FOR HUMAN, ENVIRONMENT & MACHINERY

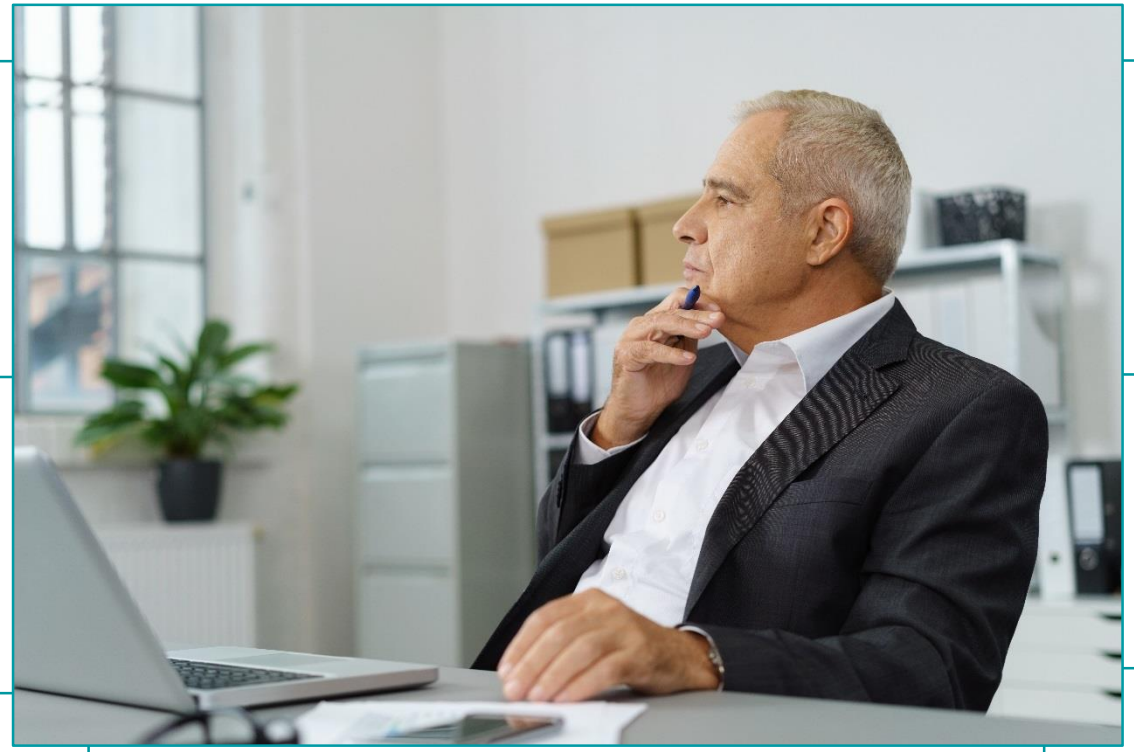
for 25 years

Many thoughts on health – but the most important is less considered…

Which additives are in our drinks?

What is inhaled while smoking?

Which allergens are in cosmetics?



Are organic products really better?

Do clothes contain any contaminants?

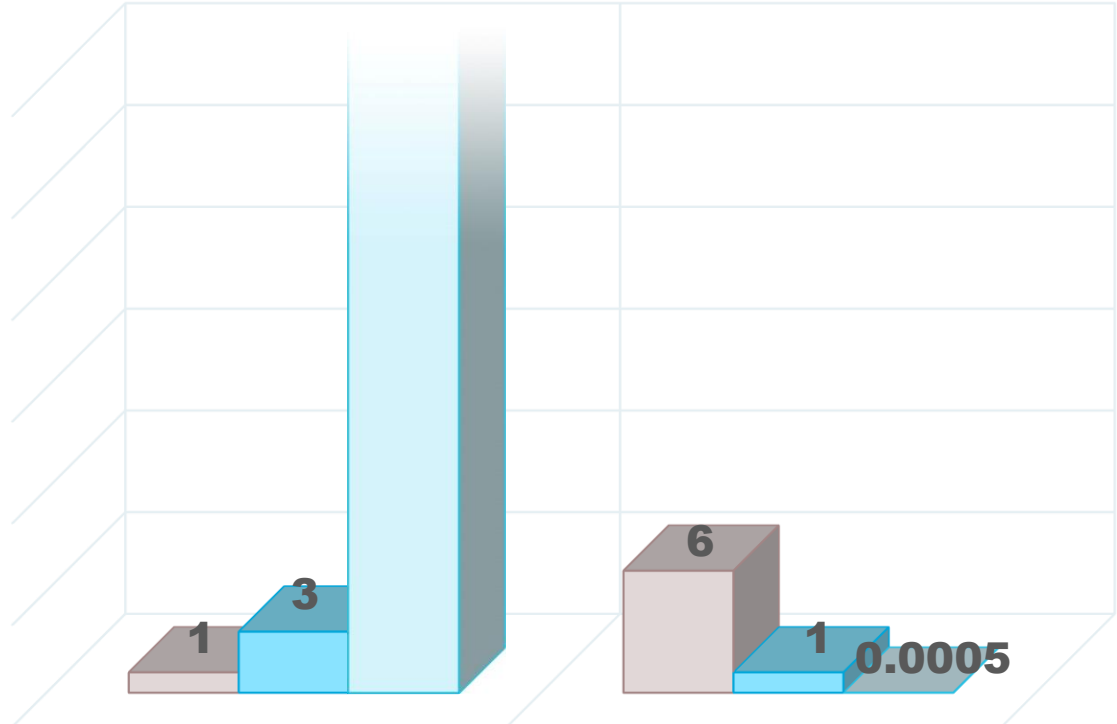
How many chemical substances are in our food?

Which side effects causes the medicine?

Is a vegetarian or even vagan nutrition really more healthy?

What is essential for survival?

RELATION GROCERIES



	Consumption per day	Time of survival without
Food	1 kg	6 weeks
Water	3 l	1 week
Air	30,000 l	5 min.

Why is an extraction system important?

Processes:

- Soldering
- Welding
- Lathing
- Gluing

Hazardous substances:

- Gases
- Dust
- Fumes

Diseases:

- Aluminosis
- Bronchitis
- Metal fume fever
- Nausea
- Dizziness
- Headache
- Eye irritations
- Narrowed windpipe
- Blood poison
- Breathlessness

Long-term consequences:

- Welding smoke from nickel-base-alloys could cause cancer.
- Average life span of Europeans is shortened by about nine months.
- Risk of cardiovascular or rhinorrhea diseases is increased.

Why being cautious?

Danger because of PM1 particle:

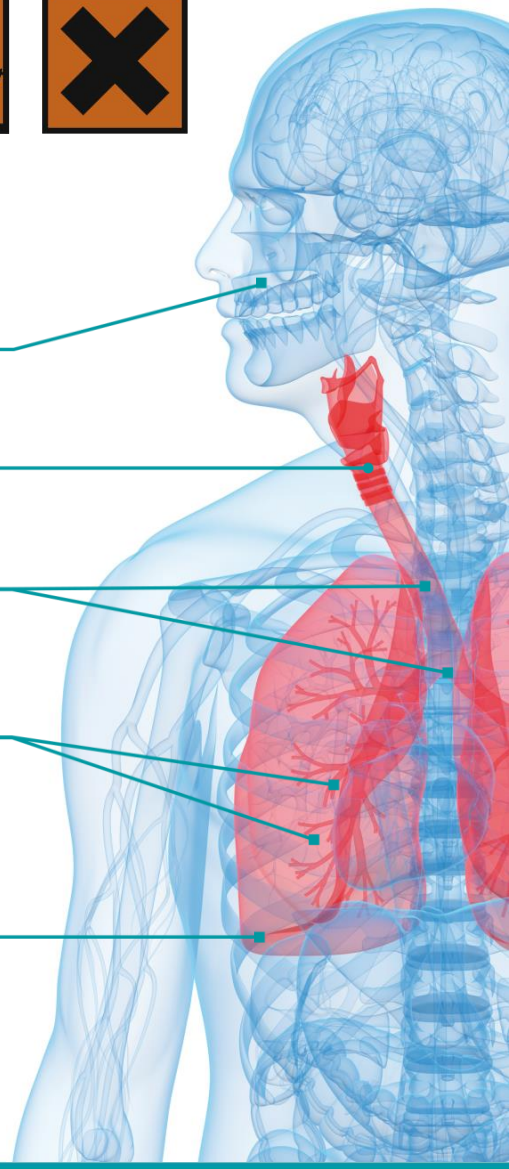
- 80% of 0.15 µm – 0.5 µm particles (e. g. dust, bacteria, viruses) will be refined in the alveoli.
- The blood stream carries them away.
- The body tries to destroy the particles in the blood with „scavenger cells“.
- But the body fails with non-biological particles (metal dust, nano dust, stone dust,…) which set down in well blood-supplied histoid.

0.1% PM particles in ambient air (from PM2 until PM10)

- Nasal mucosa and pharynx > 10 µm
- Larynx 4.7 – 5.8 µm
- Trachea and main bronchi 3.3 – 4.7 µm
- Secondary and tertiary bronchi 1.1 – 3.3 µm

99.9% PM1 particles in ambient air

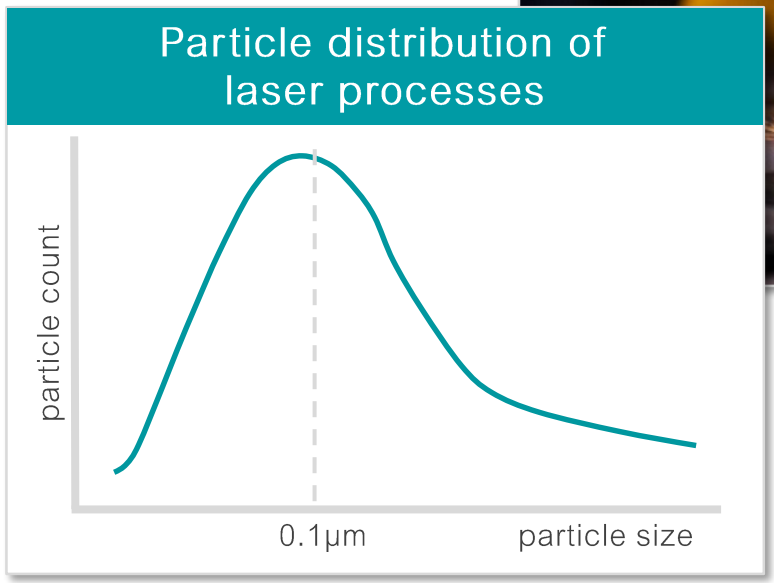
- Alveoli 1 µm



Which are the potential risks in laser processes?

Danger because of nano particles:

- The mean particle diameter of particles which are emitted in laser processes is by far smaller than 1µm.
- These particles will be removed by the human cells and the blood stream.
- The particles deposit in human tissues, like for example the brain or the organs, and are suspected to favor the creation of focus on inflammation and tumors.



What should extract the contaminants from the air –

your lung

or

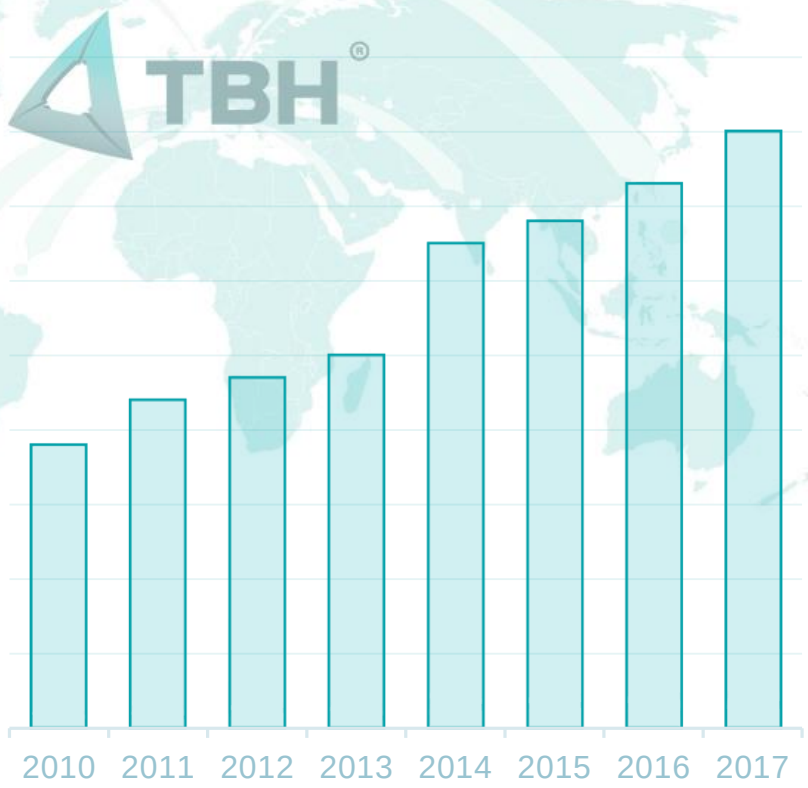
our filters?

What does TBH stand for?

We as TBH stand for creating clean air and contaminants-free production processes. We are focused on costumer-orientated solutions to protect Human, Environment and Machinery sustainably.

TBH History

1992	Company formation TBH GmbH
2001	1,000th system of LN100
2004	New building in Straubenhardt-Conweiler
2005	30 employees
2005	TBH launches the American market
2012	Awarded with ISO 9001 quality management certificate
2013	Expansion of the company building
2016	Launch of the INSPIRE control unit
2016	New general manager: Solvejg Hartmann
2017	25 years TBH



From the Black Forest into the whole world

Rogersville, AL
USA

Straubenhardt
DE

Europa
Nord Amerika
Asien
Afrika

TBH product details

Category: decentralized and compact extraction and filter systems

Kinds: saturation and filter cartridge systems

Air volume: 30-1.500m³/h

Test certificate: ISO 9001, ETL (UL/CSA) certification, the CR series is approved and classified by the corresponding ISO clean room classes.

TÜV SÜD ISO 9001

ETL LISTED
CONFORMS TO
UL STD 61010-1
CERTIFIED TO
CAN/CSA STD C22.2 No. 61010-1
Intertek
3017948

EX II 2/-Dc IIIC T100°C
EX II 3GD (Gc/Dc) EX IIA T4 /IIIB T120°C
ATEX-Richtlinie 2014/34/EU

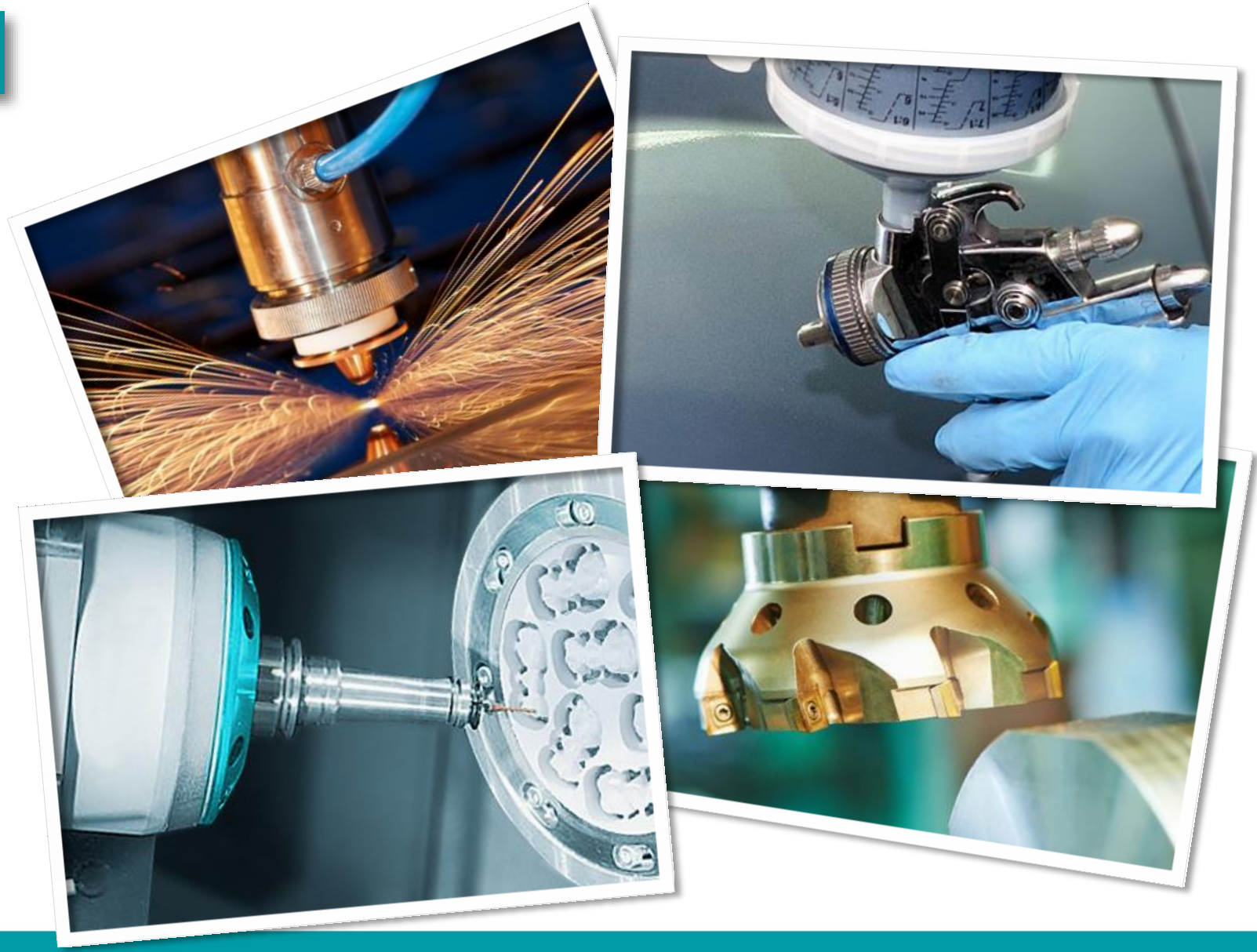
W 3	ISO 15012-1 η≥99%	W 3

TBH application fields

Variously unsable:

- laser technology
- chipping
- welding, grinding, cutting
- plastics manufacturing
- technical glass
- textile processing

and much more…



TBH Technology

1) modular top unit
2) modular filter unit
3) modular turbine unit

4) various connecting possibilities
5) TBH INSPIRE control unit
6) TBH INSPIRE interface
7) efficient sound insulation

8) TBH pre filter F5-F9
9) TBH particle filter H13 & H14
10) TBH activated carbon
11) powerful, long-life & efficient EC-fan

TBH modularity – as flexible as your applications

Your advantages:

- simple and quick filter change
- affordable, fast upgrade and adjustment
- various connecting possibilities for capturing elements
- individual optimizing possibilities for each case of application
- easy exchange of the turbine unit in case of needed service

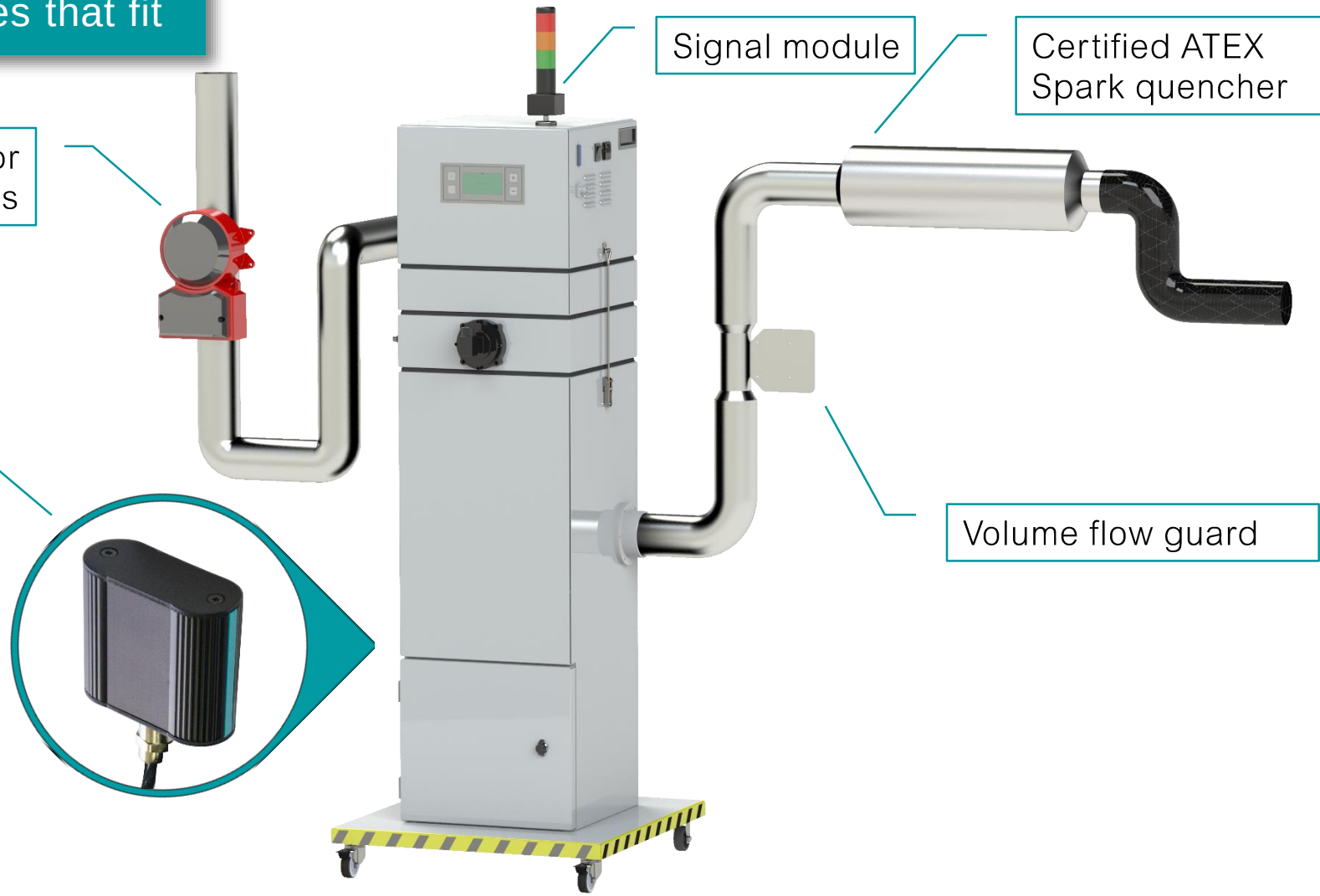
TBH customer specific

Customer specific modifications of series systems is possible at an amount of 100 units per year.

- individual measurements or air capacity
- special adjustments for processes with additional requirements
- filter can be combined customizingly, depending on the contaminants
- integration to your work process
- smoothly connection to you machines
- mobile systems for easy placement of the system

Additive Manufacturing

TBH safety – supplies that fit



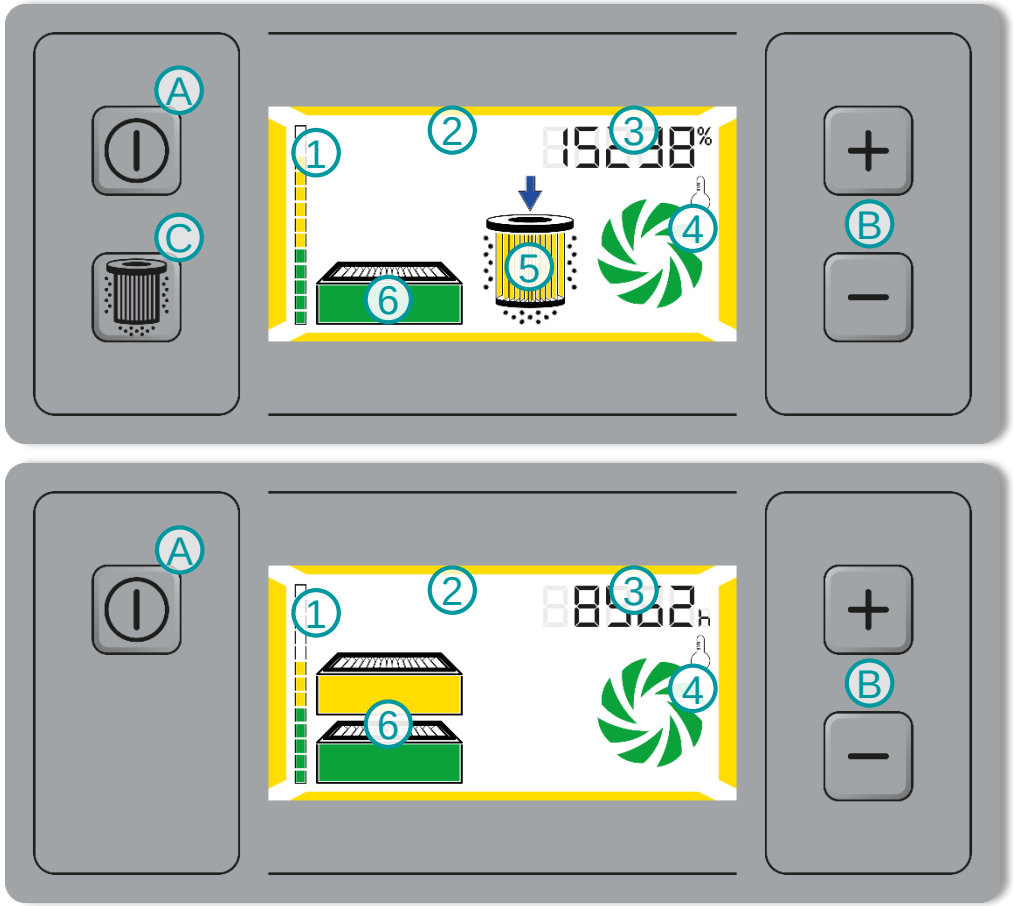
INSPIRE control unit

high-contrast viewing angle stable optical status detection to be visible from afar

User Interface:

A) change Start/Stopp
B) manual speed regulation
C) manual start of filter cartridge cleaning

1) filter saturation
2) system status
3) power settings/runtime counter
4) temperature/turbine control
5) cleaning process
6) filter status



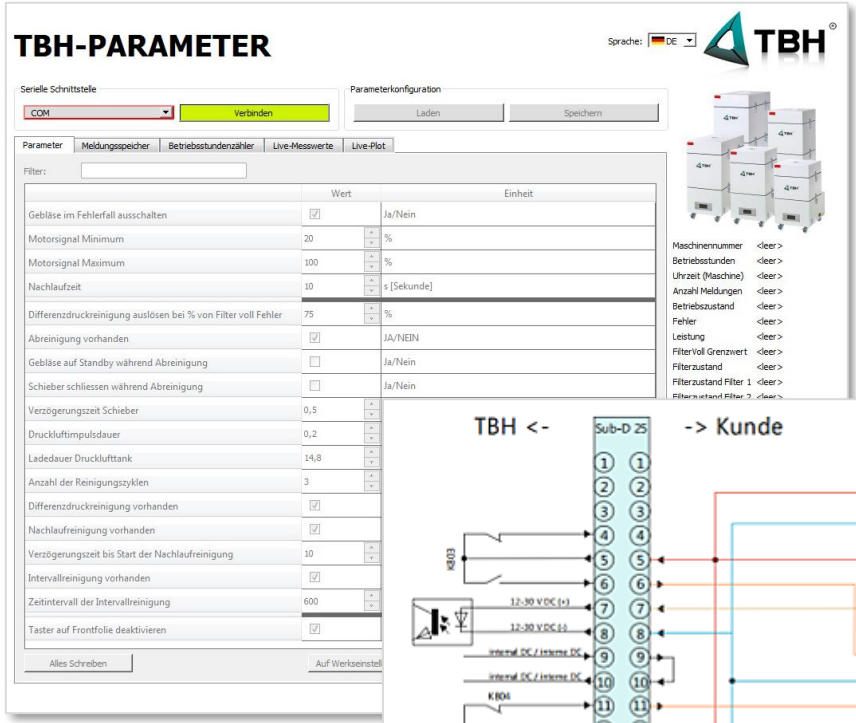
// The new standard in operating ergonomics

INSPIRE interface

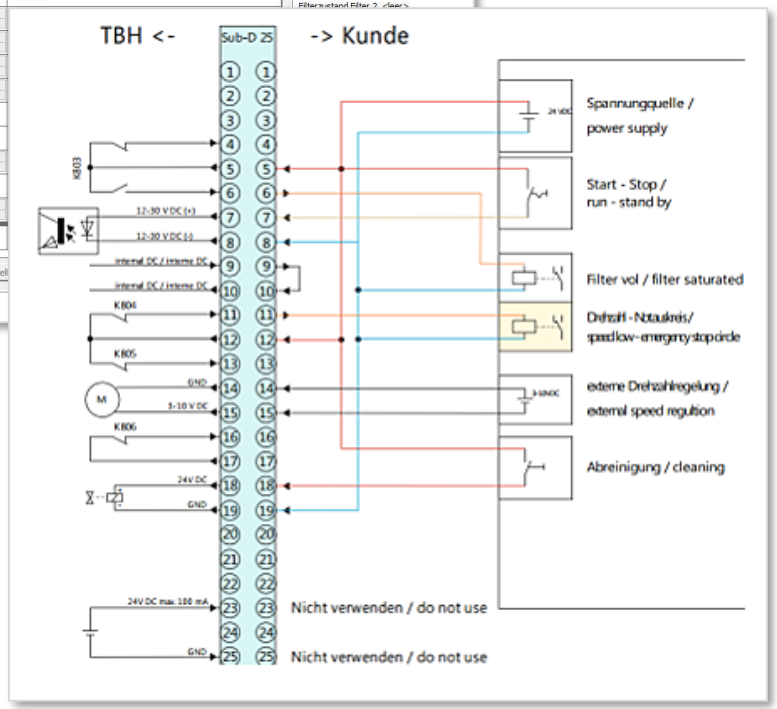
Automation interface:

- digital RS232 interface
- digital adjustment of system‘s parameters
- digitale message cache
- analogical and digital rotation regulation
- analogical and digital filter control
- analogical and digital temperature control
- analogical und digital Run/Standby

// maximum automation



RS 232



TBH principle

With our customer-orientated solutions we ensure you contaminants-free production processes and clean air – so you can breathe deeply and be completely focused on your work processes.

We sustainably protect you, your environment and your machineries with our extract and filter technology against harmful emissions.

Our systems for your protection

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