

ACE Group

Fibres 100 TPD VSF Production Line

Originally, two preparation and spinning lines with a VSF capacity of 70 – 80 tn/d each; total 150 tn/d.

Steeping System:

Pulp feeding system

Pulper

Slurry tank

Slurry pumps

Metering pumps

AC-presses

Shredders

Steeping lye preparation

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Pulping

Capacity Over 100 t VSF/d

Bale conveyor and lift

➤ Pulper 6

◦ Type Jylhä

◦ Volume 24 m³

◦ Electric motor 132 kW

➤ Slurry tank

◦ Volume 2 x 24m³

◦ Slurry pump;

➤ Ahlström THP 12, 1472 l/min, h=40m, 75kW

Pulping

Capacity Over 80 t VSF/d

➤ Bale conveyor and lift

➤ Pulper 7

◦ Type Jylhä, JP-22A

◦ Volume 13 m³

◦ Electric motor 90 kW

➤ Slurry tank

◦ Volume 40 m³

◦ Slurry pump;

Ahlström THP 10, 1470 l/min, h=40m, 37 kW

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Pulper



AC-Presses

- Sunds AC-presses, MPC-72
- Capacity (steeping lye hemi 30 g/l)
- HW pulp 37 tn/d/press
- SW pulp 33 tn/d/press
- Sunds AC-shredders
- Slurry pumps; 11kW

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Steeping Lye Preparation:

- Waco filter for steeping lye cleaning
- Heat exchangers
- Pumps

Aging

- Aging drum 7. with drives
 - Size; (D)3,4m x (L)25m
 - Capacity; 110 tn/d
 - Coolers

- Conveyer coolers

AC-cooler, type Lenzing (from line 6), Model ACC 1300,

Aging

- Aging drum 6. with drives
 - Size; (D)3,4m x (L)24m
 - Capacity; 100 tn/d
 - Coolers

- Conveyer cooler

- AC-cooler, type Lenzing

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Aging Drum



Xanthation

- Weighing hoppers (2pcs) with scales
- Xanthate machines, Maurer type (round)
 - Capacity
- 1600 kg alpha cellulose/batch
- Volume 20,5 m³
- 37–40 tn VSF/d/machine; depending on pulp
- Valves
- Hydraulic drives, 55kW
- CS₂ recovery system from xanthators
- Vacuum pumps
- Program description

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Xanthator



Hydraulic Drive



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Dissolving

- Xanthate dissolvers, type Maurer
- Drives and electrical motors, 132kW
- Volume; 16 m³
- Grinding system, Type Viscofiner, 37 kW
- Pumps; 37 kW
- Four units, two for one xanthator

Dissolving Lye Preparation

- Centrifuge; Alfa Laval Separator, 2 pcs
- Niagara filters
- Heat exchangers
- Cooling machines; Trane
- Pumps

Ripening

- Ripening tanks
- Drives and electrical motors
- Heat exchangers for viscose
- Pumps

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Filtration

- KKF-filters for 1. or 2. filtration, 9 pcs available
- Pressure vessels,
- Metering pumps

Flow sheet for filtration including reject handling

Remarks

- Filter need for 100 tn/d VSF-capacity
 - 1. filtration 8 KKF filters
 - 2. filtration 6 KKF filters
 - Reject filtration 2 KKF filters and centrifuges
 - Total need 16 KKF filters

KKF Viscose Filter



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De-Aeration

- Pre-de-aeration system
 - De-aerator; Maurer
 - Vacuum system;
 - Pumps
- De-aeration
 - De-aerator; type Säteri
 - Vacuum system;
 - Pumps;

Remarks

Several de-aerators and vacuum systems available

Preassure Vessels and dosing

System before spinning

- Preassure tanks with drives
- Mixer and pumps
- Dosing pumps

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Spining

- Two spinning machines 6. and 7. available
- Spinning capacity 72 – 107 tn/d depending
- on fiber type and spinnerettes



Spinning Machine 7

- Spinning machine, Maurer type
- Spinning capacity:
 - 1,3 dtex; 88 tn/d, speed 65 m/min, 60 000 holes/spinnerettes
 - 1,7 dtex; 107 tn/d, speed 60 m/min, 60 000 holes/spinnerettes
 - 1,7 dtex; 96 tn/d, speed 60 m/min, 54 000 holes/spinnerettes
- Viscose dope; alpha cellulose 8,5 – 10,0 %, NaOH 5 – 6 %

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- Cluster spinnerettes
 - 2 sides x 69 cluster spinnerettes
- Titer pumps, 60cm³
- Candle filters
- Drives, electrical motors, gear boxes
- Stretch bath circulation with heaters and pumps

Spinning Line 7



Spining Machine 6

- Spinning machine, Maurer type
- Spinning capacity:
 - 1,3 dtex; 72 tnVSF/d, speed 65 m/min, 54 000 holes/spinnerettes
 - 1,7 dtex; 86 tnVSF/d, speed 60 m/min, 54 000 holes/spinnerettes
 - Viscose dope; alpha cellulose 8,5 – 10,0 %, NaOH 5 – 6 %

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- Cluster spinnerettes
 - 2 sides x 62 cluster spinnerettes
- Titer pumps, 60cm³
- Candle filters
- Drives, electrical motors, gear boxes
- Stretch bath circulation with heaters and pumps

Waste Cable Washing

- Two waste cable washing drums
- Tähän kuva

Spin Bath Circulation

- De-gassing unit; Rubber lined steel and AISI-316
- Sand filters;
- Pumps
- Heat exchangers

Remarks

Totally 17 Sandfilters available

Spin Bath Evaporation

- Evaporators Designed capacity (tn H₂O/h)
 - Ebner 1 12
 - Ebner 2 12
 - Ebner 6 6
 - Rosenlew 12
 - Lurgi 15

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- KKK 8
- Kemira 15

Remarks

Evaporators are stopped and cleaned as a such with all equipments.

Cutting and after treatment

- Cutting machines; Maurer type modernized by Lenzing
- Aftertreatment machine with fleece former and CS₂-condensation system
- Width; 3,0m
- Wire mesh type
- All necessary washing stages, preassure rollers, wet openers and chemical dosing systems.
- Separate finishing stage
- Capacity; 100 tn VSF/d

Cutting machine



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After treatment Machine 7



Fleece Forming Unit

- Lenzing type fleece former
- CS2 condensation system made by Lenzing Technik
- Wire mesh washing machine modernized by Lenzing Technik

CS2 Condensation



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Drying and opening

- Fleissner type drum dryer 7
 - Drum width; 3,0 m
 - Capacity 70 – 90 tn/d
- Fine openers; Type Hergeth, two units
- Heat exchangers for energy recovery

Remarks

For 100 tn/d VSF capacity the dryer have to be enlarged. Fine opener capacity is enough and also heat recovery.

Baling

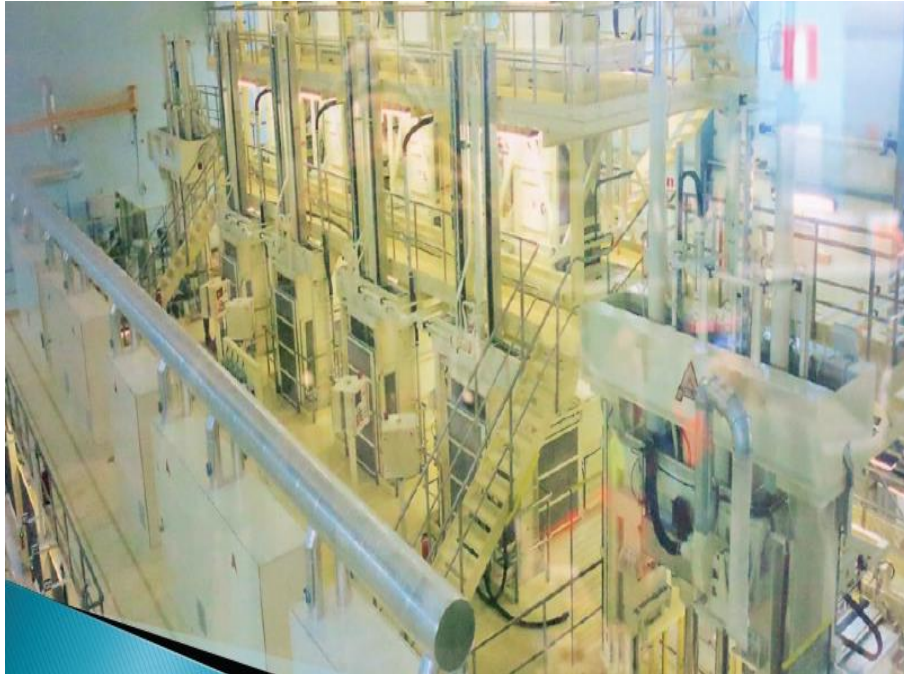
- Fully automated Autefa Uni-Box Baler
 - Four pre-presses
 - Two main-presses
 - Bale stackers with lift
 - Moisture measurement system, Lenzing type
 - Labelling system
 - Common Crane

Remarks

Suitable for three spinning lines capacity 70-100 tn/d each or for two 140 tn/d spinning lines
High utilisation rate

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Fully automated Autefa Uni-Box Baler



Sodium Sulphate plant

- Kemira Engineering design
- Planned for spin bath recovery
- Capacity 130 tn Na₂SO₄ (dry)/d
- Cooling crystallation (bath)
- Calsination
- Drying
- Pneumatic transport system
- Silos

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Waste Water Treatment Plant

- Chemical-Mechanical plant for precipitating zinc
 - Pumps
 - Agitators
 - Lime producing system
- Biological plant
 - Capacity;
 - Air compressors; Type
 - OKI aerators
- Sludge de-watering systems
 - Centrifuges; Type
 - Pumps
 - Tanks

CS₂ and H₂S Recovery

- Sulphosorbon plant
 - Activated carbon about 100 tn
 - All equipment
- H₂S Scrubber
 - Capacity;
 - Flow about 110 000 m³/h, 2 g H₂S/m³
- CS₂ Condensation unit line 6



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Power Station and Utilities

- Steam
 - Water cleaning
- Electricity
 - Generators
 - Turbines
- Preassured air
- Inert gas
- Cooling water
 - Cooling machines