Efficient filtration Solutions for Baghouses

purifying our planet

NAP
KRACHTIGE HYDRAULIEK OPLOSSINGEN

FORMERLY
NORDIC AIR
FILTRATION

Hengst
FILTRATION

NAPTechniek.nl

We take the dust out of industry

Specializedin Baghouse filtrationfor all industries since 1991

Our products are used in millions of applications around the world to make something cleaner. As a family operated company with 3,500 employees at 23 locations, Hengst Filtration is known worldwide for its innovative filtration and fluid management solutions.

We deliver leading edge filtration systems for the fields of plant and machine engineering, building ventilation, energy generation, life science and health care. Our custom-tailored solutions are used in medical cleanrooms, air conditioning systems, production machinery, electric tools, and other applications.

We are also an OEM supplier for the international automotive and motor industry and a development partner for sustainable drivetrain and mobility concepts.

For industrial applications, we offer a broad portfolio of filters with more than 10,000 configurations and over 20 types of high-quality filter media.

Our products are used in a wide variety of environments, handling a wide range of dust types, including abrasive, toxic, and explosive dusts. We are a global industrial filtration partner for OEMs, distributors and end users. We are committed to solving our customers‘ challenges by providing customized filtration solutions and on-site technical support.

With manufacturing and sales facilities around the world, we aim to be close to our customers and provide the best service and support possible.

We are the filtration people.

Our mission is to make
the planet a purer place by protecting people, machines, and our shared environment.

Cement
Solutions for large quantities of abrasive dust particles

Metals / Aluminum
Solutions for high temperature and abrasive dust particles

Food & Beverage
Food grade EC1935 and FDA-Compliant solutions

Chemicals
Solutions that meet strict industry regulations

Minerals
Solutions for high purity engineered products

Pleated Bags an alternative to Filter Bags

Upgrading your dust collector with a pleated bag solution is our proposal for guaranteed economic and environmental gains. With our Total Savings Report based on your specific baghouse details, you receive a complete overview of how much a pleated bag solution can:

- Maximize air flow through your baghouse
- Reduce energy and maintenance cost
- Maximize the life cycle of your filters
- Lower your emissions

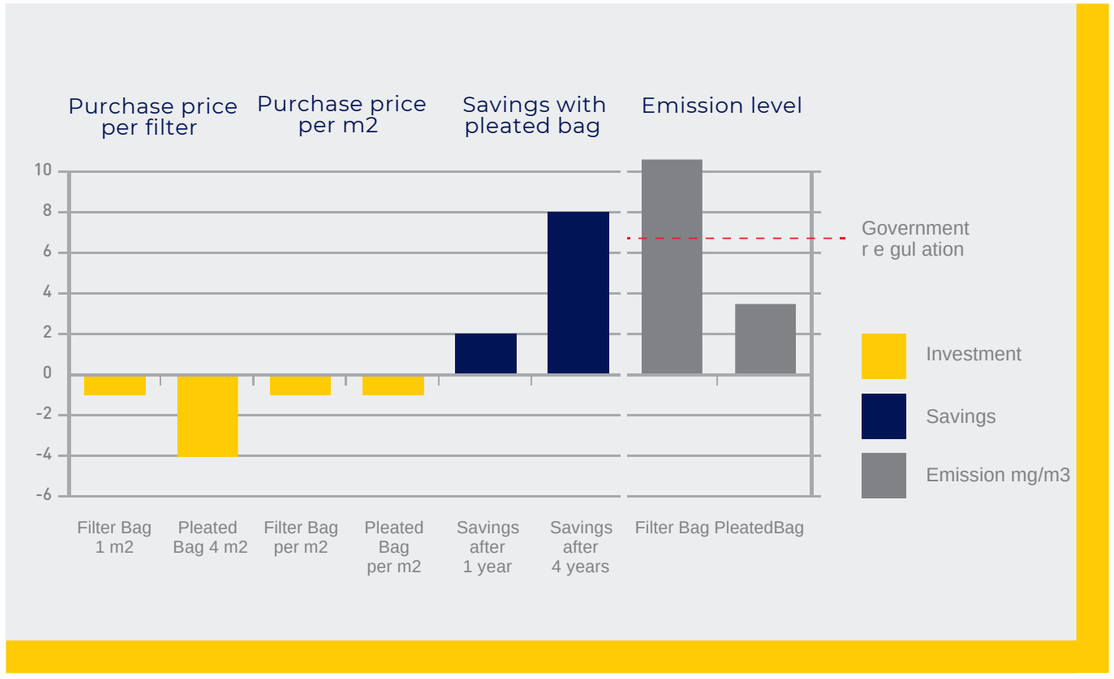
Please notice:
A2m / 80”PleatedBag can substitute a 8 m / 320” Filter Bag. Shorter filters optimize the drop out box area - see more tips for optimizing your collector on p. 19.

Filter Bags vs. Pleated Bags	Filter Bags	Pleated Bag
Filter length	Up to 10 meter / 400”	Max. 2 meter / 80”
Filter surface area	Conventional	2-4 Times larger than bag filter
Life cycle	Normal	Excellent
Installation/maintenance	Labor intensive	60% Lower installation and maintenance costs
Abrasion/Leaks	Can occur	Low abrasion risk - out of the abrasion path
Emission level	High	58% Lower emissions
Energy consumption	Acceptable	50% Lower energy consumption
Air required for cleaning	As designed	50% - 70% Less cleaning air consumed
Air flow	Limited	20% Higher throughput
Pressure Drop	As designed	20% Lower than conventional filter bag
Drop out box	Small	Larger = less dust re-entrainment on filter

Get higher efficiency and economic benefits

The economic benefits of pleated bags pay off across their entire lifetime. Pleated bags realize remarkable operational savings - especially in the areas of maintenance costs and energy consumption.

These savings outweight the initially greater purchase price for the filters. The following graphic illustrates the financial and environmental impact of pleated bags.



Wide range of Pleated Bag Filters

Our range of high-quality filters and years of filtration expertise enable us to meet your toughest challenges, especially with our background in the minerals and cement industries.

Our experienced sales team will visit your site, fully understand your needs, and design a custom solution just for you.

Pleated Bags

- 2 m long, hole sizes in the range 115-208 mm / 4.50-8.19”
- Bottom & Top Loader
- High Temp. Steel Top Loader
- Star bottom, EC1935:2004 food certified

Increased durability, better efficiency, energy savings, reduced emission levels, and easier installation are the main advantages of the Pleated Bag.
Our range includes versions for high-temperature applications, top- or bottom-loaded variants, and versions for food-grade applications.

100% recyclable

Please notice:
Also comes in a fully recyclable version.

Multifit

- Clean side removal cartridge
- Fits holes in the range 151-167 mm / 5.94-6.60”
- Adapter ring enables easy installation

Our Multifit fits into multiple tube sheet holes with the same type of filter - making it easy to install and retrofit into existing baghouses without modifications.

Weltech

Weltech technology ensures 100% pleat alignment without the use of adhesive. Ultrasonic welding of the retainer band to each pleat, without the use of adhesive, keeps it from collapsing, even in high vacuum applications. The perfect pleat spacing translates into better filter cleaning performance and more uniform airflow.

Guide: Customize your filter

Our web shop myAirfiltration.com allows you to quickly find the right filter from our wide portfolio. And we go one step further: We give you the tools to configure your own filter and request a quote - if you have specific requirements. Plus, we are very flexible and eager to help you find the right solution for your specific needs.

		Operating/Peak temperature		
		70°C/ 80°C 160°F/ 175°F	120°C/ 140°C 250°F/ 285°F	180°C/ 200°C 350°F/ 390°F
		Spunbond Polyester	Spunbond Polyester	PPS / mAramide
01 Filter media	The pleats equal 2-4 times more filter area compared to filter bags. Can be equipped with 20+ types of filter media selection.			
02 Top Cap	**Top Loader (CPB)** | Mounted with steel plug	n		
	Multifit Top Loader (CMF) | Mounted with adapter ring	n	n	
	Steel Top Loader (CPBS) | Mounted with snap ring	n	n	n
	Bottom Loader (CBLPB) | Mounted with jubilee clip/hose clamp	n		
03 Inner Core	**Polypropylene**	n		
	Metal (galvanized or stainless)	n	n	n
	Integrated molded bottom / star bottom	n		
04 Bottom Cap	**PA6 polyamide (Multifit - CMF)**	n	n	
	Metal (galvanized or stainless)	n	n	n
05 Outside Straps	**Weltech** | Ultrasonic welding minimizes dust trapping behind the strap and is a non-adhesive solution.	n	n	n
	Glued	n		
	Ryton	n	n	n

n=Available options

The big difference is in the media

Bag Media

Polyester felt

A thermoplastic filtermedia.

Characteristics of felt:

- Depth filtration media
- Low cost
- Multiple treatments and finishes available

Pleated Bag Media

Spunbond

Anon-woven,100% synthetic spunbond polyester media:

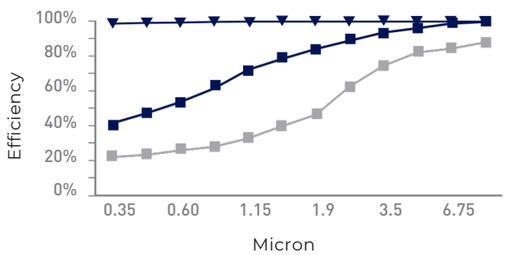
- Surface filtration media
- Higher efficiencythan conventional felt
- High dust release and moisture resistance
- High durability
- Lower operating Delta P
- Higher throughput /ACFM
- Multiple finishes and treatments available

Spunbondwith ePTFE Membrane

ePTFE Membrane on a nonwoven, 100% synthetic spunbond polyester media:

- Reduced emissions (PM10, PM2.5 and sub-micron PM) and high initial efficiency
- Lower operating differential pressure
- Longer effective life cycle of bags and pleated bags
- Aids in recovery from upset conditions such as moisture, incomplete combustion, etc.
- Provides a chemical barrier to particulate matter
- Reduced consumption of cleaning air and energy savings on fan

Felt vs SB vs SB-ePTFE Media



Bag Media

Polyester felt

Pleated Bag Media

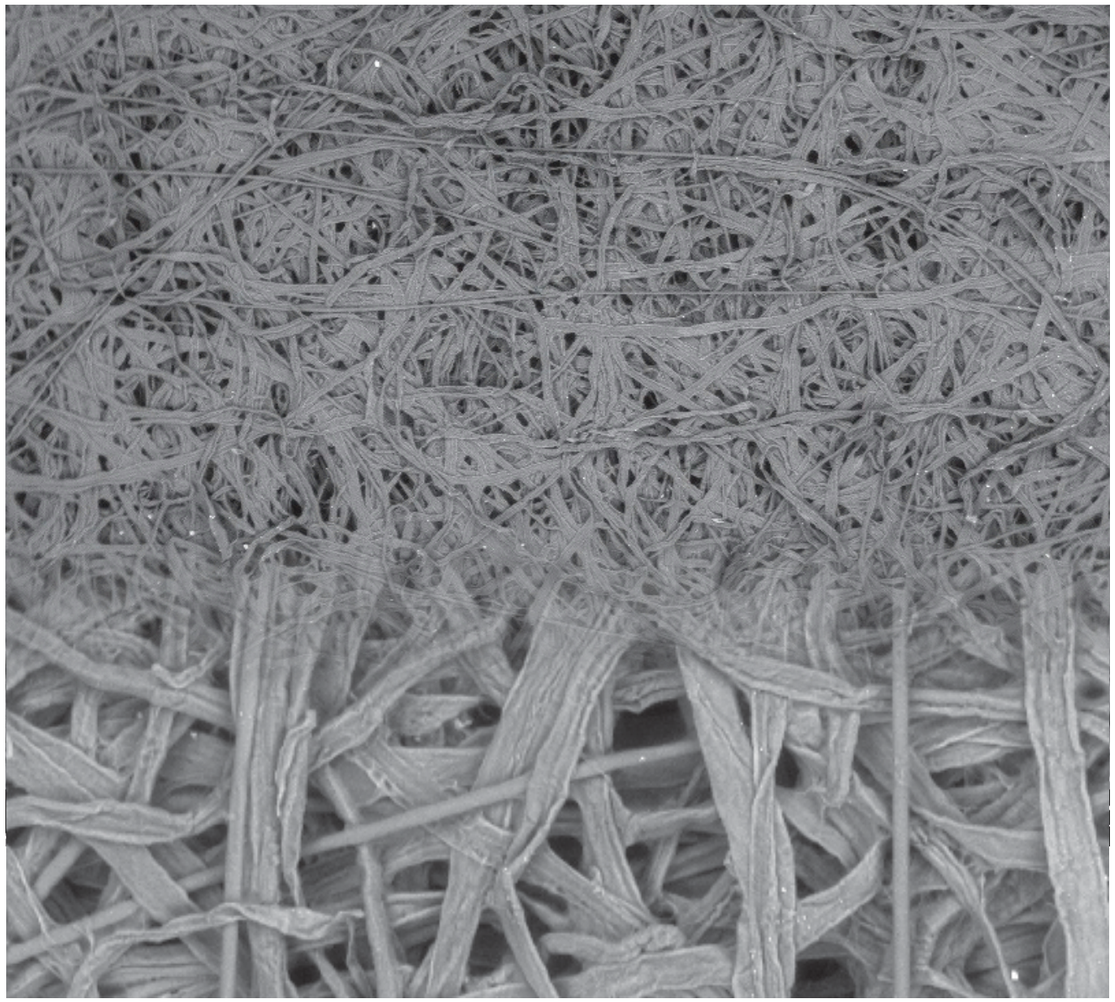
SpunbondwithePTFE membrane

Spunbond

Surface Treatments

Spunbond with PTFE coating: Oil and water repellent | Improved cleaning, even in discontinuous processes | Ideal for fine agglomerating dusts and other challenging processes.

Spunbond with conductive/anti-static treatment: For use in ATEX environments | Allows dissipation of any charge that may build up on the filter media.



Depth vs. Surface filtration

The benefits of surface filtration are:

- Less accumulation of dust
- Less pressure drop
- Longer filter life cycle

Filter accessories

We offer a variety of filter accessories to extend filter life:
Valves | Header Tanks | Leak Detection Powder | PreTreat. Contact our sales team for more information at info@naptechniek.nl

Our range of cartridges

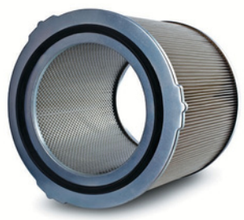
We take pride in serving your every need, below you find a selection of our most popular filters

Din Cartridge
Cylindrical or Conical

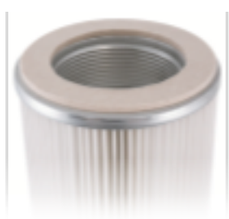
Jet Cartridge
3-lug or 4-lug

Square End cap
Galvanized or stainless

Clean Side Cartridge
Cylindrical or Conical

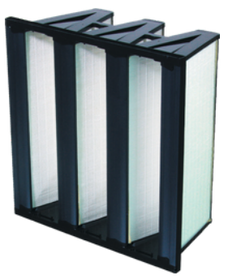


Curly Bracket
In various lengths



Thread
Cylindrical or Conical

Flat Cell
Somemodelsalso available in Tip2Tip



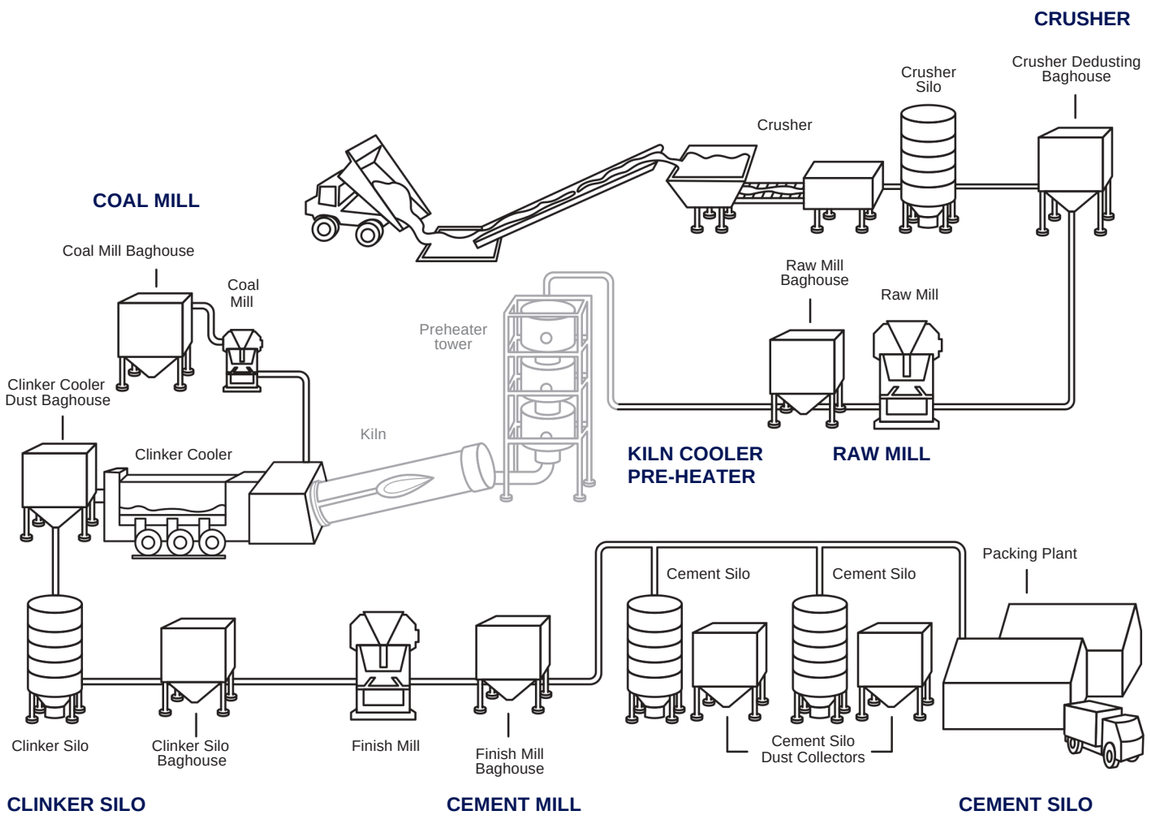
HVAC
Forbetter indoor climate

Inspiration: Case studies

Many bag houses have already been given “a new life” with our Pleated Bags

We have extensive experience with application of pleated bags in the cement and mineral processing industries. We offer pleated bag solutions for almost all process steps in the plant where the temperature does not exceed 200°C/390°F.

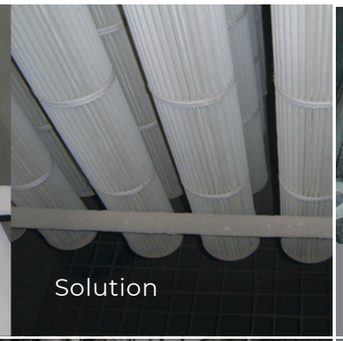
We will show you the advantages of our product range with several case studies. On the following pages you will find selected case studies to inspire you.



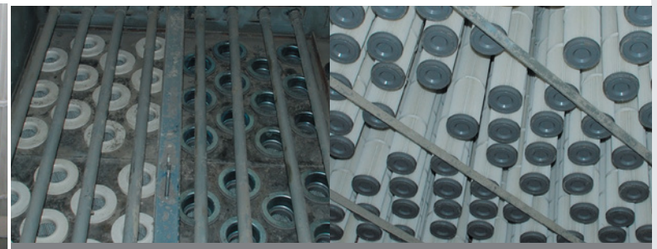
	Problem	Solution	Result
Undersized dust collector in cement silo **Region:** Africa **Dust type:** Cement 01	The cement silo (cement feeding/packing) was under pressure = high dP. Dust was exiting from holes. Permanently opened safety valve increased emissions.	Multifit Pleated Bags with PTFE coated polyester media.	Optimized filtration efficiency Larger filtration area = better running parameters Optimized dust release
Increased performance and reduced emissions **Region:** Europe **Dust type:** Cement - Mill 02	High emission levels and poor filter quality from competitor‘s pleated bag. The cement mill was producing only 27 t/h - the customer required 30 t/h.	Replaced 240 competitor Pleated bags with 240 Top Loader pleated bags with ePTFE membrane media.	10% increase in capacity Reduced emissions: Before 22mg/m3 Now 0.3mg/m3 Longer life cycle (8 months vs >36 months)
Extended filter lifetime and prevented abrasions **Region:** Europe **Dust type:** Cement – Clinker transport 03	Holes in the bottom of filter bags caused by strong air flow. Change of bags every 3 months.	Replaced existing filter bags with pleated bags with PTFE coated polyester media.	Less abrasions Increased media surface area flattened dP curve Over 9x the life of filter bags

	Problem	Solution	Result
Reduced emissions and extended filter life **Region:** Europe – Slovenia **Dust type:** TiO2 / Titanium Dioxide 04	Customer required reduction of emission level and longer lifetime. Emission level was higher than 20 mg/m3. Lifetime of filterbags was only 14 months and quality of filter cages was poor, requiring replacement every 14 months.	Pleated bags with pleated PPS media and a specially designed top flange.	Dropout box increased by 1.5m Lower emission levels (<5mg/m3) 2.5x longer life compared with filter bags
Reduced emissions and extended filter life **Region:** USA, Texas **Dust type:** Calcium carbonate 05	Abrasion on the bottom of the polyester bags causing leak paths.	Pleated Bags with spunbonded polyester media. Shorter filter length facilitates removal of filter from abrasion zone.	No holes in bag material equals longer filter life.

01 Before



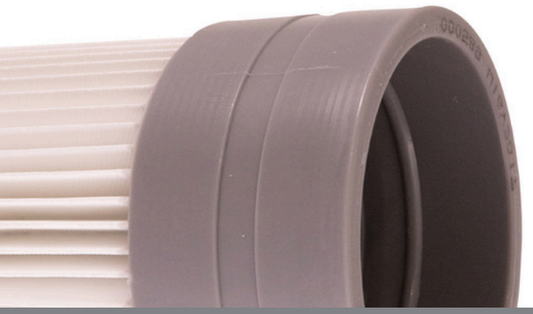
Solution



02 Solution

03 Cement - Clinker transport

04 Solution



05 Solution

06 Before Solution

07 Solution

08 Glass production Solution

	Problem	Solution	Result
Reduced emissions **Region:** Europe – United Kingdom **Dust type:** Slag after casting process and general ventilation of casting fumes/ Manganese, iron fume and nickel. 06	Poor baffling in two dust collectors caused the 4 meter long filter bags to vibrate. This caused holes in the bags and high emissions (higher than the 20mg/m3 required by the authorities).	CPB type pleated bag with PTFE coated polyester media	Reducing the filter length (1.26m vs. 4m) has eliminated the problem of swinging bags. PU top makes hole plate installation easy. Lower dP with spunbond polyester results in lower cleaning costs. 10% increase in filter area. Weltech technology provides equal pleat distance.
Increased output & reduced emissions **Region:** Europe – Slovenia **Dust type:** Production of steel mesh for construction / dedusting of all processes, including welding fumes & iron oxide. 07	When designing a new dust collector, the end user was looking for long filter life, a small and compact dust collector, and low emissions.	228 pleated bags with PTFE coated polyester spunbond media	Low air-to-cloth compared to a filter bag solution of the same length Optimal dust release with PTFE coated polyester spunbond media Low emission levels: Required Actual 10 mg/m3 0.3 mg/m3
Extended production time and filter life **Region:** Asia - China **Dust type:** Gas & dust from glass production 08	The customer was looking to extend the filter life (previous pleated bag filters lasted max. 8 months) and avoid problems with the straps falling off and the pleat joint loosening when operating at temperatures above 85°C/185°F and with chemical dust.	Multifit Pleated Bag with PTFE-coated filter media and adhesive-free Weltech tapes	Ultrasonically welded straps keep straps from falling off Optimized dust release due to PTFE coated media 5x lifetime compared to previous pleated bags

Guide:

Optimize the performance of your collector

Underperforming pulse-jet baghouses are usually the result of high dust loading, inefficient cleaning sistems, or a combination of both. Left unchecked, these problems can lead to process bottlenecks and increased operating costs. Here are some steps you can take to prevent this from happening.

If you need assistance, we have the expertise to identify and solve baghouse problems.

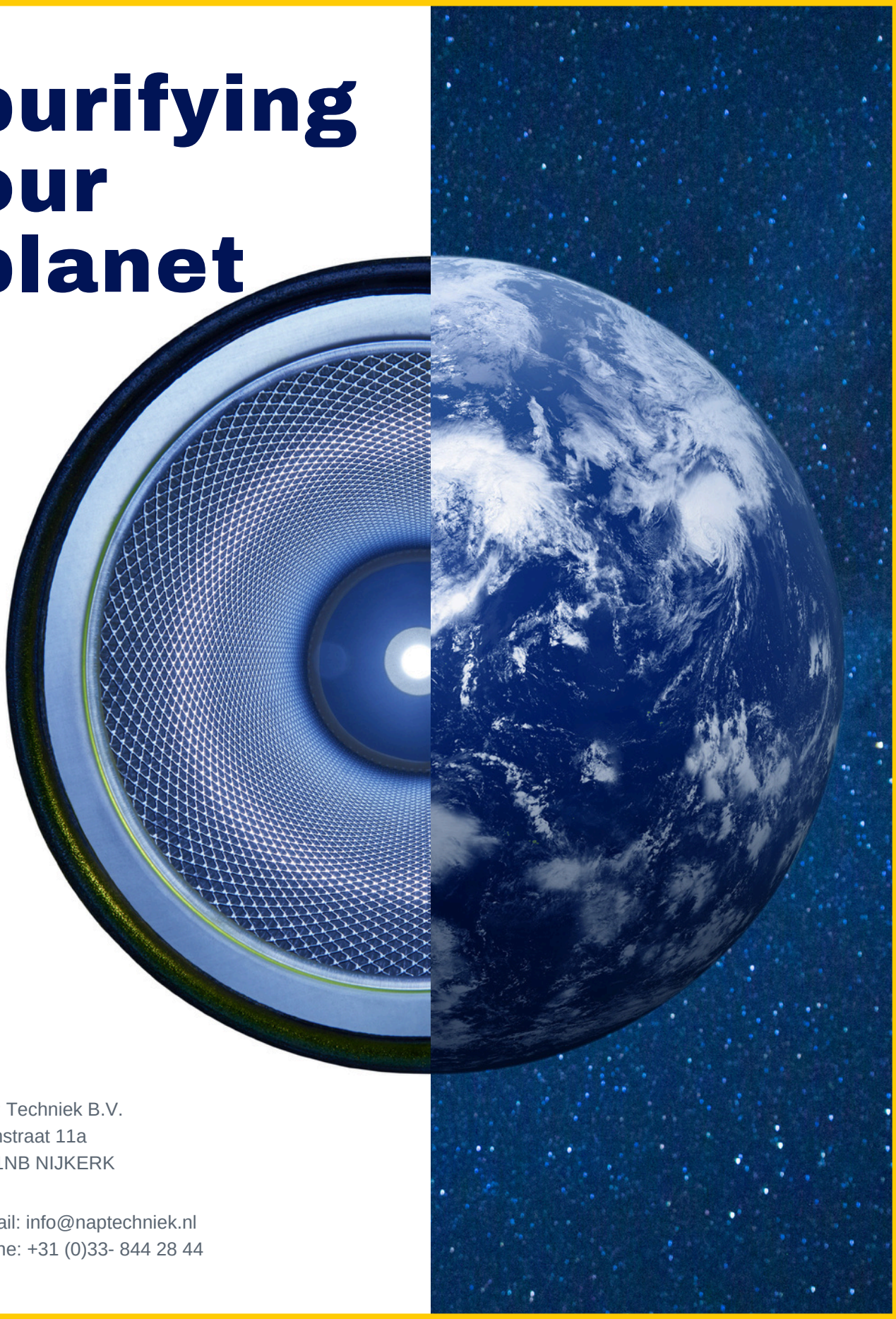
Recommended General Operation parameters

Pressure | 5-6 BAR / 90 PSI
(May vary depending on material type)
Frequency (off time) | 20 seconds or minimum time to maintain the desired differential pressure
Duration (on time) | 150 milliseconds

Please notice:
Some collectors may work successfully with less stringent settings, while other collectors may fail under more conservative settings.

Reservoir 01	Poor filter cleaning can be the result of undersized or restricted cleaning system components. It is important to ensure that there are no restrictions from the compressor to the receiver. You should also make sure that your header tank size matches your cleaning requirements.	
Cleaning Air 02	Ensure better cleaning with tanks that are kept free of moisture and debris. These contaminations can significantly affect the ability to clean the filters.	
Pulse Frequency 03	The pulse frequency should not be greater than the time it takes for the reservoir to recover to full pulse pressure.	
Pulse Sequence 04	The pulse sequence should be adjusted to ensure that cleaned filters do not pick up dust from the adjacent filter being pulsed. Staggering the pulse sequence will help reduce cross-contamination.	CLEAN CLEANING DIRTY
Hopper 05	Should not be used for storage. Evacuation equipment (rotary valves, screw conveyors, etc.) should be sized to unload the hopper before accumulation occurs. Slide gate units should be left open and equipped with sealed drum adapters.	
Emission/bleed through 06	With emissions regulations sometimes forcing a change in fil- ter media, more collector owners are taking the opportunity to upgrade to a more efficient filter media that will filter even the smallest particles. To reduce emission/bleed through, benefits can be achieved by upgrading from conventional filter bags to pleated bags with spunbond media or media with an ePTFE mem- brane.	
Media Selection 07	All dust types have specific characteristics and require differ- ent treatment. The choice of an enhanced treated/coated media (e.g. ePTFE membrane, HO treatment or antistatic surface) often proves to be profitable due to more effective pulse cleaning. Some of the factors that influence the proper choice of media are hu- midity, temperature, conductivity and acidity.	
Air Flow 08	Several issues can cause reduced airflow in the collector. The most common problem is the balance between filter cleaning and dust loading into the collector. If you need to handle more m3/hour, more filter area is usually required.	
Drop out box 09	The drop out box is the distance between the bottom of the filters and the hopper. The greater the distance, the better the conditions are for heavier dust particles to fall out of the air stream before contacting the filter surface. To optimize the drop out box, install pleated bags that are shorter and have more surface area.	PLEATED BAGS FILTER BAGS

purifying our planet



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Hengst FILTRATION

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