



United Air Specialists, Inc.

a CLARCOR company

Clean Air. It's what we do.
Separation of industrial dust and smoke



ProTura[®] –
Nanofiber cartridges
a new dimension in filter technology

CLEAN AIR IS IMPORTANT FOR YOUR HEALTH

Many industrial manufacturing processes emit pollutants that are released into the surrounding air. Like aerosols, these pollutants in the form of smoke and dust affect the health of your employees, the machines and production facilities you use as well as the quality of your products. Below a diameter of 2.5 μm , in particular, the protective mechanisms of the human respiratory tract are incapable to secrete these particles. When exposed to hazardous substances, this can quickly lead to chronic respiratory tract or cardiovascular diseases.

Based on our products

- SFC – dust collector equipment with airflow capacity of up to 100,000 m^3/h
- Compact dust collectors – compact devices with maximum airflow capacity of 3,000 m^3/h

a customized installation is created with low follow-up costs that reliably separates pollutants from the air.

If requested, we will gladly take over the planning, from the basic product to the turn-key suction system. Your advantage: single-source engineering, equipment and piping planning, manufacturing, assembly and commissioning.

We offer you a 2-year warranty on our equipment, regardless of whether it is an individual location solution or central suction.

More than 30 years of continuous development in cooperation with important committees such as the Association of German Engineers (VDI) and the Association of German Machine and Plant Construction (VDMA), plus our own research laboratories, lay the foundation for system solutions that guarantee you clean air as an essential production factor.

If it's about industrial dust: Ask us – we will find the solution!

YOU FIND OUR CUSTOMERS IN THESE SECTORS:

- Chemical industry
- Metal processing sector
- Paper industry
- Plastic industry
- Building materials industry
- Recycling and waste industry
- Ceramic industry
- Composites
- and many more...

OUR DUST EXTRACTION EQUIPMENT RELIABLY SEPARATES:

- Metal dust
- Welding/Laser/Plasma smoke
- Chips
- Soot
- Glass and glass fibers
- Plastic dust
- Mineral dust (e.g. ceramic, limestone, carbides, quartz)
- Composites
- and many more...



A NEW DIMENSION IN FILTER TECHNOLOGY

Our filter cartridges guarantee high separation efficiency and long service life, thus offering you high cost savings during the product's life cycle. Thanks to the many different filter media and the support of our dust laboratory in Dresden, we can always offer you a tailor-made filter solution – even for eliminating carcinogenic and poisonous hazardous substances.



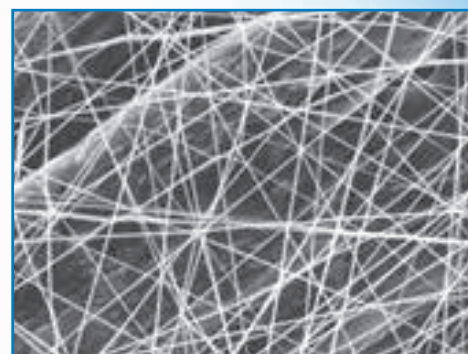
THE NANOFIBER TECHNOLOGY

The nanofibers in the UAS filter cartridges have a diameter of 70 - 150 nm (about 1/1000 of a human hair). They are stretched over the filter substrate like a fine-meshed network and lay the foundation for numerous technical and financial advantages.

The dust is trapped in this fine-meshed network, which is even capable of separating fine dust in the lower nanoscale. The following separation capabilities have been certified in independent laboratories:

- MERV 15* according to ASHRAE Standard 52.2-1999
- F9 according to EN779
- M according to DIN EN60335

This filter cartridge can be called a "real" surface filter. The nanofiber network prevents dust particles from penetrating into the filter medium and stops deep filtration. The filtered dust remaining on the filter cartridge surface is automatically removed by the integrated cleaning system during its operation, thereby enormously increasing the filter's useful life by a factor of about 2 compared to conventional filter cartridges.



Scanning electron microscope photo 5,000x

| Filter cartridge | Filter medium | Filter area (m ²) | max. temperature |
|---|--|-------------------------------|------------------|
| ProTura® Nanofaser FR** | Cellulose-polyester substrate with flame retardant coating | 24 | 80°C |
| ProTura® Nanofaser FR, wide pleat** | Cellulose-polyester substrate with flame retardant coating | 12 | 80°C |
| Spun Bond P | Polyester fiber fleece (melt blown) | 12 | 120°C |
| Spun Bond T | Polyester fiber fleece with PTFE membrane on the surface | 12 | 120°C |

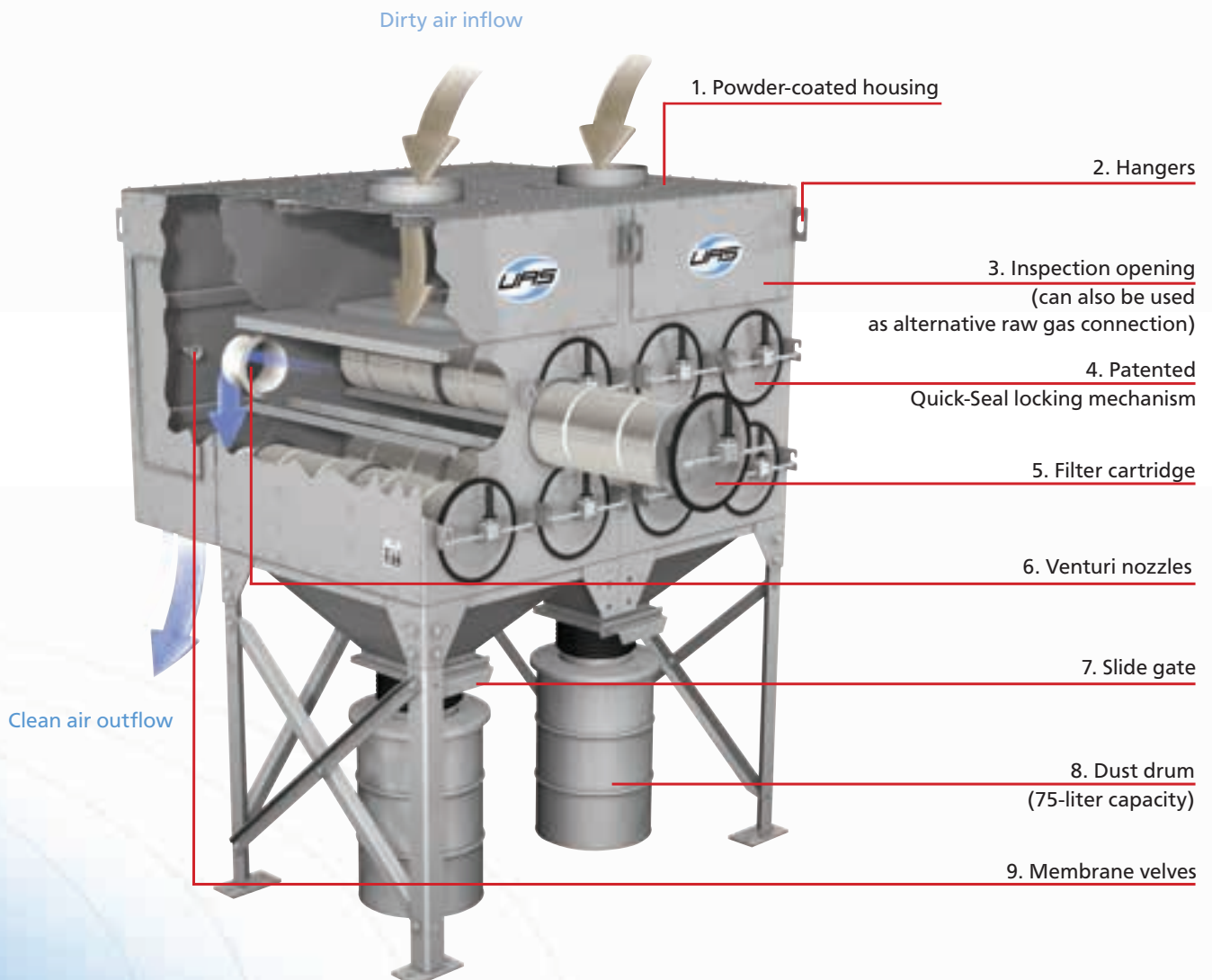
* MERV = Minimum Efficiency Reporting Values

** also available as antistatic version

THE SCHEMATIC STRUCTURE OF THE SFC SERIES

From above, the dust-loaded air flows perpendicularly through distribution metal sheets to the filter – specifically, to the horizontally arranged filter cartridges. The filter cartridges effectively remove the dust or smoke from the air and clean air flows out of the filter's clean air side. The pollutants remain within the filter, are collected in the dust drum and can be easily disposed of by the equipment operator.

So that the filter cartridges can boast a long service life even with high dust concentrations, they are automatically cleaned by an integrated cleaning system that uses compressed air and consists of membrane valves and Venturi nozzles. The cleaning process can be controlled by changing the time and differential pressure.





SFC2-2

SFC4-2

SFC6-2

SFC6-3

WE OFFER TURNKEY FILTER SYSTEMS ON REQUEST

CONSISTING OF:

- Ventilators
- Controls
- Piping and duct installation
- Exhaust elements and hoods
- Pre-filters — baffle plate separators and cyclones
- After filters — HEPA, active carbon
- Installation
- Commissioning
- Emission measurements
- Service

Optional

- Sound insulation packages
- Rotary valves
- Spark protection
- Fire and explosion protection

More options and accessories are available. Please ask us.



ADVANTAGES OF THE CARTRIDGE FILTER

MODULAR DESIGN PRINCIPLE

High flexibility owing to the system's construction.

ROBUST DESIGN

The massive supporting frame construction resists wind speeds of up to 160 km/h and maximum earthquake magnitudes of 4.

POWDER-COATED

The powder-coating (phosphated) allows a corrosion-free long operation – even if the filter is placed outdoors.

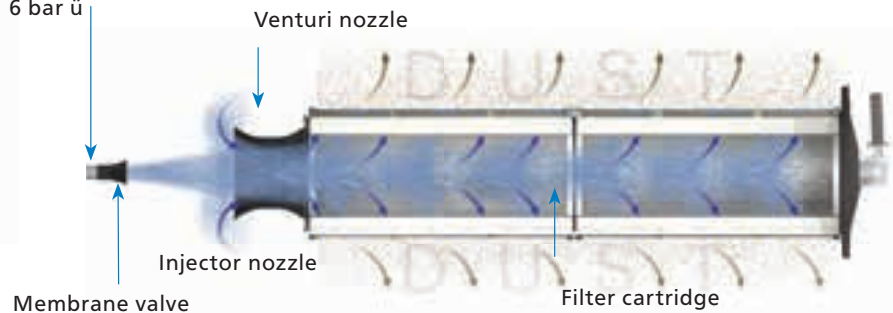
SELF-CLEANING THROUGH PULSE-CLEANING

The patented interplay between membrane valves and Venturi nozzles ensures automatic dust removal from the filter cartridges while the system is operating. This removal, controlled by time or differential pressure, achieves a longer service life and lower consumption of compressed air.



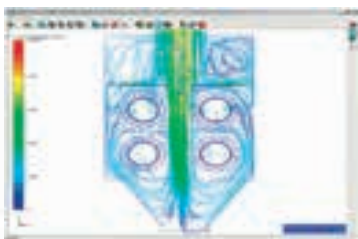
SFC COMPRESSED AIR Patent 6, 902, 592

Compressed air supply
6 bar ü



AIRFLOW DISTRIBUTION

An optimized flow distribution through CFD simulations ensures a uniform impingement of the cartridges with dust and lengthens the service life of the filter cartridges.



ADVANTAGES OF FILTER CARTRIDGES

1. More efficient filter cartridges provide lower investment costs
2. Longer service life compared to conventional filter cartridges
3. Higher separation efficiency – even in the nanoscale (certified by independent testing laboratories)
4. Lowering of energy costs and CO₂ emissions
5. Favourable replacement part prices for filter cartridges (development and manufacturing take place through an affiliated firm in the USA – exclusively for UAS)

REFERENCE INSTALLATIONS



for plasma cutting table, here with pre-separator (cyclone)



for welding smoke and grinding dust



for welding smoke



for powder coatings



for paint powder



for plastic dust



PROFI-140

USED FOR DRY DUST, CHIPS, GRANULATES, FIBERS, POWDER, ETC.

THE ADVANTAGES OF PROFI-140 IN PRACTICE:

- The device is delivered ready for connection in RAL 7035 with 5-m-long cord and plug
- Robust and easy to maintain
- The easy handling of the **PROFI-140** and its high reliability guarantee a long service life
- The Category M filter cartridge can be cleaned by hand
- Minimum volume flow monitoring with a differential pressure switch
- Large, movable 192-L container
- 100% air re-circulation in the working area possible
- Optional: H13 particulate filter for hazardous substances available as secondary filter



Fig. PROFI 140

PROFI-140

USED FOR DRY DUST, CHIPS, GRANULATES, FIBERS, POWDER, ETC.

| Technical Data | PROFI-140 |
|--|--------------------------------|
| Manifold-Ø | 140 mm |
| Motor power (continuous operation S1) | 2,2 kW Mains |
| Voltage (50 Hz, 3~, IP54) | 400 V |
| Current consumption | 4,7 A |
| Air volume flow max. | 1.600 m ³ /h |
| Underpressure max. | 3.500 Pa |
| Filter area | 9 m ² , Catégorie M |
| Filter cleaning | Manually via crank |
| Dimensions : length x width x height | 1.170 x 800 x 1.605 mm |
| Weight | 150 kg |
| Sound pressure level measured acc. to EN ISO 374 4 | 75 dB(A) |
| Volume dust/chip container | 192 liters |

PROFI-140:

The optional industrial extractor can be directly fastened



PROFI -140 accessories

| | |
|---|--|
| ▶ | Suction arm(s) |
| ▶ | H13S particulate filter |
| ▶ | Silencer |
| ▶ | Dust bags available for low-contamination emptying of the collecting bin |



STANDARD I UND STANDARD II

USED FOR DRY DUST, CHIPS, GRANULATES, SMOKE, FIBERS, POWDER, ETC.

The advantages of the Standard series in practice:

- The device is delivered ready for connection in RAL 7035
- Continuous operation possible through robust and high-performance medium-pressurefans
- Suitable for exhausting one or several places
- Main filter: Filter cartridge with 12 m² made of Category M polyester manufactured by United Air Specialists
- Automatic JET pulse, time-controlled exhausting
- The lifting and lowering mechanism facilitates the replacement of the dust/ chip container

Front view
STANDARD I:
optional with
silencer



Back view STANDARD II:
optional with spark separator,
200-mm manifold



**Filter cartridge from
United Air Specialists, Inc.**

Filter cartridges with
ProTura®-Nanofiber also
available



Accessories for the Standard series

| | |
|---|--|
| ▶ | Silencer |
| ▶ | H13 particulate filter |
| ▶ | Spark pre-separator |
| ▶ | Dust bags for low-contamination emptying of the collecting bin available |

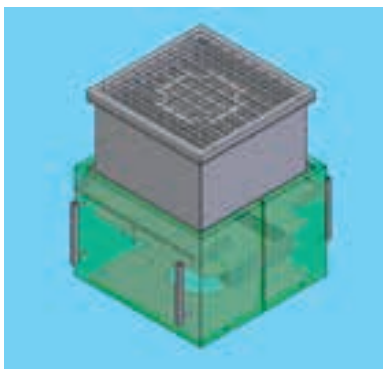
STANDARD I UND STANDARD II

USED FOR DRY DUST, CHIPS, GRANULATES,
SMOKE, FIBERS, POWDER, ETC.

| Technical data | STANDARD I | STANDARD II |
|--|------------------------|------------------------|
| Manifold-Ø | 140 mm | 200 mm |
| Motor Power (continuous operation S1) | 2,2 kW | 3,0 kW |
| Mains voltage (50 Hz, 3~, IP54) | 400 V | |
| Current consumption | 4,6 A | 6,1 A |
| Air volume flow max. | 1.850 m³/h | 3.150 m³/h |
| Underpressure max. | 3.450 Pa | 3.300 Pa |
| Number of filter cartridge (s) (Type: Category M polyester) | 1 | 2 |
| Filter area | 12 m², Category M | 24 m², Category M |
| Filter cleaning through JET cleaning (compressed air) | timer-controlled | |
| Dimensions : length x width x height * | 630 x 1.000 x 2.090 mm | 630 x 1.180 x 2.090 mm |
| Weight | 170 kg | 210 kg |
| Sound pressure level, measured acc. to EN ISO 374.4 | 79 dB(A) | 79 dB(A) |
| Volume dust/chip container | 30 liters | 40 liters |



Pressure container with 2
solenoid valves for the
STANDARD II



Silencer

STANDARD I:
Customized Standard I
for graphite dust





United Air Specialists, Inc.

a CLARCOR company

System solutions and service for environmental protection

Environmental protection requirements grow with increasing worldwide industrialization. Air, water and soil pollution as well as the constant consumption of raw materials demand optimal technical and economical processes.

The high service quality and a worldwide network of branches and agents are another essential component of the UAS Inc. corporate philosophy.

UAS supports you as competent partner – **worldwide.**



Everything from one single source.

Take advantage of our consulting services: After a full analysis, we plan a filter system especially designed for your basic needs.

Our experienced service staff is available to you for installation, commissioning, training and maintenance.



Visit us on the Internet at: www.uas-inc.de