



Allied
Filter Systems Ltd

FILTER BAGS

NEEDLEFELT, MICROFIBRE & MESH FILTERS

TABLE OF CONTENTS

- 3** CONCEPTS OF BAG FILTER SYSTEMS
- 4** STANDARD FILTER BAGS
- 5** FILTER BAG AND MEDIA TECHNICAL DATA
- 6** FULLY WELDED FILTER BAGS
- 7** EXTENDED LIFE FILTER BAGS
- 8** MULTI LAYER FELT FILTER BAGS
- 9** HIGH CAPACITY FILTER BAGS
- 10** FOOD AND PHARMA GRADE FILTER BAGS
- 11** MBP SERIES HIGH EFFICIENCY FILTER BAGS
- 12** OA SERIES FILTER BAGS
- 13** OIL ABSORPTION INSERTS AND BOOMS
- 14** 500 SERIES HIGH EFFICIENCY FILTER BAGS
- 15** ALLIPURE SERIES HIGH EFFICIENCY FILTER BAGS

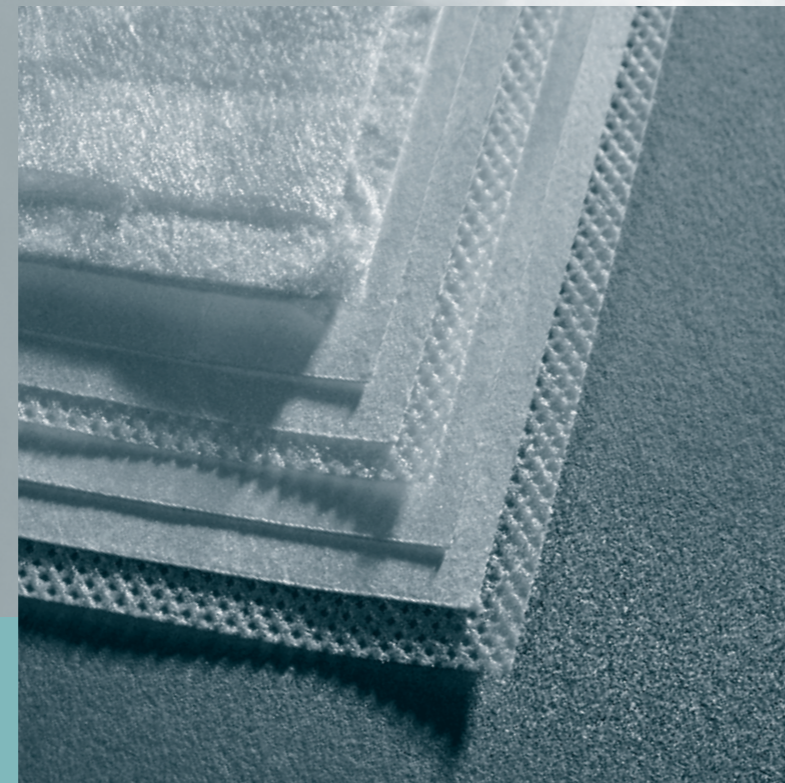
CONCEPTS OF BAG FILTER SYSTEMS

A BAG FILTER SYSTEM IS ONE OF THE MOST POPULAR FILTRATION METHODS FOR LIQUID PROCESS APPLICATIONS. IT PROVIDES A VERSATILE, COST EFFECTIVE AND CONSISTENT FILTRATION SYSTEM SUITABLE FOR A BROAD RANGE OF APPLICATIONS FROM SMALL BATCH OPERATIONS TO BULK PROCESSING.

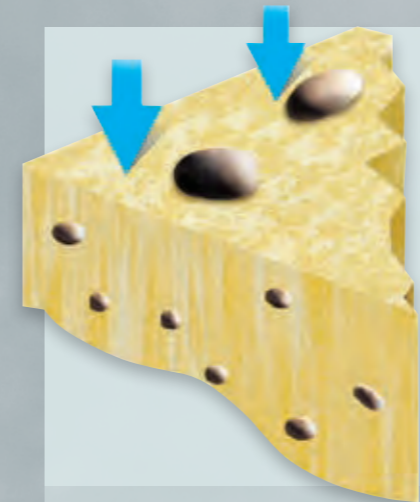
Bag filter housings are available in a wide range of materials and sizes, and can handle any fluid types and flow rates in the range of 5m³/hr to 640m³/hr. Replacement filter bags are selected from the broadest possible range of media.

The required filter media is determined by the size of the particles to be removed (0.6 - 1500 microns), the type of particles to be removed (deformable or non deformable), the required retention efficiency (60 – 99.98%) and the chemical and temperature compatibility of the media.

PARTICLES ARE CONTAINED INSIDE THE FILTER BAG, ALLOWING EASY HANDLING AND DISPOSAL, WHICH IS OF PARTICULAR BENEFIT FOR APPLICATIONS INVOLVING AGGRESSIVE CHEMICALS.



NEEDLEFELT

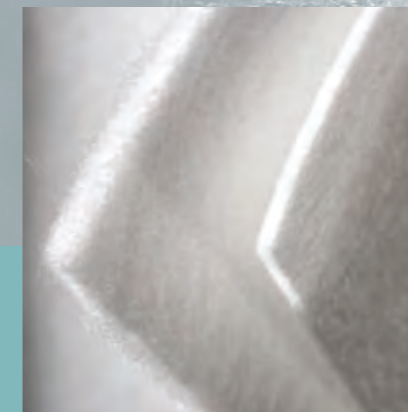


Needlefelts are a versatile and cost effective media providing a high solid holding capacity for both non-deformable and deformable, gelatinous particles.

By means of a depth filtration mechanism, particles penetrate and are captured throughout the depth of the filter media.

They are available in the range of 0.5 – 200 microns with a nominal (60-70%) efficiency.

Polypropylene and polyester are the most widely used, and have a calendered or singed external surface finish to eliminate migration into the filtrate. Nylon, Nomex®, and PTFE are also available.



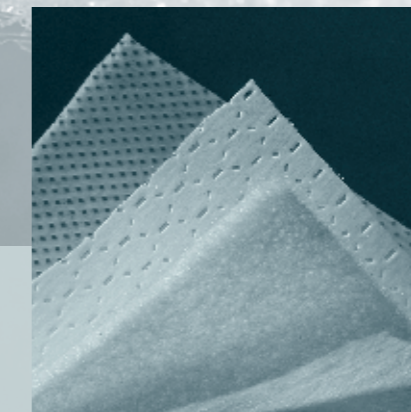
MICROFIBRE



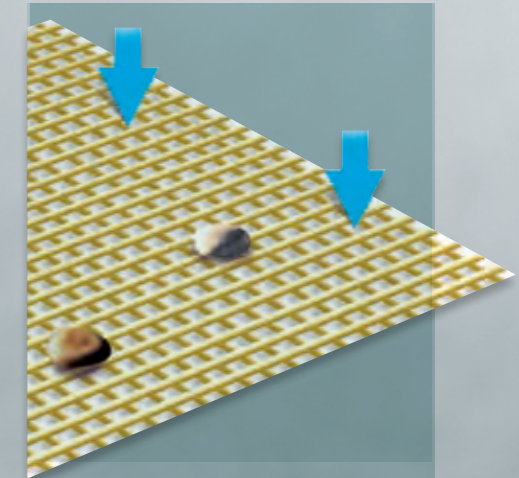
These provide high efficiency depth filtration and are available in polypropylene and polyester, absolute (up to 99.98% efficient) rated between 0.6 and 25 microns.

This media provides highly efficient particle retention for both non-deformable and deformable, gelatinous particles.

Polypropylene microfibre filter bags have excellent oil and hydrocarbon absorption properties.



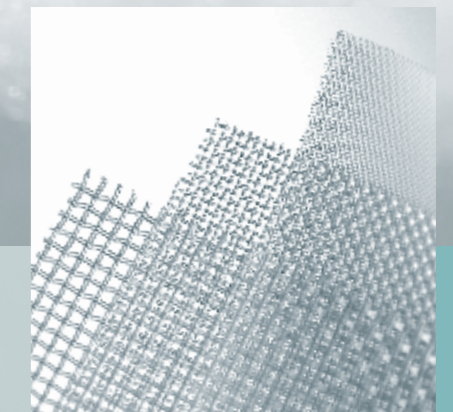
MESH



These provide surface filtration - a 'sieving' mechanism causes particles larger than the pore size of the media to be captured on the surface of the media.

Meshes are available in nylon, polypropylene and polyester monofilament - a precision woven structure thermofixed to give an absolute micron rating with no fibre migration.

Micron ratings range from 1 – 1500. They exhibit high mechanical strength, and are excellent for removing non-deformable, solid particles.



STANDARD FILTER BAGS

ALLIED FILTER SYSTEMS LTD. MANUFACTURES HIGH QUALITY LIQUID FILTER BAGS TO FIT STANDARD SIZE FILTER VESSELS, AS WELL AS CUSTOM DESIGNED PRODUCTS WHERE REQUESTED.

The constituent materials have been chosen for their purity, consistent high quality and repeatable performance.

Filter bags are available in traditional stitched form or with a fully welded construction, and are fitted with a comprehensive choice of rings.

7" or 4" galvanised Steel rings (or stainless steel) which fit universally into all filter housings. Polypropylene rings and stainless steel bands are also available.

Custom designed moulded **Welseal** (polypropylene or polyester) welded rings, giving more positive sealing, needle hole elimination and lifting handles for faster and easier bag installation and replacement. A **Welseal** ring product is fully combustible.

Custom designed positive sealing **Santaseal** moulded ring, for applications where high temperature or chemical resistant properties are required.



NEEDLEFELTS :

Polypropylene • Polyester • Polypropylene extended life • Polyester extended life • Nylon • Nomex® • PTFE
Micron rating range 0.5 – 200

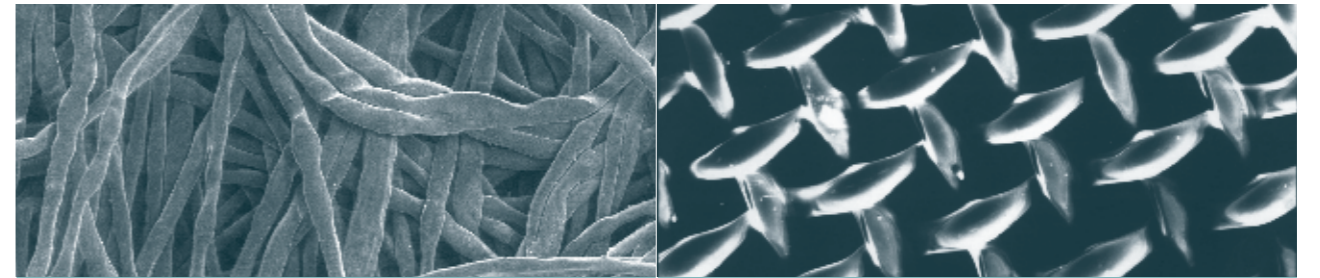
MONOFILAMENT MESHES :

Nylon • Polyester • Polypropylene • Fluoropolymer •
Micron rating range 1 - 1500

SPECIALITY MEDIA :

Polyester multifilament meshes • Spun bonds • Meltblowns • Woven cloths • Antistatic fabrics • Elastomeric fabrics • PVC

FILTER BAG AND MEDIA TECHNICAL DATA



Surface of polyester needlefelt

Nylon monofilament mesh

Taken at the surface science laboratory, University of Oxford

CHEMICAL COMPATIBILITY TABLE

MEDIA / COLLAR TYPE	ACIDS	ALKALI	SOLVENTS	OXIDANTS	RECOMMENDED MAXIMUM OPERATING TEMPERATURE (°C)
Polyester	G	G	E	P	140°C
Polypropylene	E	E	G	E	93°C
Nylon	F	G	E	F	110°C
Nomex®	G	G	E	E	200°C
PTFE	E	E	E	E	260°C
Santoprene®	E	E	E	E	200°C

Table Key: P = Poor F = Fair G = Good E = Excellent

BAG SIZE	DIAMETER (inches/mm)	LENGTH (inches/mm)	SURFACE AREA (m ²)	VOLUME (l)	MAXIMUM FLOW RATE (m ³ /hr)*
1	7"/180mm	17"/430mm	0.25	11.0	20
2	7"/180mm	32"/810mm	0.50	20.0	40
3 (1M)	4"/104mm	9"/230mm	0.07	1.9	6
4 (2M)	4"/104mm	14"/360mm	0.12	3.2	10

* Flow rate depends on factors such as filter media type, micron rating, and fluid being filtered. All dimensions are nominal

US STANDARD MESH

18	20	25	30	35	40	45	50	60	70	80	100	120	140	170	200	230	270	325	400	550	800	1250
1000	840	710	590	500	420	350	297	250	210	177	149	125	105	88	74	62	53	44	37	25	15	10

MICRONS

ALL FILTER BAGS ARE MANUFACTURED TO ISO 9001 QUALITY STANDARDS AND UNDER FOOD SAFE AND SILICONE FREE CONDITIONS TO MINIMISE ANY POSSIBLE CONTAMINATIONS.

FULLY WELDED FILTER BAGS

ALLIED FILTER SYSTEMS LTD. IS A LEADING MANUFACTURER OF FULLY WELDED FILTER BAGS, WHICH ARE AVAILABLE FOR APPLICATIONS REQUIRING STANDARD POLYPROPYLENE OR POLYESTER FELTS, EXTENDED LIFE FELTS OR HIGH EFFICIENCY MEDIA.

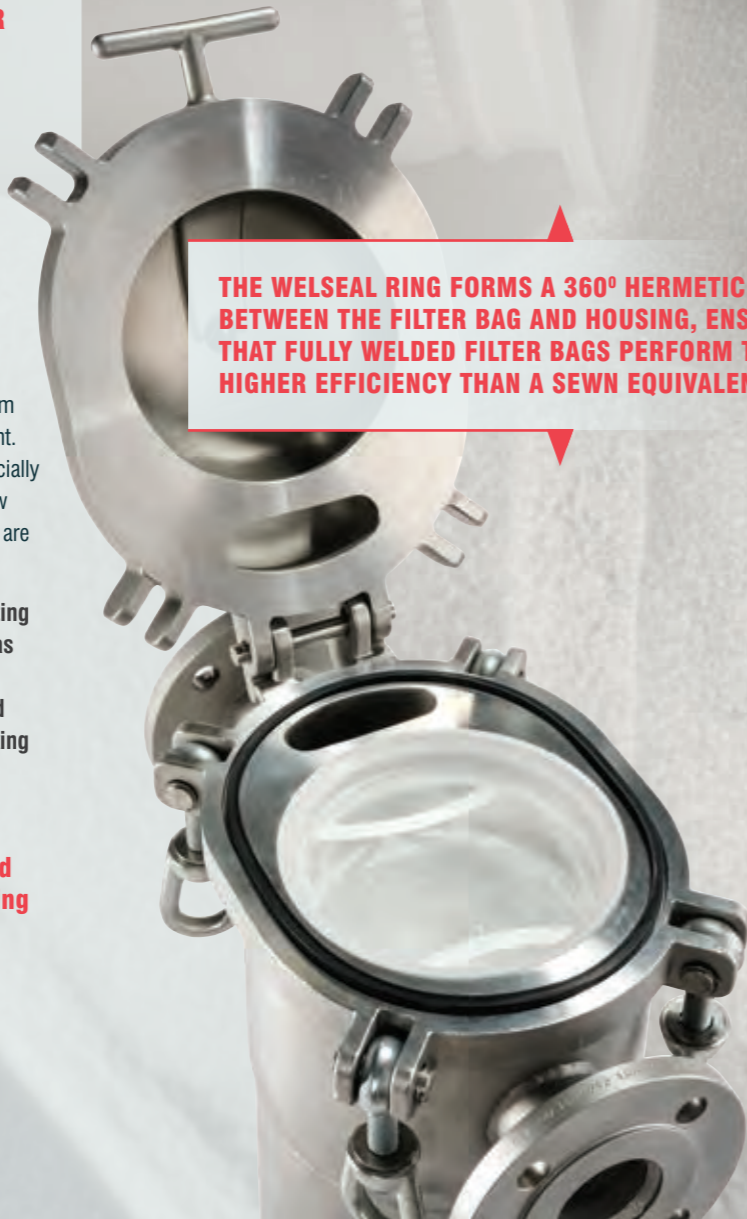
All seams are welded rather than sewn, and combined with our positive sealing moulded **Welseal** (polypropylene or polyester) welded ring, no process liquid can bypass through needleholes caused by the sewing process or around a traditional metal ring.

The **Welseal** ring forms a 360° hermetic seal between the filter bag and housing, ensuring that fully welded filter bags perform to a higher efficiency than a sewn equivalent. The use of moulded ring filter bags is especially important for critical applications where low micron ratings or high efficiency filter bags are required.

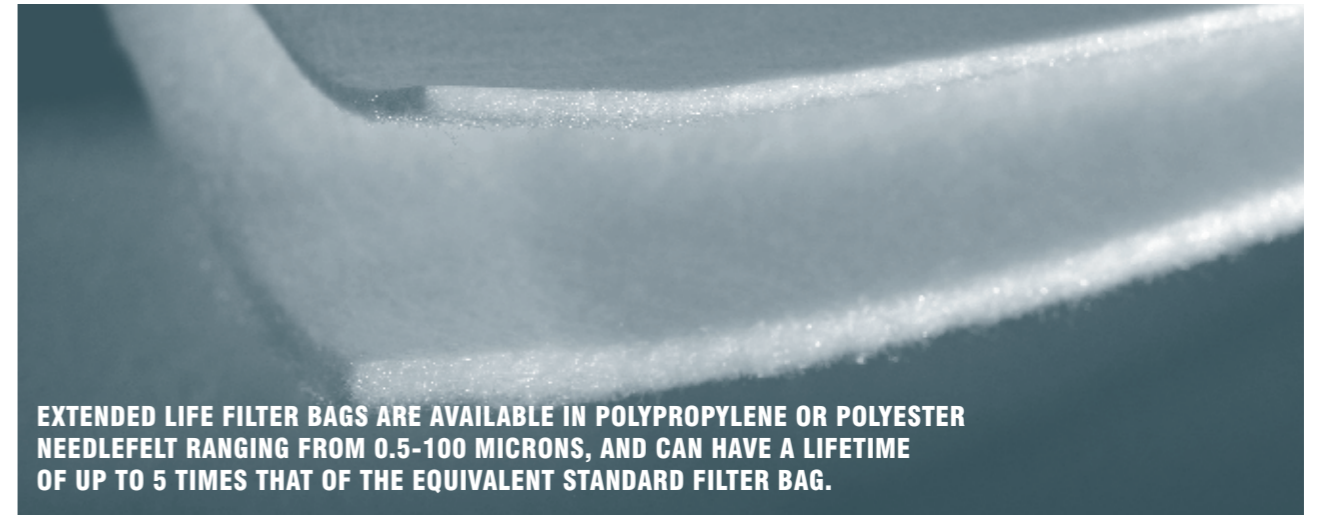
Welseal rings also feature moulded lifting handles, enabling ease of use as well as faster bag change and installation. Fully welded filter bags are constructed from 100% synthetic components, making them fully combustible.

Constituent polypropylene and polyester felts are manufactured using 100% virgin fibres, ensuring maximum purity and consistent performance.

THE WELSEAL RING FORMS A 360° HERMETIC SEAL BETWEEN THE FILTER BAG AND HOUSING, ENSURING THAT FULLY WELDED FILTER BAGS PERFORM TO A HIGHER EFFICIENCY THAN A SEWN EQUIVALENT.

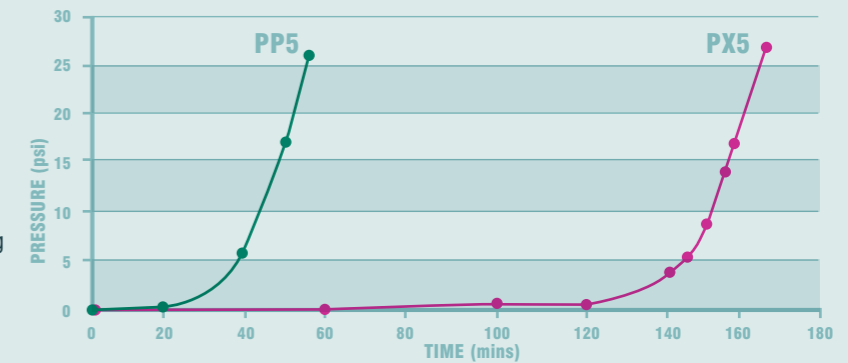


EXTENDED LIFE FILTER BAGS

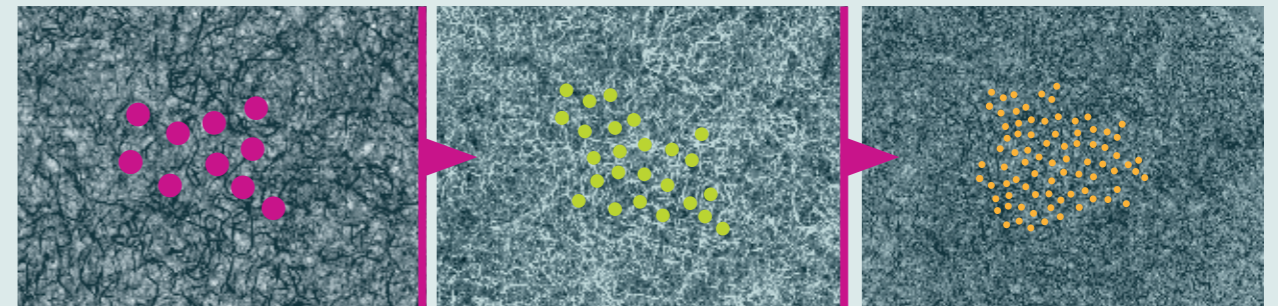


EXTENDED LIFE FILTER BAGS ARE AVAILABLE IN POLYPROPYLENE OR POLYESTER NEEDLEFELT RANGING FROM 0.5-100 MICRONS, AND CAN HAVE A LIFETIME OF UP TO 5 TIMES THAT OF THE EQUIVALENT STANDARD FILTER BAG.

Increased thickness of the filter media compared to that of the equivalent standard felt filter bag enables an increased retention of particles. In addition, the extended life filter media has a graded density structure i.e. progressively smaller particles are captured as the fluid follows a tortuous path through the media, stopping the filter bag from blinding prematurely. The result is a filter media with a higher dirt holding capacity, leading to increased filter bag lifetime.



FLUID PATH THROUGH THE GRADED DENSITY MEDIA



Within the Extended Life series, Allied Filter Systems Ltd is uniquely able to offer a 0.5 micron polyester filter bag. The filter media has a special construction using a blend of micro denier and fine denier fibres, giving the finest filtration results of any needlefelt product available on the market.

As standard, the Extended Life filter bag is fully welded, maximising filtration efficiency

by eliminating fluid bypass through needle holes or around traditional metal rings. The external surface has a special highly glazed finish, eliminating fibre migration into the filtrate.

OTHER BENEFITS INCLUDE:

- More efficient filtration process.
- Minimisation of equipment downtime.

- Minimisation of engineer exposure to process liquids.
- Fewer bags to change and dispose of compared with standard felt filter bags – more environmentally friendly.
- Excellent at removing deformable particles such as gels.
- Conforms to EC food contact directives.



ALL FILTER BAGS ARE MANUFACTURED TO ISO 9001 QUALITY STANDARDS AND UNDER SILICONE FREE AND FOOD SAFE CONDITIONS.

MULTI LAYER FELT FILTER BAGS



2 LAYERED

MULTI LAYER FELT FILTER BAGS PROVIDE GRADED DENSITY AND MULTI STAGE DEPTH FILTRATION IN A SINGLE FILTER BAG.

A high dirt loading capacity and superior filter bag lifetime is achieved by selecting the optimum micron ratings of the pre-filtration

and final filtration layers in accordance with the needs of the filtration process.

Multi Layer filter bags can be produced with 2 or 3 layers of polypropylene or polyester needlefelt, and to further enhance performance, a layer of extended life felt can be incorporated.

An optional mesh exterior cover can also be provided. As well as providing excellent service life, multi layered bags are excellent for filtration of fluids containing gel-like particles.

Example applications include filtration of paints, coatings, chemicals and foodstuff.



3 LAYERED

A HIGH DIRT LOADING CAPACITY FILTER BAG MANUFACTURED UNDER SILICONE FREE CONDITIONS.

HIGH CAPACITY FILTER BAGS

NEWLY INSTALLED FILTER BAG HOUSINGS OR EXISTING SYSTEMS CAN UTILISE HIGH CAPACITY FILTER BAGS, WHICH INCREASE THE FILTRATION SURFACE AREA BY 70% COMPARED WITH A SIMILAR SIZED STANDARD BAG.

The High Capacity bag is situated within a stainless steel filter basket with inner support core. Baskets can be supplied to retrofit existing standard size filter bag housings.

Liquid enters the bag and flows through both the outer surface and the central core, enabling higher flow rates to be achieved compared to the equivalent sized standard filter bags. The increased filtration surface area results in a higher dirt holding capacity and therefore prolongs the service life of the filter bag.

By utilising a High Capacity filter bag in a new filter installation, a smaller, lower cost filter housing can achieve the desired flow rate and dirt holding capacity.

When retrofitting an existing filter housing with a High Capacity basket, its performance capability can be increased at minimal cost.

A High Capacity bag also reduces the volume of retained liquid in the filter bag by 30% compared to a standard bag system, lowering the filter bag removal weight and decreasing product wastage.

As standard, construction is from our extended life filter media, although High Capacity bags can be manufactured from any of our filter media, including our range of high efficiency melt blown materials. The filter bag features our **Welseal** collar to provide an excellent seal with the filter housing, and a support ring in the base to assist installation.

HIGH CAPACITY FILTER BAGS ARE AVAILABLE FOR SIZE 1 AND SIZE 2 FILTER HOUSINGS.



FOOD & PHARMA

GRADE FILTER BAGS





BAG FILTERS, WHEN USED IN FOOD, BEVERAGE OR PHARMACEUTICAL APPLICATIONS, MUST CONFORM TO EC DIRECTIVES GOVERNING PLASTICS IN CONTACT WITH FOOD.

Migration limits of contaminants from polymers into a food product have been imposed, and independent testing and certification of component materials is required to ensure these regulations are satisfied. Stringent manufacturing and warehousing conditions as well as special packaging procedures are also required to eliminate other sources of contamination.

Allied Filter Systems Ltd. is a leading manufacturer of food grade filter bags which fully satisfy these conditions.

The constituent materials have been chosen for their purity, giving low levels of migration and ensuring consistent high quality and performance.

Available materials:

-  Polypropylene and polyester needlefelt.
-  Polypropylene and polyester extended life needlefelt.
-  Nylon monofilament mesh.
-  Polypropylene and polyester microfibre.

Combined with our positive sealing **Welseal** (polypropylene or polyester) welded ring, needlefelt food grade filter bags have a fully welded construction as standard.

THE EXTERNAL SURFACE OF THE FILTER BAG IS CALENDERED OR SINGED, ELIMINATING ANY POSSIBILITY OF FIBRE MIGRATION INTO THE FILTRATE. EACH BAG MAY BE INDIVIDUALLY WRAPPED.

MBP SERIES

HIGH EFFICIENCY FILTER BAGS



EACH LAYER IS INDIVIDUALLY WELDED, GIVING ENHANCED FILTER BAG INTEGRITY AND SEAM STRENGTH COMPARED TO SINGLE WELD CONSTRUCTION METHODS.

THE MBP SERIES HIGH EFFICIENCY BAGS ARE AVAILABLE RATED AT 1-25 MICRON, AND PERFORM TO EFFICIENCIES >95%.

The filter bag consists of up to 4 layers of meltblown polypropylene media, including an outer cover to prevent fibre migration into the filtrate as well as providing added support to the filtration media. The high density of small diameter fibres compared to that of a standard needlefelt enhances particle retention, leading to superior, highly efficient filtration.

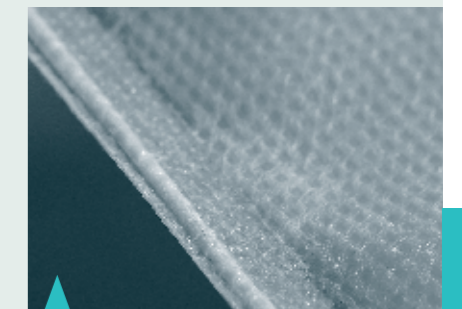
Combined with our polypropylene **Welseal** ring, the MBP Series high efficiency filter bags are available with a fully welded construction, ensuring that no bypass of process liquid can occur through needle holes. Each layer is individually welded, giving enhanced filter bag integrity and seam strength compared to single weld construction methods.

Whilst the fully welded versions give optimum performance, sewn versions with a steel or stainless steel ring are also available for universal fitting into all makes of standard size housings, or for custom manufacturing to non standard sizes.

Recently developed is our unique MBPE Series, which features an all polyester construction. This enables high performance filtration at temperatures in excess of 100°C (e.g. filtration of edible oils or resins). It is also used in applications where polypropylene is unsuitable for chemical compatibility reasons.

MBP AND MBPE SERIES HIGH EFFICIENCY FILTER BAGS MEET EC FOOD CONTACT DIRECTIVES AND ARE CONSTRUCTED FROM FDA LISTED MATERIALS CONFORMING TO CODE OF FEDERAL REGULATIONS 21 CFR PART 177.

MBP and MBPE bags are used in applications previously dominated by expensive cartridge filtration due to higher dirt holding capacities, longer service life and lower overall cost whilst maintaining or increasing the required filtration efficiency. Example applications include protection of membranes in reverse osmosis systems, carbon removal and final filtration of critical fluids. They can also be used as a pre-filter to prolong the life of expensive, sub micron cartridges.



EFFICIENCIES >95%



ALL FILTER BAGS ARE MANUFACTURED TO ISO 9001 QUALITY STANDARDS. FURTHER INFORMATION ON FOOD GRADE PRODUCTS IS AVAILABLE ON REQUEST.



OA SERIES FILTER BAGS



THE OA SERIES FILTER BAGS HAVE A HIGH OIL AND HYDROCARBON ABSORPTION CAPACITY, AND ARE AVAILABLE RATED AT 1-25 MICRON WITH PARTICLE REMOVAL EFFICIENCIES >90%.

The filter bag has 3 or 4 layers depending on micron rating, and includes a central polypropylene microfibre layer with enhanced oil and hydrocarbon absorption properties, and an outer cover to eliminate fibre migration and give added support to the filter media. It is constructed with sewn seams, with a choice of any ring type, including our polypropylene **Welseal** collar.

Originally designed to remove silicones, fluorocarbons and hydrocarbons from electrocoat paints in the automotive industry, like all our filter bags, the OA Series is manufactured under silicone free conditions.

The OA Series filter bags have excellent particle removal efficiencies, and therefore are not only used in applications requiring the oil absorbent properties of the filter media.

For example, the OA Series is well suited to applications requiring an increase in filtration efficiency compared to using standard nominal rated felt bags or where industrial filter cartridges are used.

To give longer service lifetimes, the OA filter media can also be combined with a pre-filter layer of standard needlefelt or extended life filter media.

OA Series filter bags meet EC directives governing requirements for food contact applications.



DESIGNED TO REMOVE SILICONES, FLUOROCARBONS AND HYDROCARBONS FROM ELECTROCOAT PAINTS IN THE AUTOMOTIVE INDUSTRY.

OIL ABSORPTION INSERTS AND BOOMS

OIL ABSORPTION INSERT

For processes requiring oil removal from a liquid stream, Allied Filter Systems has introduced the new Oil Absorption Insert.

The insert is simply positioned within a standard filter bag, which can be any single layered type selected in accordance with the particle retention needs of the process. Use of the insert requires no modification to the baskets of standard filter housings.




The insert is available in size 1 or 2, and has a 100% polypropylene construction.

It features a perforated central core to ensure that the liquid flow is split equally through the insert, and contains 0.38kg (size 1) or 0.75 kg (size 2) of oil absorbent 'spaghetti' filter media. The size 1 insert can absorb over 5 litres of oil, whilst the size 2 insert can absorb more than 10 litres. The 'spaghetti' media has a large surface area, so as well as providing a substantial oil absorption capacity, an excellent dirt holding capacity can also be achieved.

OIL ABSORBENT BOOMS

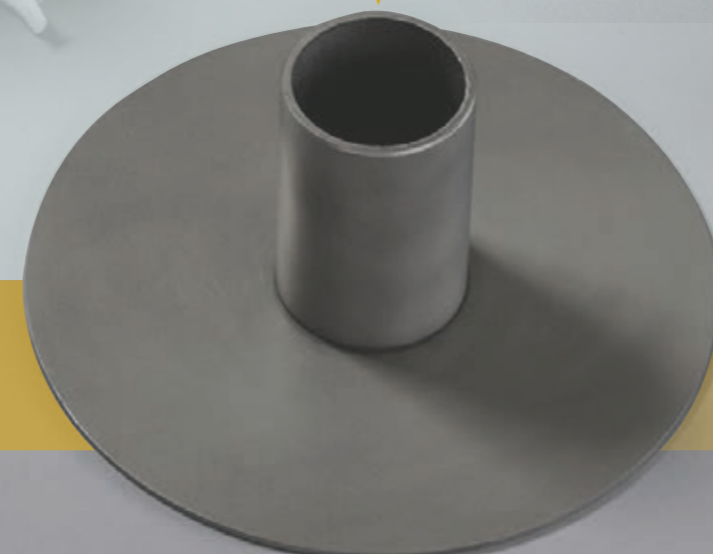
Oil Absorbent Booms are manufactured from hydrophobic polypropylene microfibre, and are used to absorb silicones and hydrocarbons such as fuel oils, hydraulic oil, petrol, diesel, motor oil, jet fuel and kerosene. Booms are normally produced with ties to enable them to be suspended on the surface of a tank, and are manufactured under silicone free conditions.

Example applications include:

-  Hydrocarbon, fluorocarbon and silicone removal from electrocoat paints.
-  Control, clean up and skimming of oil on water.
-  Contain and absorb industrial hydrocarbon spills on land.



TO OPTIMISE PERFORMANCE, WE ALSO PROVIDE A STAINLESS STEEL 316L DEFLECTOR PLATE. THE NOZZLE CHANNELS THE PROCESS FLUID INTO THE CENTRAL CORE OF THE INSERT.



500 SERIES

HIGH EFFICIENCY FILTER BAGS

THE 500 SERIES FILTER BAG FROM ALLIED FILTER SYSTEMS LTD CONTAINS IN EXCESS OF 5m² OF MATERIALS, AND PROVIDES A VERY HIGH OIL AND DIRT HOLDING CAPACITY AT HIGH EFFICIENCY. IT IS CONSTRUCTED FROM 100% MELTBLOWN POLYPROPYLENE MICROFIBRE FILTER MEDIA, GIVING A BROAD CHEMICAL COMPATIBILITY.

The constituent media has enhanced oil absorbent properties, and coupled with the high surface area, the 500 Series is most commonly used for applications where a high amount of oil absorbance is required.

For example, it is widely used in the automotive industry for heavily contaminated electrocoat baths.

The multi layered construction provides an exceptional depth of filter media, around 50mm. The layers of oil absorbent media are separated by drainage layers, ensuring a good flow of liquid and minimising the pressure drop across the filter bag.

The outer layers of the filter provide an effective final filtration of the process fluid, retaining very high levels of solids.

Particle retention is >95% at the stated micron rating.

The depth of the filter media makes the 500 Series very effective at filtering fluids containing gels or deformable particles.

THE 500 SERIES IS MANUFACTURED WITH FULLY WELDED SEAMS AND OUR SANTASEAL RING FOR OPTIMUM PERFORMANCE, OR SEWN SEAMS WITH STEEL OR STAINLESS STEEL RING. IT IS AVAILABLE RATED AT 1 - 25 MICRON IN SIZE 1 AND SIZE 2 ONLY.

FILTER BAG SIZE	MAXIMUM FLOW RATE	DIRT HOLDING CAPACITY	OIL ABSORPTION CAPACITY	CLEAN DIFFERENTIAL PRESSURE DROP
1	6m ³ /hr	0.5kg	2.5kg	0.025 Bar @ 6m ³ /hr
2	12m ³ /hr	1kg	5kg	0.05 Bar @ 12m ³ /hr

MORE THAN 5m² OF FILTER MEDIA PROVIDING HIGH OIL AND DIRT HOLDING CAPACITY.









ALLIPURE SERIES

HIGH EFFICIENCY FILTER BAGS

ALLIED FILTER SYSTEMS LTD HAS DEVELOPED THE ALLIPURE SERIES, A UNIQUE RANGE OF ABSOLUTE RATED FILTER BAGS RATED FROM 0.6 – 5 MICRON, PERFORMING TO AN EFFICIENCY OF 99.98% (BETA 5000) AT THE STATED MICRON RATING.

For processes requiring absolute and/or sub micron liquid process filtration, the use of filter cartridges has previously been the method of choice to achieve high performance in critical applications with consumable filter elements.

The Allipure Series utilises filter media which has previously only been used in the manufacture of cartridge filters. This enables processes to achieve the same efficiencies using bag filters whilst benefiting from the advantages that a bag filter system has over an equivalent sized cartridge system. These advantages include:

-  Higher dirt holding capacities.
-  Higher flow rates (i.e. lower quantity of filter elements required to achieve the same flow rate as an equivalent sized cartridge system).
-  Lower initial pressure drops, resulting in longer service life.
-  Solids are collected inside the bag, rather than on the exterior of a cartridge, leading to easier and quicker filter element disposal and less cleaning of filter housing.
-  Ease of handling leading to increased speed of changeout (less process downtime).
-  Lower number of sealing points compared with equivalent number of cartridges.
-  Less storage space required for filter bags compared with necessary number of cartridges.
-  Lower disposal cost due to the lower quantity of filter elements required.

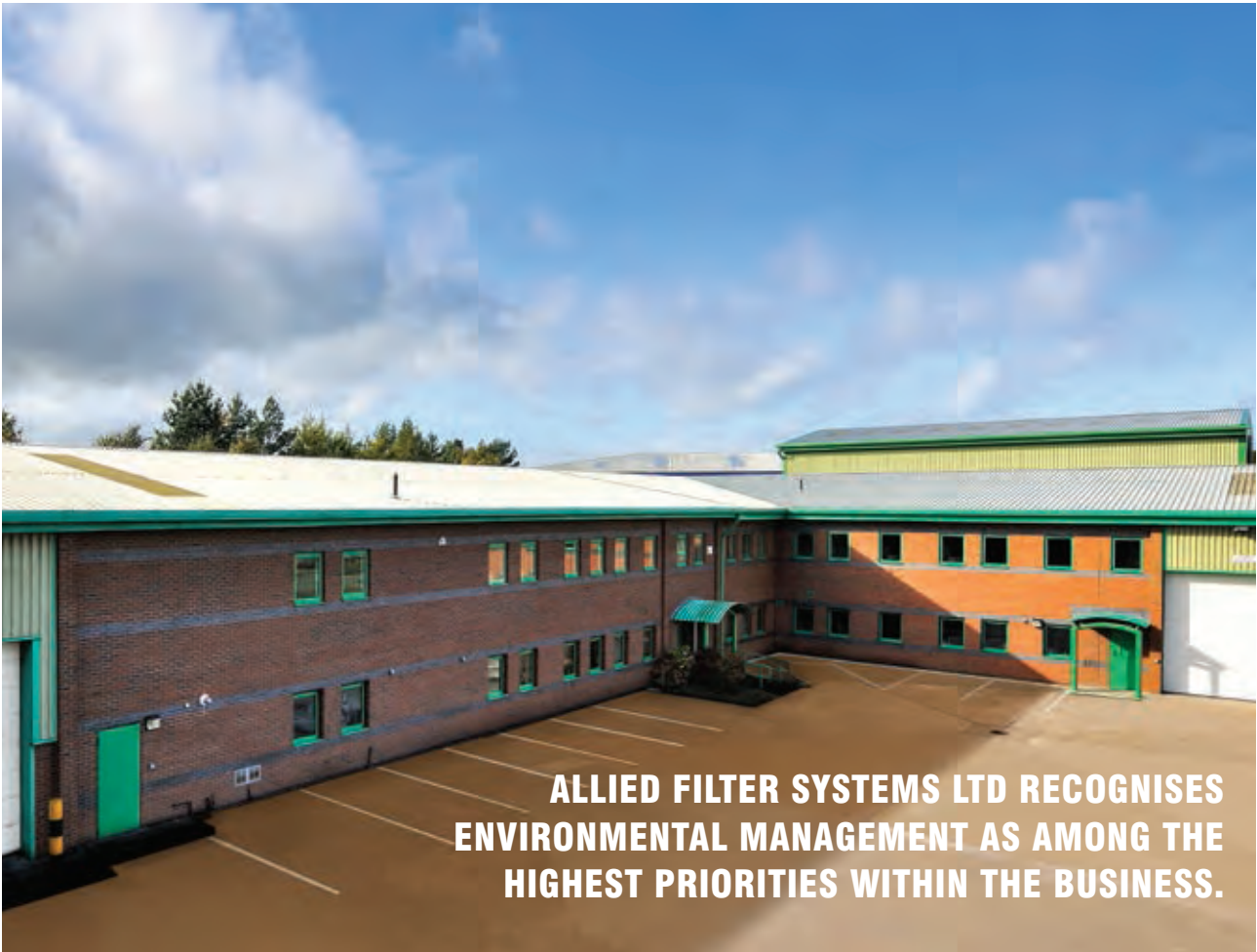
The result is a high performance filter for the most critical applications which provides a significant reduction in the cost of filtration, without compromise to your process.

The Allipure Series is constructed from upto 8 layers of polypropylene melt blown media, graded to give progressively finer filtration as the process liquid passes through the filter bag. This ensures that the dirt loading of fine particles is distributed effectively within the filter media.

A coarse meltblown pre-filter layer is present, to give high dirt holding capacities and protection to the finer filtration layers, prolonging the filter bag lifetime.

The Allipure Series can be steam sterilised or hot water sanitised. It is also compatible with many sanitising agents or alternatively can be Gamma sterilised.

ALL CONSTITUENT MATERIALS CONFORM TO EC AND FDA REQUIREMENTS FOR FOOD AND PHARMACEUTICAL CONTACT APPLICATIONS.



ALLIED FILTER SYSTEMS LTD RECOGNISES ENVIRONMENTAL MANAGEMENT AS AMONG THE HIGHEST PRIORITIES WITHIN THE BUSINESS.

Our working practices minimise waste generation and resource consumption to safeguard the environment. We continually assess and improve the environmental

impacts of our business and work with our suppliers and customers to help develop more environmentally friendly processes and products.

There are no implied warranties, including the implied warranty of merchantability and fitness for a particular purpose not specific herein respecting this agreement or the product being sold here under or the service provided herein.

This brochure has been printed on paper manufactured from renewable timber, produced on a fully sustainable basis and is suitable for recycling. The pulp used in this paper has been bleached by an elemental chlorine free process (ECF).



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