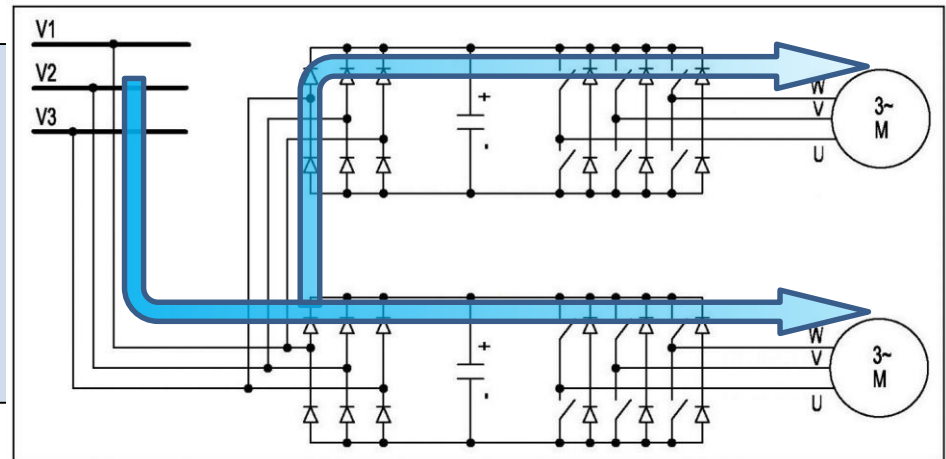
## BELT DRIVEN ROLLER MILL (CONVENTIONAL)

- 1 motor for every milling passage with 2 belt transmissions
- Fixed speed
- Fixed speed ratio, unless pulleys and toothed belts are replaced
- Fixed setting: the front roll is always the fast one



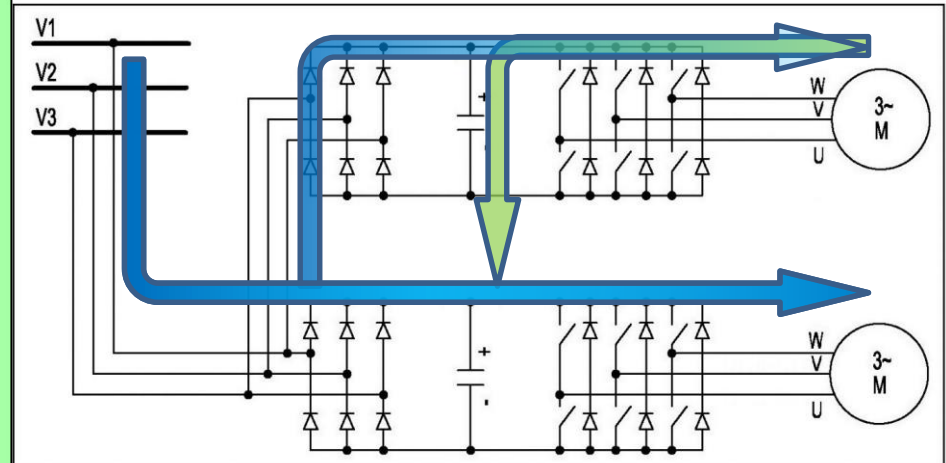
# OMAS - ENERGY SAVING

During *operation in empty condition*, every motor uses all the energy provided by the power supply; the two electric currents, passing through every drive unit, are exactly those required by the respective motor and have the same sign. So the total current supplied by the electric box is the sum of the two.

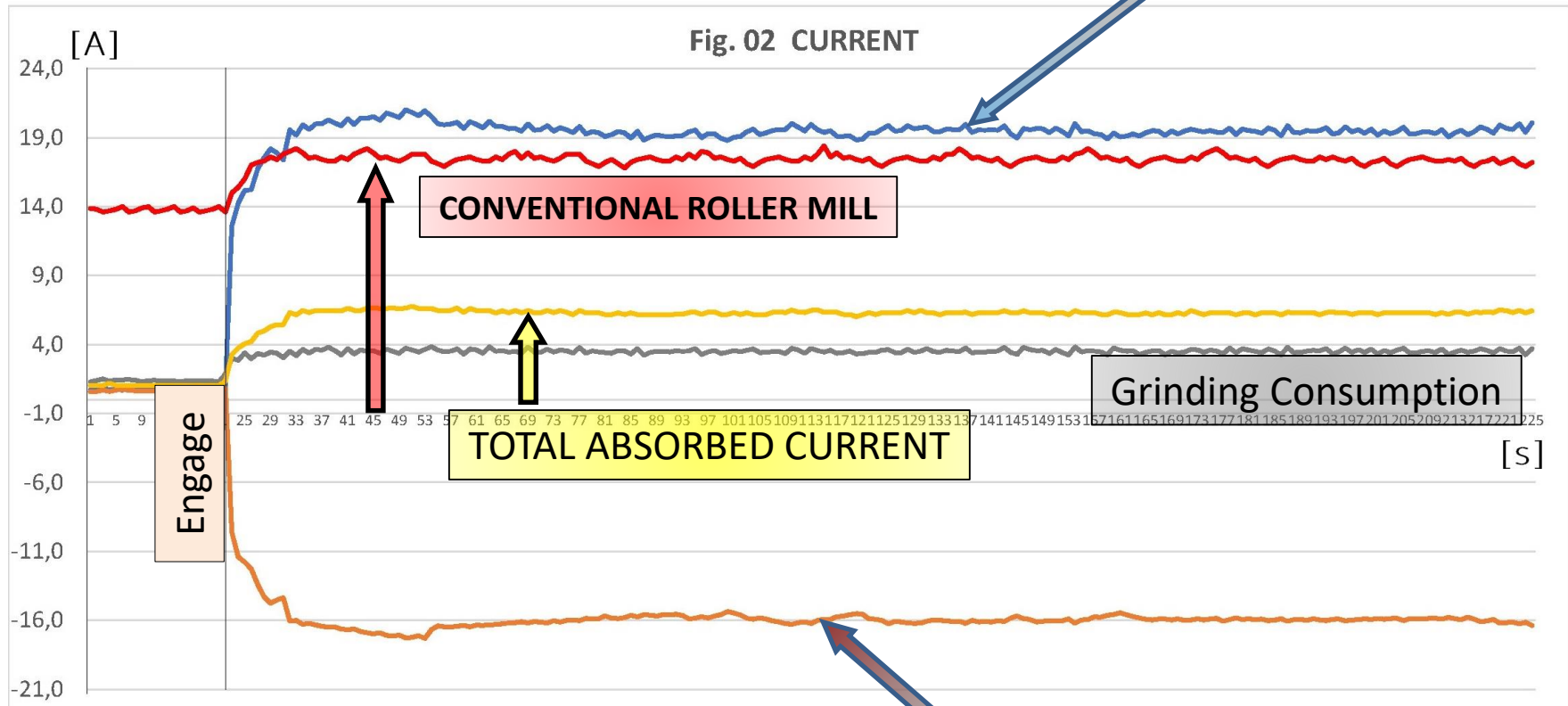


When engaged, during the **milling** phase, the slow motor **generates** an electric current toward the drive circuit, where it is **directly** used by the fast motor; this immediately reduces the electrical network power absorption, obtaining:

**ENERGY SAVINGS**

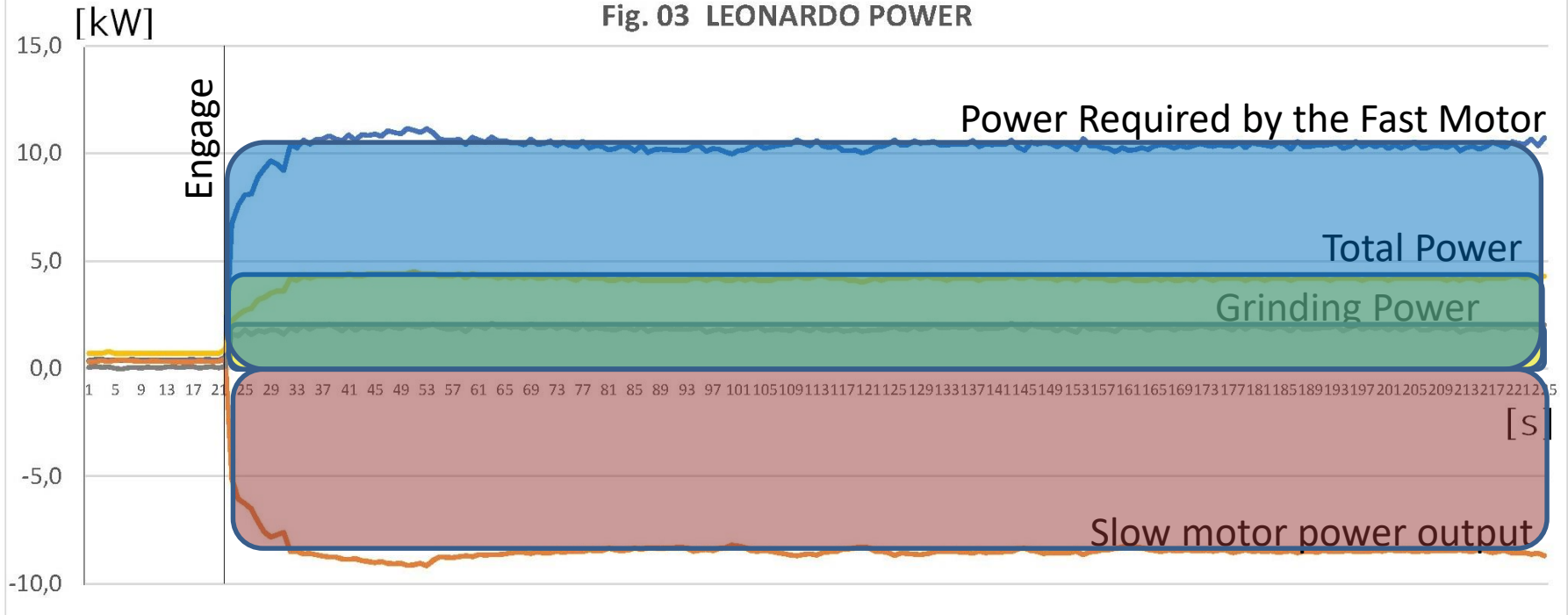


# ENERGY SAVING



# ENERGY SAVING

Fig. 03 LEONARDO POWER





# Kazakhstan Mill 160 Mton/Day

	MOTORS	KERS	NETWORK	MOTORS	KERS	NETWORK	TRADITIONAL	BELT
	A	A	A	kW	kW	kW	A	kW
<b>B1</b>	29,3	17,0	16,8	19,28	11,19	11,06	44,0	28,96
<b>B2</b>	20,1	14,9	16,7	13,23	9,81	10,99	42,0	27,64
<b>R1G</b>	16,7	11,3	9,7	10,99	7,44	6,38	32,0	21,06
<b>R1GA</b>	26,7	19,6	8,5	17,57	12,90	5,59	30,0	19,75
<b>R2</b>	18,2	12,8	9,5	11,98	8,42	6,25	17,0	11,19
<b>R3</b>	13,2	9,7	7,0	8,69	6,38	4,61	19,0	12,51
<b>R4</b>	17,6	13,0	6,9	11,58	8,56	4,54	20,0	13,16
<b>C1</b>	27,1	21,2	7,7	17,84	13,95	5,07	21,0	13,82
<b>C2</b>	8,5	5,3	5,5	5,59	3,49	3,62	19,0	12,51
<b>C3</b>	11,0	7,4	6,3	7,24	4,87	4,15	15,0	9,87
<b>C4</b>	13,9	10,4	7,0	9,15	6,85	4,61	15,0	9,87
<b>C5</b>	13,9	10,4	7,2	9,15	6,85	4,74	15,0	9,87
<b>C6</b>	13,6	10,2	7,0	8,95	6,71	4,61	15,0	9,87
<b>TOTAL</b>	<b>229,8</b>	<b>163,2</b>	<b>115,8</b>	<b>151,25</b>	<b>107,41</b>	<b>76,22</b>	<b>304,0</b>	<b>200,09</b>

Difference: **-61,91%**

# Omas Pressure System - OPS

- Dynamic pressure measurement system.
- Quantitative measurement displayed on PLC.
- System uses information to adjust feed rolls in accordance with inlet product level.



ITALIAN EXCELLENCE



ITALIAN EXCELLENCE

# OMAS DRIVE SYSTEM

*Traditional manual driving system*



*Revolutionary driving system*





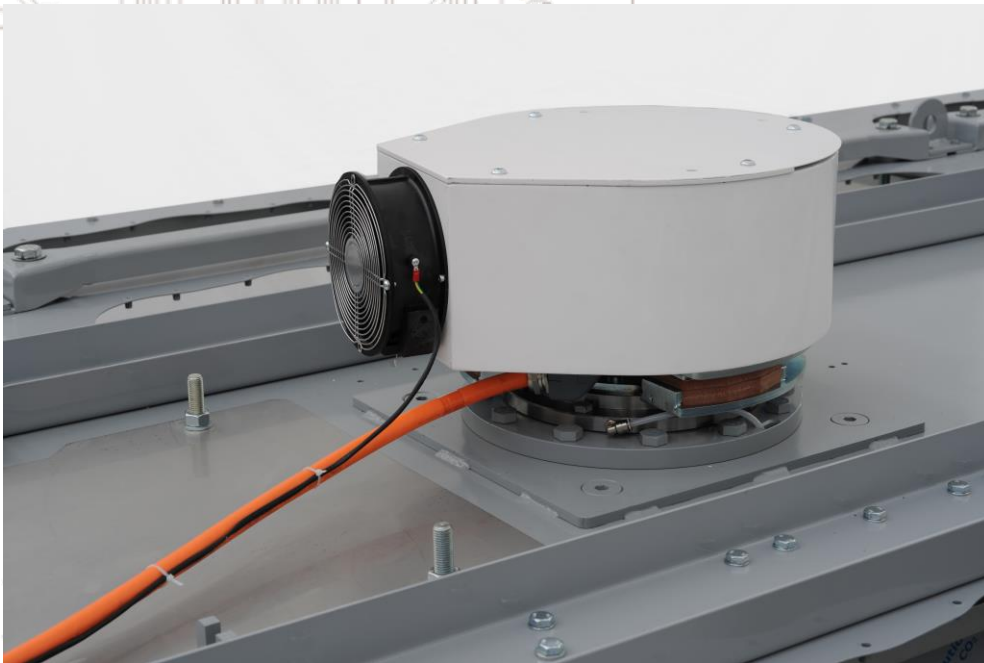
# PLANSIFTER PL “Galileo”



RESEARCH &  
DEVELOPMENT  
**MADE IN ITALY**



## PLANSIFTER “Galileo”



- More efficient due to torque motor efficiency.
- No loss of energy through mechanical transmission.
- No maintenance required on drive mechanism.
- Motor mounted directly to the top of the sifter.

## PLANSIFTER “Galileo” New Patented Sieves

- Sieves and sieve supports made entirely of Nylon PA 66.
- Safe material, suitable for product contact in food applications.
- Light, durable, and holds up to mechanical stress.





# WHEAT STERILIZER “Giotto” :

omas  
RESEARCH &  
DEVELOPMENT  
MADE IN ITALY





# WHEAT STERILIZER “Giotto”

- Equipped with 150 adjustable paddles.
- Removes superficial bacteria, mold and mycotoxins.
- Reduces tempering time.
- Reduces ash content in flour.



# WHEAT STERILIZER “Giotto” :

omas  
RESEARCH &  
DEVELOPMENT  
MADE IN ITALY



# WHEAT DECORTICATOR “Dante” :



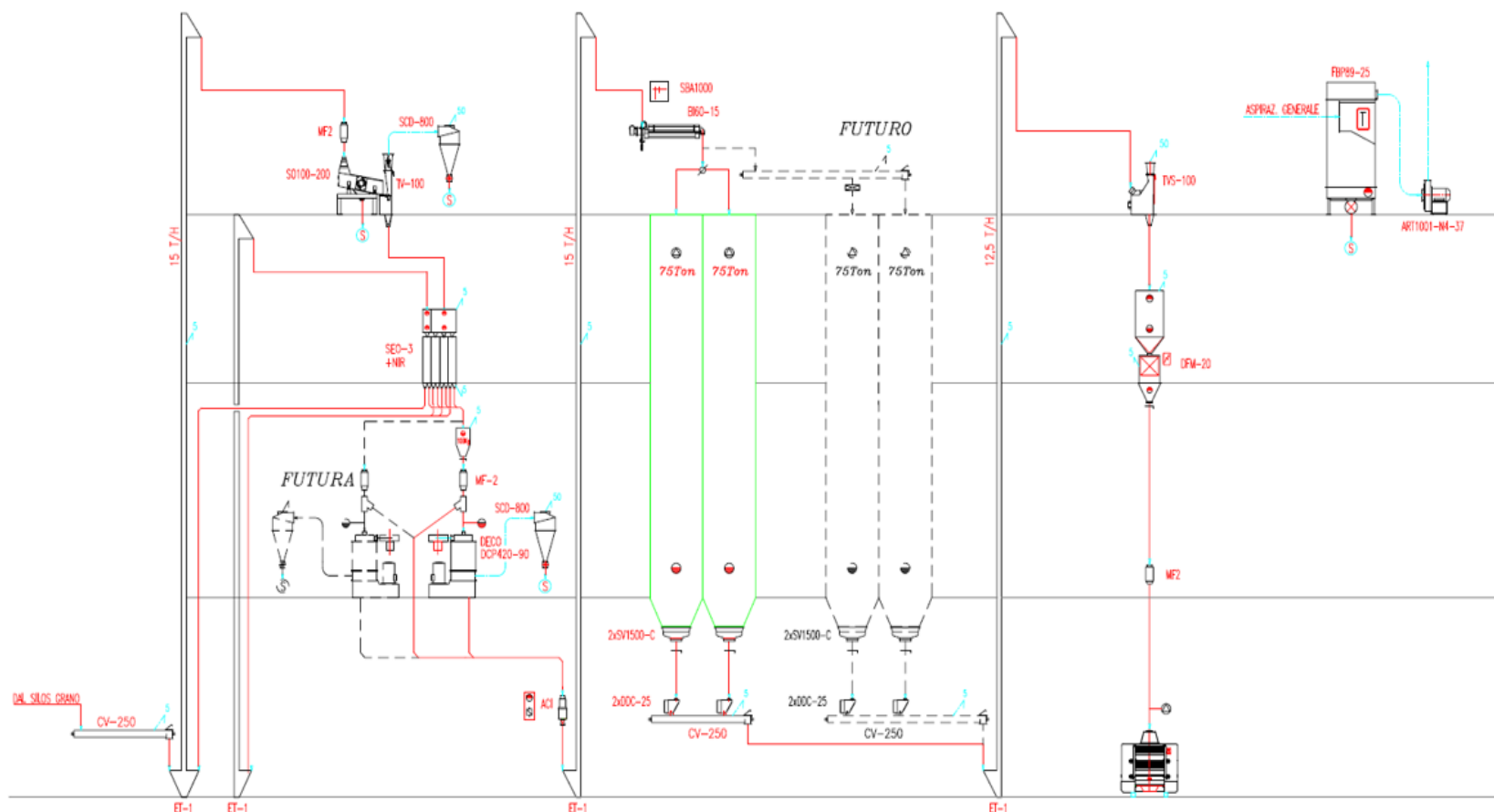
RESEARCH &  
DEVELOPMENT  
MADE IN ITALY

- 8 abrasive stones
- Adjustable actuator
- Cooling Fan



1st CLEANING CAP. 15 T/H

2nd CLEANING CAP. 300 T/24H





# OMAS/BRATNEY FLOUR MILL

- 1st North American flour mill under construction in Pennsylvania.
- Bratney engineering, construction, and installation.
- Omas equipment, mill design, and milling expertise.
- Start-up in Spring of 2019.



# **New Plants under construction 2018/2019**

- 300 Mton/Day Angola Soft Wheat
- 160 Mton/Day Soft and Hard Wheat Uganda
- 2 x 300 Mton/Day Soft Wheat Benin
- 450 Mton/Day Soft and Hard Wheat Ghana
- 160 Mton/Day Soft and Hard Wheat Pennsylvania
- 160 Mton/Day Maize Argentina
- 160 Mton/Day Soft Wheat United Kingdom
- 110 Mton/Day Durum Italy



# SUPERIOR PACKAGING EQUIPMENT

Complete Packaging Systems for Soft and Hard Pack Goods Including:

- Bagging Scales
- Bag Hangers
- Hybrid and Robotic Palletizing Systems





# BoMill – **NIR** Seed/Kernel Sorting for Protein, Vomitoxin, and Vitreous Qualities



## Model IQ Lab Unit

- 5 Pounds/Hour
- 6 Quality Fractions



## Model Tri-Q Production Unit

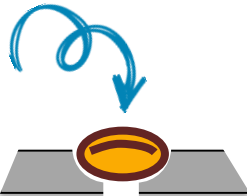
- Approx. 3 Metric Tons/Hour
- 3 Quality Fractions



# SORTING PRINCIPLES



KERNEL  
SINGULATION



NEAR INFRARED  
LIGHT



DETECTION  
(Near Infrared Transmittance)

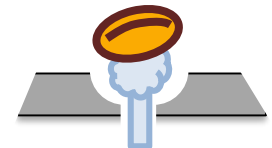


Analyze & Sort by  
Internal Structure



Adds more value  
to your grain

EJECTION



Compressed  
air

Sort **Barley, Oats, Wheat or Durum** by **Internal** Properties:

- Relative **Protein** Content
- Kernel **Hardness** (vitreous qualities)
- **Vomitoxin** (DON / Fusarium / Other Mycotoxins)



**BoMill**

**BOMILL MODEL IQ SORTING REPORT**



Date: 2/6/2018

**SAMPLE DETAILS**

Grain: Hard Red Winter Wheat  
Customer:  
Sorting Parameter: Protein  
Protein Reference: **12.5%**  
DON in Reference: **3.0ppm**



Air/Screen  
Cleaner

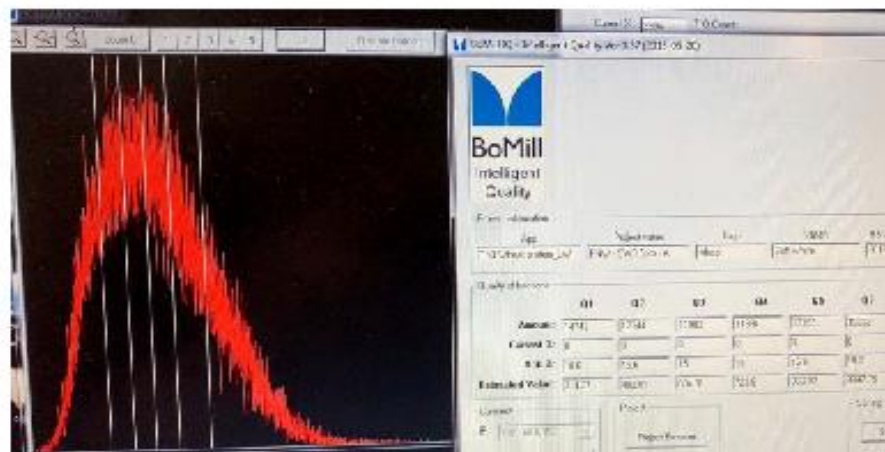
Incoming Grain (lbs): 7.54  
Control Sample (lbs): 0  
Sorted Sample (lbs): 7.54  
Cleaning < 5.5/64 slot; > 12 Rd (lbs): 0.21  
Cleaned Sample (lbs): 7.33



Test Sample



Fractions F1 - F6



**SORTED FRACTIONS**

	F1	F2	F3	F4	F5	F6
Weight (lbs)	1.48	1.24	1.17	1.20	1.20	1.04
Yield (%)	20.2	16.9	16.0	16.4	16.4	14.2
Protein (%)	11.2	11.9	12.4	12.7	13.2	13.5
DON (ppm)	17.5	1.6	0.7	0.4	0.3	0.3
Germination (%)						



# PROCESSING EQUIPMENT

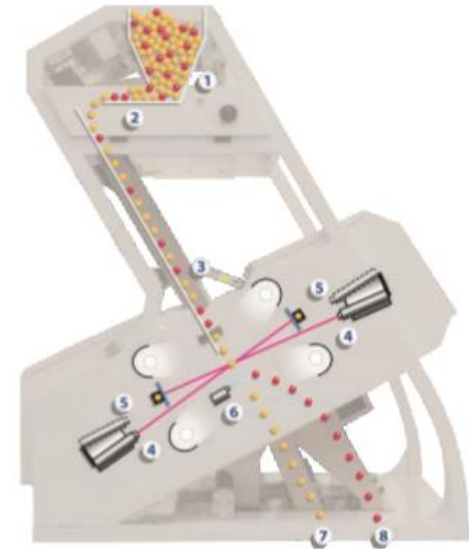
- Air/Screen Grain Cleaners and Graders
- Indent Cylinder Length Sizers
- Gravity Tables and De-Stoners
- Grain Driers
- Optical Sorters
- Retractable Loading Spouts





# PROCESSING EQUIPMENT

- 270 mm (10.6") chute width.
- True full color RGB cameras with .06mm resolution.
- NIR and InGaAs camera options.
- Up to 4 cameras per chute.
- Available from 1 to 7 chutes.
- Bratney service and support.







**THANK YOU**