



Food and Beverage



## Pall SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

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**SUPRApak** depth filtration enters a completely new generation with a unique flow control, the so called “edge flow” technology.

A revolution in depth filtration in the food and beverage sector.

Efficient, economical and innovative the Pall **SUPRApak** depth filter modules are the future of depth filtration with filter sheets.

## Introduction

For over 100 years, filter sheets have been used in the food and beverage industry to filter liquid foods in classic plate and frame filter racks.

The unique filter matrix comprising cellulose, diatomite and perlite combined with the filtration characteristics of the filter sheets on the surface and at depth and the adsorption make the filter sheets an attractive option for a very wide range of applications. In many instances they are extremely difficult to replace with other filter technologies.

Increased demand for environmentally compatible production processes and product quality in the food industry has intensified the need to seek out alternative filtration systems. At the same time, cost pressure demands that filter systems, which are simple to operate with low staffing costs are integrated in the production process. Classic sheet filters have considerable disadvantages, such as the high cost of filter change-outs and cleaning, an open system combined with drip loss, the risk of microbiological contamination and the amount of space required for the filter housing. However, it is not always possible to replace the filter sheets with different filtration systems economically and efficiently due to stringent, and at times, complex filtration requirements.

In response to industry demands to replace classic sheet filters, Pall® has introduced the new **SUPRApak** filter module. Based on proven SeitzSchenk sheet technology, **SUPRApak** modules are revolutionizing the market for depth filters with sheet filtration.

## Food use compliance of Pall SUPRApak depth filter modules

The materials of construction meet the requirements for food contact as detailed in EU Regulation 1935/2004/EC.

FDA food use requirements detailed in 21 CFR Section 170-199.

### Depth filter sheets

#### Sub-sections

- 177.2260 (filters, resin bonded)

### Plastic materials

#### Sub-sections

- 177.1520 (olefin polymers)

The polymeric components of the product are manufactured from monomers which our suppliers state are listed in EU Directive 2002/72/EC.

- Particle separation
- Polishing filtration
- Final filtration (removal of microorganisms)



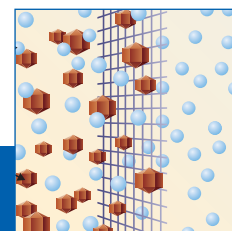
Sugar

- Particle separation
- Polishing filtration
- Final filtration



Gelatin

- Particle separation
- Polishing filtration
- Final filtration



Enzyme Solutions

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## Pall SUPRApak module design

The **SUPRApak** filter design is an entirely new and unique configuration of filter sheet material, which sets a new standard for enclosed sheet filtration.

**SUPRApak** modules are based on classic depth filtration technology, and represent a perfect combination of the three filtration mechanisms: surface filtration, depth filtration and adsorption.

The main components are selected cellulose, diatomite and perlite of the highest purity.

Unique to the **SUPRApak** module is an entirely new flow control based on the “edge flow principle”. The filter sheet material contains feed and filtrate channels wrapped around a permeable core. Refer to Figure 1.

Straps are then used to attach the sheet material to the core. Refer to Figure 2.

This design results in a compact lap of high-quality filter sheet material. Thus the **SUPRApak** module meets the highest demands in terms of purity, clarity and microbiological stability of the filtered product. Refer to Figure 3.

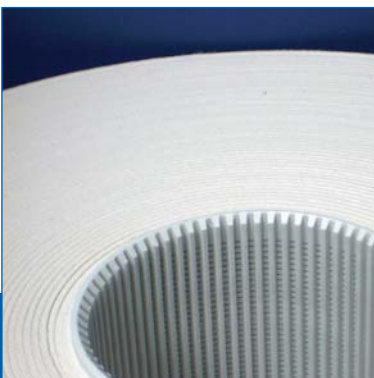
### Module dimensions

Module Height <b>SUPRApak</b> 16"	250 mm (9.84")
External diameter <b>SUPRApak</b> 16"	415 mm (16.34")
Internal diameter <b>SUPRApak</b> 16"	111mm (4.37")
Wet	25 - 30kg
Dry	11.5 - 12kg

## User advantages

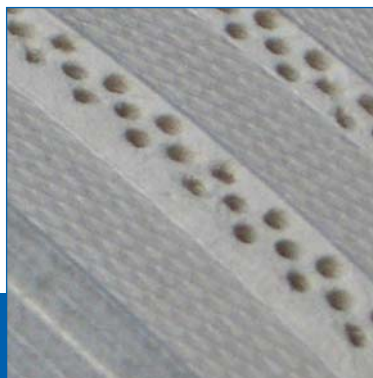
- Savings on filter change outs due to modular construction, no time-consuming insertion of individual filter sheets
- Ease of handling, therefore less time required from run to run
- Reduced cleaning costs
- Savings through increased process times as the edge flow principle helps to improve the use of the full capacity of the depth filter material.
- Highly cost-effective
- Increased process safety and product quality through depth filtration in enclosed system, no product drip loss at the edges of the sheets
- Compact construction - **SUPRApak** filter modules provide high packing density of filter material, thus reducing the space required for the corresponding filter housing
- New filter geometry increases particle absorption capacity
- Filter unit needs no gaskets
- Large area per unit
- Material separation relatively simple for ease of disposal
- Low investment for housing compared to classical plate and frame
- Reliable **SUPRApak** installation through external torque control

Figure 1



Core wrapped in sheet material

Figure 2



Straps and perforated structure of filtrate channels

Figure 3



Core wrapped in sheet material

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## Pall SUPRApak filter media

### SUPRApak SW Range (standard)

Filter material in the SW range is made from high-grade cellulose, diatomite and perlite as well as <3% polyolefine fibres. The **SUPRApak** SW range contains 10 filtration grades ranging from type SW 5200 for sterilization filtration to type SW 7300 for separating coarse particles. Refer to Figure 4.

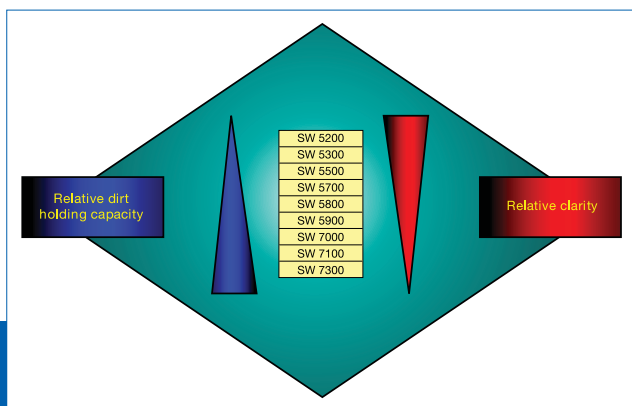
SW Range	Examples of use
SW 5200	Final filtration of enzyme solutions Liquid sugar sterilisation filtration
SW 5300	Final filtration of fructoseoligosaccharid
SW 5500	Germ-reducing filtration of sugar solutions
SW 5600	Gelatine (thick liquor, polishing filtration) Final filtration of sugar syrup
SW 5700	Gelatine (thick liquor, polishing filtration) Final filtration of sugar syrup
SW 5800	Filtration of enzyme solutions
SW 5900	Gelatine (thin liquor 2nd and 3rd stage, thick liquor, polishing filtration)
SW 7000	Gelatine (thin liquor 1st and 2nd stage)
SW 7100	Gelatine (thin liquor 1st stage)
SW 7300	High-volume flows and dirt transportation, enzyme filtration

### SUPRApak SR Range (high resistance)

The filter material in the SR range contains up to 40% selected polyolefin fibres in addition to cellulose, diatomite and perlite. This composition of raw materials is specially designed to meet the demands of the filtration of aggressive media, as it has high chemical and mechanical resistance compared with the **SUPRApak** SW range. As a result of the polyolefin fibres, the **SUPRApak** SR modules are highly resistant to enzymes which break down cellulose, making them the ideal choice for use in the enzyme industry. Refer to Figure 5.

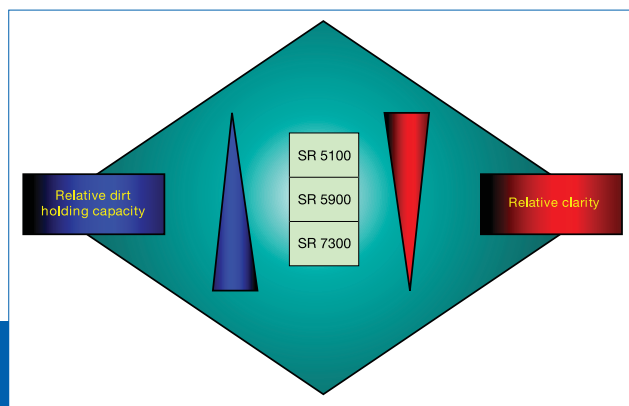
SR Range	Examples of use
SR 5100	Final filtration of enzyme solutions
SR 5900	Final filtration of enzyme solutions
SR 7300	Coarse filtration of enzyme solutions

Figure 4



SW range filtration grades

Figure 5



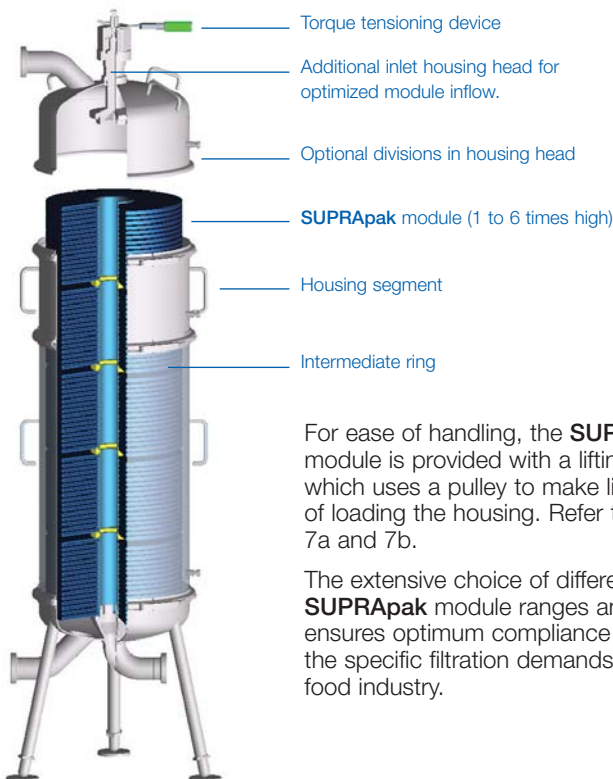
SR range of filtration grades

# Pall SUPRApak™ Depth Filter Modules

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## Pall SUPRApak housing

The new **SUPRApak** filter housings meet the requirements of applications in the food and beverage industry and are designed for use with the **Pall SUPRApak** depth filter modules. Refer to Figure 6.



For ease of handling, the **SUPRApak** module is provided with a lifting tool which uses a pulley to make light work of loading the housing. Refer to Figure 7a and 7b.

The extensive choice of different **SUPRApak** module ranges and models ensures optimum compliance with the specific filtration demands of the food industry.

Figure 6

## Pall SUPRApak housing design

All housing parts which come into contact with the product are manufactured from 316L stainless steel. The electropolished surfaces ensure optimal hygienic conditions.

The intermediate rings, which serve as a seal between the individual **SUPRApak** modules, are made from olefine polymers that meet FDA requirements for food contact use as detailed in CFR 21 Section 177.1520.

## Pall SUPRApak housing characteristics and advantages

- Large, hydro-dynamically designed inlet and outlet connections ensure high flow rates with low outlet differential.
- Electropolished surfaces can be cleaned easily and gently
- Large vent and drainage connections for rapid venting facilitate rapid filter change
- The external preliminary tensioning device enables optimal operational safety during filtration through selected tensioning of the module
- Indirect flow control dispenses with the need for flow guide plates
- Inlet connections at both the housing head and base facilitate the ideal inflow and optimum utilization of the **SUPRApak** modules
- Enclosed filter system
- Quick release clamp system
- Housing heads available with single or multiple divisions

The **SUPRApak** housing range allows between 1 and 6 **SUPRApak** modules to be used. Refer to Figure 8.

### Housing height / number of SUPRApak modules

1 Unit	2 Unit	3 Unit	4 Unit	5 Unit	6 Unit
Undivided	Single division	Single division	Undivided	Double division	Double division

Figure 7a

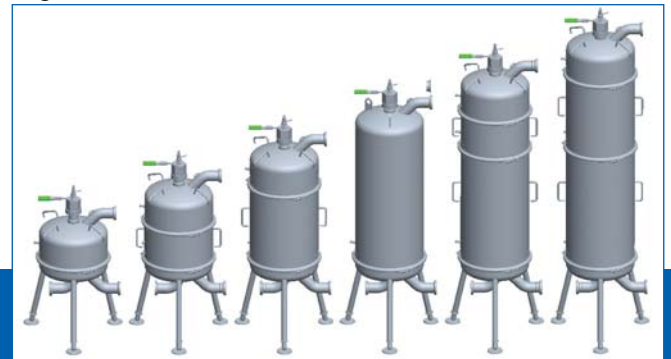


SUPRApak module lifting device

Figure 7b



Figure 8



# Pall SUPRApak™ Depth Filter Modules

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## Ordering Information

(This is a guide to the Part Numbering structure only. For specific options, please contact Pall)

### Part Number:

SUPRAPAK   

### Example Part Number:

**SUPRAPAK SW 5200 L**

See bold reference codes in tables

**Table 1**

Code	Range
<b>SW</b>	Standard Range
SR	High Resistant

**Table 3**

Code	Size
XS	7.5"
<b>L</b>	16"

**Table 2**

Code	Range
<b>5200</b>	SW Range
5300	
5500	
5800	
5900	
7000	
7100	
7300	
5100	SR Range
5900	
7300	

Please contact Pall for ordering information relating to Pall SUPRApak housings



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