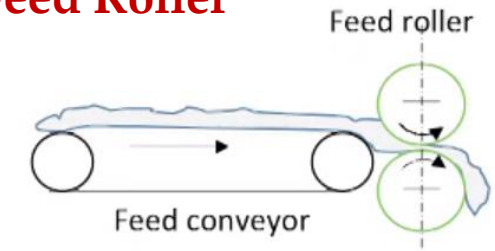
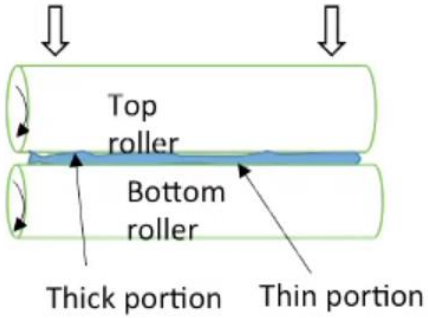
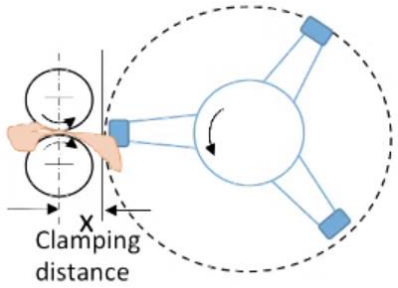
Blowroom Machines

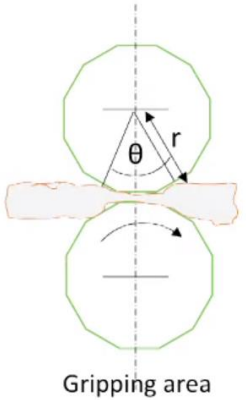
Different types of clamping device

Feed Roller





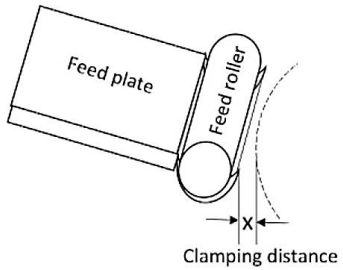


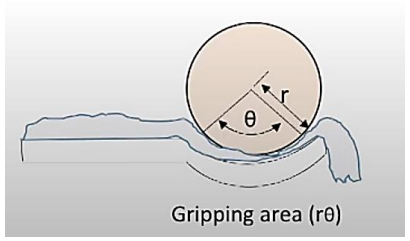


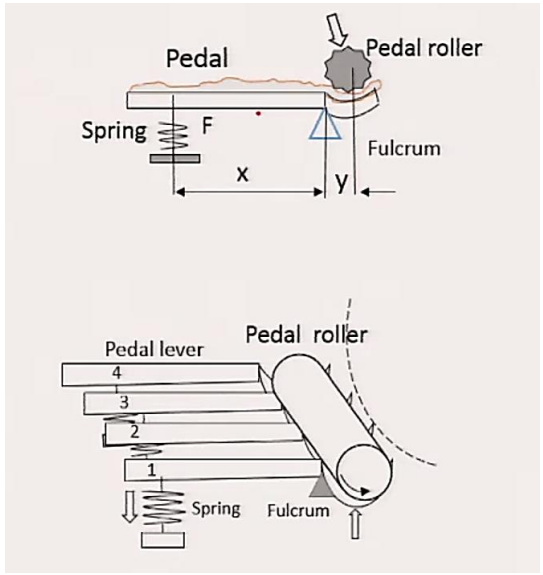
- ✓ Higher clamping distance
- ✓ Not powerful grip
- ✓ Uneven clamping

Feed Plate

- ✓ Small clamping distance
- ✓ More powerful grip
- ✓ Uneven clamping







Pedal rollers

- ✓ 16 pedal rollers
- ✓ Small clamping distance
- ✓ Even clamping

Piano Feed

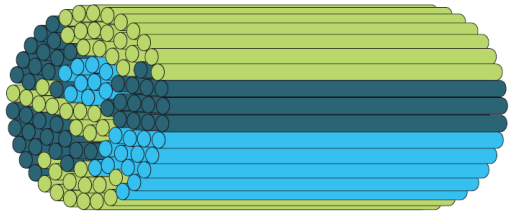
Blowroom Machines

Mixer/Blender

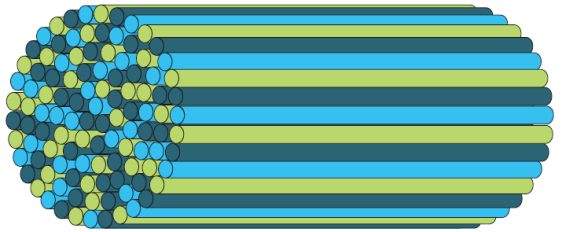
Purpose of blending/mixing

- ✓ To average out the variation in fibre characteristics
- ✓ To engineer a textile yarn with specific properties
- ✓ To produce a certain shade by mixing fibres of different colours
- ✓ To reduce the cost

Form	Stage	Machine
Bale	Blow room	Automatic bale opening machine
Flock/ tuft	Within blow room	1. Hand stack blending 2. Automatic blending equipment 3. Multi mixers
Lap	Within blow room	Scutcher
Sliver	Drawing , pre-combing stage, combing	Draw frame, sliver lap machine , comber draw box
Web	Pre combing stage, blending drawing	Ribbon lap machine , blending draw frame
Roving	Spinning	Ring spinning machine



Fibre blending using drawframe



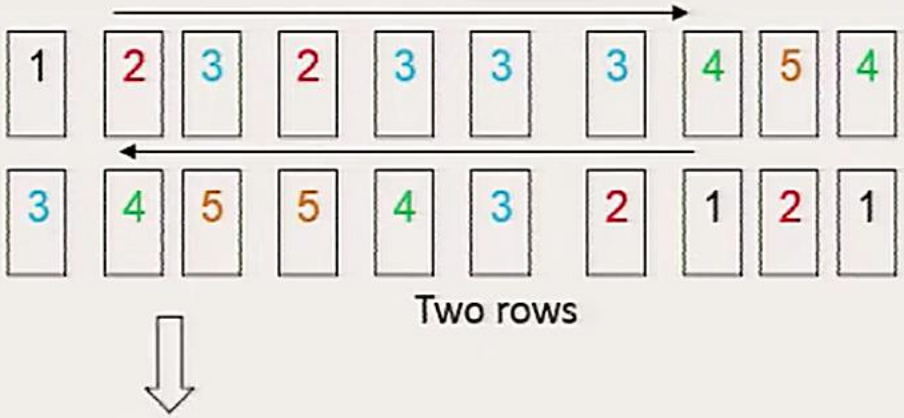
Fibre blending using blowroom

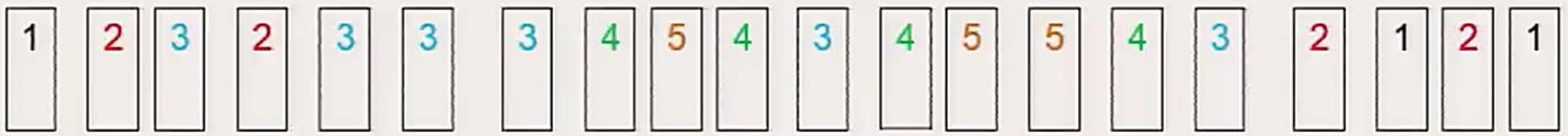
Blowroom Machines

Mixer

Mixing through bale lay down

Cate gory	Number	Odd/ even	U- side	L-side
1 (Shortest)	3	O	1	2
2	4	E	2	2
3	6	E	4	2
4	4	E	2	2
5 (Longest)	3	O	1	2
	20		10	10

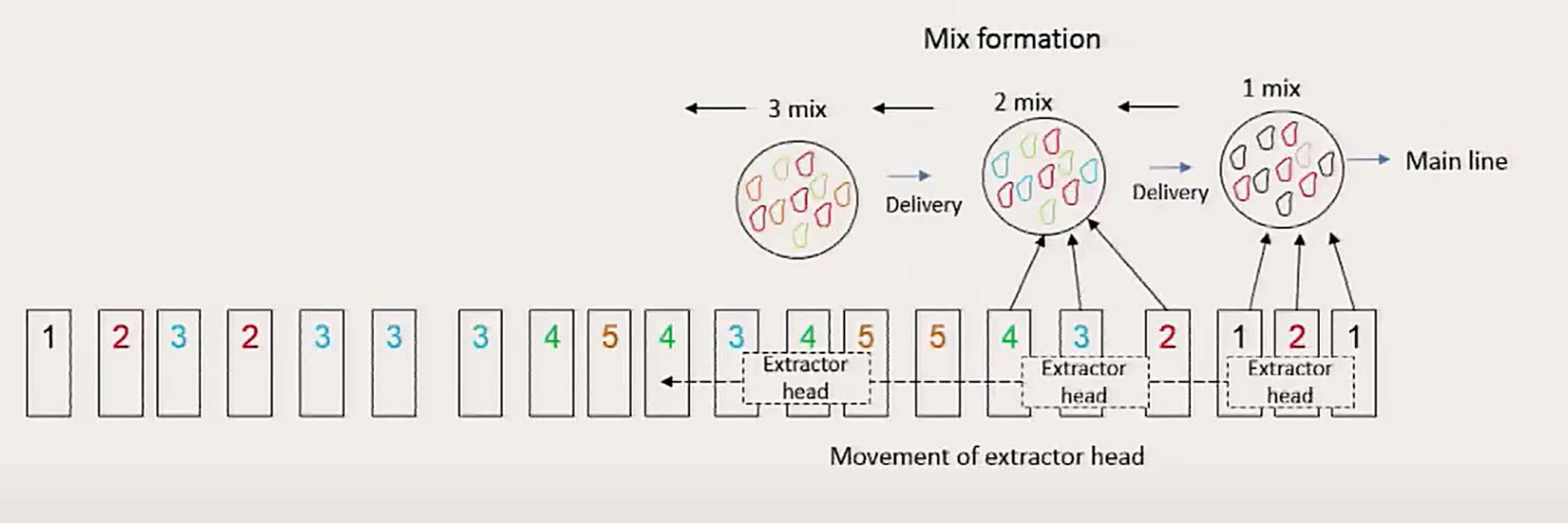




Blowroom Machines

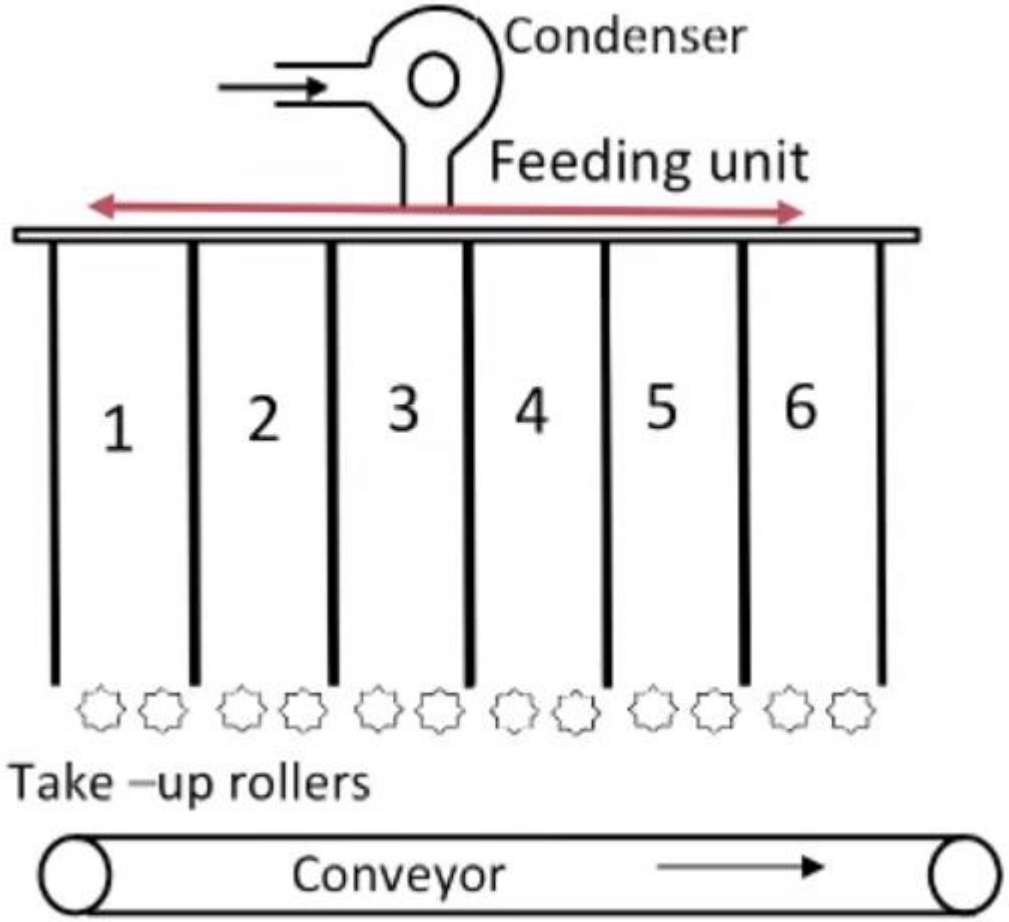
Mixer

Automatic bale opener does not give homogeneous mixing. Why?



Blowroom Machines

Multimixer

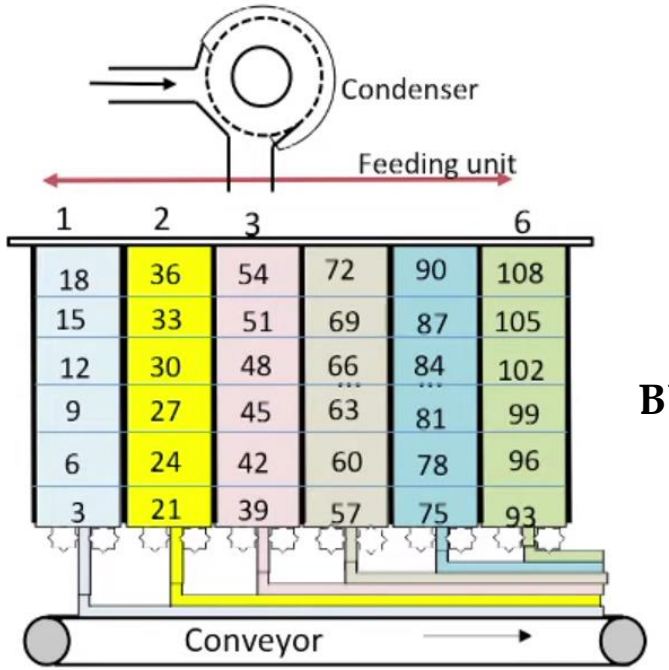


- ✓Consists of 6-10 vertical compartments
- ✓Cotton tufts are filled up to a certain filling height

Blowroom Machines

Multimixer

Discontinuous Operation

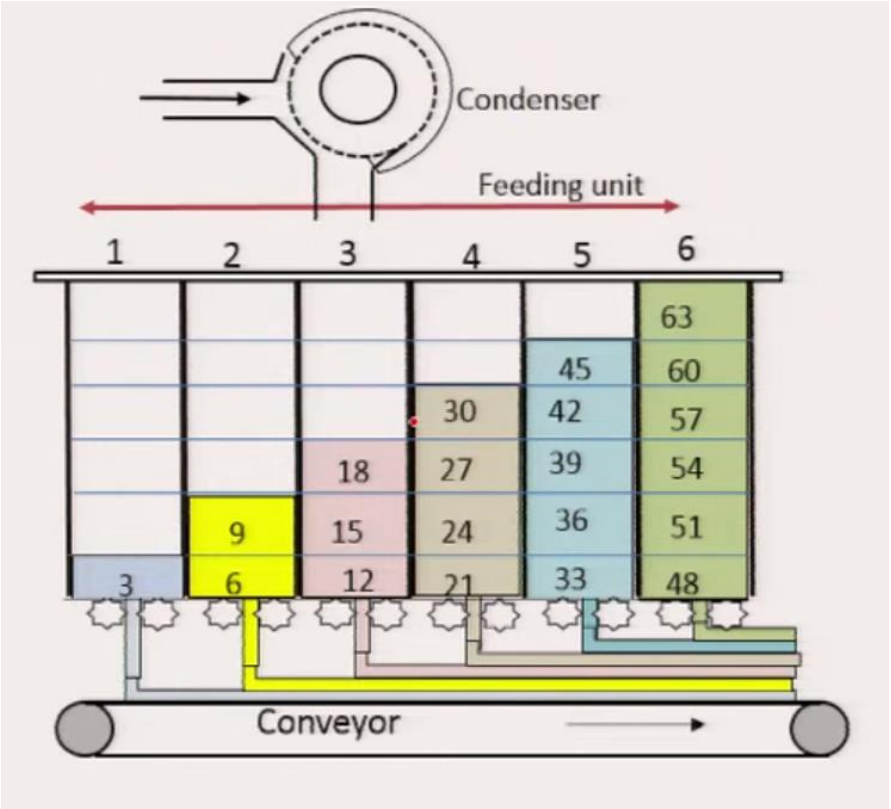


BDT = 93-3 = 90 min

The largest difference in the filling time of tufts in different boxes is known as Blending delay time (BDT)

BDT is constant in case of discontinuous operation

Continuous Operation

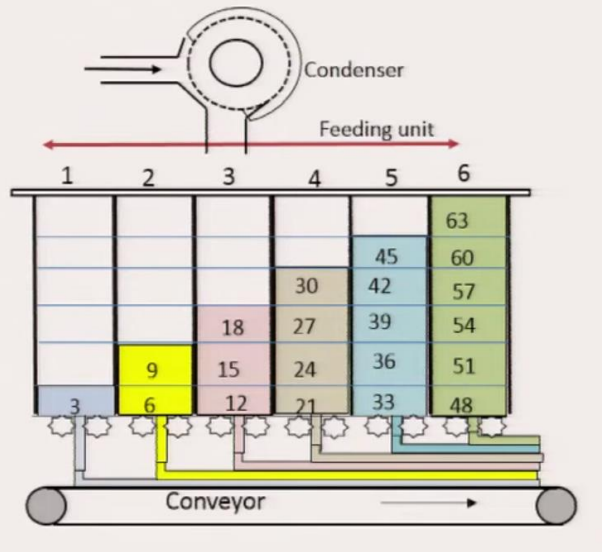


The compartments are filled up in a staggered configuration from 1st to last compartment

Blowroom Machines

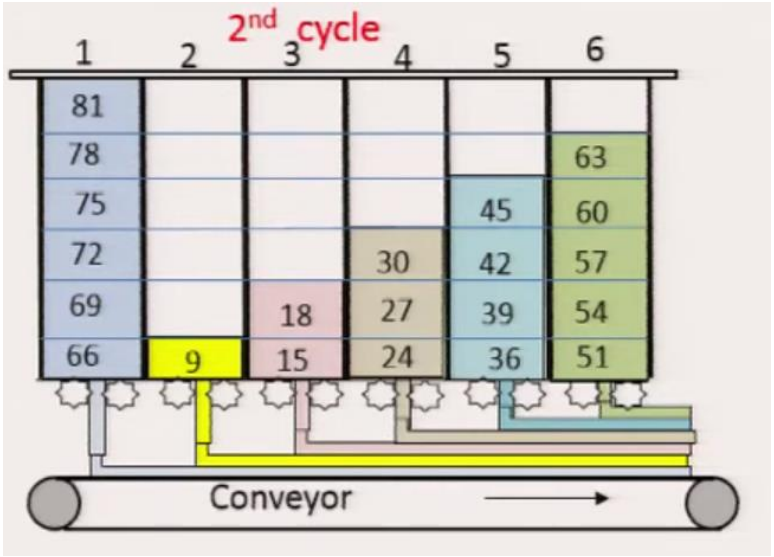
Multimixer

1st cycle



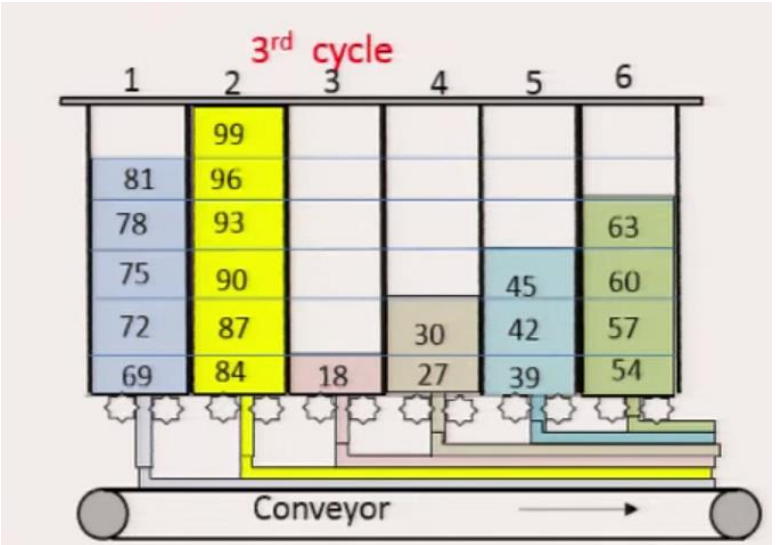
Blending delay time (BDT): 45 min

4th cycle:
Blending delay time (BDT): 72 min



Blending delay time (BDT): 57 min

5th Cycle:
Blending delay time (BDT): 75 min



Blending delay time (BDT): 66 min

6th cycle:
Blending delay time (BDT): 75 min

How BDT changes with feed cycle and number of compartments?

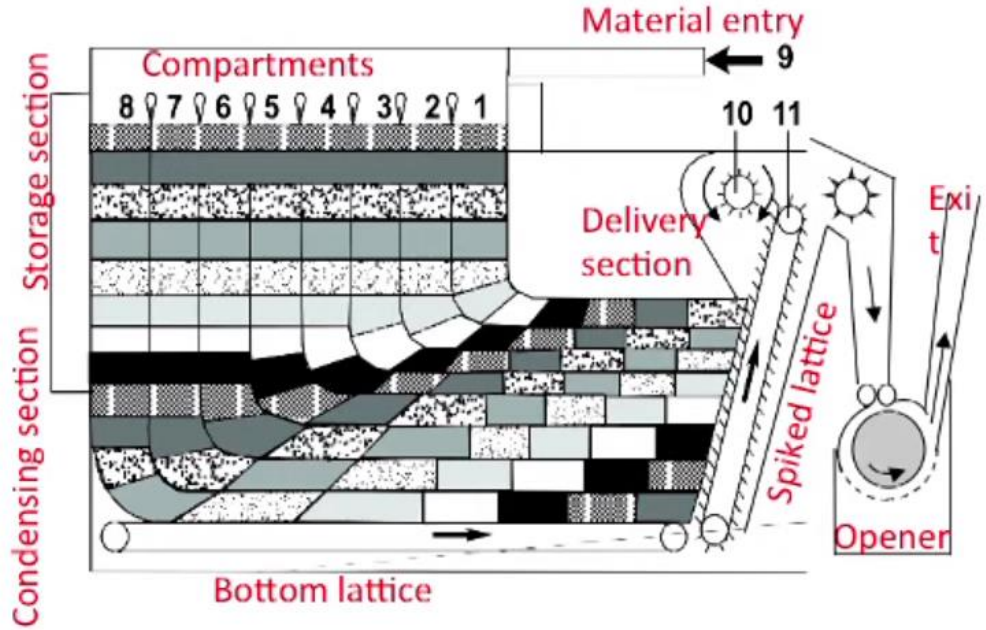
Blowroom Machines

Unimix (Rieter)

RIETER

B 76 UNImix

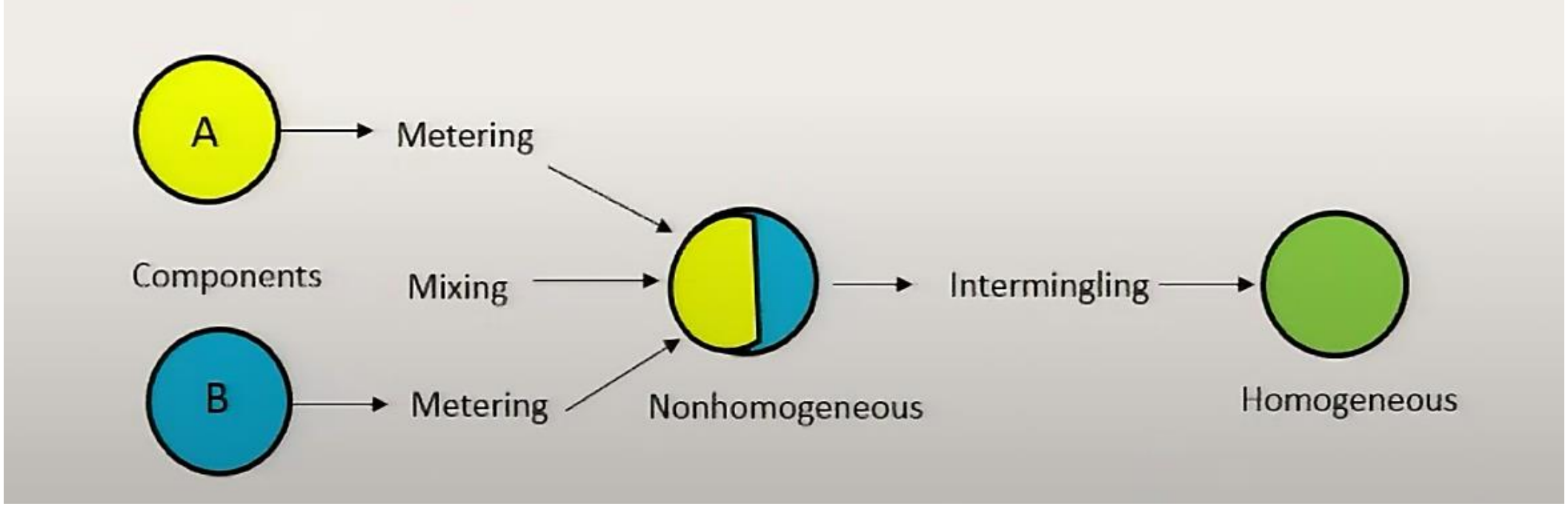
3-point mixing principle



90° bend in the material flow produces a shift in the timing resulting in long term blending

Blowroom Machines

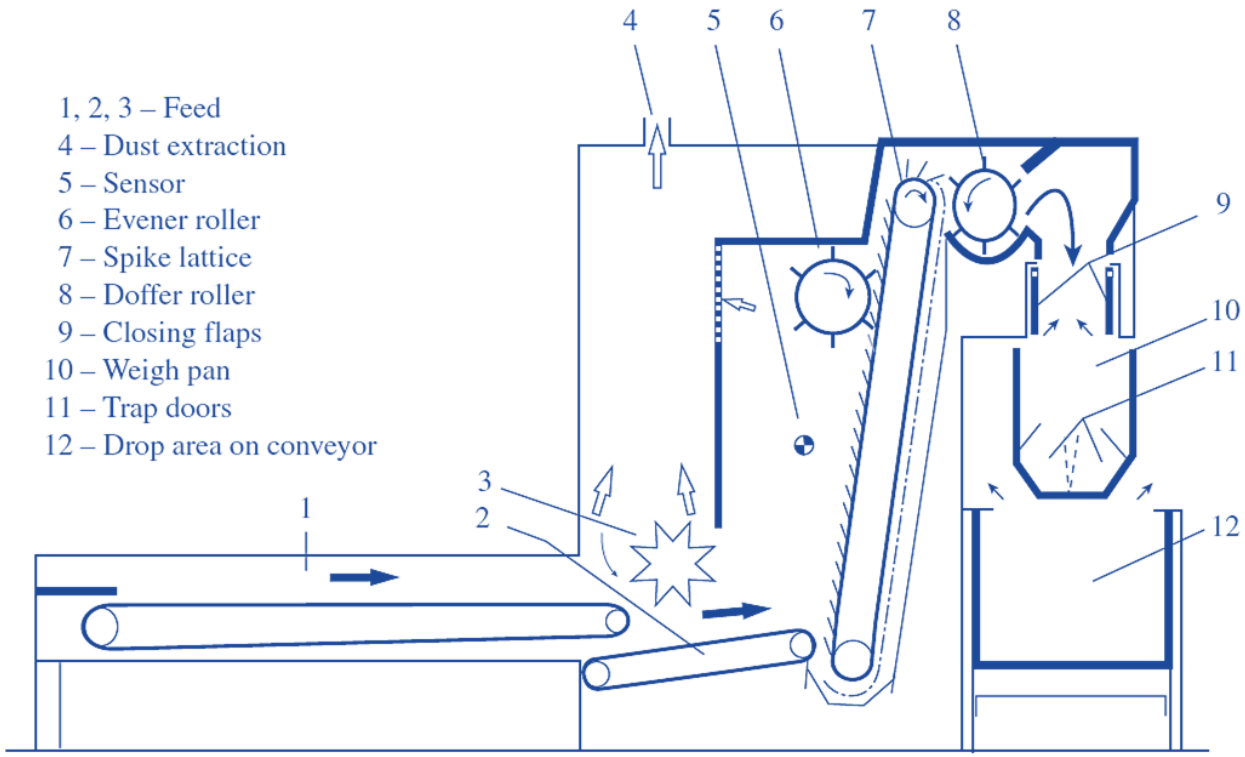
Blender

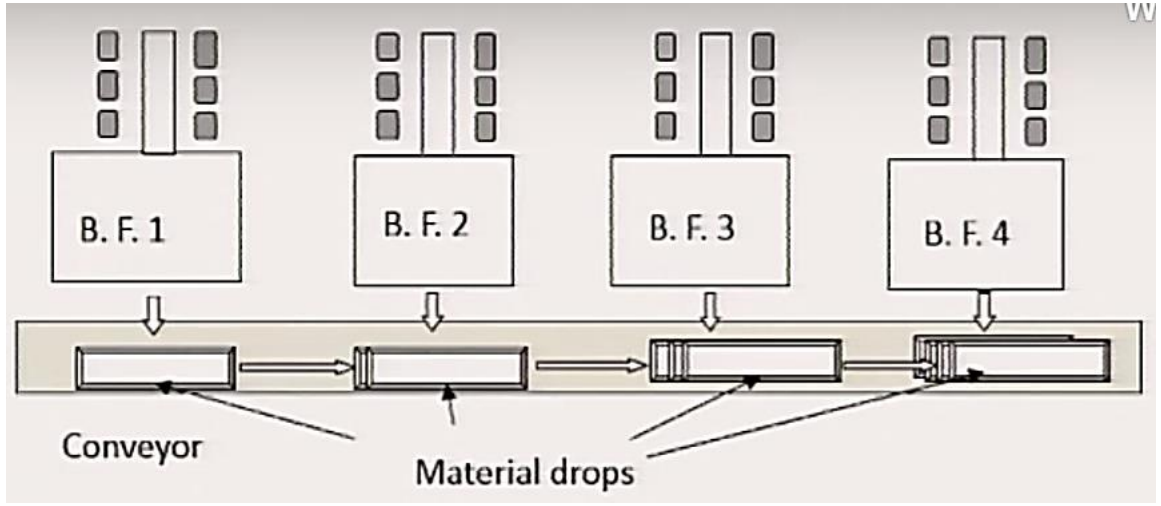


Metered amount of tufts are mixed together to maintain the blend ratio

Blowroom Machines

Blender

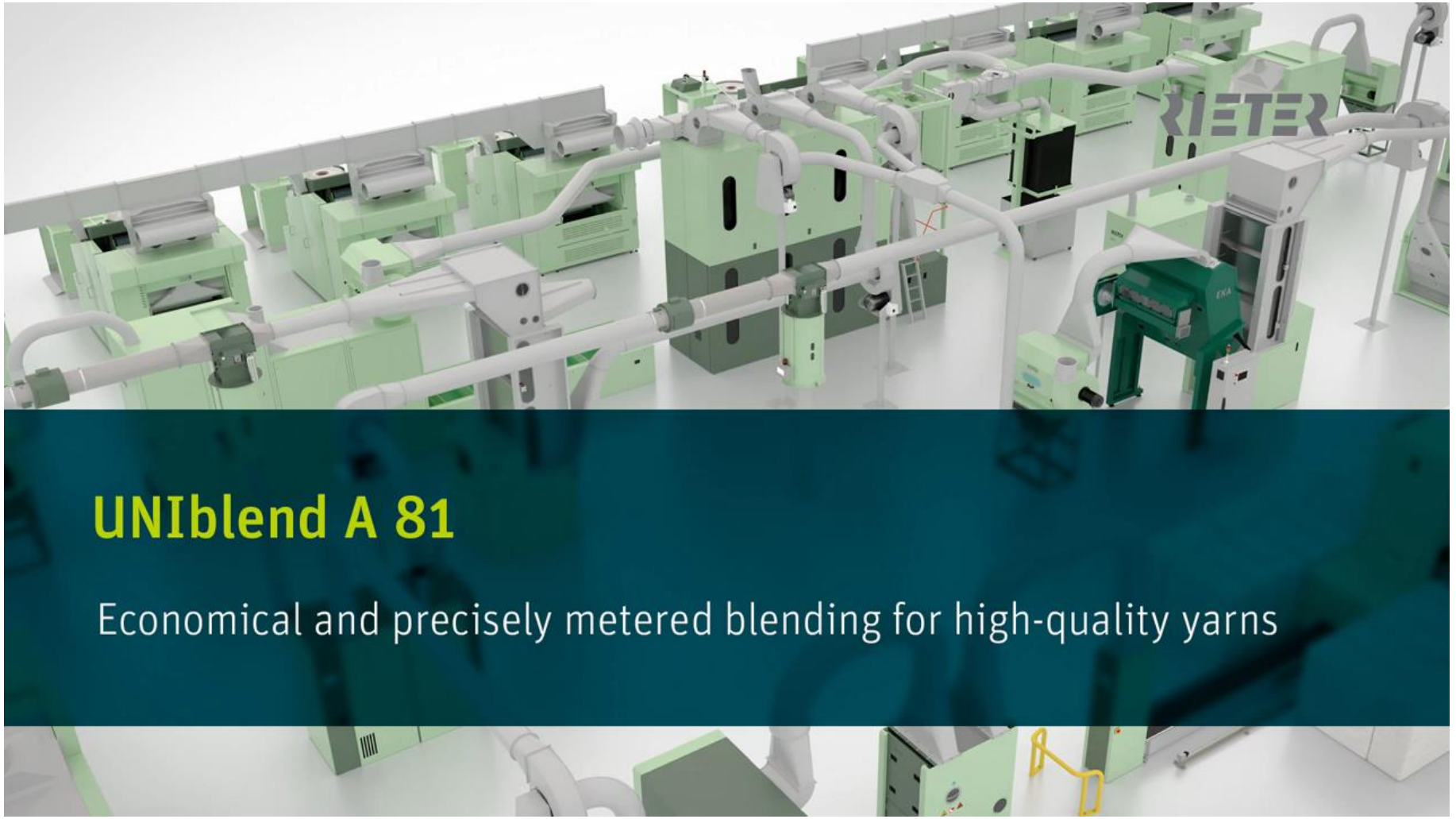




- ✓ **A metering system is used to drop a measured quantity of material to the conveyor belt**
- ✓ **Materials from 3-4 blenders are dumped together in sandwich form to form the blend**

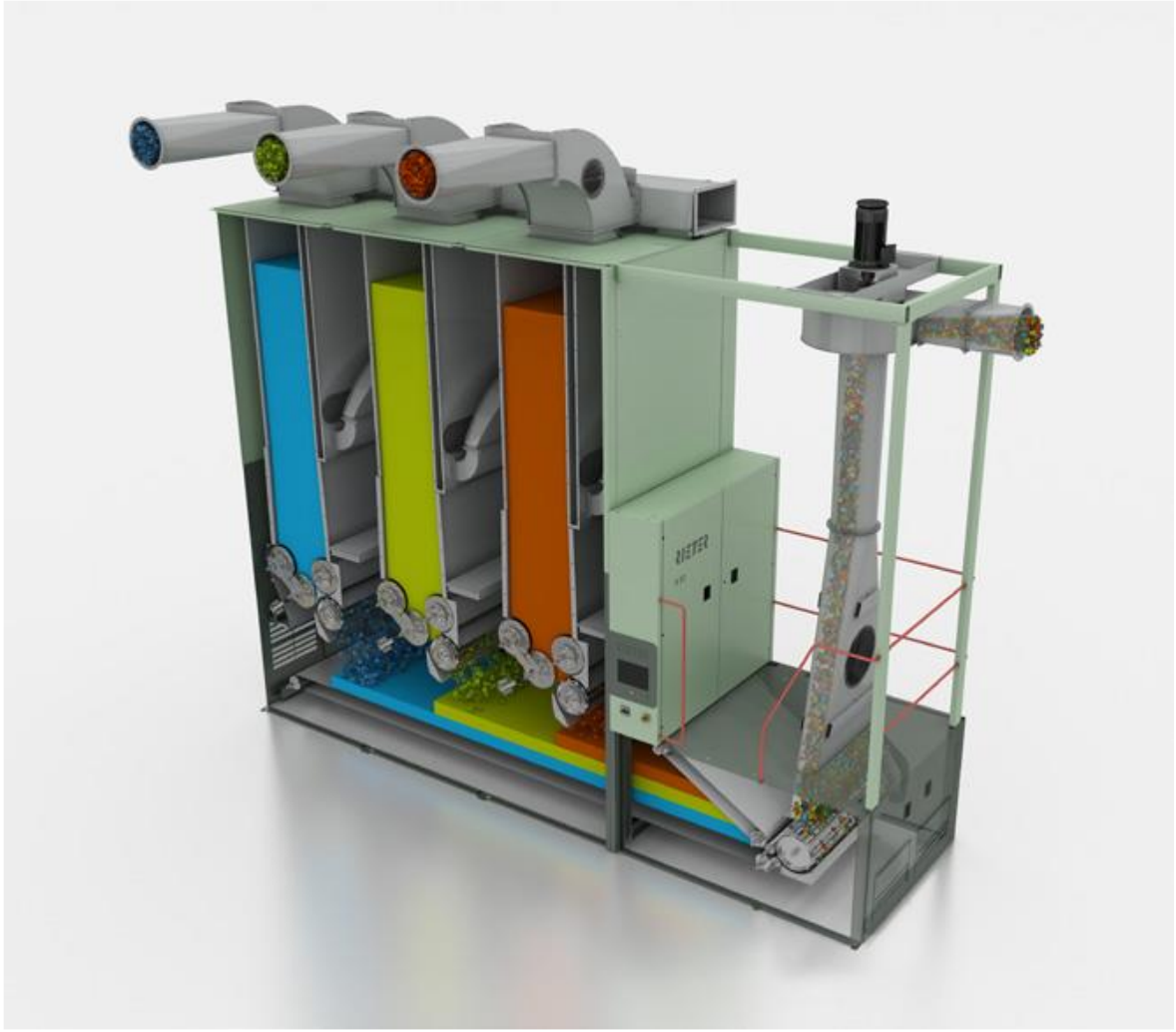
Blowroom Machines

Blender



Blowroom Machines

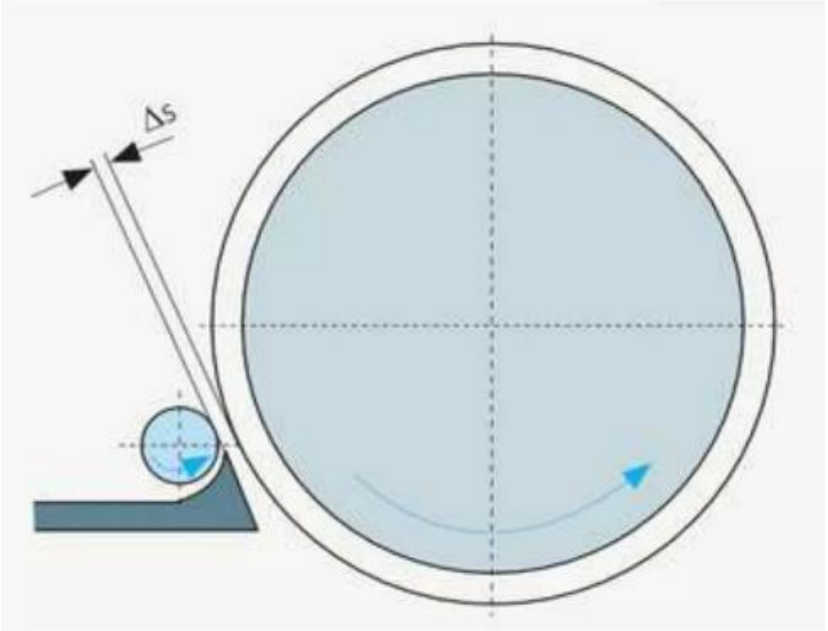
Blender



UNIblend A 81

Parameters influencing waste level

- ✓ The amount of trash (%) in feed
- ✓ Speed of the opening device
- ✓ Setting between feed roller and line of action of beater
- ✓ Grid bar inclination and opening

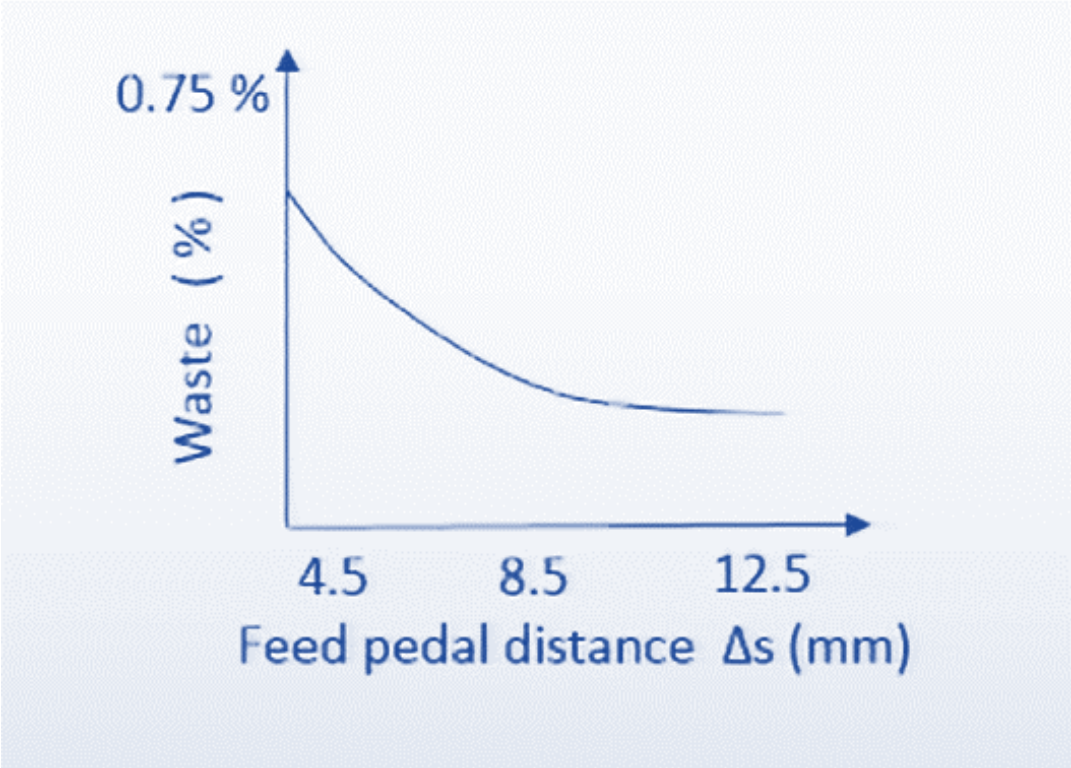


Parameters influencing waste level

Effect of trash%

Waste % increases linearly with the trash%

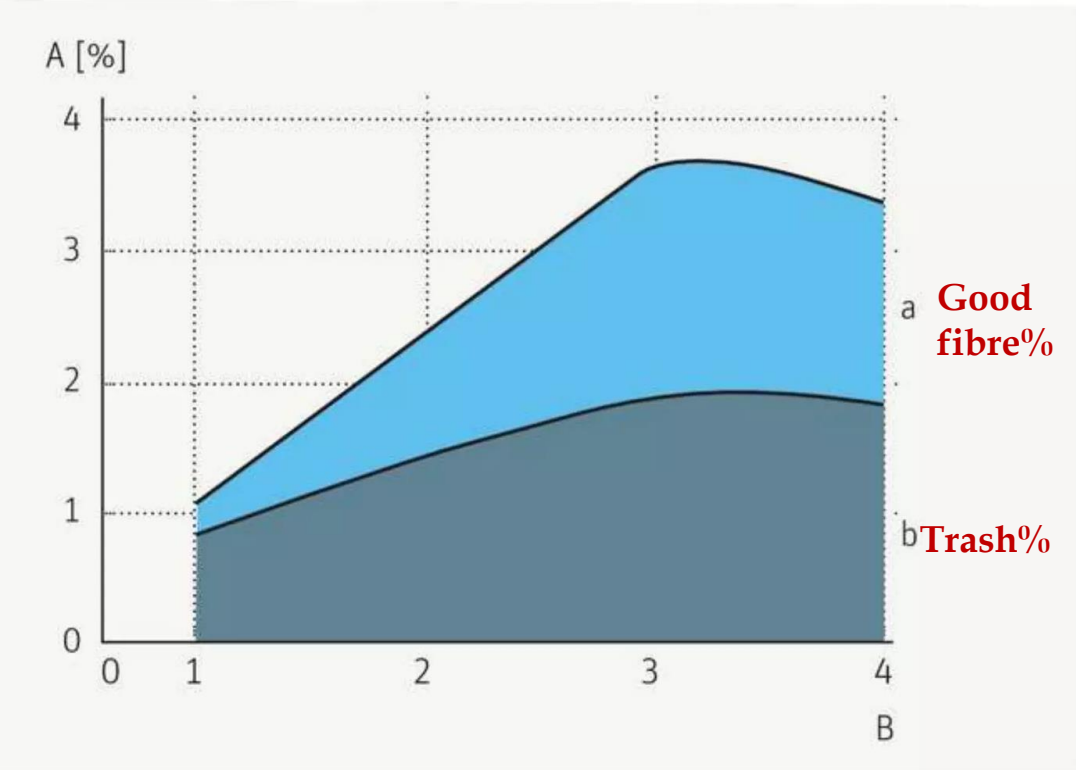
Effect of feed pedal distance



Waste % decreases with the increase in feed pedal distance

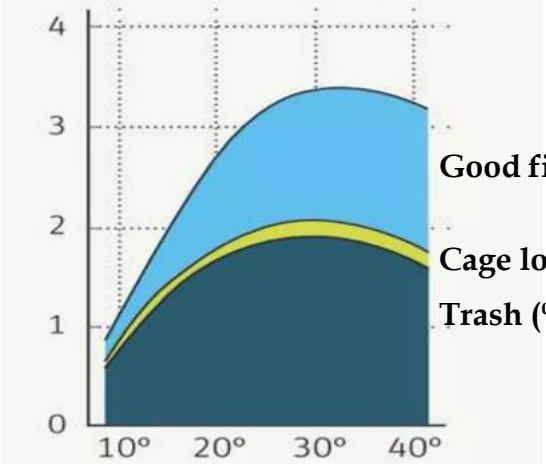
Parameters influencing waste level

Effect of grid bar opening

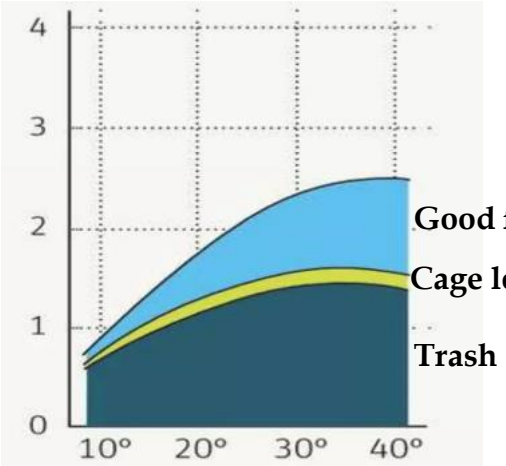


Grid bar opening

Effect of grid bar angle

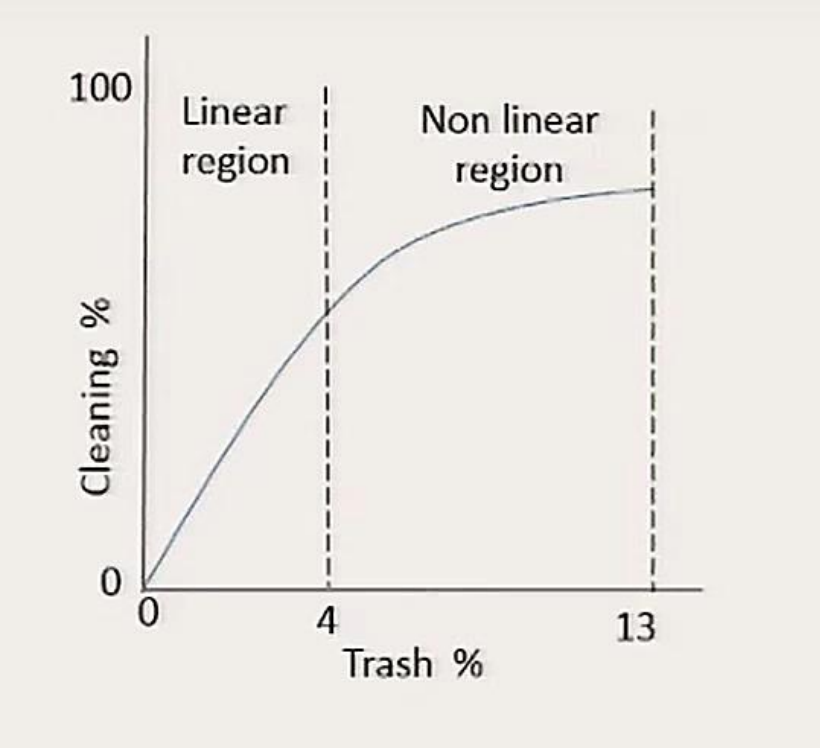


Higher beater speed



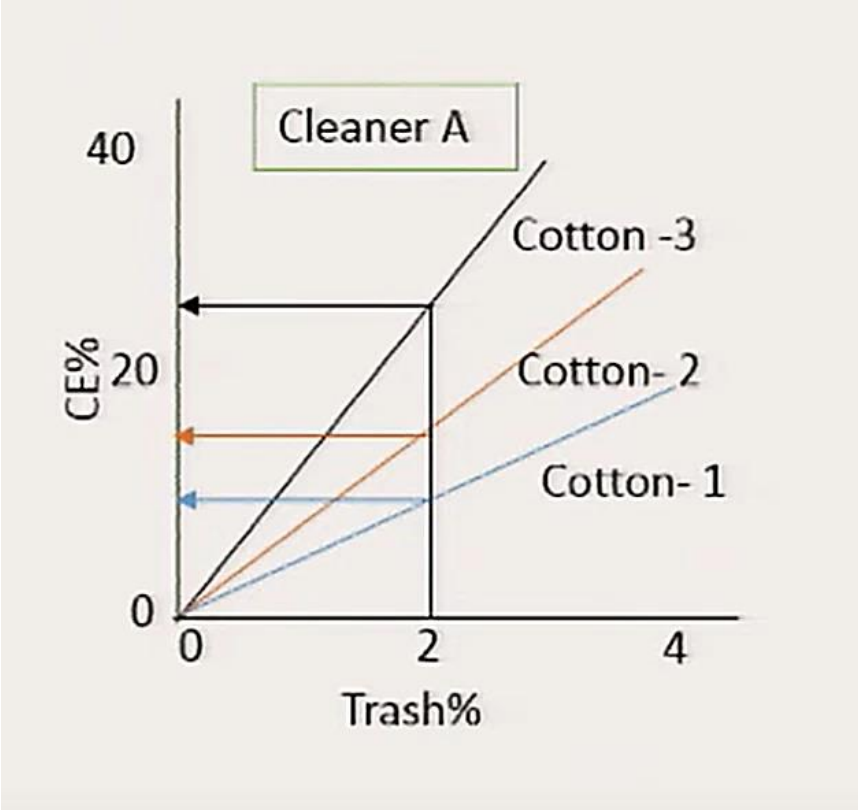
Parameters influencing waste level

Effect of trash% on cleaning



Why non-linear after 4% trash?

Effect of fibre type on cleaning



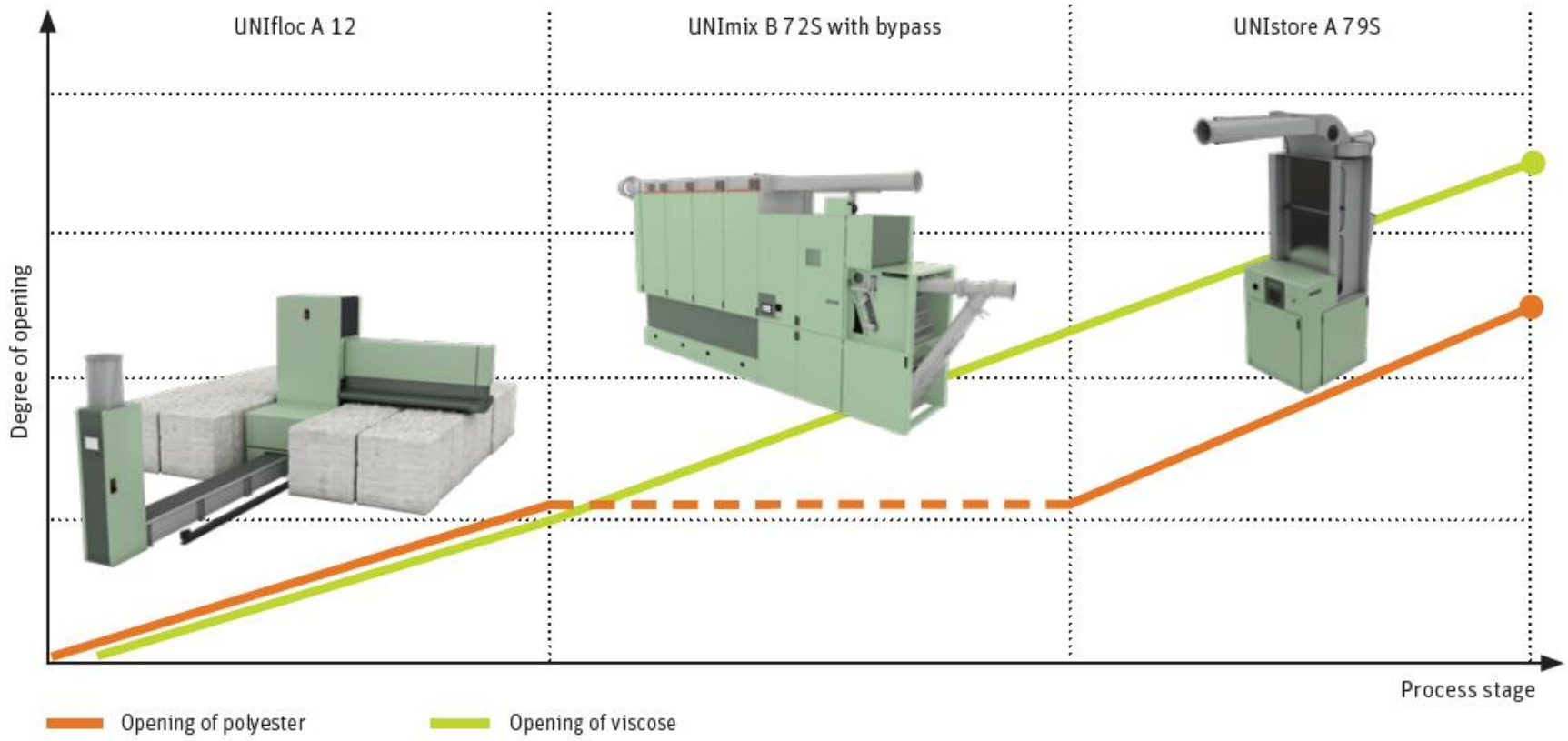
Cleaning resistance of cotton

Parameters influencing waste level

Problem: In a blowroom line, a fine cleaner gives cleaning efficiency of 24% for trash content in the feed of 4.3%. The amount of waste collected under the cleaner is 2.8%. Calculate the trash and lint% in the waste.

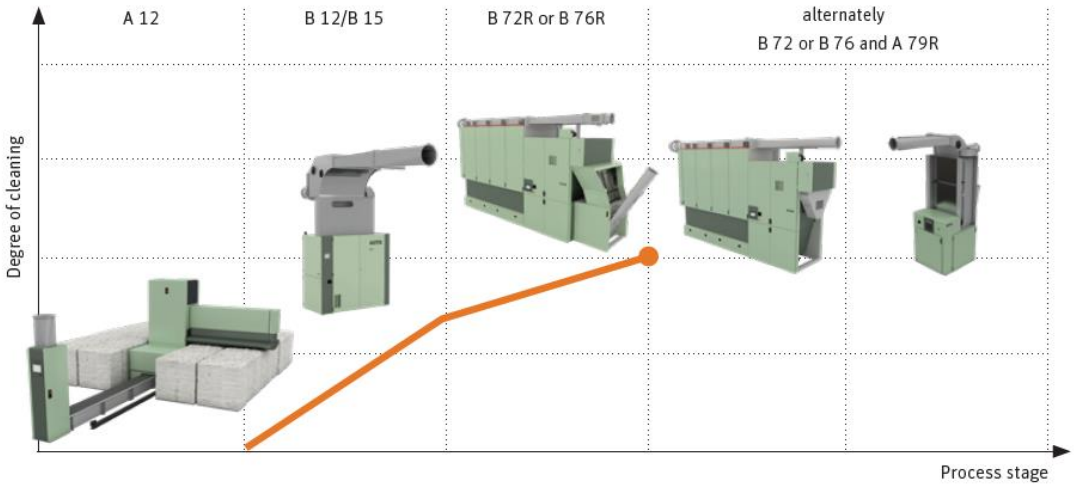
Ans: **Trash collected in waste: 40%**
Lint collected in waster: 60%

Cleaning of different fibre types

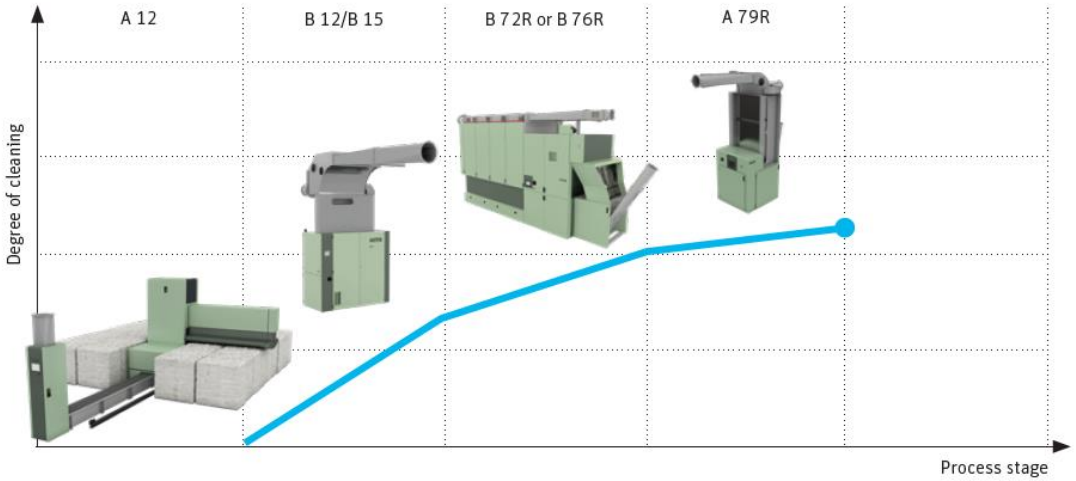


Cleaning of different fibre types

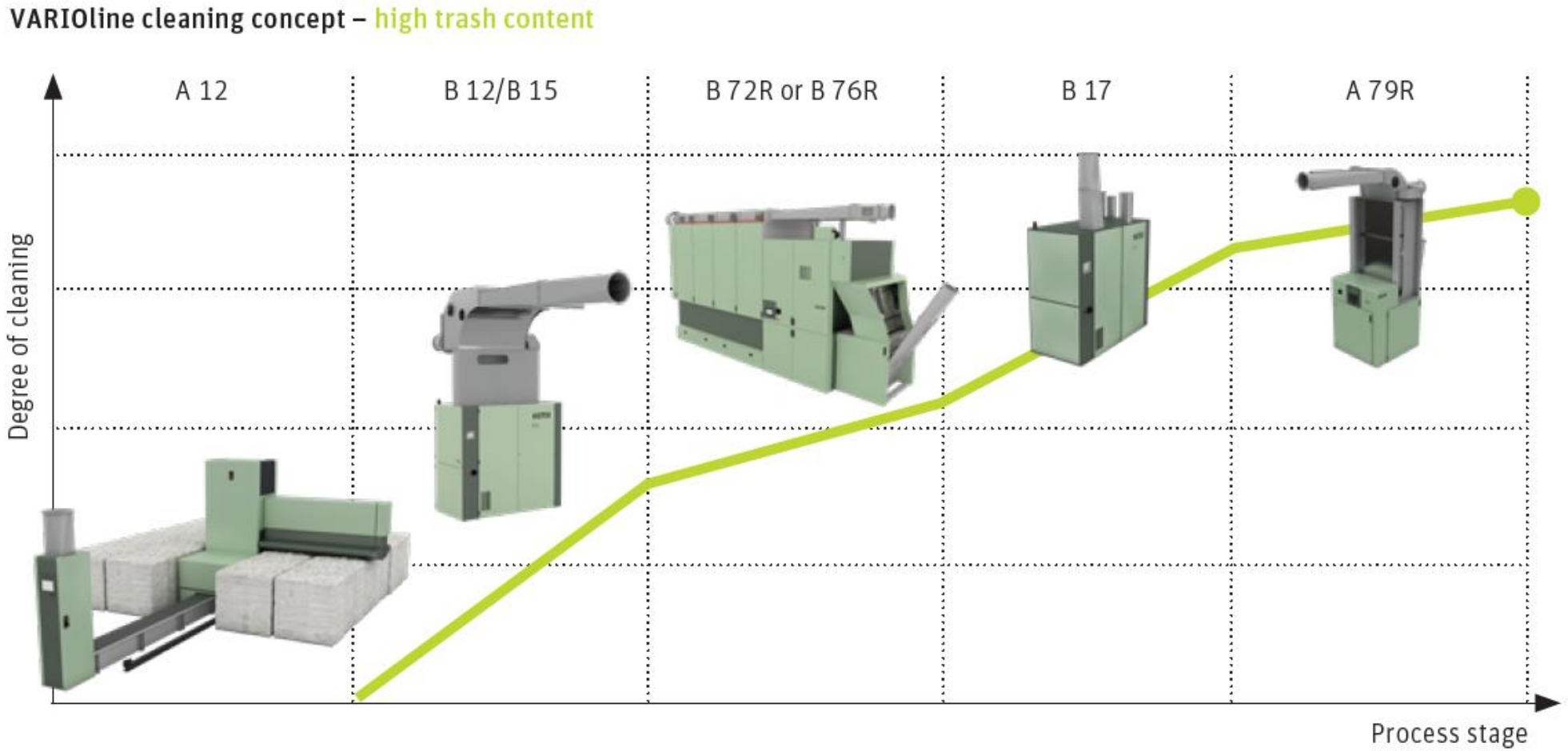
VARIOline cleaning concept – low trash content



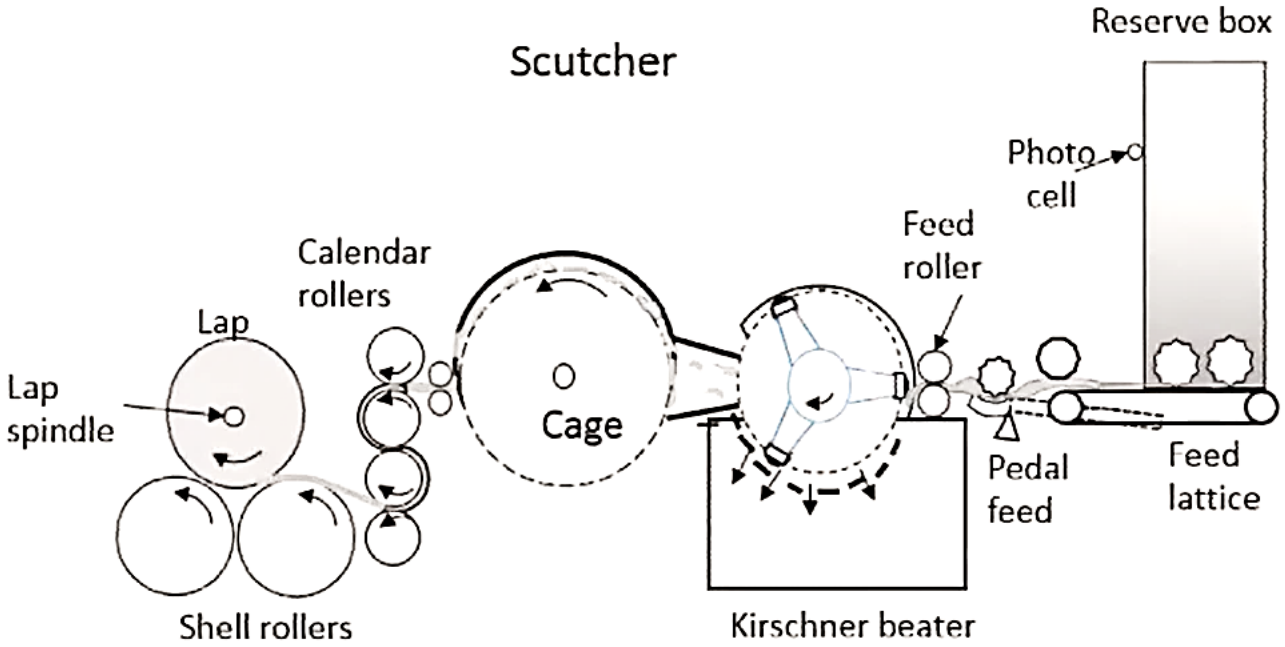
VARIOline cleaning concept – medium trash content



Cleaning of different fibre types



Lap Formation



No Scutcher in modern blowroom line:
Flock Feed system

- $Production(m) = delivery\ speed(m/\min) \times duration(min)$

- $Production(Kg) = Delivery\ speed(m/\min) \times duration(min) \times \frac{1}{1000} \times lap\ weight\ (g/m)$