

# Purifier Technology

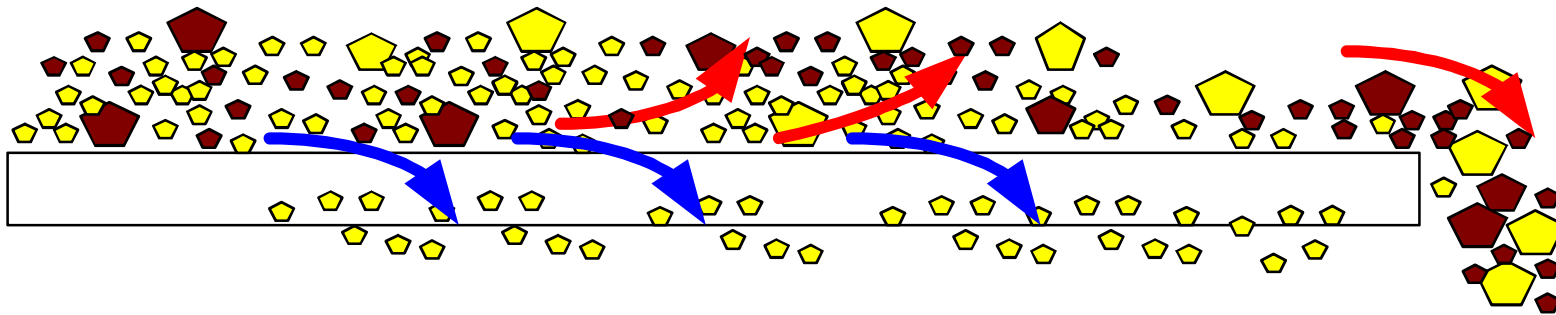
Design, Features, and  
Technology

Tim McDougall, Buhler Inc



## *Sifting principle*

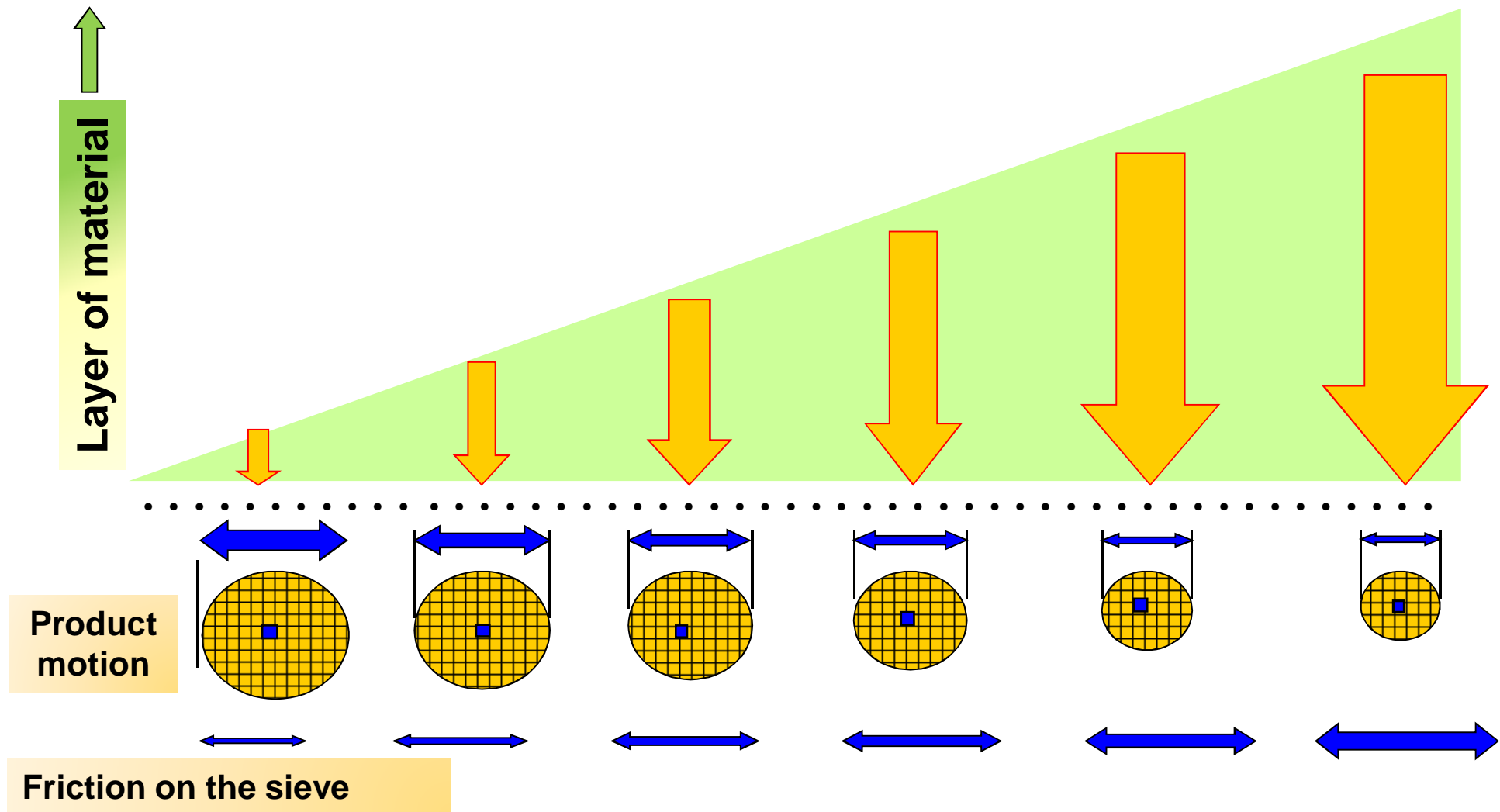
- ◆ Small, light particles
- ◆ Small, heavy particles



Sieve with circular movement



## *Pressure and motion as a function of the layer of material.*



# ***Plansifters***

## Sifting terminology

### ■ **Oversifting = bare dressing**

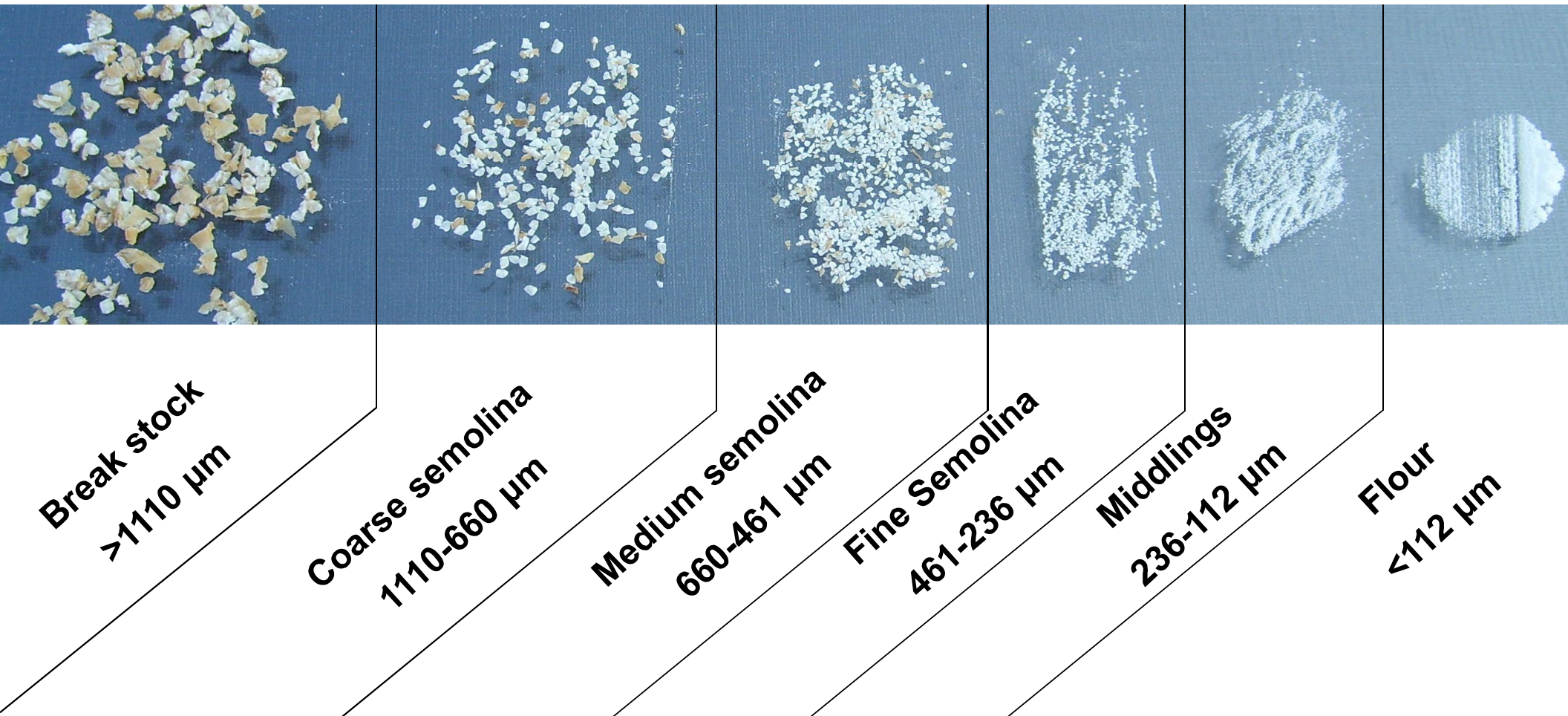
- Insufficient stock amount or too much sifting surface results in
- All flour particles smaller than the sieve mesh are sifted out and bran particles start passing through the sieve, contaminating the flour
- Bran specks and high ash content are the result

### ■ **Undersifting = insufficient sifting efficiency**

- Too much stock or too small sifting surface are causing flour to pass over the flour sieves which is led to the next grinding passage resulting in
- Loss of yield especially for low ash content flour
- Floating on the following rollerpassages due to flour content in the incoming stock
- Difficulties in feeding of rollerpassages due to flour content in the incoming stock

# ***Grading of first break***

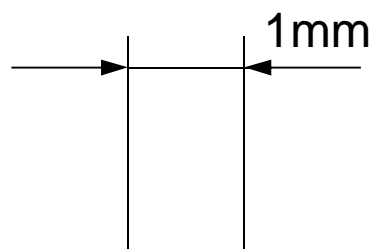
## **School Mill**







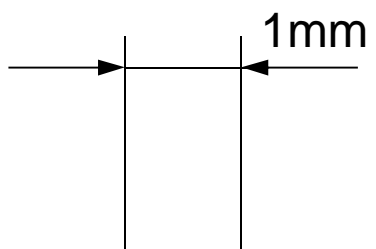
**Break stock  
>1110  $\mu\text{m}$**







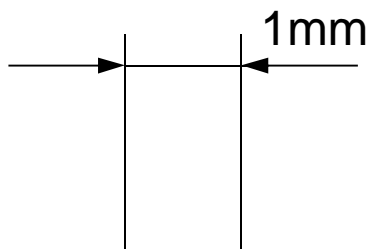
**Coarse semolina**  
**1110-660  $\mu\text{m}$**







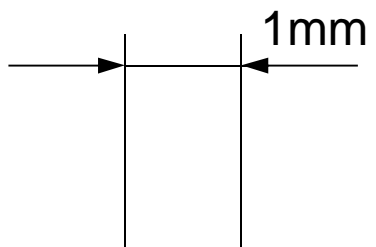
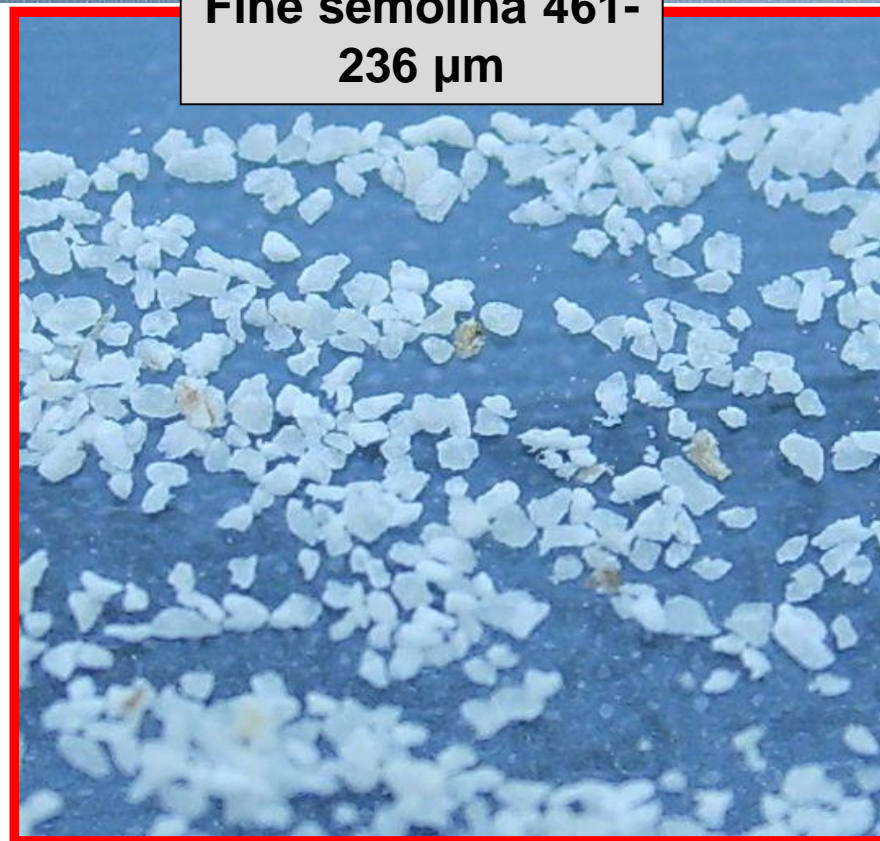
**Medium semolina**  
**660-461  $\mu\text{m}$**







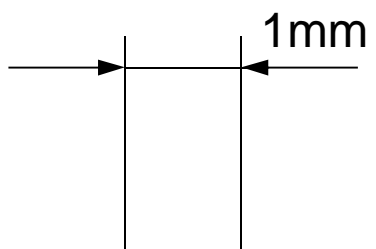
**Fine semolina 461-  
236  $\mu\text{m}$**







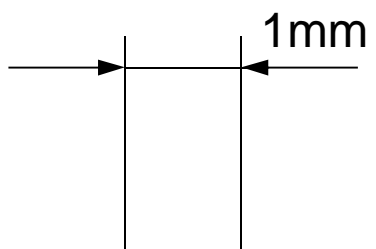
**Middlings 236-  
112  $\mu\text{m}$**







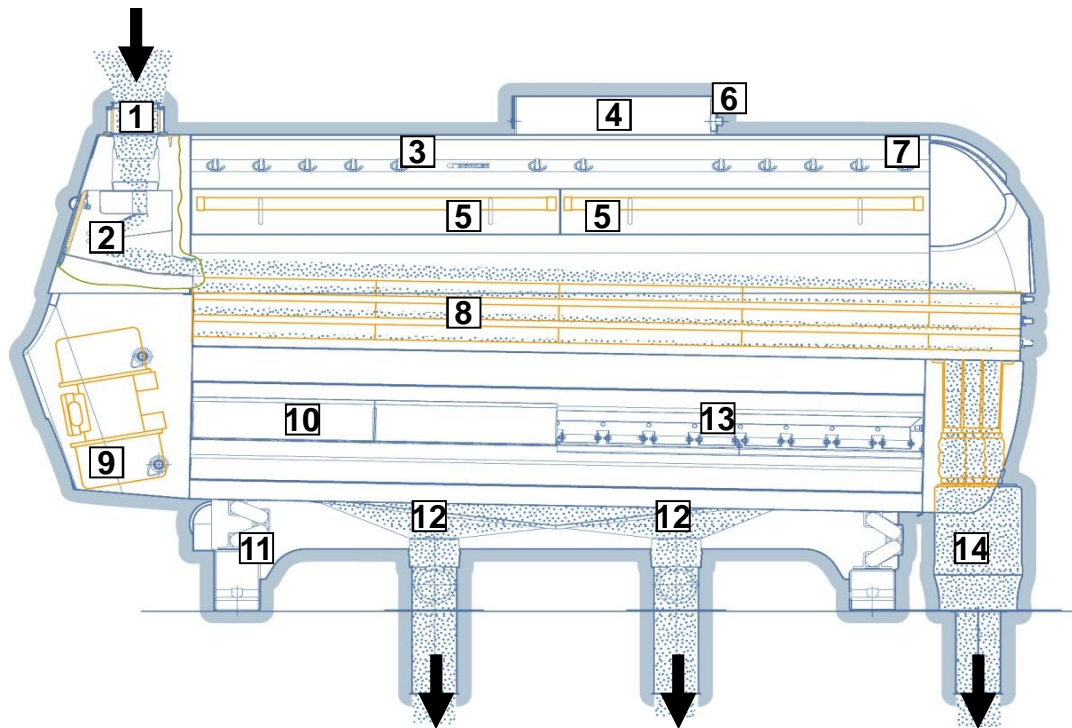
Flour <112  
 $\mu\text{m}$





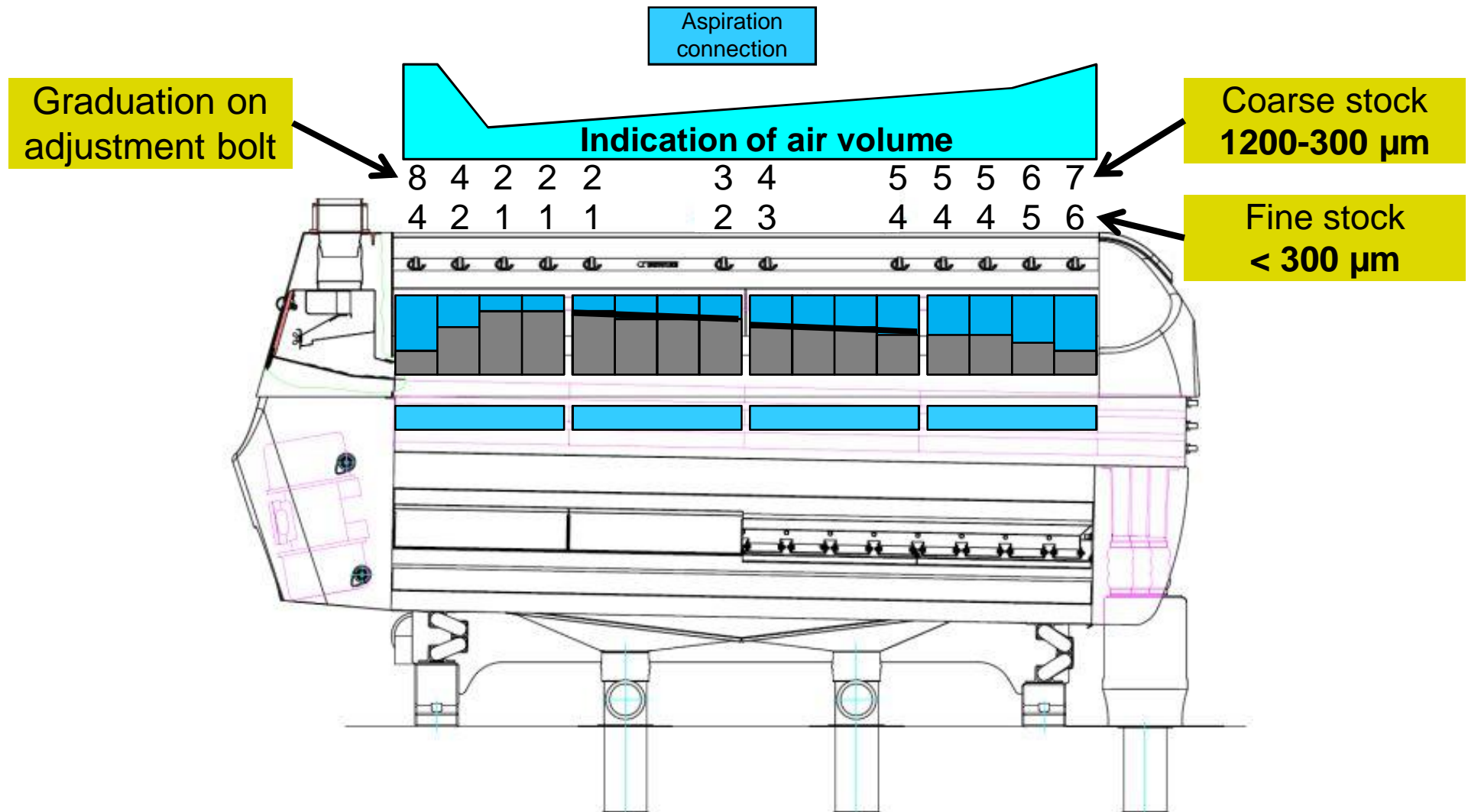
# ***Purifier Polaris MQRG.***

## Machine cut and function



- |    |                                   |
|----|-----------------------------------|
| 1  | <b>Product inlet</b>              |
| 2  | <b>Product pre-separating</b>     |
| 3  | <b>Air duct opening by hinges</b> |
| 4  | <b>Aspiration connection</b>      |
| 5  | <b>LED Lighting</b>               |
| 6  | <b>Main butterfly valve</b>       |
| 7  | <b>Air regulator</b>              |
| 8  | <b>Sieve box</b>                  |
| 9  | <b>Vibro-Drive</b>                |
| 10 | <b>Enclosed product room</b>      |
| 11 | <b>Rubber hollow spring</b>       |
| 12 | <b>Outlet chut (throughs)</b>     |
| 13 | <b>Product guide flap</b>         |
| 14 | <b>Overs outlet</b>               |

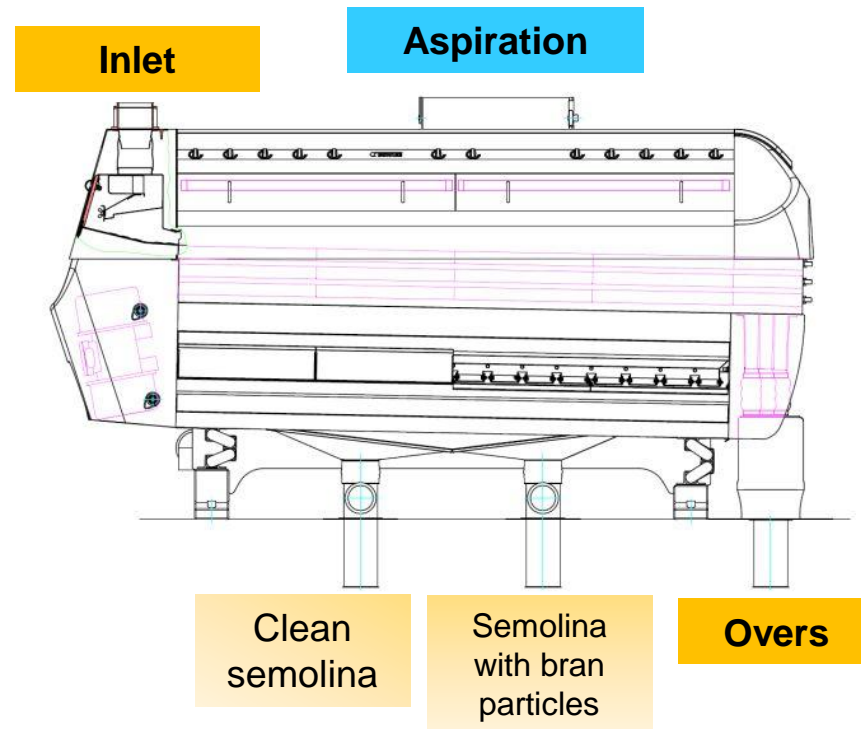
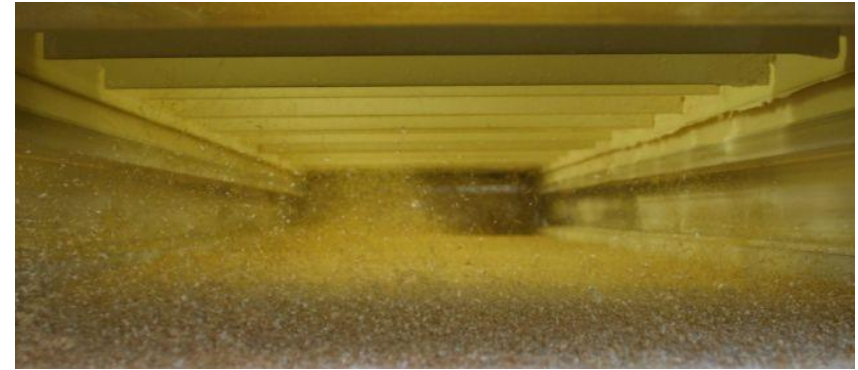
## Air setting of purifier MQRG.



## ***Purifier setting.***

### **QCP's:**

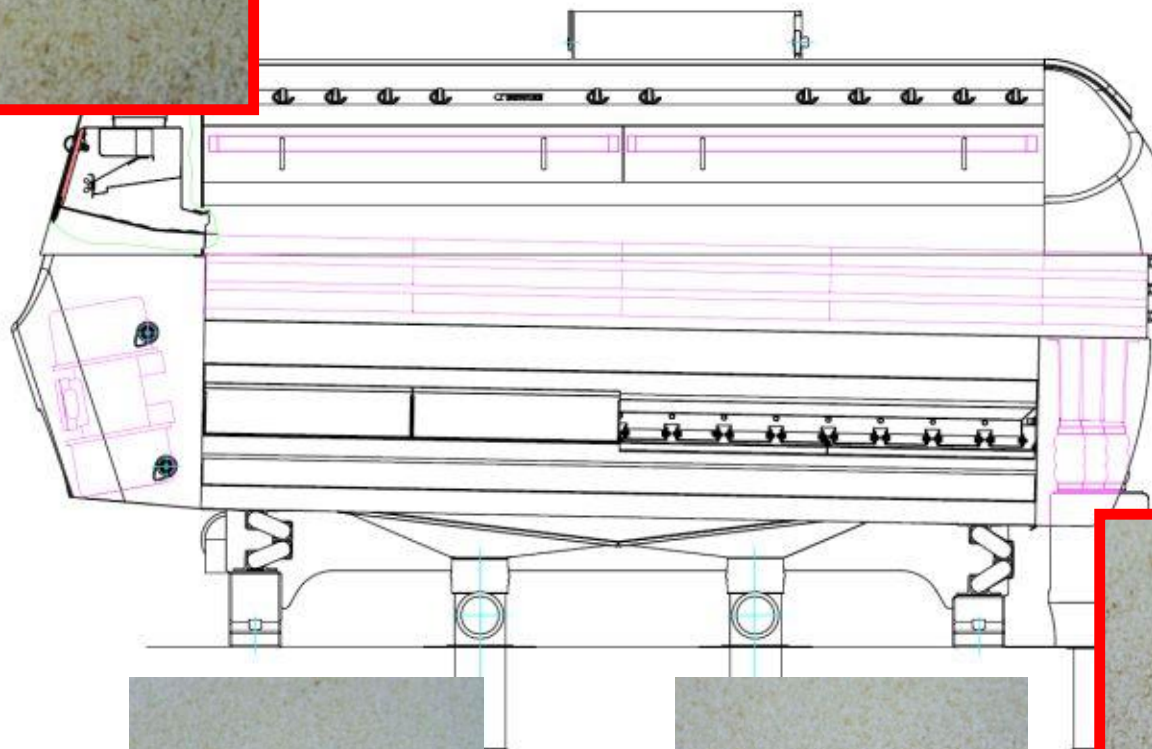
- The quality of 3rd overailing product should correspond to the quality of the inlet product
- Clear quality steps should be visible on the overails
- The throughs product should be in general clean
- Contamination of the throughs of the last sieve is allowed





## ***Fine Semolina***

**Aspiration**

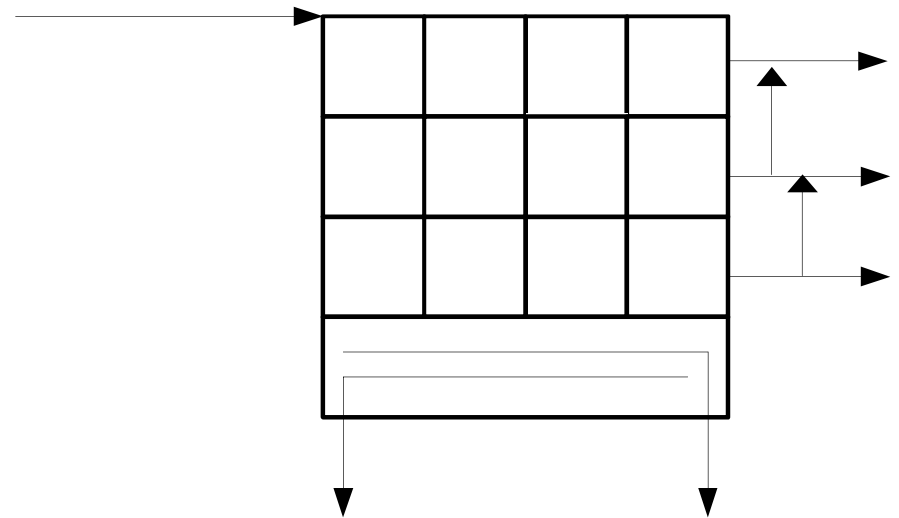
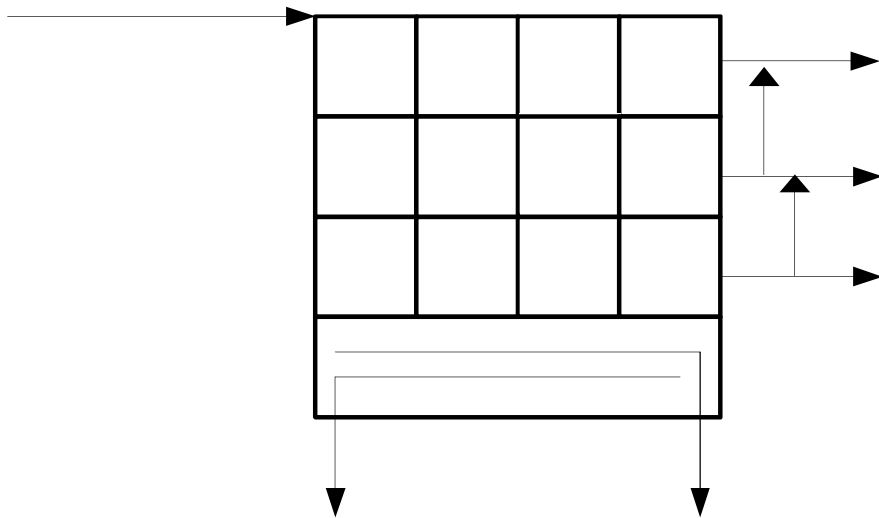


## ***Sieve set-up on the purifier.***

In many flow sheets the purifiers sieves are still mentioned as GG (grits gauze) numbers, although the rest of the flow sheet is in micron.

Main reasons:

- the set-up and sieve optimization of the purifier is very quick in the mill
- usually 2-number steps are used
- the GG numbers are easier to write on the flow sheet

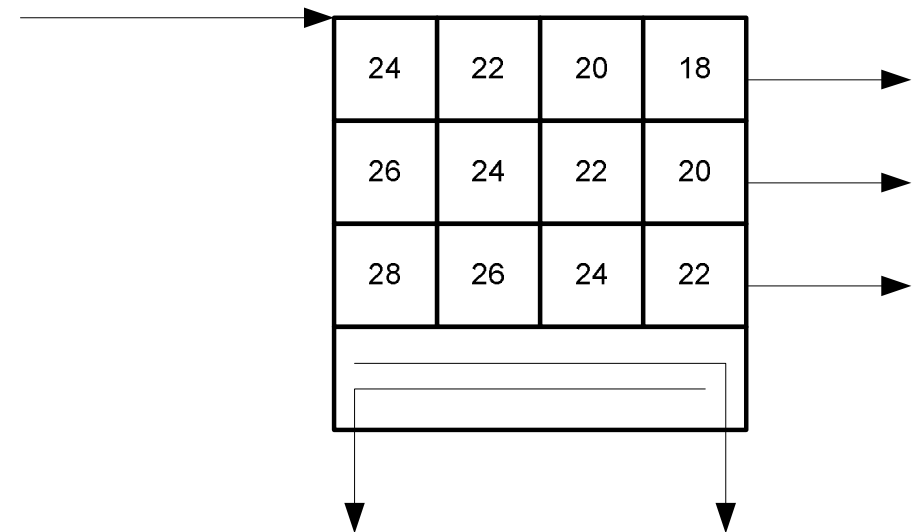
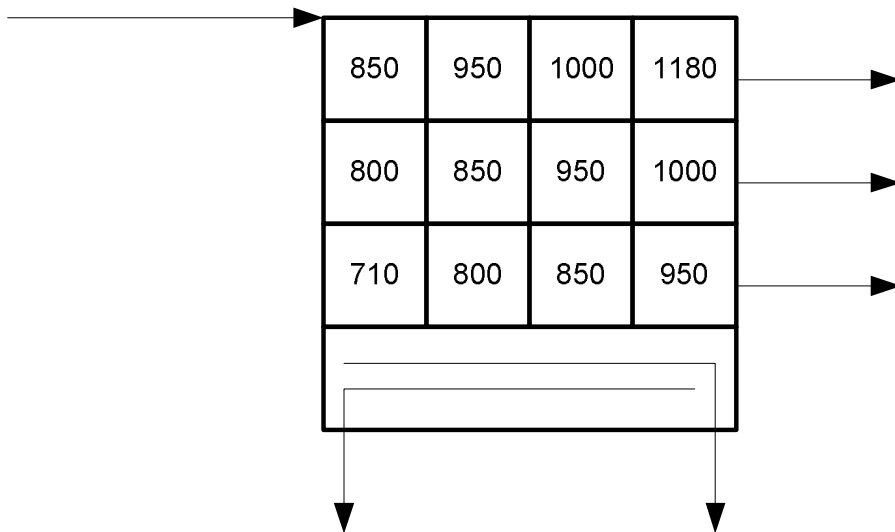


## *Sieve set-up on the purifier.*

The coarsest sieve to be used in the purifier should in general be about 60 – 120 micron bigger than the top sieve of the granulation spectrum.

**Example:**

**Granulation 1120 – 600 micron – coarsest sieve: 1180 – 1250 micron**

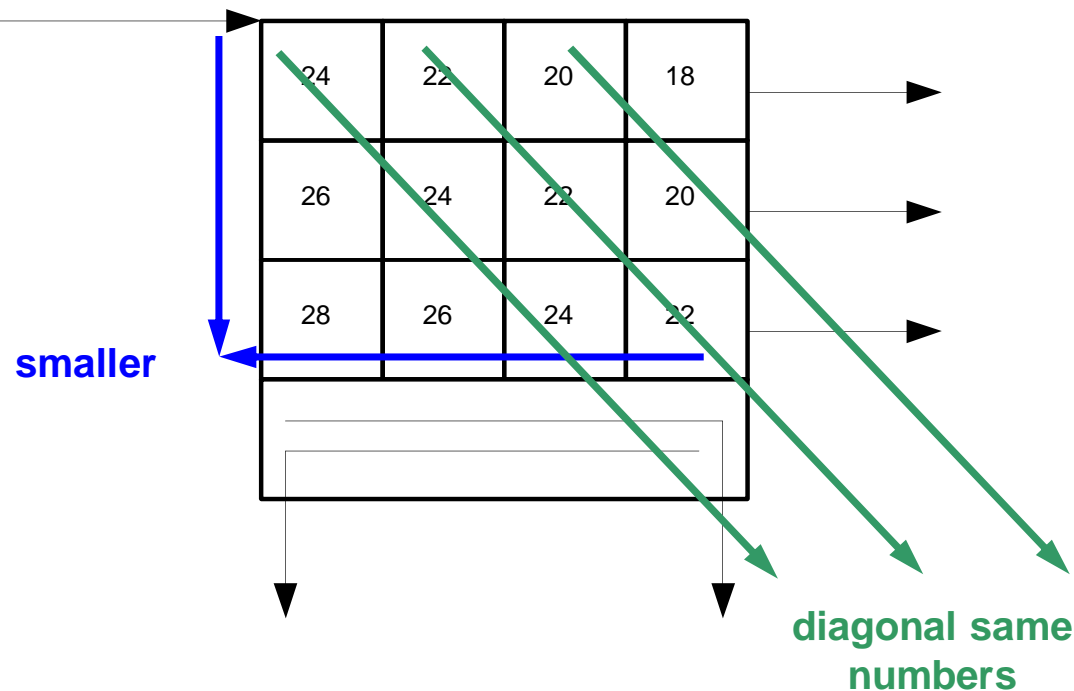




## Sieve set-up on the purifier.

### Standard set-up:

- The numbers are smaller on the inlet than on the outlet
- The numbers are smaller on lower layers than on upper layers
- Diagonal same numbers are usually used



PET-18GG-1180

PET-19GG-1120

PET-20GG-1000

PET-22GG-950

PET-24GG-850

PET-26GG-800

PET-27GG-750

PET-28GG-710

PET-30GG-670

PET-31GG-630

PET-32GG-600

PET-34GG-560

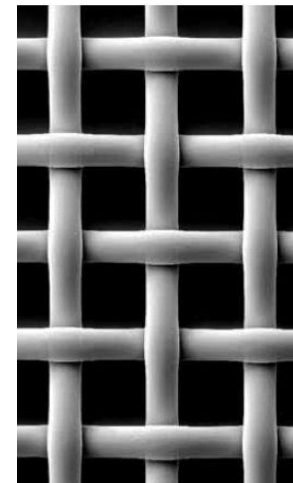
PET-36GG-530

PET-38GG-500

PET-40GG-475

PET-42GG-450

PET-44GG-425





# Thank you