



FILTOWER

HALL VENTILATION SYSTEM FOR EXTRACTION OF
WELDING FUMES, DUST AND OIL MIST

BREAKING NEW GROUND

ESTA has provided filter towers for cleaning the air in production and manufacturing halls since 2009. With the new FILTOWER series, ESTA has put together all the experience it has acquired over the years into one innovative device series. FILTOWER is the ideal solution for the welding fumes, dust and oil extraction.

» **Application range**
 The local extraction of dust, smoke and oil mist quickly reaches its limits when a frequent change of workstations is required during the production process. Our hall ventilation systems of the FILTOWER series improve the hall air quality and meet the statutory regulations in compliance with occupational exposure limits in production halls. It is often impossible to meet the new maximum exposure limit values of 1.25mg/m³ stated in TRGS 900 (technical rule for hazardous substances) using conventional extraction technology. The FILTOWER series provides a quick and easy solution.

3	different applications	FILTOWER-F – <i>Welding fumes</i>
		FILTOWER-D – <i>Dust</i>
3	different performance levels	FILTOWER-L – <i>Oil & emulsion mist</i>
		FILTOWER-100 – <i>10,000 m³/h</i>
		FILTOWER-160 – <i>15,000 m³/h</i>
		FILTOWER-200 – <i>20,000 m³/h</i>



MULTI-LEVEL FILTER SYSTEM – THE RESULT: CLEAN AIR

» How it works

FILTOWER systems work according to the layer and displacement ventilation principle recommended by the Employers' Liability Association. The systems draw polluted air into the top of the device from a radius of up to 15 meters (depending on performance level). Inside, the air then flows through the newly-developed pre-separation system.

» Innovative pre-separation system

The patent-pending pre-separation system initially filters coarse particles. This leads to an enormous improvement in the filter life of the downstream filter cartridges and reduces the risk of filter fire when extracting welding fumes.

» Main filter

Following the pre-separation, residual fine particles are passed through long life cartridge filters with nanofibers of the dust class M (99.9% separation efficiency), where they are filtered.

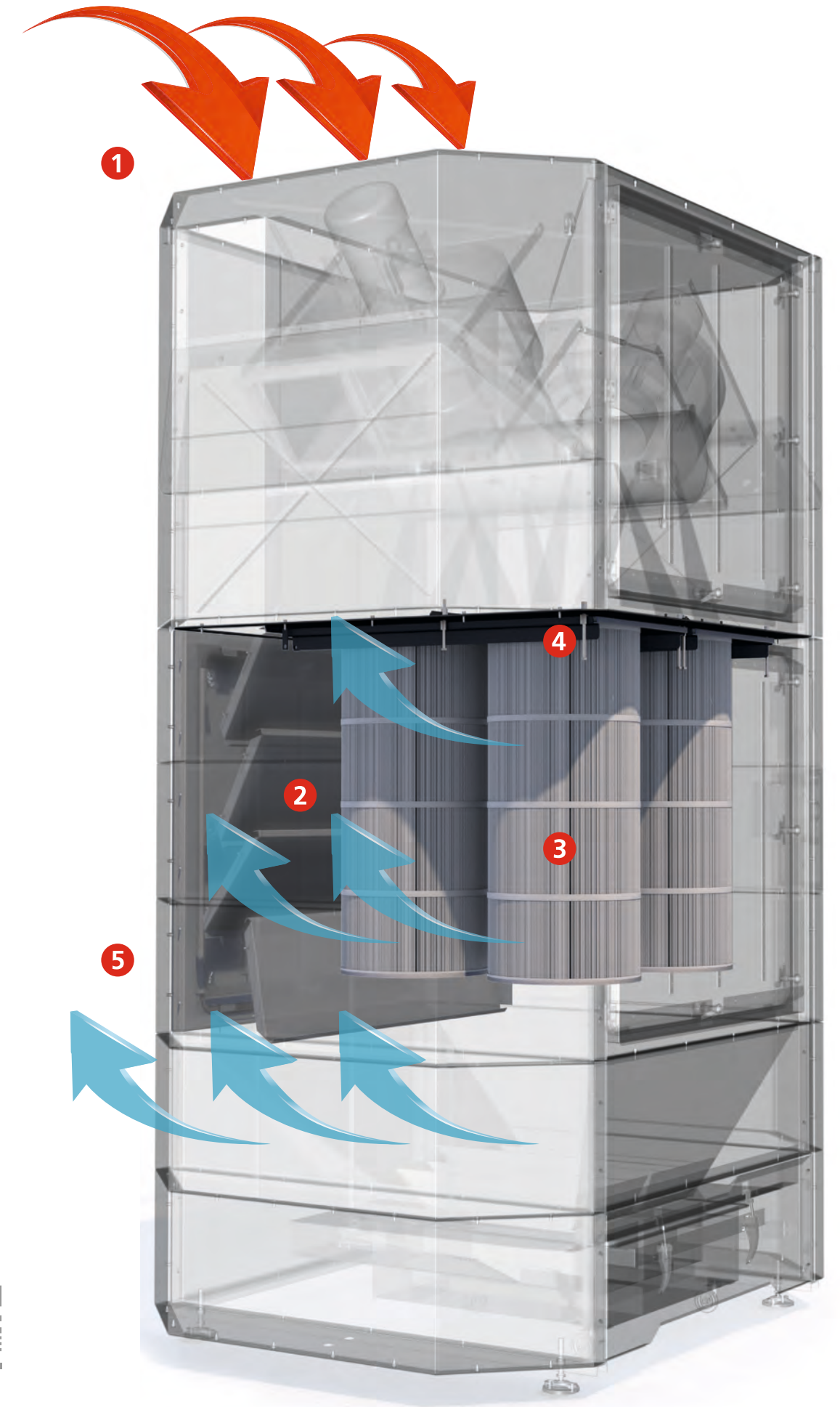
The multi-level filter system enables high separation efficiency and a long filter life. As an option, the FILTOWER series can be equipped with activated carbon inserts to minimize and effectively filter odors and harmful substances.

The cleaned air is recirculated into the hall via diffusers on the sides at floor level, with minimal draft. Employees are continuously supplied with fresh air in a targeted way. Air circulation is boosted as the air supply from below supports the uplift of the floating fine dust or smoke particles, facilitating their intake – the cycle starts over again.

Devices with IFA test certificate W3 for extraction of high-alloy steel* welding fumes are available as an option.

» Diagram

- 1 Extraction of contaminated air
- 2 **Pre-separation system**** (calculated separation efficiency >80% for particles $\geq 50 \mu\text{m}$) serves as a spark pre-separation system and filters coarse particles.
- 3 Filtration of residual dust particles through long life cartridge filters with nanofibers of dust class M (99.9% separation efficiency)
- 4 Easy filter change of highly-effective long life cartridge filters thanks to the newly-developed, **ESTA QuickChange filter change system**
- 5 Low-draft recirculation via outlets on side



Productvideo

* FILTOWER F
** Patent pending

QUICK INSTALLATION, EASY HANDLING – FOCUS ON PRODUCTION

» Plug & play

In contrast to central hall ventilation systems, plug & play hall ventilation systems do not require a pipe system. They are supplied fully assembled and are ready for operation almost immediately – all that is left to do is connect the power and compressed air lines. They can be deployed flexibly in the workspace using a forklift or crane.

» Housing design

The sound insulated housing design and the low-draft clean air diffusers ensure a pleasant working environment, even in direct proximity to the equipment.

» Filter change system

The new **ESTA QuickChange filter change system** ensures a dust-free and time-saving change of filter cartridges.



» Cleanable filter cartridges

Compressed air cleans the durable filter material of dirt particles fully automatically during extraction, reducing operating costs. This ensures continuous suction performance at low operating costs.



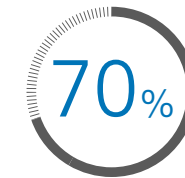
» Dust removal

At the end of the filtration process, the separated dust particles fall into a mobile 150-liter drawer underneath the filtration unit. The two collection boxes inside it are sealed with a cover before removal, ensuring dust-free disposal of the material extracted.*



* Depending on device version

EFFECTIVENESS & PROFITABILITY – REDEFINING EFFICIENCY



» Heating cost savings

The plug & play systems enable a full recirculation of the cleaned air into the workspace which reduces energy consumption considerably, especially in the winter. Depending on the application, up to 70% of the annual heating costs can be saved compared to exhaust air operation.

» Fans

The systems are equipped with two highly-efficient IE3 motors. These can be programmed individually and their extraction performance regulated according to demand (optional).



» Frequency converter

The filter towers can be equipped with frequency converters. This enables the extraction performance to be adapted to demand, for additional energy savings.



» Intuitive control

The system control has a generous operating panel with a display showing the most important device functions, such as differential pressure, cleaning, operating hours etc. See page 10 for more features.





FILTOWER *eco*⁺ – FOR MAXIMUM EFFICIENCY



The filter towers in the *eco*⁺ series combine excellent suction and filtration performance with the highest level of efficiency, whilst keeping operating costs to a minimum. This is where the new **ESTA EasyControl** controller can help, in combination with refined sensor technology and the use of frequency converters.

The *eco*⁺ filter towers do not use the maximum possible output all the time, but align themselves to the currently required volumetric flow of air. Depending on requirements and the application, the suction power is adjusted and controlled according to the situation, leading to considerable potential energy savings.

Fully-automatic, sensor-controlled volumetric air flow control:

- » To make power savings of up to 50%
- » For an extended filter lifespan
- » For more efficient cleaning

FILTOWER *ecolight* – ADEQUATE SUCTION PERFORMANCE



The *ecolight* design ensures that the FILTOWER's extraction performance can be adjusted manually **as appropriate** during operation, which raises the level of efficiency and optimises operating costs. This is made possible by the new **ESTA EasyControl** controller and the use of frequency converters to **regulate the air volume flow**.

FILTOWER *ecolight* design:

- » ESTA EasyControl device control
- » Frequency converter
- » Adjustable timer



The core series is the **ESTA EasyControl** controller.

It allows efficient operation, in which the signals from the sensor system are processed in an optimum manner.

FILTOWER *ecotemp* – FOR A PLEASANT INDOOR CLIMATE



In addition to the outstanding extraction and filtration abilities, the filter towers in the *ecotemp* range also create a comfortable room climate in the working area.

FILTOWER *ecotemp* design:

- » Energy-efficient cooling or heating possible by two slatted heat exchangers
- » Stepless regulation of temperature
- » Environmentally friendly (water quantity: 4 m³/h / Connection: 1¼ inch)
- » Low maintenance costs through clean gas side installation
- » Drain taps for condensation
- » Stainless steel drip tray
- » Low loss of pressure through large vector surface

FILTOWER **4.0** – BOTH INTELLIGENTLY NETWORKED AND ENERGY-SAVING



The FILTOWER **4.0** models have integrated logging and network functions. A wide selection of instruments for system monitoring is available to the user. All the measurement and operational data is logged and monitored on a permanent basis. Maintenance work and the costs related to it can be reduced, possible failure risks prevented and reliable operation guaranteed.

The integrated *eco*⁺ modules also ensure energy-saving operation.

- » Simple coupling of the filter tower to company-specific network infrastructure via LAN/WiFi
- » Remote access and monitoring of all operational data possible around the globe, also by the user
- » Reduction of the risk of failure through permanent logging and monitoring of the operating parameters
- » Reduction of the maintenance and service costs through remote monitoring and maintenance



Abruf der Betriebsdaten über mobiles Endgerät



FILTOWER-SERIES AT A GLANCE

	Standard	eco ⁺	ecolight	4.0
ESTA QuickChange filter changing system	●	●	●	●
Jet pulse filter cleaning	●	●	●	●
Fans with IE3 motor drive	●	●	●	●
ESTA EasyControl controller	×	●	●	●
Frequency converter	○	●	●	●
Simple volumetric flow control	×	●	●	●
Timer	×	○	○	○
Automatic control of the suction power using dust sensors	×	●	×	●
Residual dust and filter monitoring	×	●	×	●
Level measurement in the dust collection vessel	×	●	×	●
Digital erection aid	×	○	×	●
Recording of the operational data	×	○	×	●
Remote maintenance and control via LAN/WiFi	×	×	×	●
ecotemp	○	○	○	○

● = included ○ = optional × = not included

OPTIONS AND SPECIAL VERSIONS – ACCOMODATING INDIVIDUALITY

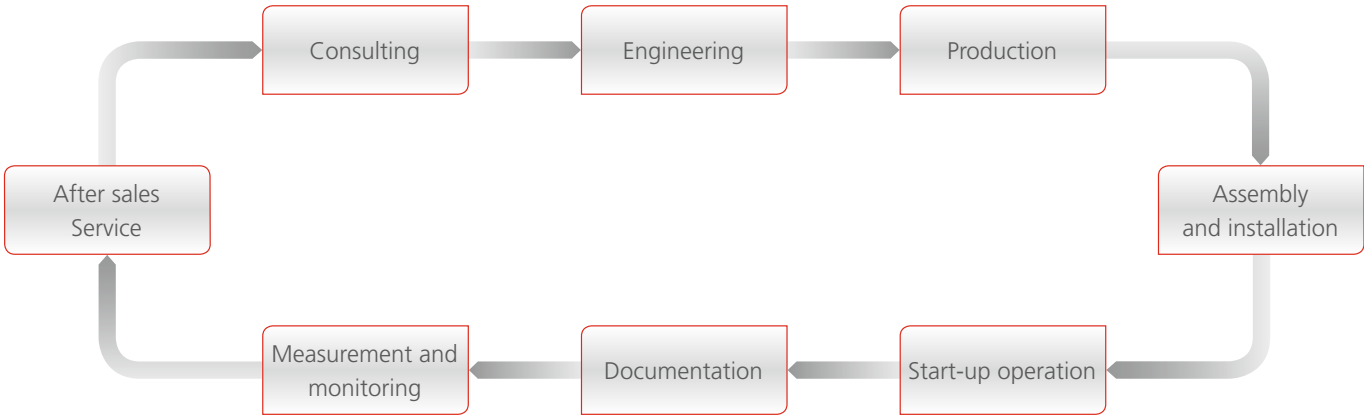
- » Fire sensor with extinguishing system
- » *ecotemp* design with heating and/or cooling module*
- » Activated carbon inserts for filtering gases and odorous substances
- » Special coating in RAL colour
- » IFA test certificate W3 for extraction when welding high-alloy steels**



* Only available as a new purchase
 ** FILTOWER F



OUR SERVICES FOR THE EXTRACTION DEVICE



TECHNICAL DATA

		FILTOWER 100		FILTOWER 160		FILTOWER 200	
Max. airflow	m³/h	10,000		15,000		20,000	
Max. negative pressure	Pa	2,800		2,800		2,800	
Voltage	V	400		400		400	
Motor	kW	2 × 3,0		2 × 4,0		2 × 7,5	
Filter surface	m²	100		160		200	
Filter elements	Pieces	4		4		4	
Dust collection drawer	l	150		150		150	
Dimensions (L/W/H)	mm	2,060 × 1,510 × 2,950		2,060 × 1,510 × 3,350		2,060 × 1,510 × 3,850	
Weight	kg	1,100		1,200		1,500	
Sound level	dB(A)	71		75		77	

Order number		100	100 <i>ecotemp</i>	160	160 <i>ecotemp</i>	200	200 <i>ecotemp</i>
FILTOWER F	Standard	667100	690100	667160	690160	667200	690200
	With test certificate W3	664100	703100	664160	703160	664200	703200
	<i>eco+</i>	670100	696100	670160	696160	670200	696200
	<i>ecolight</i>	680100	699100	680160	699160	680200	699200
	4.0	673100	691100	673160	691160	673200	691200
FILTOWER D	Standard	663100	694100	663160	694160	663200	694200
	<i>eco+</i>	671100	698100	671160	698160	671200	698200
	<i>ecolight</i>	676100	701100	676160	701160	676200	701200
	4.0	674100	695100	674160	695160	674200	695200
FILTOWER L	Standard	660100	692100	660160	692160	660200	692200
	<i>eco+</i>	672100	697100	672160	697160	672200	697200
	<i>ecolight</i>	677100	700100	677160	700160	677200	700200
	4.0	675100	693100	675160	693160	675200	693200

ESTA – THE SPECIALIST FOR EXTRACTION TECHNOLOGY

ESTA extraction technology has provided comprehensive solutions for all application areas for 45 years. From single devices for a wide range of application purposes to complex extraction systems – we ensure a consistently clean working environment. This protects machines, benefits your employees' health and lays the groundwork for efficient and quality-oriented working.



CONTACT

Telephone

+49 73 07 3 40 96 80-0

Email

info@esta.com

Website

www.esta.com

Accessories shop

www.esta.com/shop

ESTA on site

Our field service team will be happy to advise you at your site



ESTA Apparatebau GmbH & Co. KG

Gotenstraße 2–6

89250 Senden/GERMANY

Phone +49 73 07 3 40 96 80-0

Fax +49 73 07 8 04 - 500

E-Mail info@esta.com

www.esta.com

