

**BUCHER**  
foodtech



**Flavy UltraStar XL**

State of the art in ultrafiltration



## Bucher Ultrafiltration

- The first UF for juice production was installed 1986
- > 250 plants worldwide in operation

### Classic applications

- Fruit juices
- Fruit wines

### Further applications

- Fermenter broths
- Vegetable juices
- Plant extracts
- ...



## Bucher Ultrafiltration

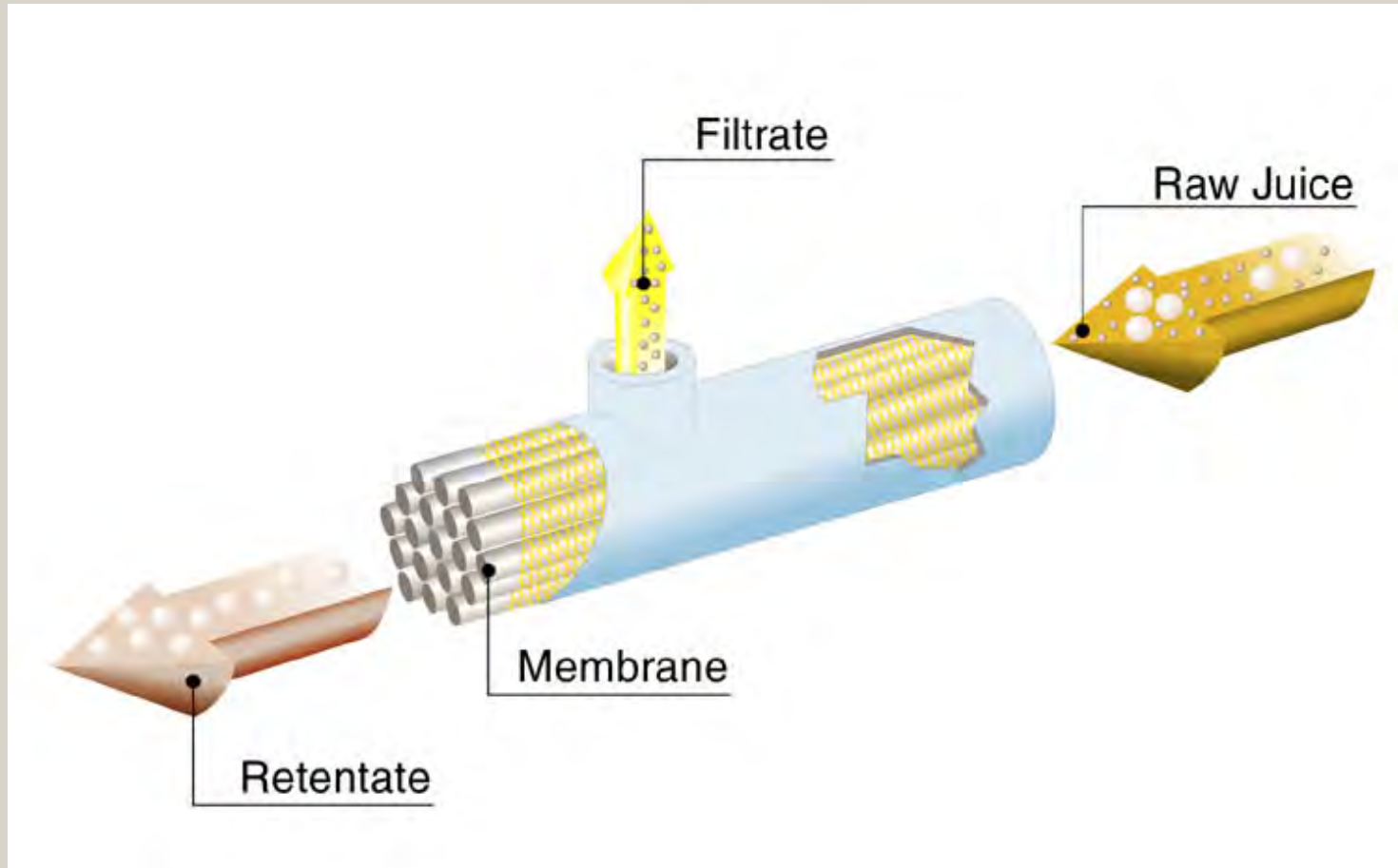
Principle: Cross-flow UF with diafiltration

Types:

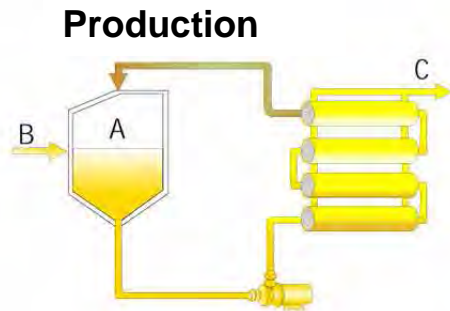
- **MiniStar**: for small-scale operation, semi-continuous, up to 88 m<sup>2</sup>
- **UltraStar XL**: for large-scale operation, semi-continuous, excellent price-performance ratio, up to 500 m<sup>2</sup>
- **ContiStar**: for large-scale operation, continuous, for sensitive products and for processes with highest quality requirements, up to 800 m<sup>2</sup>



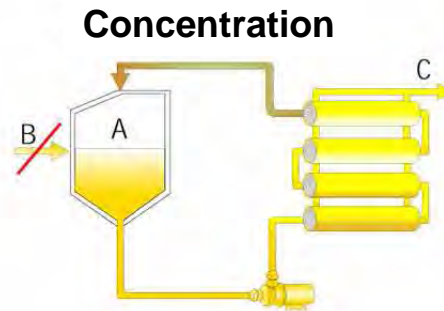
## Cross Flow Filtration



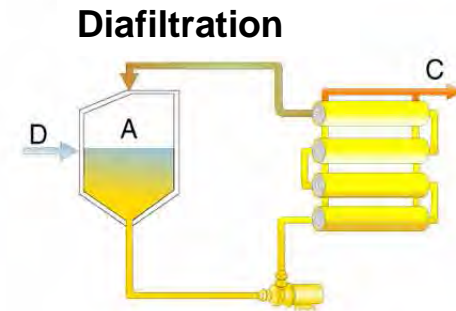
# Operation Sequence



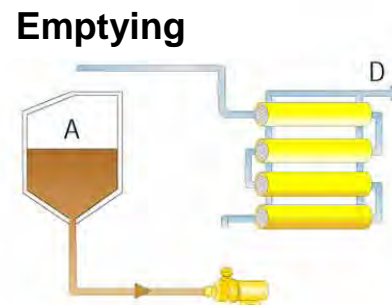
Legend:  
A = Retentate, B = Feed, C = Permeate



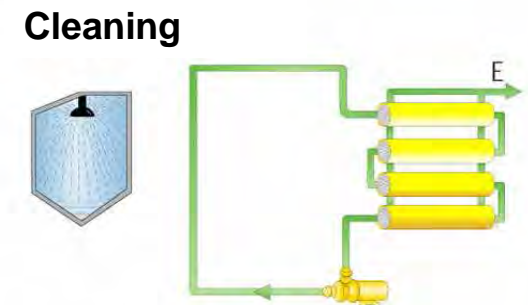
Legend:  
A = Retentate, B = Feed, C = Permeate



Legend:  
A = Retentate, C = Permeate, D = Water



Legend:  
A = Retentate, D = Water



Legend:  
E = Cleaning agents

 **Flavy UltraStar XL**





## Flavy UltraStar XL: Technical features

- Small footprint
- Optimised, automatic cleaning
- Feed and permeate lines are included to external CIP
- High operation safety (monitoring of parameters)
- Designed to achieve:
  - Better efficiency
  - Minimised energy consumption
  - Controllable performance
  - Low operation noise
  - Best phase separation between product, water and cleaning agents
  - Minimal product loss
  - Reduced consumption of flushing water



## Flavy UltraStar XL: The main advantages

- High efficiency
- Can be extended at any time
- Short installation time at client (skid-mounted).
- High quality components
- SuperCor® XL Plus modules
- Compatible with most polishing agents (bentonite, activated carbon, gelatine, silica)
- Optimised and proven automatic process
- Final inspection on the Bucher test device
- Excellent technical consulting after commissioning
- Best warranty performance





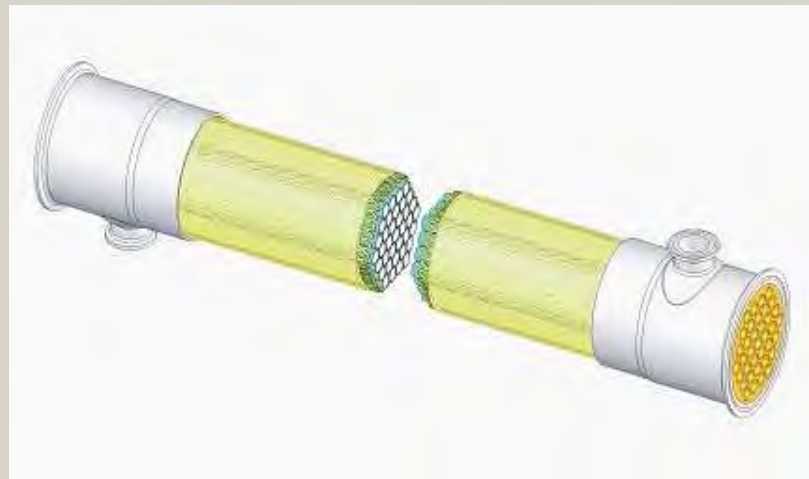
## Membrane: KMS tubular membranes

- Material: PVDF (membrane), Polyester (support layer), Polysulfone (housing)
  - Established and reliable for years
  - Stable flux over years
  - Long module life
  - ½“ tubular membranes: high suspended solids tolerance
- **HFM180: The „real“ UF-membrane**
    - Tight pores
    - Very good juice stability
    - All-purpose
  - **HFM513: The alternative**
    - Larger membrane pores
    - Higher flux and less colour retention
    - Needs more treatment to stabilise juice
    - Mainly for coloured juices



## SuperCor® XL Plus membrane module

- Sanitary design
- Unibody construction: no risk of leakages (no gaskets to seal between the membrane and the module housing)
- Transparent housing: easy inspection
- 4.3" (11 cm) diameter, 12 foot (3.6 m) long, 5.2 m<sup>2</sup> membrane à large membrane area with small footprint!



## Flavy UltraStar XL: Supply unit



Front: Supply unit  
Back: Filtration unit

## Flavy UltraStar XL: Supply unit



Pipes with valves



Top view

## Flavy UltraStar XL: Automation

- PLC: Siemens S7-300
- User-friendly touch panel
- Installation of the touch panel in external control room or incorporation into control cabinet
- Integrated management of periphery tanks
- Print of operational data and messages (optional)



## Flavy UltraStar XL: Construction kit

- 83 – 499 m<sup>2</sup> membrane area
- Performance: up to 50'000 L/h (apple juice)
- Can be extended later on

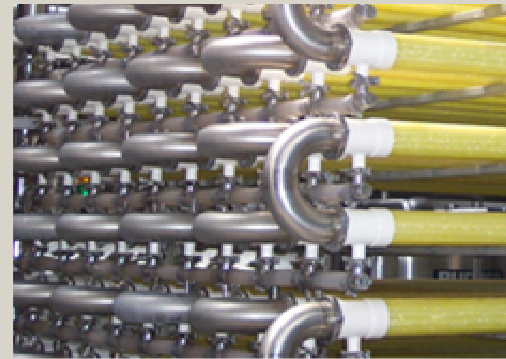
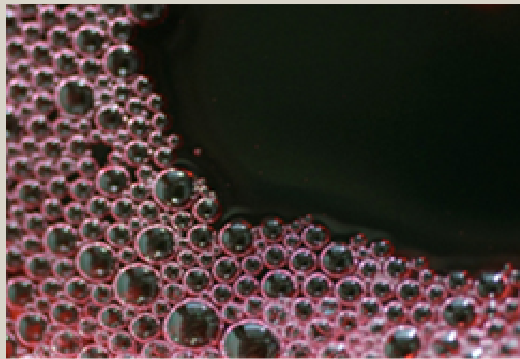
| Passes  | Supply unit           | Filtration unit | P2               | P4                |
|---------|-----------------------|-----------------|------------------|-------------------|
| 2       | „small“<br>DN 125/100 | 2/3-pass        | FPE3552<br>30 kW | FPE3532<br>5.5 kW |
| 3       |                       | 2/3-pass        | FPE3552<br>45 kW | FPE3532<br>5.5 kW |
| 4       | „large“<br>DN 150/125 | 4-pass          | FPE1252<br>55 kW | FPE3532<br>9.2 kW |
| 5 and 6 |                       | 5/6-pass        | FPE1252<br>75 kW | FPE3532<br>9.2 kW |



## References Ultrastar XL

- VOG in Italy
- Sugar&Fruit in Germany
- Agrana Group in Eastern Europe
- Aroma and Asya in Turkey
- Zumos Argentinos in South America
- Hengxing and Haisheng in China
- ...

Since 2005 more than 40 plants all over the world



## Example On-site

- UltraStar XL 6-16, Hengxing, China



## Flavy UltraStar XL: Conclusion

- Technology: Top-level of the juice filtration market
- Maximal product yield and high quality juice
- Excellent consulting service by Bucher before, at and after commissioning



**„Your success is our priority“**



**Thank you for your attention!**