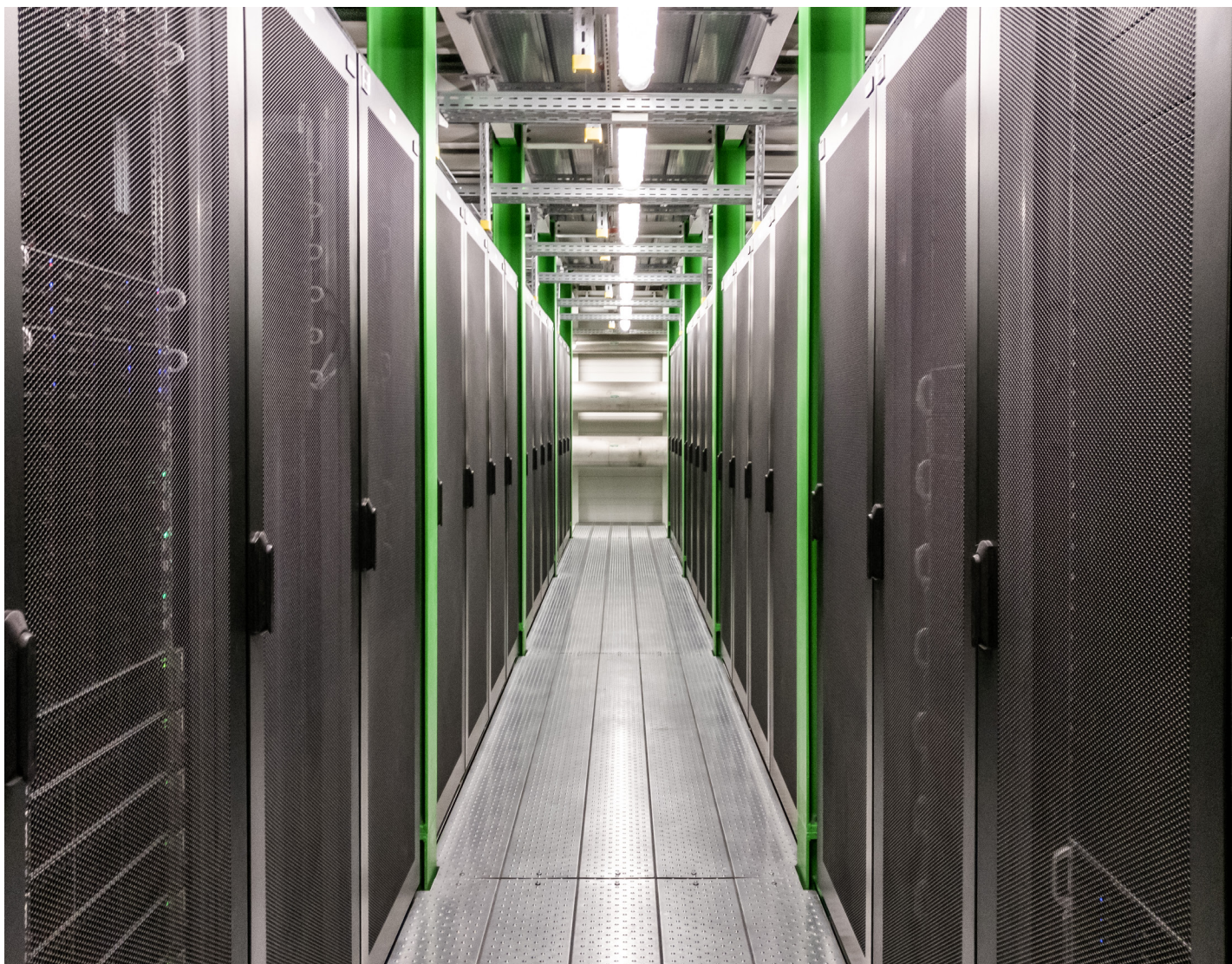


# Air Filtration in Data Centers

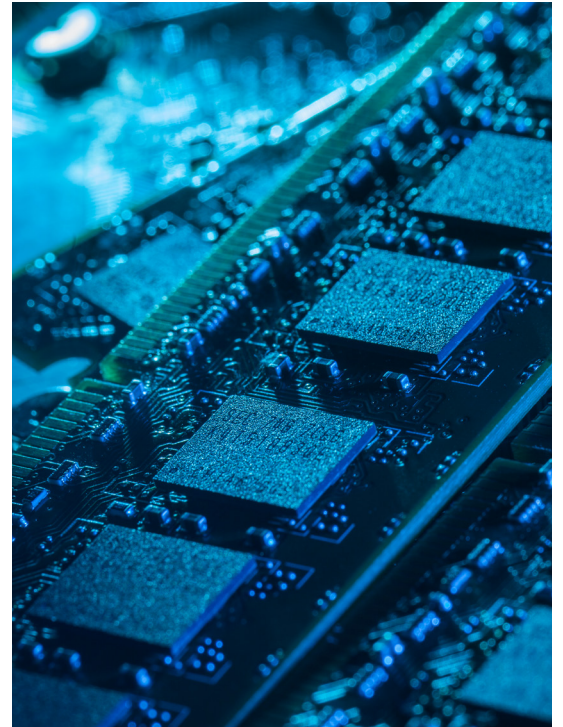




# The need is for real solutions

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It is no longer good enough to simply use an equivalent product or service. Our products and services provide real solutions for your air filtration issues and demands in the data center industry.



MANN+HUMMEL has a full line of products that are specifically designed with today's data centers in mind. We understand the importance of the new energy requirements for this industry and the role that air filtration plays in reducing the PUE (Power Usage Effectiveness), the metric for measuring and tracking energy efficiencies in data centers.

Our uniquely engineered media construction and filter designs will positively impact PUE with lower pressure drops and higher dust holding capacities.

# Sustainability in Data Centers

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Sustainability is a natural ingredient in filtration. For us, it's not just an empty "buzz word".

By separating the useful from the harmful through filtration – our mission and our core business for 80 years – we have always been a contributor to true sustainability.

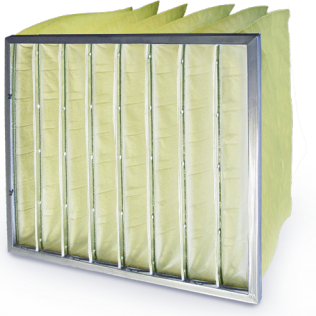
Increasing urbanization, air pollution, contaminated water, and fresh water scarcity are just a few examples for the great need for filtration around the globe. We believe that filtration and separation solutions are key technologies of the 21st century and a vital part to make the world a better and safer place.

Our core competency and filtration is the basis of our business and at the same time our responsibility. With an R&D network of engineers worldwide, MANN+HUMMEL is constantly working on developing pioneering filtration solutions. We strongly believe that clean air and clean water are human rights and a basic pre-condition for life. The environmental challenges we are all facing are in fact part of our business model.

By creating outstanding filtration solutions in all of our business segments, we are helping to ensure cleaner mobility, cleaner air, and cleaner water worldwide. By focusing on that goal, we help to conserve humanity's environment: For us – and even more important – for future generations.

# High Efficiency Filters

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## PROPOCKET DC ELITE

The ProPocket DC Elite fiberglass tapered pocket filters are extended surface filters available in three efficiency options: MERV 11, MERV 13 and MERV 15. The ProPocket DC Elite HVAC bag filters are manufactured to the highest quality and strength by utilizing our unique overlocking quad stitch construction and tapered pocket design. Our unique span stitch is sealed with an adhesive sealant to prevent any leakage. The micro-fiberglass media is backed by a thin layer of scrim to offer protection and durability. The ProPocket DC Elite filters are also available with a variety of header options; a nominal 1 inch galvanized header is standard.

The ProPocket DC Elite bag filter has a unique tapered pocket design providing the maximum dust holding capacities and the lowest pressure drop resulting in longer service life and substantial energy savings over traditional bag type filters. Our revolutionary pocket, header and hoop design increases overall product strength that is unmatched in the industry. Independent laboratory breach testing on this product held up to 15 in. w.g. The ProPocket DC Elite is designed for critical applications and used in environments that contain hazardous materials such as data centers, hospitals and more.

## FEATURES

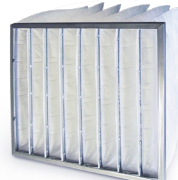
- MERV 11, 13 & 15 efficiencies
- Sealed, overlocking quad stitch pocket construction
- Media backing provides durability
- Tapered pocket design for reduced pressure drop & increased dust holding capabilities

## ADDITIONAL HIGH PURITY FILTERS IN DATA CENTERS



### PROPOCKET HYBRID

- True hybrid media
- Trusted performance
- Available in MERV 12 to MERV 16 efficiencies



### PROPOCKET DUAL ULTRA

- Extended service life
- Synthetic media
- Available in MERV 12 to MERV 15 efficiencies



## THIN LINE SERIES

The Thin Line Series offers high efficiency in a compact design. The Thin Line Series is offered in nominal depths of 2, 4 and 6 inches with either a die cut beverage board or plastic frame. The plastic frame is available in either box style or with a single header.

The Thin Line Series features a mini pleat media pack and is available in either fiberglass or synthetic medias with efficiencies from MERV 11 to MERV 16. Their compact design promotes maximum air flow, while their lightweight and compact design eases storage, handling and change outs.

## THIN LINE SERIES FEATURES

- Available MERV 11, 13, 14, 15 & 16
- Available in 2", 4" and 6" depths
- Lightweight for easy handling, storage and change out
- MERV 16 available in 4" & 6" depths

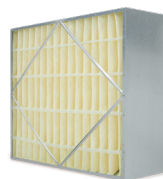


## ADDITIONAL HIGH PURITY FILTERS IN DATA CENTERS



### PROCELL ELITE

- Rigid construction for use in VAV systems
- Available in MERV 11 to MERV 14 efficiencies
- Fiberglass media



### PROCELL ULTRA

- 10" or 12" diameter ducted collar
- Available in MERV 11 to MERV 14 efficiencies
- Single & no-header frame options



# Final Filters



## VB4 ELITE & VB4 ULTRA



The VB4 Elite and VB4 Ultra V-Bank filters are designed and tested to meet the requirements of data centers. They are ideal for use in variable-air-volume (VAV) system due to their rigid nature. The large media area of the VB4 filters allows for low pressure drop, long service life and adds to the strength of the filter. These filter have a low total cost of ownership (TCO) due to their high dust holding capacity.

These filters are available with either microfine fiberglass or synthetic media and available in efficiencies of MERV 11, 13 14, and MERV 15. Also available with a single header, our all plastic V-Bank filters utilize aerodynamic vertical supports to reduce air entrance turbulence. The frame is constructed from high impact polystyrene (HIPS) plastic to enhance rigidity. The all HIPS plastic construction with no metal components also ensures the frame is fully incinerable.



## FEATURES

- Available in nominal 12" depth
- Synthetic or microfine fiberglass media available
- Efficiencies available from MERV 11, 13, 14, 15 & 16
- High impact polystyrene (HIPS) frame

## ADDITIONAL FINAL FILTERS IN DATA CENTERS



### VB2 ELITE

- 2 V configuration with a nominal 12" depth
- Available in MERV 11, 13, 14, 15 & 16 efficiencies
- Moisture resistant fiberglass media



### VB2 ULTRA

- 2 V configuration with a nominal 12" depth
- Available in MERV 11, 13, 14, 15 & 16 efficiencies
- Synthetic media

# Prefilters

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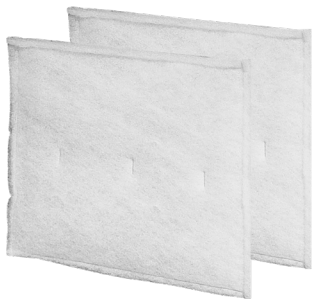


## PRIME PLEATS

Our Prime pleated air filters are extended surface filters, designed to provide high efficiency, high dust holding capacity and low pressure drop. The Prime Series is available in MERV 8A, 10, 11 and 13. The Prime Series products are constructed with a durable, moisture resistant, beverage board frame and should be used anywhere a higher level of indoor air quality is required, such as data centers.

## FEATURES

- Available in 1", 2" & 4" depths
- Available in MERV 8A, 10, 11 and 13
- Synthetic media
- Moisture resistant frame
- Low pressure drop and high dust holding



## TRI-DEK PANELS & LINKS

Tri-Dek panels and links are a great replacement option for pleated air filters, especially in high moisture applications. The Tri-Dek's 9-1/2 gauge galvanized internal wire ring support is the key to it being moisture resistant. Tri-Dek panels are offered in MERV 6-9 efficiency. Tri-Dek offers an extended service life over pleated filters, this is achieved by multiple layers (deniers) of polyester media that are arranged from most porous to the least porous to produce the depth loading of the Tri-Dek media. Panels can be linked together to prevent the bypass of unfiltered air, improving system efficiency.

## FEATURES

- Can replace 1" and 2" deep pleated filters
- Available in MERV 6-9
- Multiple layers of synthetic media
- Internal wire ring support
- Moisture resistant

# Molecular Prefilters

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## MC PRIME SERIES



The MC Prime Series pleated carbon filters offer both particulate and molecular filtration and are offered in a wide range of models to fit your needs. The MC Prime is offered in a variety of carbon loadings as well a 50/50 blend and diesel blend carbon. The MC Prime is also available in a variety of MERV ratings up to MERV 13. The MC Prime Series is constructed with a durable, moisture resistant, beverage board frame and should be used anywhere a higher level of indoor air quality is required.

### FEATURES

- Easy retrofit solution
- Low pressure drop
- Particulate & molecular filtration
- Available with a 50/50 blend
- Moisture resistant die-cut frame

## MC TL SERIES



The MC TL Series is offered in a thin profile of just 2 and 4" depth and offers both molecular and particulate control in one filter. Designed to remove a wide range of odors and gases, the carbon is 650 grams per square meter of 20x50 mesh which offers excellent removal contaminate. The MC TL features souble wall plastic frame and is lightweight yet durable.

### FEATURES

- Impregnated polyester media
- Available in 2" & 4" depths
- Avaiaible in MERV 8 & MERV 9
- Removes a wide range of odors & gases
- Double wall plastic frame





### MC VB4 15

MC VB4 15 offers effective defense against both solid and gaseous pollutants. This is possible thanks to a new hybrid media that delivers high efficiency removal of both particulate and gaseous contaminants. MC VB4 15 performs this dual function at a very low pressure drop – only 0.42" w.g. at 2,000 CFM for a 24 x 24 x 12 in. filter. An all-plastic frame and securely-sealed media makes the MC VB4 15 a solidly built filter, robust enough to handle today's demanding applications. The design features no metal components, so MC VB4 15 can be incinerated at the end of its service life, reducing landfill waste.

#### FEATURES

- Easy retrofit solution
- Low pressure drop
- MERV 15 efficiency
- All plastic frame



### MC VB4 HC

MC VB4 HC is a V-Bank carbon filter that features special honeycomb panels. These panels hold 24 lbs. of carbon per 24 x 24 x 12 in. filter—either 100% 6 x 12 mesh, industrial grade CTC high activity carbon, or a 50/50 blend of carbon and potassium permanganate. These types and quantity of carbon allow MC VB4 HC to be used in applications with heavy concentrations of unwanted gases and to control a wide range of odors. MC VB4 HC is designed to withstand the demands of the toughest of applications. The frame is double walled and constructed from high strength plastic and the pack sealant is moisture resistant and strong to add to the overall pack strength.

#### FEATURES

- Double walled frame
- Low resistance
- High strength plastic
- Moisture resistant pack sealant

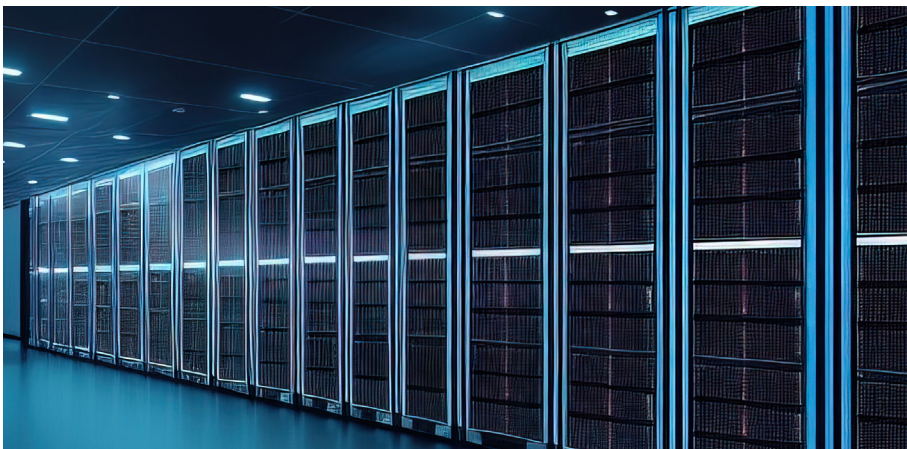
# Filtration in Data Centers

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The demands on Data Centers continue to change and intensify. These include the need for improved and effective air filtration. The requirements of the air filtration system include:

- Reducing the PUE (power usage effectiveness), the metric for measuring and tracking energy efficiencies in data centers
- Reduction of airborne contamination to prevent obstruction of air flow and to reduce failure of moving or optical parts
- Control of corrosion on computer components

MANN+HUMMEL holds a strong global presence with 80 locations spanning across 6 continents with more than 1,000 research and development engineers. Our focus on design, engineering, and innovation is illustrated by our impressive number of patents pending (over 100 per year) and our efficient production capabilities of 32 filters per second. This innovative attitude towards air filtration has poised us as a leader in the world of air filtration products and technology.





MANN+HUMMEL has been a filtration specialist for more than 75 years. Leadership in filtration is what drives us.

#### **A FILTRATION CHAMPION**

With centuries of combined experience, our team of industry leaders serves the Americas with manufacturing plants and operations across the continent. Our target markets include commercial and industrial accounts, specifically wholesale and residential channels. Our customer first and family oriented principles make us professional yet personal in our business strategy. With a strong desire to leave a legacy for our communities, MANN+HUMMEL strives to improve the air filtration industry and create products that lead to better health and wellness for our customers. Separating the useful from the harmful is our expertise.





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