

FRAMSTILLING AV PAPIR BASERT PÅ RESIRKULERT RÅVARE



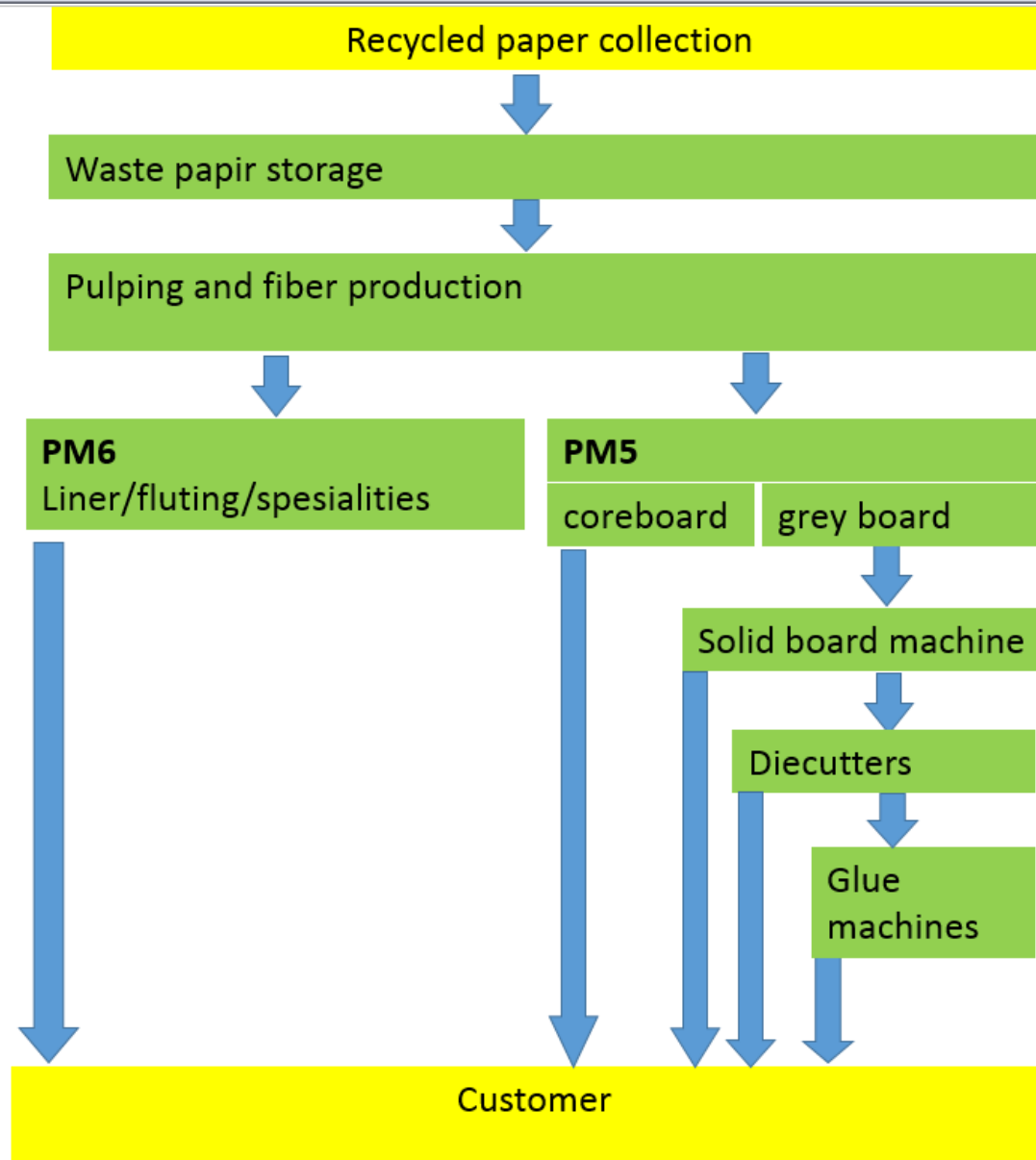
OVERSIKT RANHEIM.



- 1 Waste paper storage
- 2 Steam boilers & pulp production
- 3 PM5
- 4 Solidboard machine
- 5 PM6
- 6 Die-cutters and glue machines
- 7 Finished product storage solidboard
- 8 Finished product storage paper

Source: Company Information

OVERSIKT PROSESS RANHEIM.





-125.000 tons OCC (Old
Corrugated Containers)

ca 5% SAMS

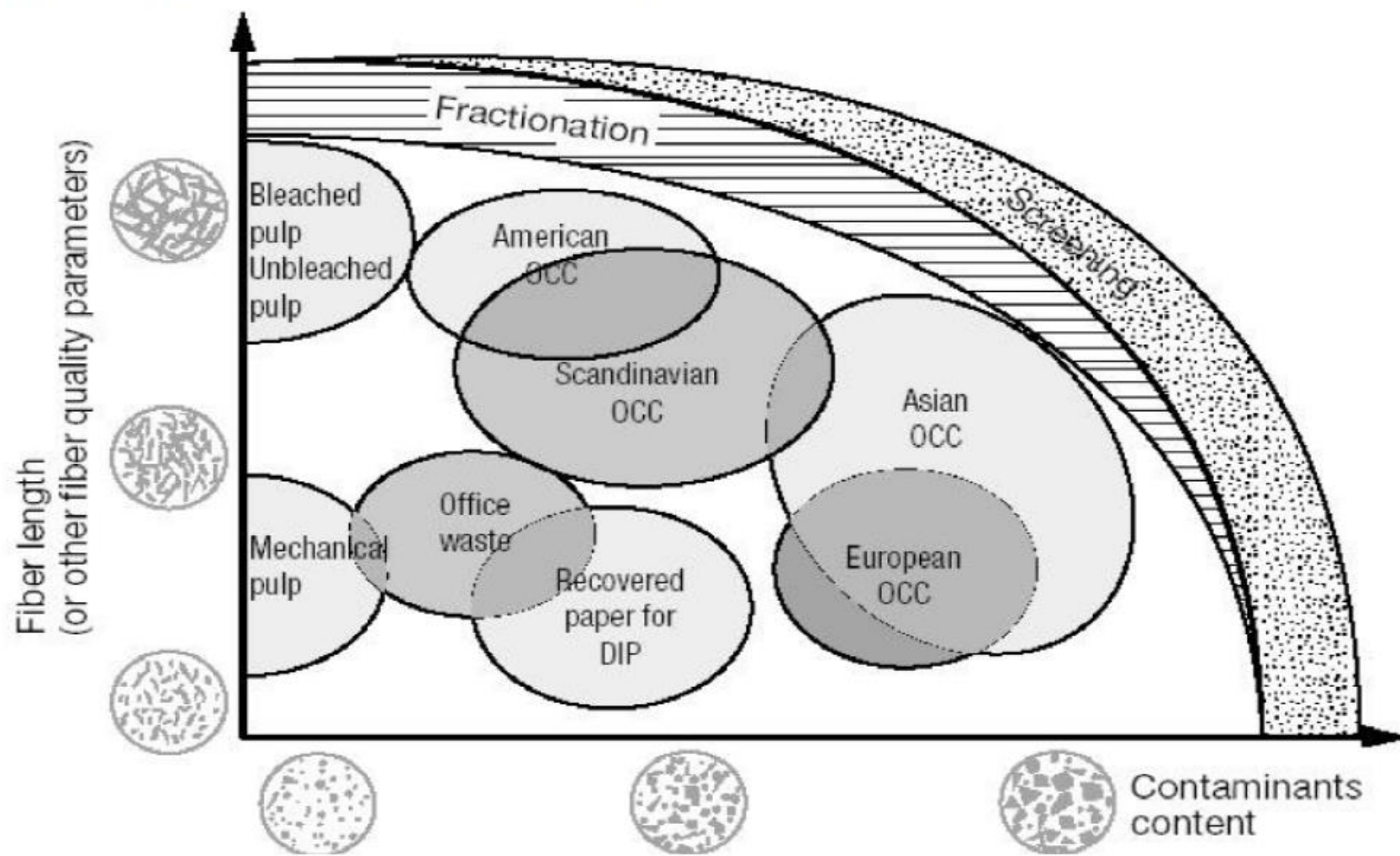
-100% resirkulert fiber
fra Norge and Sverige

KONTROLL RÅSTOFFKVALITET

- EN 643 - Europeisk standard
- 1.04, 1.05, 1.01.....
- Men geografiske forskjeller innen samme spesifikasjon.
- Kvalitet har endret seg over tid....



GEOGRAFISKE FORSKJELLER.



ÅRSÅK TIL ENDRING

- Kvalitet på returpapir endrer seg p.g.a. blanding av forskjellige papirtyper.
- Fiberlengdefordeling endrer seg som følge av dette.



Typiske fiberlengder på Ranheim.

- Lang fiber: 1,25-1,4 mm.
- Kort fiber: 1,0-1,15 mm.
- SAMS : 0,8-0,9 mm
- Typisk ubleket Kraft: 2,2-2,4 mm
- Typisk bleket hardwood Kraft: 0,9 mm
- Askeinnhold: 8-10%.

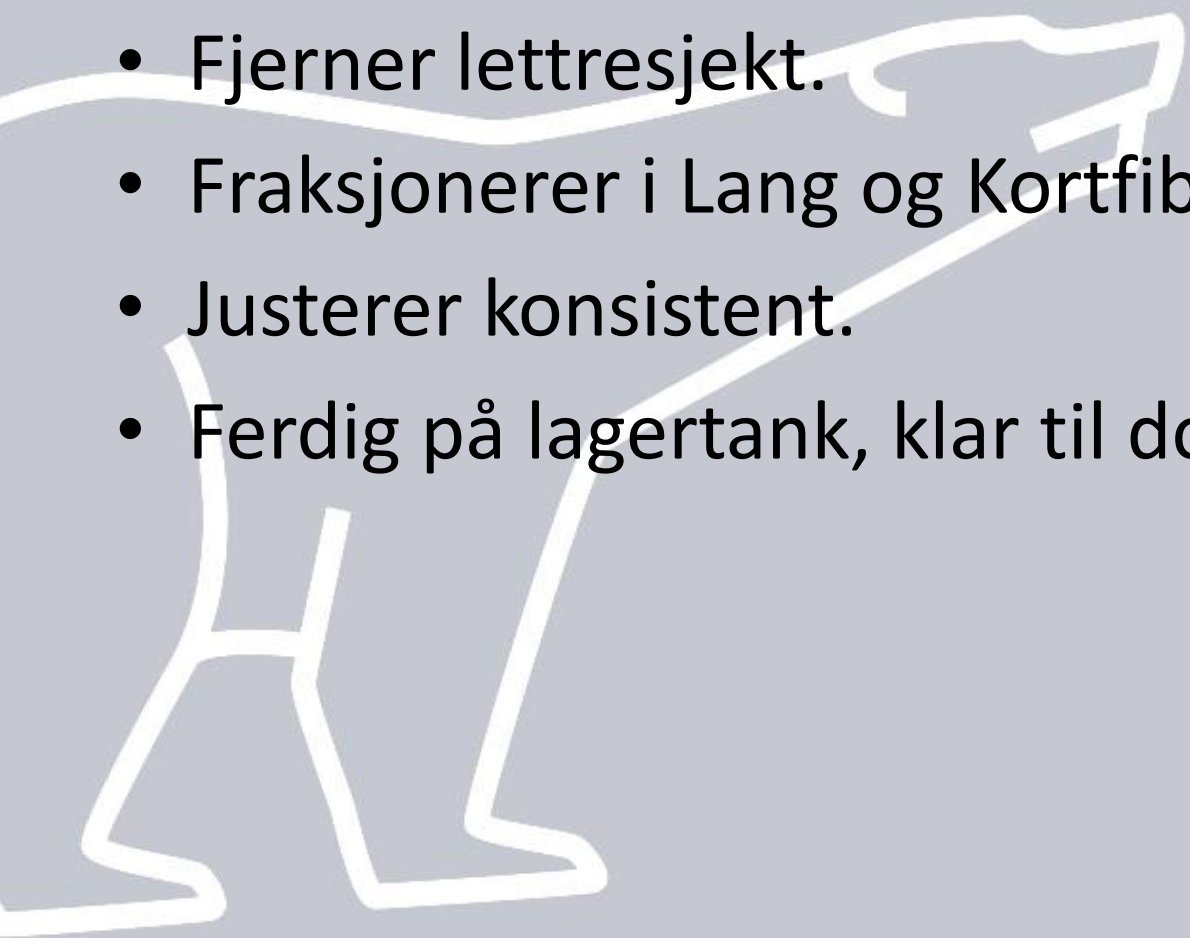
PULPING



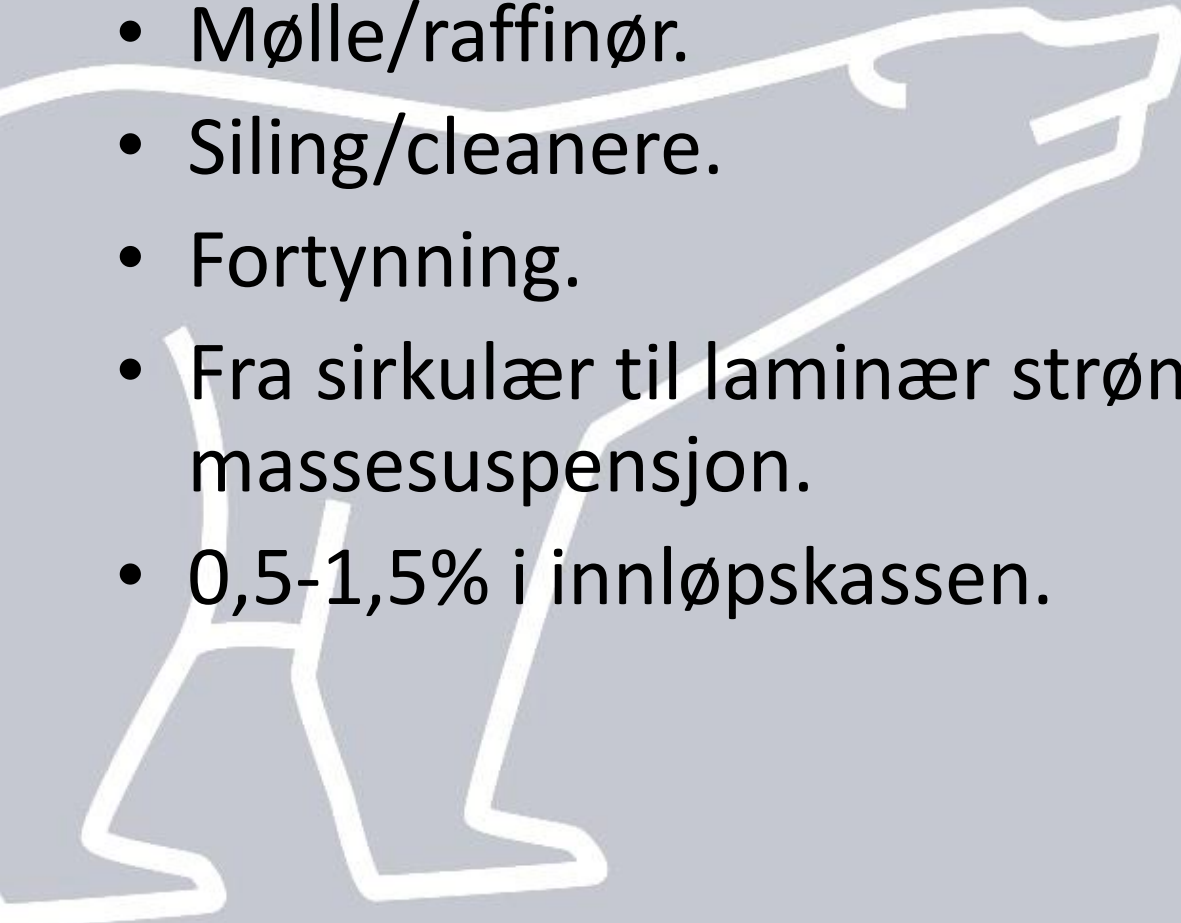
IKKE BARE FIBER



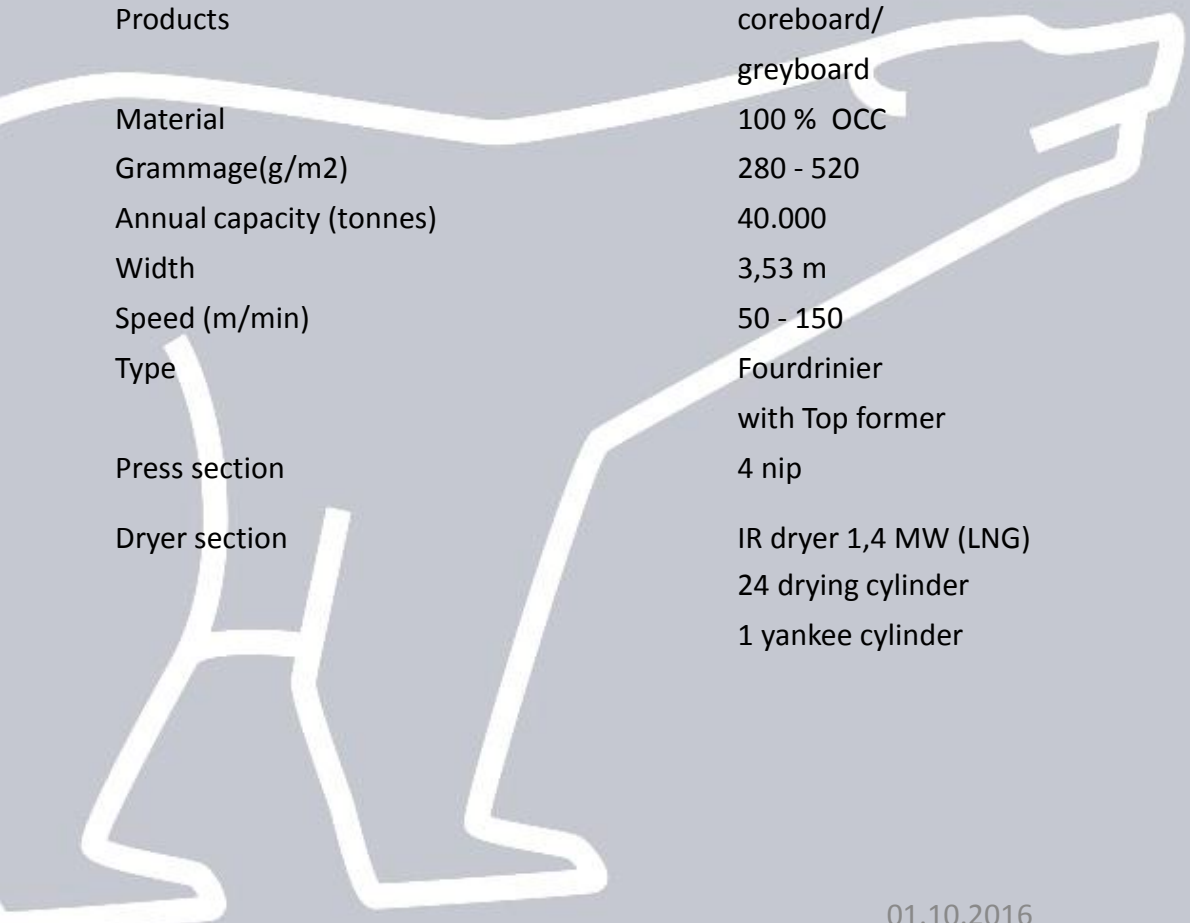
- 6000 tonn avfall pr år
- Konverteringsfaktor.
 - 1,09.

- Fjerner tungresjekt.
 - Fjerner lettresjekt.
 - Fraksjonerer i Lang og Kortfiber fraksjon.
 - Justerer konsistent.
 - Ferdig på lagertank, klar til dosering på PM.
- 

- Sette riktig resept avhengig av kvalitet på PM.
- Justere konsistens.
- Mølle/raffinør.
- Siling/cleanere.
- Fortynning.
- Fra sirkulær til laminær strømning av massesuspensjon.
- 0,5-1,5% i innløpskassen.



PAPIRMASKINENE

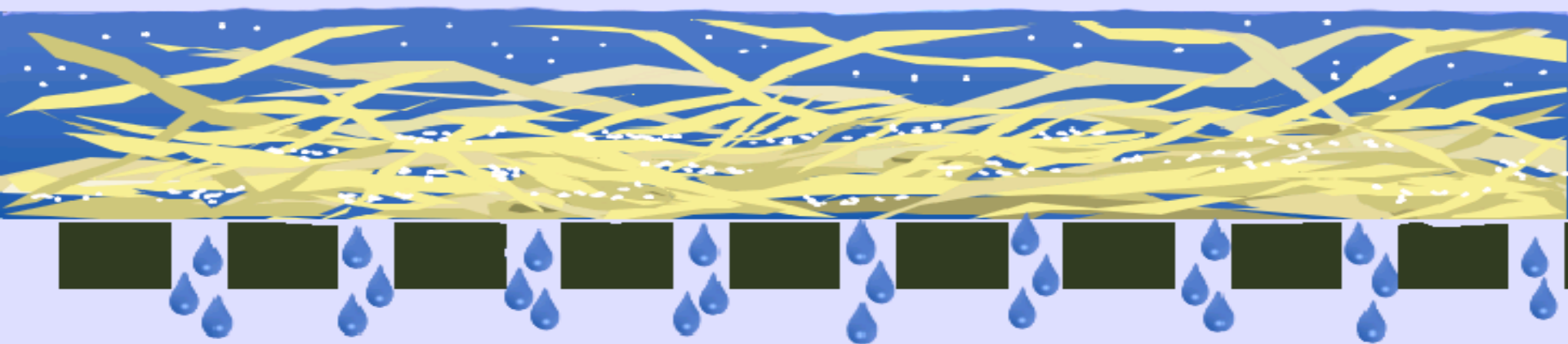


	PM5	PM6
Start up	1959	1966
Products	coreboard/ greyboard	Testliner/fluting
Material	100 % OCC	100 % OCC
Grammage(g/m ²)	280 - 520	65 - 420
Annual capacity (tonnes)	40.000	75.000
Width	3,53 m	4,04 m
Speed (m/min)	50 - 150	80 - 450
Type	Fourdrinier with Top former	Fourdrinier with dandyroll
Press section	4 nip	2 nip
Dryer section	IR dryer 1,4 MW (LNG) 24 drying cylinder 1 yankee cylinder	IR dryer (EL) 20 drying cylinder

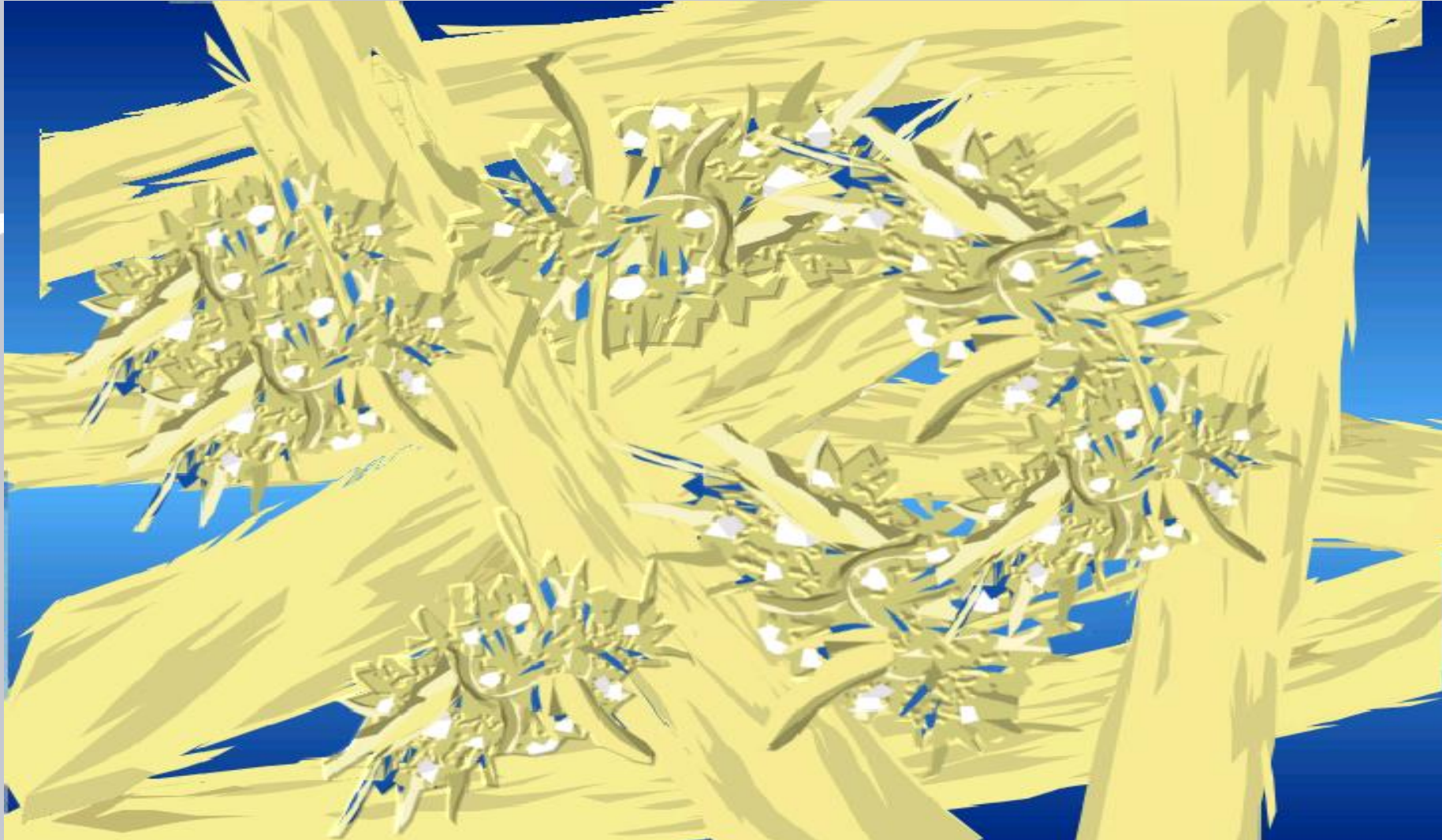
PLANVIRE – FORMING AV PAPIRET



FORMING



FORMING



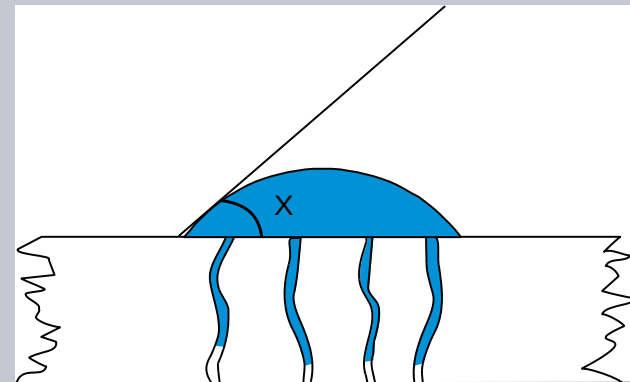
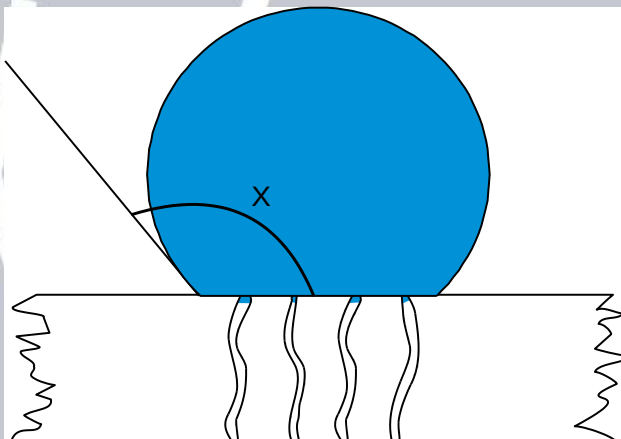
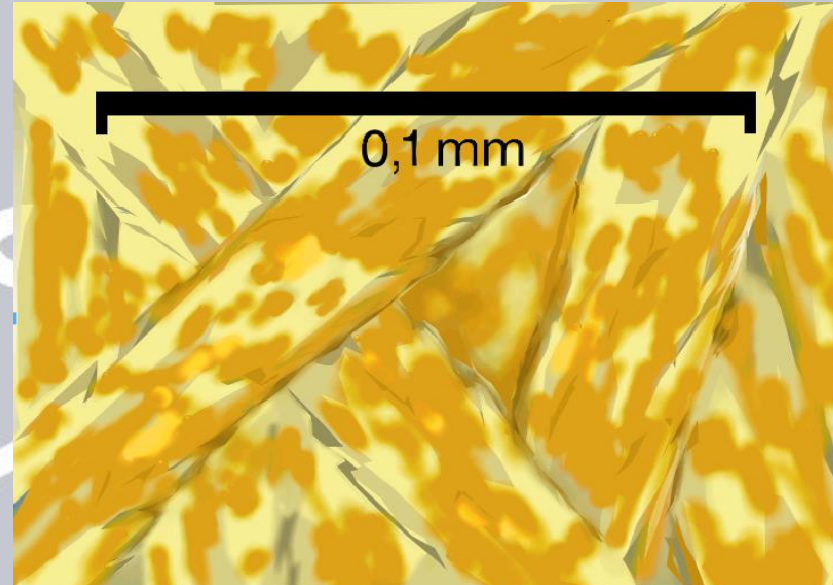
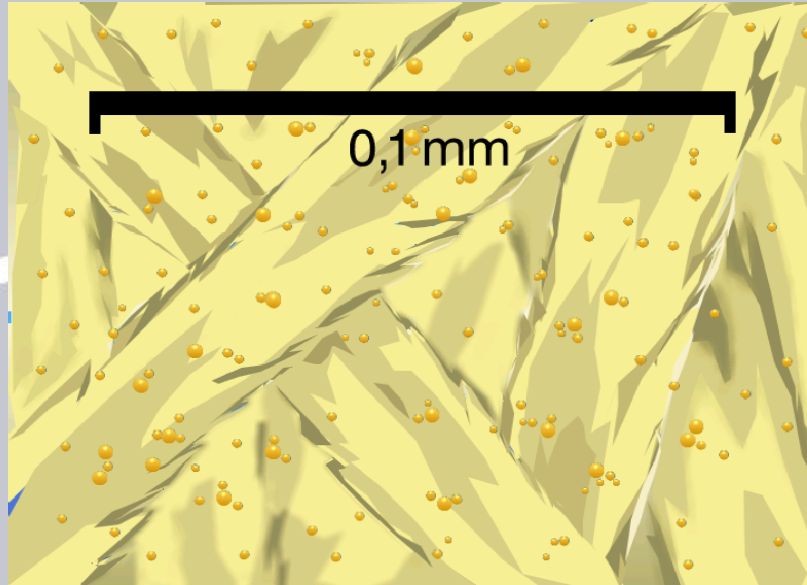
Funksjonskemikalier

- Stivelse.
- Lim – hydrofobering.
- Absorpsjonsmiddel
- Syntetisk tørrstyrkemiddel
- farge

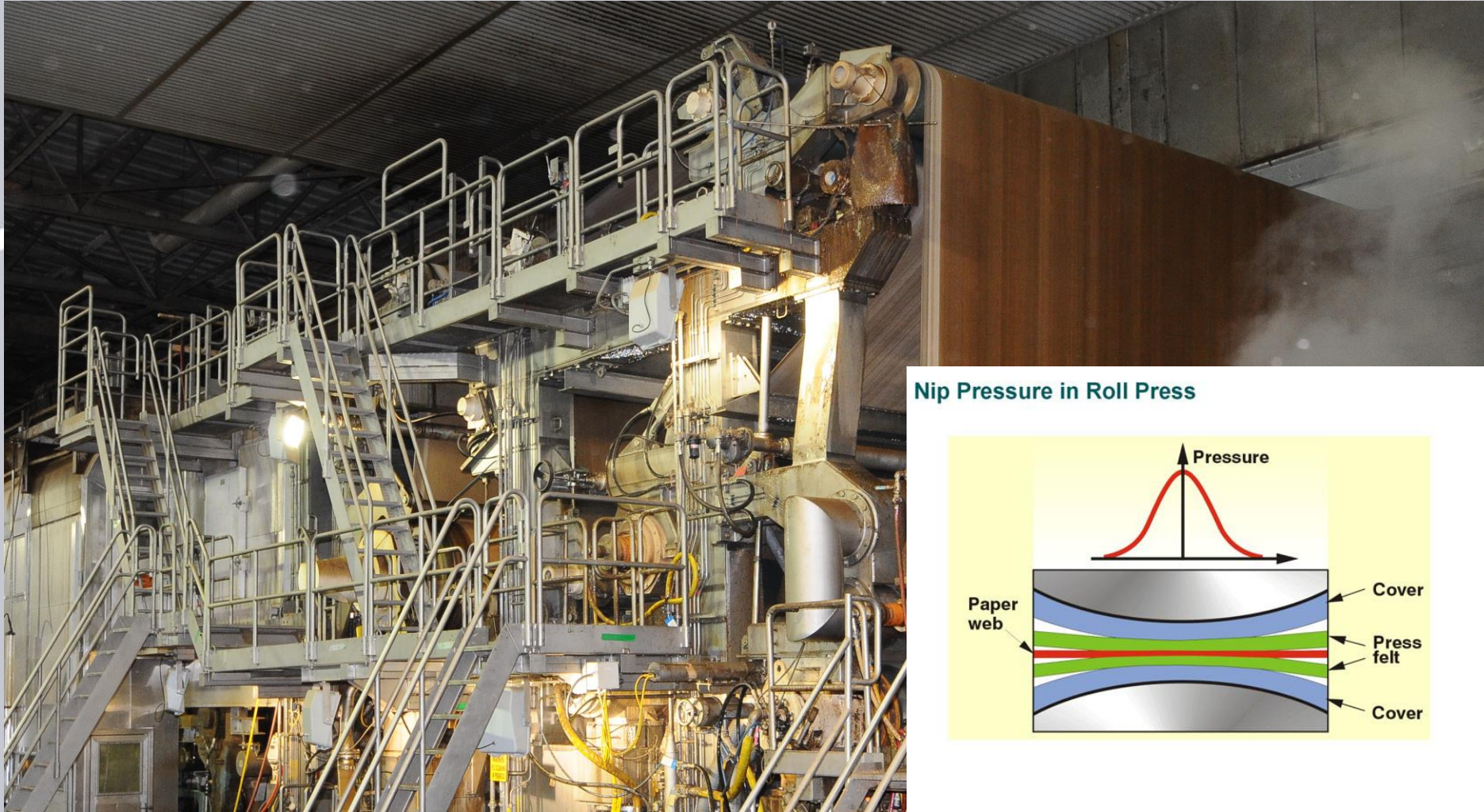
Prosesskemikalier

- Retensjon/avvanning
- Skumdemper.
- Slippmiddel
- Biocid.
- Alun.

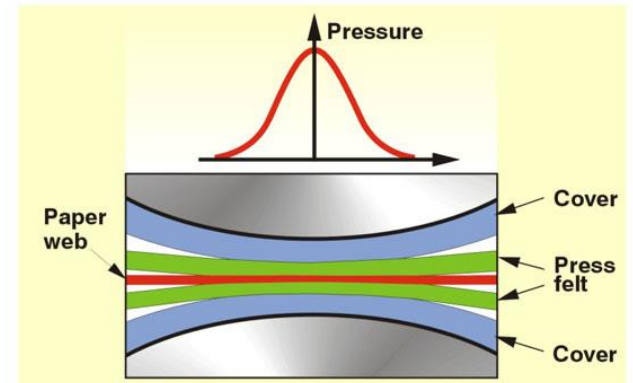
HYDROFOBERING



PRESSING



Nip Pressure in Roll Press



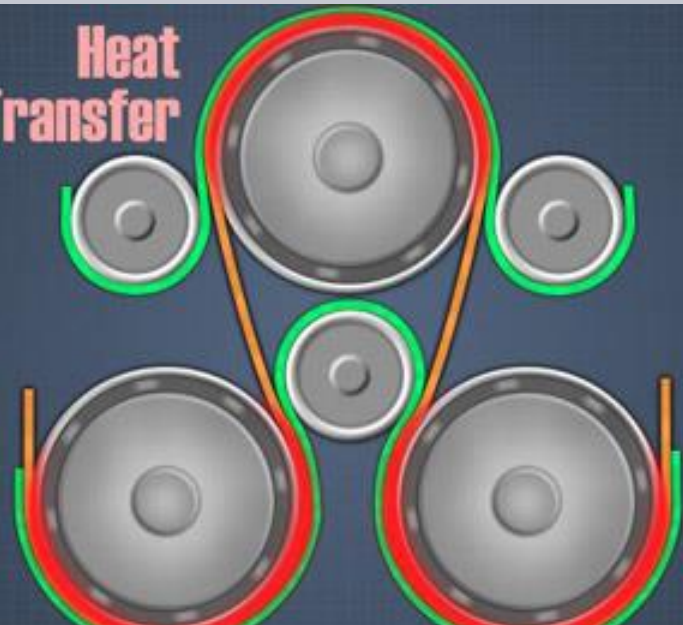
TØR KING

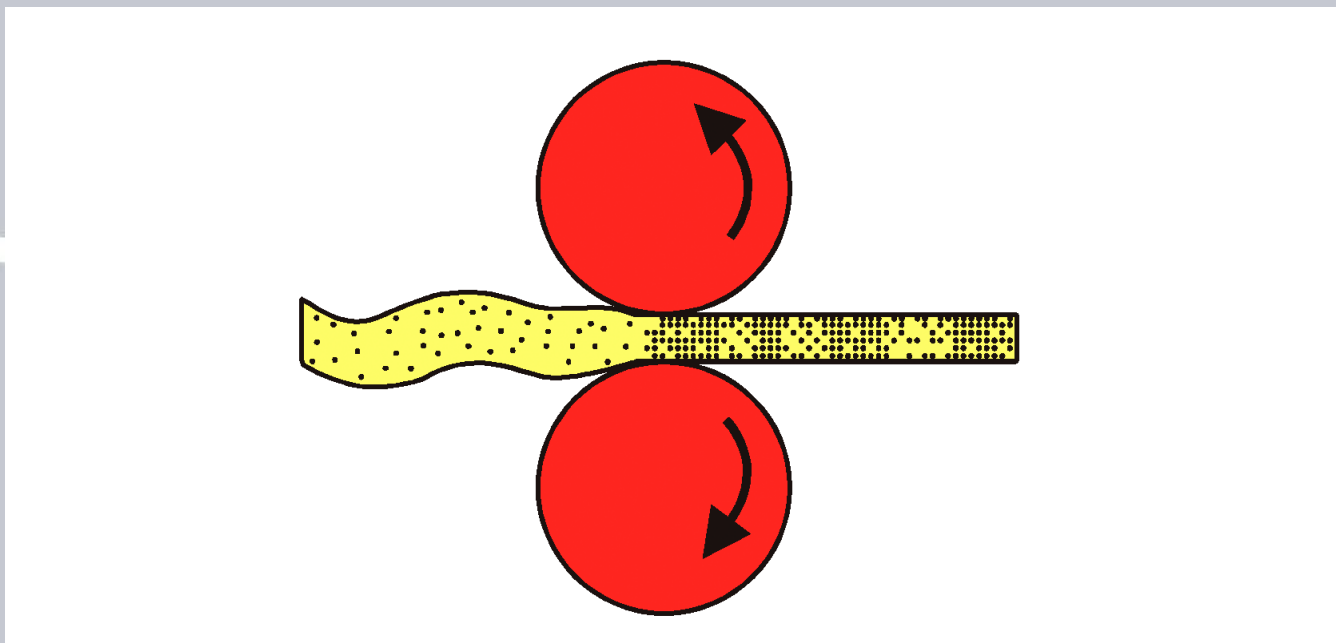
FRA 45 % DS

TIL 90-95% DS



**Heat
Transfer**



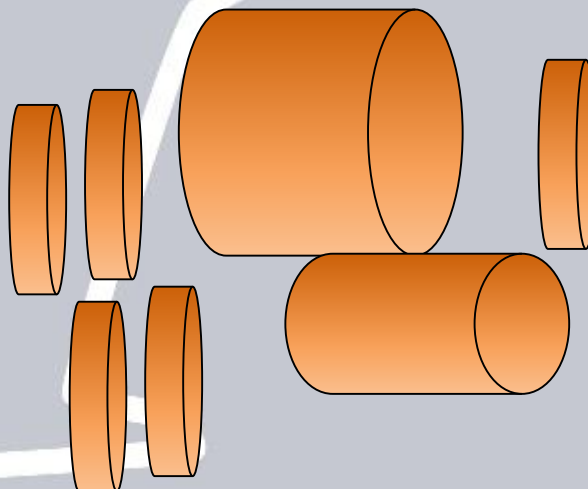
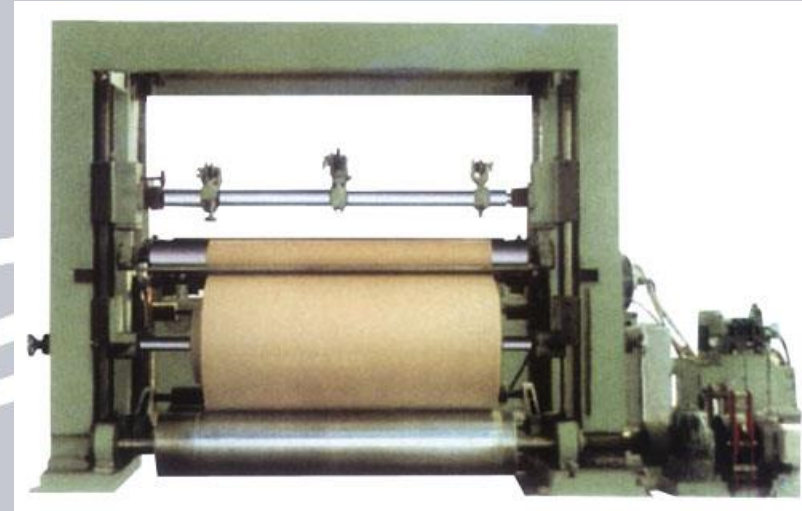
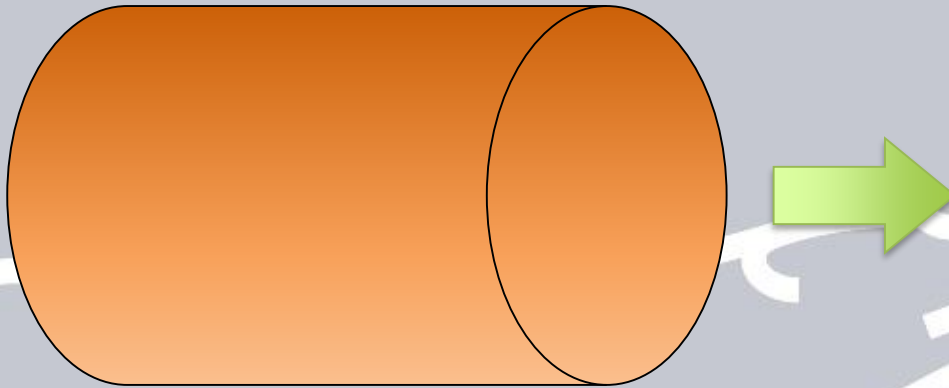


JEVN TYKKELSE – VARIASJON I DENSITET.

TAMBUR



TAMBUR TIL FERDIG FORMAT



Products

- 40.000 tons Testliner/Fluting for Corrugated Packaging PM 6
- 15.000 tons Specialties (Bag Paper, Floor Covering etc.) PM 6
- 25.000 tons Greyboard for Solid Board Boxes PM5+6
- 25.000 tons Coreboard PM 5
- 105 000 t total Paper and Board



VISKO-ELASTISK INHOMOGENT MATERIALE

GENERELT

- Flatevekt g/m²
- Tykkelse
- Densitet
- Bulk

STYRKE

- Slitstyrke.
- Elastisitet.
- Rivstyrke.
- Sprengstyrke.
- Z-styrke
- SCT/RCT
- bøyestivhet

OVERFLATE

- Ruhet
- Friksjon
- Porøsitet
- Vannresistens.
- absorpsjonsevne.

PRODUKTUTVIKLING



Petaplaster

2008 –



2016 -



Petasat



MFC/Nanocellulose

