PALL

Food and Beverage

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

*Filtration. Separation. Solution.*SM

FBSUPRAPAKENa

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

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

SUPRApak depth filtration enters a completely new generation with a unique flow configuration called “edge flow”. This cost-effective technology will revolutionize depth filtration in the food and beverage sector.

Introduction

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

The unique filter matrix comprised of cellulose, diatomite and perlite combined with the surface, depth, and adsorptive filtration capabilities of filter sheets makes them 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 and beverage industry has intensified the need to seek out alternative filtration systems. At the same time, cost pressures demand that filter systems are simple to operate with low staffing costs.

Classic sheet filters have considerable disadvantages, such as the high cost of filter change-outs and cleaning, an open system combined with drip losses, the risk of microbiological contamination and the space required for the filter assembly.

However, it is not always possible to replace filter sheets with different filtration systems economically and efficiently due to stringent, and at times, complex filtration requirements.

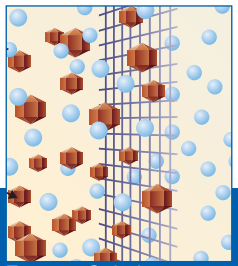
In response to industry demands to replace classic sheet filters, Pall has introduced the new SUPRApak filter module. Based on proven Seitz sheet technology, SUPRApak modules are revolutionizing the market for depth filters with sheet filtration.

Applications

- Particle filtration
- Colloidal removal
- Polishing filtration
- Final filtration


Sugar


Gelatin


Enzyme Solutions


Spirits


Beer


Wine

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

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 high purity cellulose, diatomite and perlite.

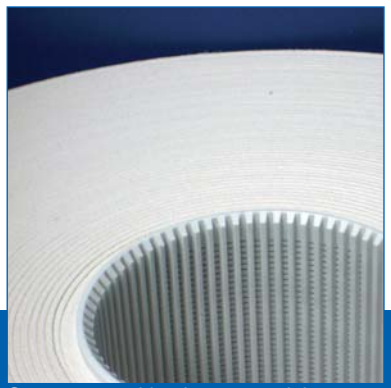
Unique to the SUPRApak module is an entirely new depth filter flow configuration based on the “edge flow” principle. The filter sheet material contains feed and filtrate channels wrapped around a permeable core (Figure 1). Straps are then used to attach the sheet material to the core (Figure 2).

This design results in a compact dense package of high-quality filter sheet material. Thus the SUPRApak module meets the highest demands in terms of purity and clarity of the filtered product (Figure 3).

User advantages

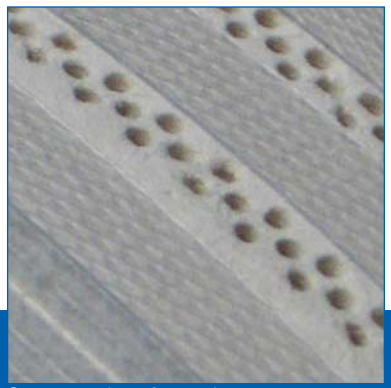
- Increased process safety and product quality due to enclosed, hygienic system
- Increased process uptimes, as the edge flow principle can allow longer throughputs and use of the full capacity of the depth filter material
- High turbidity reduction due to increased particle adsorption capacity
- High yields due to low hold-up volume, drainability of the assembly, and elimination of product drip losses
- Cost savings on filter change-outs due to modular construction, no time-consuming insertion and stacking of individual filter sheets, and less handling in between production runs
- Reduced cleaning chemical and water costs due to compact design
- Small footprint due to high packing density and resulting large filtration area per unit
- Easy disposal of modules
- Low capital investment compared to classical plate and frame assemblies
- Secure operation without bypass due to external tensioning control
- Low maintenance costs due to absence of gaskets on modules and very limited number of housing seals
- Low total cost of ownership due to combined savings on unit filter area, yield, handling, cleaning, and maintenance, and increased production availability

Figure 1



Core wrapped in sheet material

Figure 2



Straps and perforated structure of filtrate channels

Figure 3

Core wrapped in sheet material

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

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 % polyolefin fibers. The SUPRApak SW range offers 10 filtration grades ranging from type SW 5200 for final filtration to type SW 7300 for removing coarse particles. See table below and Figure 4.

SW Range	Examples of use
SW 5200	Final filtration of enzyme solutions
	Final filtration of sugar solutions
SW 5300	Final filtration of fructooligosaccharides
	Fine filtration of beer
SW 5500	Final filtration of sugar solutions
	Fine filtration of beer
SW 5600	Final filtration of sugar solutions
	Fine filtration of beer
SW 5700	Clarifying filtration of beer
	Final filtration of sugar solutions
SW 5800	Filtration of enzyme solutions
	Clarifying filtration of beer
SW 5900	Polishing filtration of thin liquor gelatine
	Polishing filtration of flavors
	Clarifying filtration of beer
SW 7000	Clarifying filtration of thin liquor gelatine
SW 7100	Clarifying filtration of thin liquor gelatine
	Clarifying filtration of flavors
SW 7300	Coarse particle removal

SUPRApak SR Range (high resistance)

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

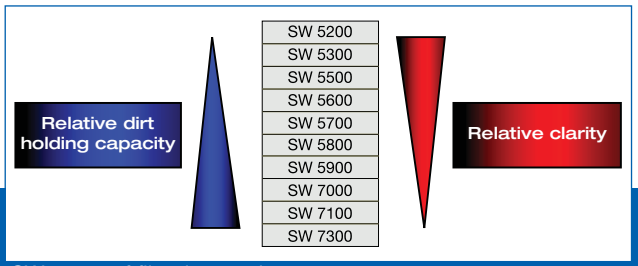
SR Range	Examples of use
SR 5100	Final filtration of enzyme solutions

SUPRApak SH Range (ion reduced)

For special applications like distilled spirits filtration, the SUPRApak SH range of modules is the preferred option. With a proprietary manufacturing process, these sheets release low levels of calcium and magnesium, and negligible levels of iron and copper. See table below and Figure 5.

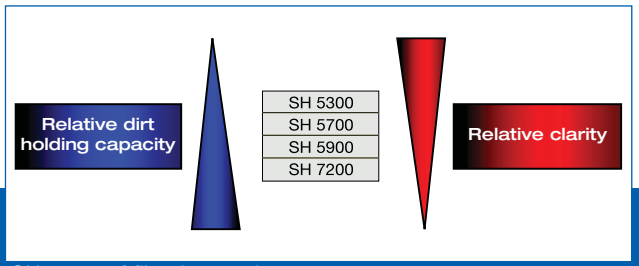
SH Range	Examples of use
SH 5300	Polishing filtration of white spirits
SH 5700	
SH 5900	Chill haze removal in whiskey
SH 7200	Chill haze removal in brandy

Figure 4



SW range of filtration grades

Figure 5



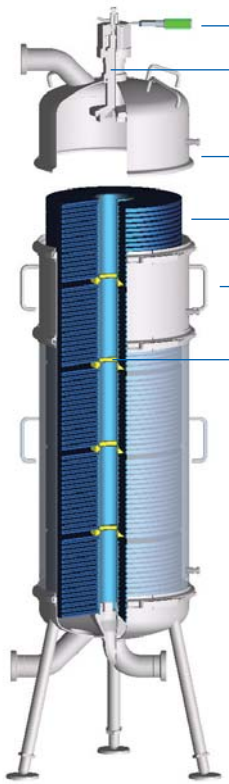
SH range of filtration grades

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

SUPRApak housing

The new SUPRApak filter housings are designed for use with the SUPRApak depth filter modules.



For ease of handling, the SUPRApak housing is provided with a lifting tool which enables installation and removal of the complete stack of modules at one time. (Figure 6a and 6b).

The extensive choice of different SUPRApak modules and housings ensures optimum compliance with the specific filtration demands of the food and beverage industry.

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

Features and Benefits

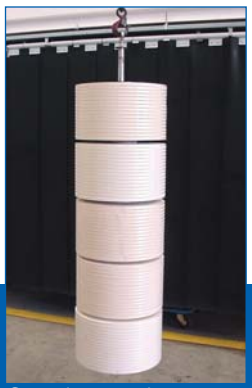
- Enclosed filter system limits environmental exposure and microbial contamination
- Large, hydrodynamically designed inlet and outlet connections ensure high flow rates with low pressure differential
- Polished surfaces enhance cleanability
- External torque control device enables optimal operational security during filtration through controlled tensioning of the module, and simplifies internal housing design
- Indirect flow control eliminates the need for flow guide plates
- Inlet connections at both the housing head and base facilitate ideal flow distribution and optimum utilization of the SUPRApak module filter area
- Quick release vee band housing clamp simplifies handling
- Housing domes available with single or multiple divisions allows flexibility

The modular SUPRApak housing range allows 1 to 6 SUPRApak modules to be used. (Figure 7). Please refer to separate SUPRApak housing data sheets.

Figure 6a

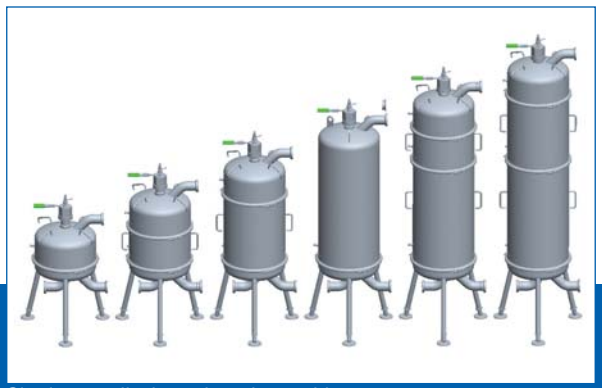
SUPRApak module lifting device

Figure 6b



Complete stack insertion and removal

Figure 7



Single or split dome housings with intermediate sections available

Figure 8

XS module assembly for small batch applications

SUPRApak™ Depth Filter Modules

Depth filtration goes edge flow

Ordering Information

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

Part Number:

SUPRAPAK [ ] [ ] [ ] W
Table 1 Table 2 Table 3

Example Part Number:

SUPRAPAK SW 5200 L W
See bold reference codes in tables

Table 1: Module Type

Code	Range
SW	Standard
SR	High Resistance
SH	Ion Reduced

Table 2: Media Range

Code	Range
5200	SW Range
5300	
5500	
5600	
5700	
5800	
5900	
7000	
7100	
7300	
5100	SR Range
5300	SH Range
5700	
5900	
7200	

Table 3: Nominal Dimensions

Code	Height	External Diameter
XS	70 mm (2.8 ")	183 mm (7.2 ")
L	250 mm (9.8 ")	415 mm (16.3 ")

Please contact Pall for ordering information relating to SUPRApak housings

Pall Corporation

Pall Food and Beverage

25 Harbor Park Drive
Port Washington, NY 11050
+1 516 484 3600 telephone
+1 800 289 7255 toll free US

Portsmouth - UK
+44 (0)23 9230 2269 telephone
+44 (0)23 9230 2509 fax
processuk@pall.com

Filtration. Separation. Solution.SM

Visit us on the Web at www.pall.com/foodandbev

Pall Corporation has offices and plants throughout the world. For Pall representatives in your area, please go to www.pall.com/contact

Please contact Pall Corporation to verify that the product conforms to your national legislation and/or regional regulatory requirements for water and food contact use.

Because of technological developments related to the products, systems, and/or services described herein, the data and procedures are subject to change without notice. Please consult your Pall representative or visit www.pall.com to verify that this information remains valid.

FBSUPRAPAKENa Printed in the UK. August 2009