

#### INNOVATIONS FOR A BETTER WORLD

#wetransformmilling

#### 1. Premium Flour Milling

## 2. Mill Performance Management

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# Premium Flour Milling





## Wheat Type selection

#### To Influence:

- Flour Rheology
- Flour Color and Ash
- Type and characteristic of end-product

Every Wheat has with his unique Properties a special contribution. The wheat get blended with high accuracy to achieve the desired parameters. Even small quantities contribute to stable production and customized functionality.

## Wheat preparation parameters

#### To Influence:

- Flour Rheology
- Yield (low ash and straight run)
- End-product (fresh doughs vs bake goods)

The Cleaning and preparation is of highest priority to contribute the desired Flour quality. The Cleaning ensures healthy and pure grain with reducing contaminations. With the special tempering mode, each grain get it desired best performing status and desired shift in the process.

## **Cleaning House Design**



## **Premium Flour Mill Design**

#### Sophisticated milling Flowsheet

- Long roller length for gentle or/and specific grinding
- High sifting area for better flour quality classification

#### Clear intermediate product distribution

- for flour ash
- for flour whiteness
- for granulation distribution
- for starch damage adjustment
- for rheological characteristics



## **Product grading in the milling process**



#### Impact of Flour Granulation for Noodles and Buns

## BUHLER



Product	Texture	Colour after 3hs	Colour after 24hs
Reference	Neutral	Neutral White	Yellow
Above 50my	Softer	Yellower	Yellower
Below 50my	Harder	Whiter	Wither development with grey tones

#### <u>BUNS</u>



Product	Texture	Specific Volume	Colour after 24hs	
Reference	Neutral	2.73	Neutral White	
Above 50my	Softer	2.99	Yellower	
Below 50my	Harder	2.56	Similar whiteness as reference	

## Impact of Flour Granulation for Bread and Toasts

#### Finer Flour



#### Coarser Flour



#### **Flour Granulation**



**Roll Roughness** 



- Lower Surface roughness for fine products
- Higher Surface roughness for coarser products

Worn out Rolls generates less friction grinding but more pressure grinding, leading to produce higher starch damage



## Diameter 250:



Bigger diameter leads to more friction grinding effect, creating finer flours with less starch damage.

# Mill Performance Management

## **Mill Performance Management**





- $\rightarrow$  Inspection
- $\rightarrow$  Servicing
- $\rightarrow$  Maintenance
- $\rightarrow$  General improvements



- 2 x Year Ash Curve
- $\rightarrow$  Product Distribution
- $\rightarrow$  Roll Condition
- $\rightarrow$  Sifter Condition
- $\rightarrow$  Ensure Consistent Flour Yield Quality

## **Roll Temperature Measurements**

Implementation of Smooth Roll temperature

- Balancing Grinding performance
- Check Wear and roughness of the smooth rolls







## Checking of sifting efficiency.

Sifter	Destination	Sieves in sifter	Test sieve	% flour in overs
DF2	C7	118	118	60%
C4	C5	132	125	45%
C8	C9	112	112	37%
DF1	C4	125	125	30%
B5f.	C8	112	112	27%
B4	C6	112	112	20%
DIV. 1+2	C3	125	125	15%
C7	C8	112	112	13%
C1A	C2A	132	125	8.5%
DIV.3	C2B	112	112	7.5%
DIV.4	C9	100	100	7.5%



- Test sifting of flour sieve overs for flour content with same screen as inserted in the plansifter
- Target flour percentage should be 5% +/- 2% (3-7%)

## Factors influencing fine sieves' lifetime. < 300 microns

#### Influencing factors:

- Sieve load
- Product type
- Temperature
- Ambient humidity + product moisture



## **Checking Flour Colour**

#### Pekar test to compare flour colour between top and bottom flour

• The pekar test is a quick test which gives a good and immediate optical feed-back





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