

/ Perfect Welding / Solar Energy / Perfect Charging

**Fronius**



# WELDING FUME

EXTRACTION SYSTEMS AND BREATHING APPARATUS

BETTER WELDING RESULTS  
IMPROVED COMFORT  
HIGHLY EFFECTIVE PROTECTION



UP TO  
**99.8%**  
CLEANER AIR

**100%**  
IMPROVEMENT IN  
WORKING CONDITIONS

Joining and separating processes such as welding, brazing, and cutting all release gases and harmful substances into the air. If inhaled by the welder, these can have long-lasting health implications.

To meet occupational health standards and, most importantly, protect welders' health, it is essential to maintain clean air conditions at work stations. Fronius' products help meet legal requirements and standards, and provide the best possible protection for workers.





# BETTER WELDING RESULTS

## THANKS TO EFFECTIVE PROTECTIVE EQUIPMENT

The legislation governing the extraction of welding fumes and proper ventilation in production facilities varies widely and differs from country to country.

Employers must evaluate the risk in each case based on the welding process, site conditions, general working conditions, and the risk classification for the welding fume. All data must be documented in detail and, most importantly, appropriate measures must be put in place to protect workers.

Extraction systems and breathing apparatus are essential for protecting the longterm health of staff. A welder who is continuously exposed to polluted air will soon display signs of exhaustion. Conversely, welders working in clean-air environments are healthier and therefore more productive.



# IMPROVED PERFORMANCE

## THANKS TO BETTER WORKING CONDITIONS

The working environment has a significant impact on productivity.

Visibility levels, ambient temperature, how the equipment handles, and also the concentration of welding fume all have a direct impact on work quality. It is sometimes unavoidable that welders have to work in tight spaces or difficult conditions. However, the impact of welding fumes can be mitigated against.

What's your  
welding challenge?

Let's get connected.



# RISK CLASSIFICATION

## THE DIFFERENT WELDING PROCESSES

(TRGS 528 [German Technical Regulations for Hazardous Substances] 2009)

WELDING PROCESS	Emissions rate (mg/s)	Damaging substances for respiratory tract and lungs	Toxic or irritative substances	Carcinogenic substances
Submerged-arc welding	< 1			
Gas welding (autogenous process)	< 1			—
TIG welding	< 1			
Laser welding without filler metal	1 to 2			
MIG/MAG (low energy gas shielded arc welding)	1 to 4			
Manual arc welding, MIG (general)	2 to 8			
MAG (solid wire), flux-cored wire welding with shielding gas, laser welding with filler metal	6 to 25			
MAG (flux core wire), flux-cored wire welding without shielding gas	> 25			
Brazing	< 1 to 4			
Flame cutting	> 25			
Arc spraying	> 25			

■ = Low ■ = Medium ■ = High ■ = Very high

Table 1: Welding processes assessed by emissions rate, taking into account material-specific factors and effects – Categorization by risk classification.

### WELDING FUME EMISSIONS

Whether welding fume is emitted and how hazardous the fumes are depends on a combination of factors: welding process, parent material, and filler metals (welding wire and shielding gas). The majority of welding fume particles are generated by the filler metals.

It therefore makes sense to opt for processes that create low levels of welding spatter, since these use less filler material. Grinding work to remove spatter is also likely to release additional fine particles into the air.





# 4 STEPS

## TO IMPROVE WORKING CONDITIONS

### INDIVIDUAL BREATHING APPARATUS



...fitted with a fan filter unit. This equipment protects welders' health and also increases their sense of wellbeing and productivity. Modern particulate filter systems are so effective they can remove almost 100% of harmful particles.

### EXTRACTION AT SOURCE



... of welding fume. Extraction works best directly on the arc; however care must be taken to ensure the gas shroud is not affected.

### EXTRACTION HOODS AND TABLES



... are a good way to remove welding fumes at a particular work station. Both permanent extractors fixed to the workstation and mobile extraction devices provide a complete filter system.

### VENTILATION



... keeps the ambient air in the whole production facility clean. Ventilation is particularly important in areas where fumes accumulate because extraction at source is not sufficient.



# FRESH AIR COMBATS WELDING FUMES

In addition to glare protection, protection against welding fumes is a must for welders.

Employers must now meet more rigorous occupational health and safety standards when it comes to welding fumes.

Air filter systems protect welders' health.

They also increase comfort during the welding process, particularly at high ambient temperatures.

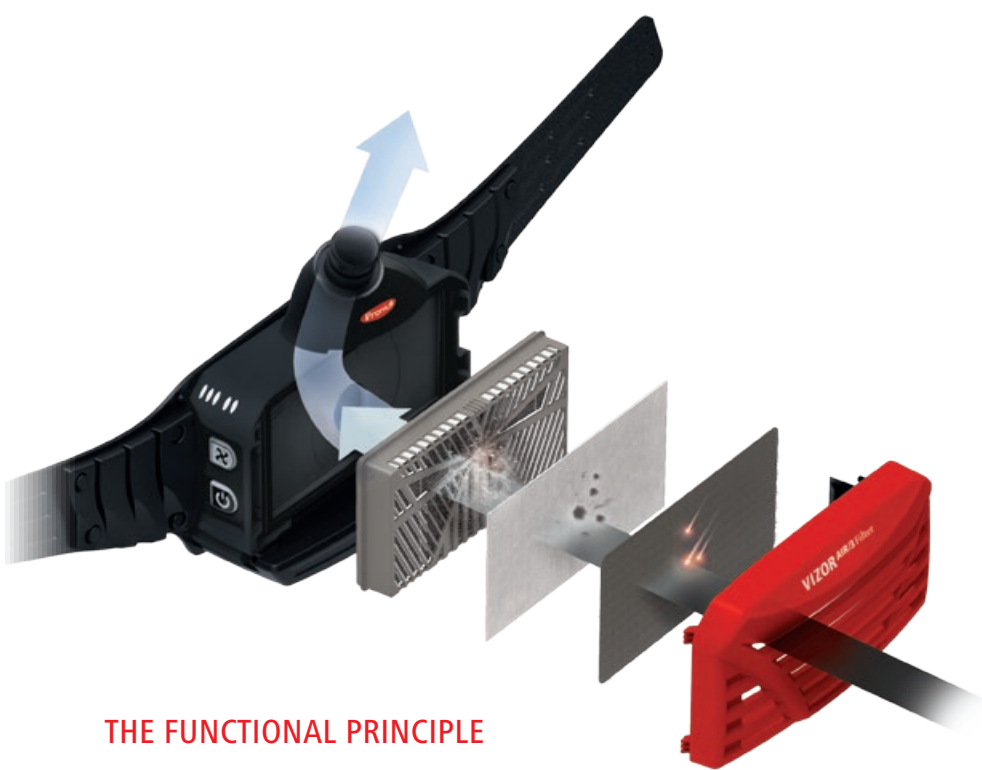


TH3  
certified

HIGHEST  
SAFETY CLASS

Filters up to  
**99.8%**  
of welding fume particles  
out of the ambient air.





## THE FUNCTIONAL PRINCIPLE

The breathing apparatus consists of a fan filter unit, interconnecting hose, and harness. The fan filter unit attached to the harness filters up to 99.8% of welding fume particles out of the ambient air via a TH3 particle filter (highest possible classification) and directs the clean air directly into the welding helmet via the interconnecting hose. The user benefits from an almost 100 percent improvement in terms of exposure to welding fume particles.



4-POINT  
SHOULDER HARNESS  
TO ENSURE EVEN  
WEIGHT DISTRIBUTION

## ERGONOMICS+

The 4-point shoulder harness for the breathing apparatus ensures improved ergonomics when working. This relieves the strain on the welder and distributes the weight more evenly over the upper body.

ADJUSTABLE AIR SUPPLY  
WITH THREE LEVELS



150-250l

BATTERY STATUS AND  
PARTICLE FILTER TEST WITH  
WARNING FUNCTION



UP TO 20 HOURS'  
BATTERY LIFE

20h





## EXTRACTION AT SOURCE

# FUME EXTRACTION TORCH

Extracting the welding fumes right where they are generated means they are neutralized before they can spread. This protects not just the welder, but also those around them.

SAVE ENERGIE  
AND COSTS





## K4 FUME EXTRACTION TORCH

- / Welding torch and extraction system in one
- / Compact welding torch with integrated extraction via the handle and hosepack
- / Improved user movement thanks to compact design
- / K4 fume extraction torch available with auxiliary airflow control, UpDown function and JobMaster function
- / Adjustable extraction nozzle

### VERSIONS

MTG 400i K4

### SUITABLE FOR

400 A 40% ED

260 A 100% ED

### VERSIONS

MTG 500i K4

### SUITABLE FOR

500 A 100% ED

## FumeEx EXTRACTION KIT

- / Upgrade set
- / Suitable for all TPS/i Standard, Multilock, PullMig and PullMig CMT with 45° torch body angle
- / Extraction hose rotates 360° for improved access to the workpiece
- / Adjustable extraction nozzle – the closer the nozzle is to the arc, the better the fume extraction
- / Gas shroud protected thanks to specially-designed shape of the extraction nozzle

### VERSIONS

OPT/i FumeEx Small /5 m

### SUITABLE FOR

MTG 250i

MTB 250i G ML

MTW 250i

MTB 250i W ML

### VERSIONS

OPT/i FumeEx Medium /5 m

### SUITABLE FOR

MTG 320i / MTB 320i G ML

MTW 400i / MTB 400i W ML

MTW 500i / MTB 500i W ML



# FUMEEXJET

FumeExJet is the perfect addition to Fronius' fume extraction torch solutions. When combined with the FumeEx or K4, this high pressure welding fume extraction device is a powerful system for at-source welding fume extraction.

## VERSIONS

### STANDARD

Filter cartridge (x2 on XL model), dust collection drawer, mains cable, continuous volumetric flow control, maintenance-free generator, filter contamination indicator.

### AUTO

Automatic compressed air filter cleaning system, control unit (Air Control) with plain text display, constant volumetric flow control, interface to external control system or sensor cable for automatic Start/Stop system.



## WELDING FUME EXTRACTION

In combination with FumeEx extraction kit or K4 fume extraction torch



## EASY TO CLEAN

Depending on the version, filter cartridges can be cleaned automatically or by hand and reused multiple times



## FILTER CARTRIDGES

Removes **99%** of fine dust particles extracted



## QUIET OPERATION

Quiet extraction thanks to soundproof vacuum generator



# EXTRACTION HOODS

Used in combination with a fume extraction torch, extraction hoods and tables prevent any additional welding fumes from spreading around the room. The extraction arm is positioned close to the arc in a compact configuration that provides a very efficient way of preventing welding fumes from spreading.



## SUPERCLEAN

Welding fume extraction system with spin-on filter: The robust housing is made from power-coated steel plate and improved soundproofing keeps operating noise levels low. Moreover, the aerodynamic design of the inflow nozzle helps further reduce noise emissions, while also boosting the performance of the ventilator.

Maximum extraction capacity on arm achieved with 750 W.

### STANDARD FEATURES

- / Pre-filter pads
- / Particulate spin-on filter
- / 5 m connection cable
- / Operating display
- / Filter monitoring with acoustic warning
- / Operating hours indicator
- / Maintenance flap on front
- / Front swivel casters with locking brakes



## PROFIJET

Welding fume extraction system with filter cartridges: The ProfiJet offers the same functions as the SuperClean; however this machine uses filter cartridges rather than spin-on filters. Depending on the version, the two integrated filter cartridges can be cleaned manually or automatically multiple times, which helps keep upkeep and maintenance costs low.

### STANDARD FEATURES

- / Two filter cartridges made from polyester needle felt
- / Dust collection drawer
- / 5 m connection cable
- / Operating display
- / Filter monitoring with acoustic warning
- / Operating hours indicator
- / Maintenance flap on front and rear
- / Front swivel casters with locking brakes





/ Perfect Welding / Solar Energy / Perfect Charging

### THREE BUSINESS UNITS, ONE GOAL: TO SET THE STANDARD THROUGH TECHNOLOGICAL ADVANCEMENT.

What began in 1945 as a one-man operation now sets technological standards in the fields of welding technology, photovoltaics and battery charging. Today, the company has around 4,760 employees worldwide and 1,253 patents for product development show the innovative spirit within the company. Sustainable development means for us to implement environmentally relevant and social aspects equally with economic factors. Our goal has remained constant throughout: to be the innovation leader.

Further information about all Fronius products and our global sales partners and representatives can be found at [www.fronius.com](http://www.fronius.com)

**Fronius Canada Ltd.**  
2875 Argentia Road, Units 4,5 & 6  
Mississauga, ON L5N 8G6  
Canada  
Telephone +1 905 288-2100  
Fax +1 905 288-2101  
[sales.canada@fronius.com](mailto:sales.canada@fronius.com)  
[www.fronius.ca](http://www.fronius.ca)

**Fronius USA LLC**  
6797 Fronius Drive  
Portage, IN 46368  
USA  
Telephone +1 877 FRONIUS  
[sales.usa@fronius.com](mailto:sales.usa@fronius.com)  
[www.fronius-usa.com](http://www.fronius-usa.com)

**Fronius UK Limited**  
Maidstone Road, Kingston  
Milton Keynes, MK10 0BD  
United Kingdom  
Telephone +44 1908 512 300  
Fax +44 1908 512 329  
[info-uk@fronius.com](mailto:info-uk@fronius.com)  
[www.fronius.co.uk](http://www.fronius.co.uk)

**Fronius International GmbH**  
Froniusplatz 1  
4600 Wels  
Austria  
Telephone +43 7242 241-0  
Fax +43 7242 241-953940  
[sales@fronius.com](mailto:sales@fronius.com)  
[www.fronius.com](http://www.fronius.com)