



# Jumbo Star Filtration Systems for Food & Beverage Applications

Simplifying Progress

**SARTORIUS**

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# Introduction to the Jumbo Star Filtration Systems

This system is designed for the clarification of wine and beer or for pre-treatment of other food & beverage products. Thanks to its design it is a compact footprint system with high performance.

**It is based on Jumbo Star filters, which are:**

- High-surface cartridge filters: high flow rate and large filtration capacity
- Robust: no limit to intensive regeneration of the Jumbo Star filter after use that brings the best throughput
- Green technology: low cost of energy power consumption, no classified waste.

**These systems are:**

- Equipped from two to four filter stages and a CIP System
- Fully adaptable to customer production processes & product characteristics.



## Beverage Filtration

**Segments:** Wines, sparkling wines, vinegar, balsamic vinegar, beer, water

**Applications:** Particles retention, turbidity and clogging index reduction



# Applications of the Jumbo Star Filtration Systems

Where can the Jumbo Star filtration system be implemented in your process:

## **Wine**

- After tartaric stabilization
- For clarification as alternative to Cross-flow or Kieselgur filters
- Before the final filtration line

## **Sparkling Wine**

- Removal of yeast and crystals after second fermentation

## **Vinegar**

- After fermentation
- Before final filling step

## **Balsamic Vinegar**

- Before final filling to reduce turbidity

## **Craft Beer**

- To reduce turbidity after the maturation in the fermentation tank

## **Beer**

- Trap filter
- After centrifuge

## **Water**

- Removal of particles at the well, before storage tank, before or after water treatment, alternative to sand filters
- Venting filter for large storage tank
- Prefilter for incoming water
- Downstream of GAC (Granular Activated Carbon)

# Benefits of the Jumbo Star Filtration Systems

Reduce the turbidity and | or the clogging index of the Food & Beverage products



## Competitor technologies in the clarification step

- Cross Flow system
- Kieselgur filter
- Centrifuge
- Sheet filter
- Sand filter

## Advantages of our Jumbo Star system

- Savings:
  - no loss of product, low manual power, easily & effectively regenerable, reducing the filter consumption
- Compact and easy to operate:
  - small footprint for easier handling
- Repeatability of the results:
  - consistent quality of the filtrate
- Closed filter system:
  - no product oxidation, easy to sterilize, avoid microbiological contamination risks
- Green technology:
  - very low energy and limited rinse water consumptions, no classified waste
- No health risk for operators compared to Kieselgur filter

# Overview of the Jumbo Star Filtration Systems

	Manual	Semi-Automated	Fully-Automated
Customizable design	■	■	■
Control of the production flow rate	■	■	■
Selection of filtration stages	■	■	■
Control panel with touch screen	–	■	■
Integrated CIP system	■	■	■
Back rinsing	Manual	Automated	Automated
Chemical cleaning cycles	Manual	Manual Command	Automated
Sterilization cycles	Manual	Manual Command	Automated
Flow rate measurement	□	□	■
Electrical heater for CIP (50°C   122°F)	□	□	□
Chemical insertion funnel	□	□	–
Feed pump with inverter	□	□	□
Product recovery	Manual	□ Manual Command	Automated

■ included □ optional



# Our Portfolio of the Jumbo Star Filtration Systems

The portfolio is composed of three ranges:

## Manual Solutions



## Semi-Automated Solutions



## Fully-Automated Solutions



# Manual Jumbo Star Filtration System

- Customizable design to integrate complex environments and overcome user constraints
- Applications requiring flexibility in running processes
- Low to medium-size daily volumes to process
- Low capital investment

## Available models

- Single filtration line





# Semi-Automated Jumbo Star Filtration System

- Customizable design to integrate complex environments and overcome user constraints
- Gain in productivity as a stand-alone system during production
- Increase process safety
- Pre-defined working cycles for rinsing and chemical regeneration to be launched manually

## Available models

- Single filtration line
- Up to five parallel filtration lines



# Fully-Automated Jumbo Star Filtration System

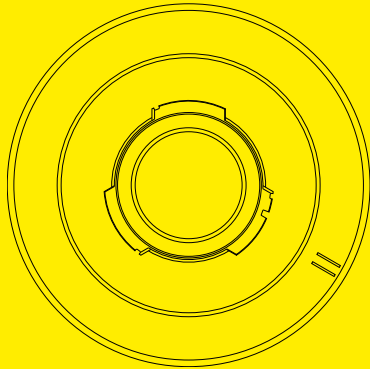
- Maximize productivity efficiency with autonomous operational activity
- Optimized process to save on production costs
- Peace of mind: a complete automated process enables you to rely on the process monitoring parameters to assure optimized production
- Security: comprehensive monitoring with electronic sensors, automated valves and data software provide advanced process control
- Customizable design to integrate complex environments and overcome user constraints

## Available models

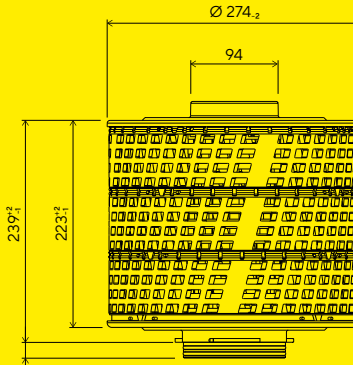
- Single filtration line
- Up to five parallel filtration lines



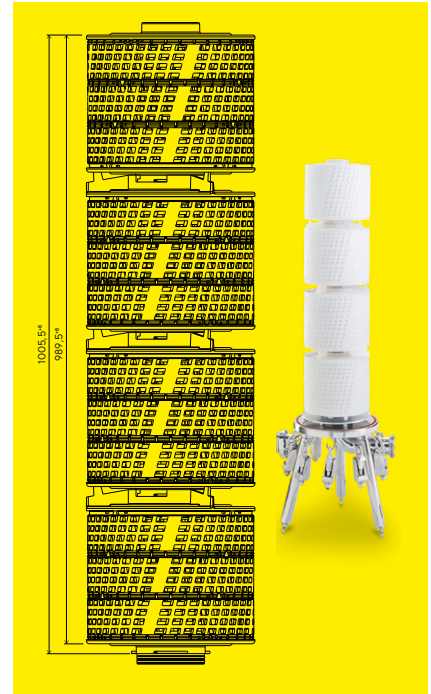
# Jumbo Star Cartridges | Dimensions



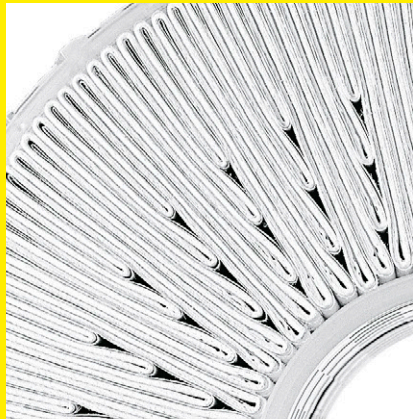
Male adapter



Diameter: 275 mm (10<sup>13</sup>/<sub>16</sub> in)  
 Height 10": 280 mm (11 in)  
 Height 20": 518 mm (20<sup>3</sup>/<sub>16</sub> in)  
 Height 30": 796 mm (31<sup>1</sup>/<sub>16</sub> in)  
 Height 40": 1055 mm (41<sup>5</sup>/<sub>16</sub> in)



# Jumbo Star Cartridges | Pleating Technology



The pleating technology allows a large filtration area for a high-flow rate and large retention capacity. The pleats have different length.

This technology allows more efficient back-flushing compared to standard filter cartridges.

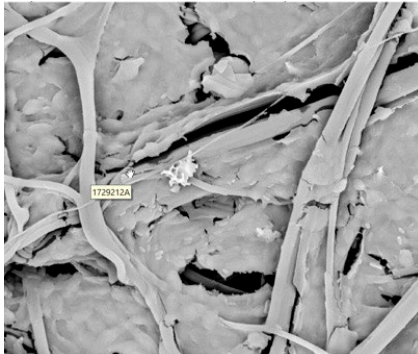
- High filtration area 28 m<sup>2</sup> (40 inch)
- High filtration capacity
- High flow rate

# Jumbo Star Cartridges | High Robustness



- High resistance to differential pressure up to 4 bar | 58 psi at 20°C (68°F)
- High temperature resistance (steam sterilizable)
- Wide chemical compatibility for Jumbo Star filters

# Jumbo Star Cartridges | Easy to Regenerate



Example of clogged fleece



Fleece after chemical regeneration

Thanks to their mono-material polypropylene construction as well as the pleating mode used, Jumbo Star cartridges can be easily and efficiently regenerated:

- by backflush
- by high throughput
- by water during production
- by chemical agents at the end of production

# Jumbo Star Cartridges | Portfolio

- Jumbo Star Sartopure® PP: inert and large chemical compatibility material for all applications
- Jumbo Star Sartopure® GA: for venting of large storage tank
- Jumbo Star Sartopure® GF Plus: mainly for water to reduce the filterability index
- Jumbo Star Sartoclean® SC: adsorptive filtering material to reduce the clogging index



	Sartopure® PP	Sartopure® GA	Sartopure® GF+	Sartoclean® SC
Construction Material	All Polypropylene	Hydrophobic Glass Fiber Fleeces	Glass Fiber Fleeces	Multilayer Media with Glass Fibers and Cellulose
Layers	Up to 6	Up to 4	Up to 5	Up to 6
Retention rates	0.45, 0.65, 1.2, 3, 5, 8, 20 µm	0.2 µm	0.65, 1.2 µm	1.2 µm, 3 µm
Filtration Area	28 m <sup>2</sup> (40 inch)	30 m <sup>2</sup> (20 inch)	20 m <sup>2</sup> (40 inch)	24 m <sup>2</sup> (40 inch)

 [Find out more](#)



# Our Approach to Sizing the Jumbo Star System

## Standard information requested

- Flow rate of the final system
- Daily & annual production volume
- The target value for turbidity and |or clogging or filterability index

## Phase 1 – Lab Trials

- Definition of how many filtration steps are needed as well as the best filter combination
- Evaluation of the filtration capacity for each step

## Phase 2 – Industrial Trials

- Confirmation of the filtration capacity
- Checking the clogging index and |or turbidity of the product before and after filtration
- Evaluation of the efficiency of the regeneration step

## Phase 3 – Quotation of the Final Jumbo Star System






# Global Presence

Sartorius Stedim Biotech has a worldwide presence, with Manufacturing, Sales and R&D sites in more than 20 countries in Europe, North America and Asia. More than 10,000 employees across the globe focus on single-use technologies and added-value services to meet the rapidly changing technology requirements of the industry it serves.

Sartorius Stedim Biotech has several decades of experience on the wine market, for which we have developed a range of specific products, adapted to the clarification, filtration and microbiological control steps. Our manufacturing sites of filter cartridges are certified ISO 90001:2015.

Benefit from Sartorius' expertise and experience to obtain the best quality, throughput rates, and services in your production and filling processes.

 For more information, please visit our website:  
[www.sartorius.com/food-and-beverage](http://www.sartorius.com/food-and-beverage)

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