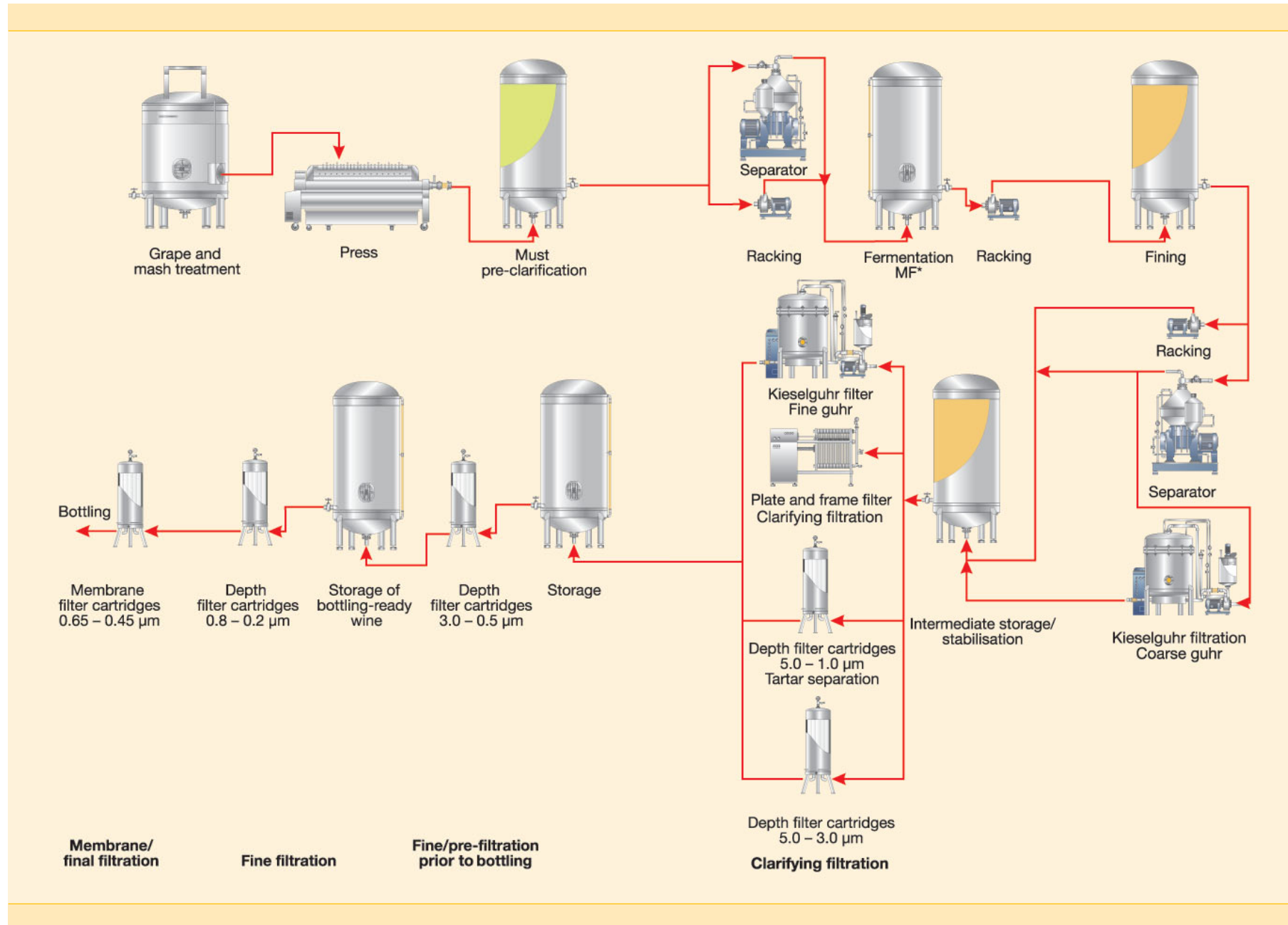




3

FLOW DIAGRAM FOR  
WINE PRODUCTION

3 Flow diagram for wine production



\* MF = Malolactic fermentation

Note: For clarifying filtration, cross-flow filters may also be used.



# 8

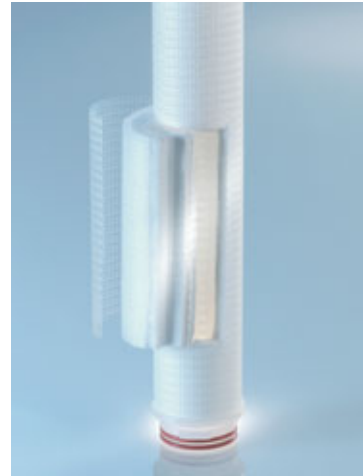
DIFFERENCES BETWEEN  
MEMBRANE AND DEPTH  
FILTER CARTRIDGES

## 8 Differences between membrane and depth filter cartridges

On the right filter cartridges vary in terms of retention ratings and other features. The table on the right describes the cartridge types in more detail, in order to facilitate selection of the suitable filter cartridge for the respective filtration application in wine and sparkling wine production.



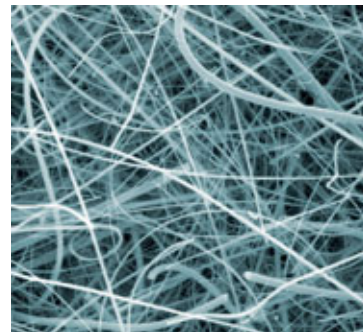
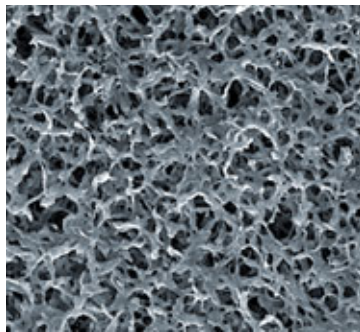
Left: Membrane filter cartridge  
Right: Depth filter cartridge



### 8.1 Configuration

Membrane filter cartridges are always pleated, because this type of filtration requires a large surface.

Depth filter cartridges are available in pleated or wrapped form. The individual filter layers of wrapped depth filter cartridges gradually become finer, from outside to inside. They are back-washable and mechanically more stable.



Left: Membrane filter cartridge matrix  
Right: Depth filter cartridge matrix

## 8.2 Differences between the two filter cartridge types

### 8.2.1 Features

Membrane filter cartridges	Depth filter cartridges
Material: Hydrophilic Polyether sulfone (PES) or Polyvinylidene fluoride (PVDF)	Material: Hydrophobic Polypropylene (PP)
Application: Sterile wine filtration	Application: Clarifying and fine filtration and for the protection of the membrane filter cartridges
Effect: Separation of blocking substances at the surface	Effect: Separation of blocking substances in the fleece matrix through sieve effect
Absolute retention rating: LRV value (log reduction value) Validation with test bacteria	Nominal retention rating: β-ratio or retention efficiency Determination with defined particles, by definition these filter cartridges have an absolute retention rating at β-ratio ≥ 5000 or a retention efficiency ≥ 99.98 %
Service life per 30" filter cartridge: 150,000 – 400,000 litres	Service life per 30" filter cartridge: 150,000 – 800,000 litres

### 8.2.2 Testing options

Membrane filter cartridges	Depth filter cartridges
Integrity test after each sterilisation	
Determination of yeast and bacteria microbiology	Determination of yeast microbiology from < 1 μm retention rating
Ensure proper operation through monitoring of the pressure differences (Δp), e.g. at the start and end of the bottling process	
Open the housing approx. every three months for visual inspection	