

Fume Extraction

A Comprehensive Review of Fume Extraction and Lead Free Fumes



Fume Extraction

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Tip Extraction

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Filtration

New Accessories

Measurement of pollutants using Lead Free Solders



Fume Extraction Measurement of pollutants

We're Here Because...

- Fume Extraction market is growing by 15 - 17 % each year.
- Various types of Lead-Free solders generate fumes which contain hazardous materials that exceed the allowable limits for an employee's exposure (breathing zone) as defined by the European Standards Association.
- There is no North American legislation covering flux fumes specifically, but some of the exposures may be covered by OSHA or other EPA regulations.
- In these situations it is recommended that some form of fume extraction is implemented.

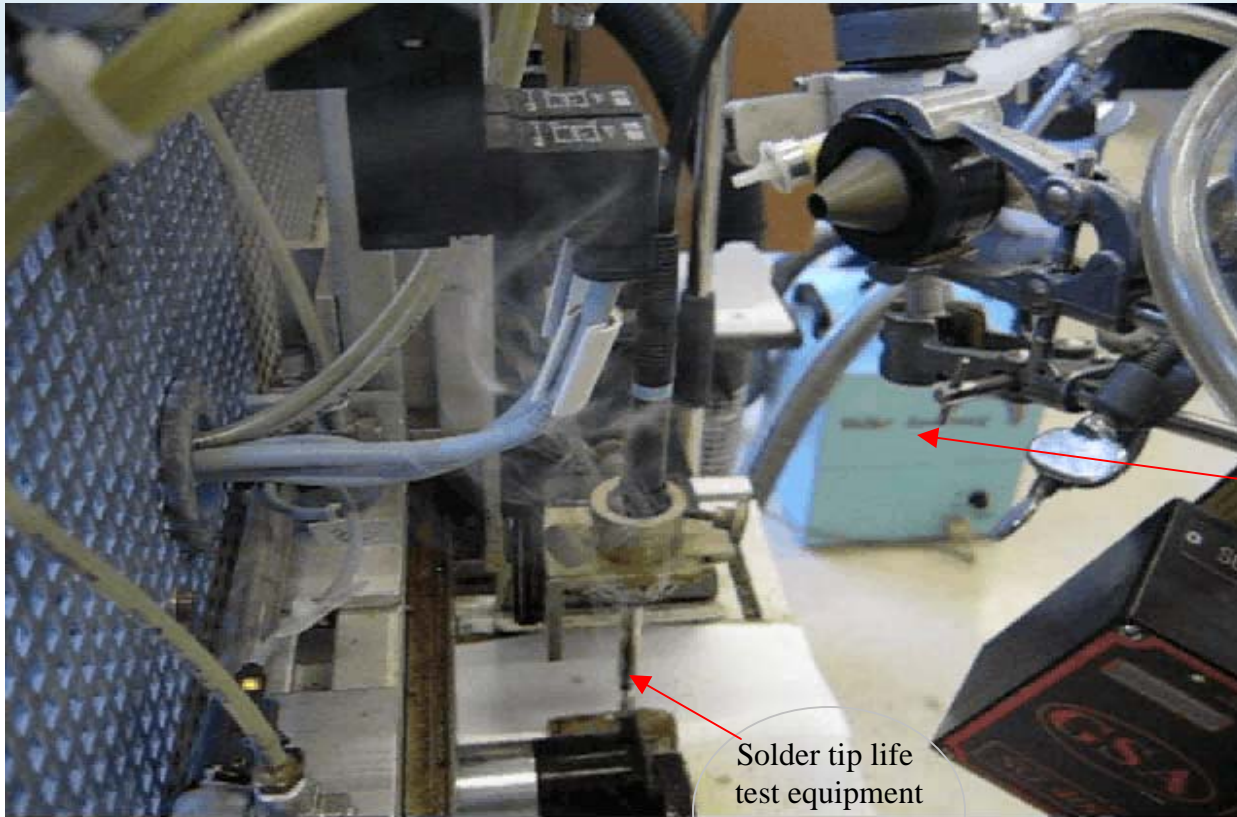
What Is Tomorrow's Asbestos?

Fume Extraction Measurement of pollutants

Measurement of pollutants from Lead Free solders

Cooper Tools has been working in conjunction with different organizations to help define the contaminant level for different types of Lead Free Alloys

(German Employers Liability Insurance Association for Fine Mechanics and Electrical Engineering BGFE Köln)

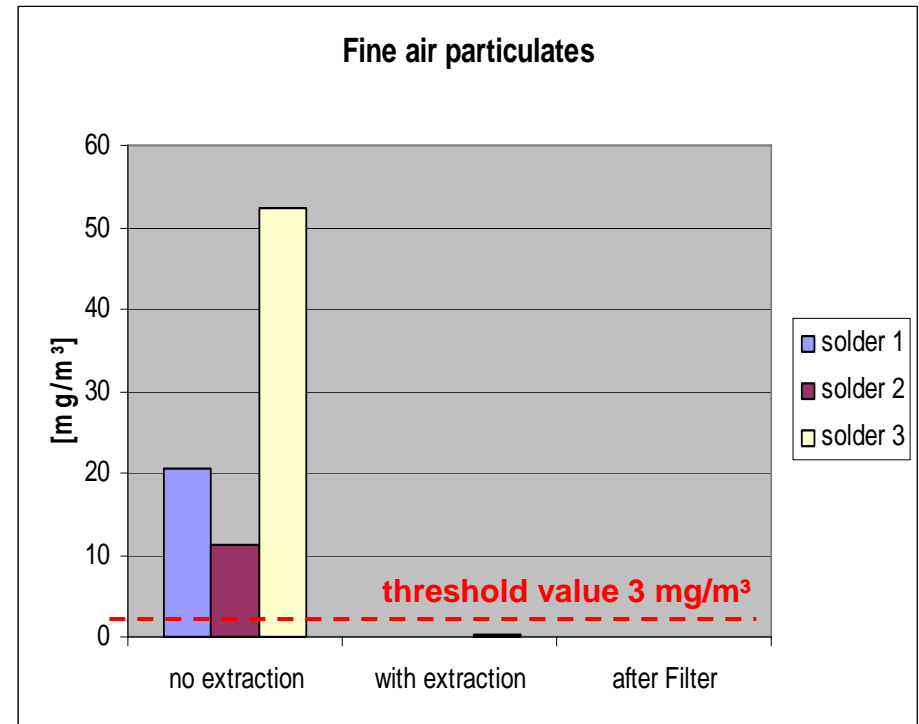
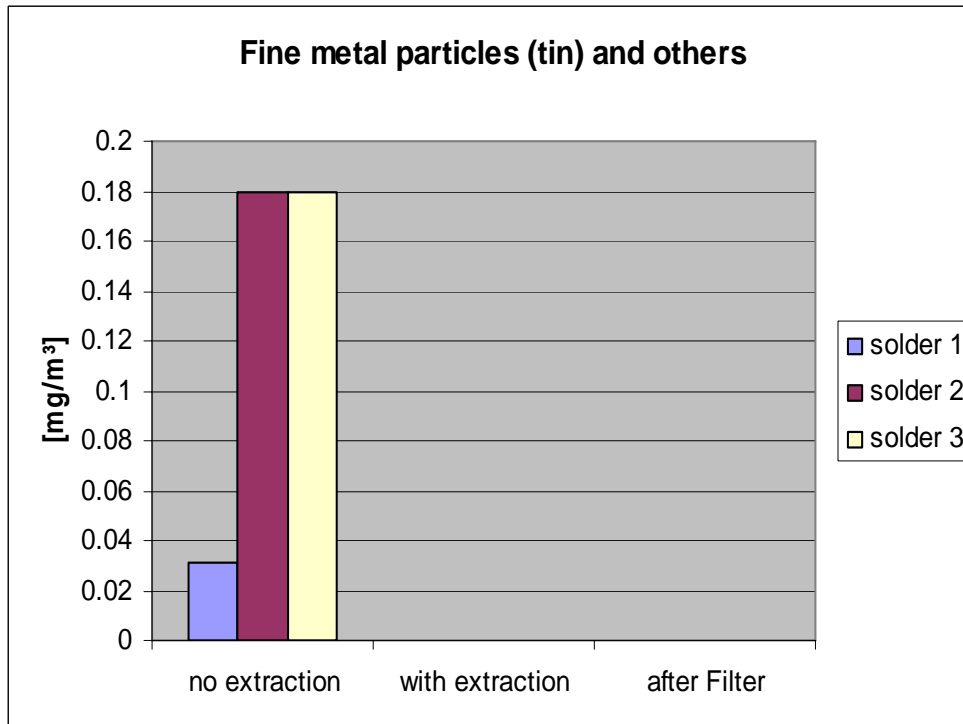


Flux fumes being collected by HEPA filtration for the purpose of testing contaminants

Solder tip life test equipment used for solder fume collections

Fume Extraction Measurement of pollutants

Results of measurements



Maximum Allowable Threshold value for Fine Metal Particulates is 2 mg/m³ (per European Standards Assoc.)

Maximum Allowable Threshold for Fine Air Particulates is exceeded without fume extraction (per Europeans Standards Assoc.)

Fume Extraction Systems

WFE Systems

WFE 2P

Good
(POS
Only)

W eller
F ume
E xtraction

WFE 2ES

Better
(Volume
Extraction)

WFE 2CS

Best
(POS & Volume Extraction)

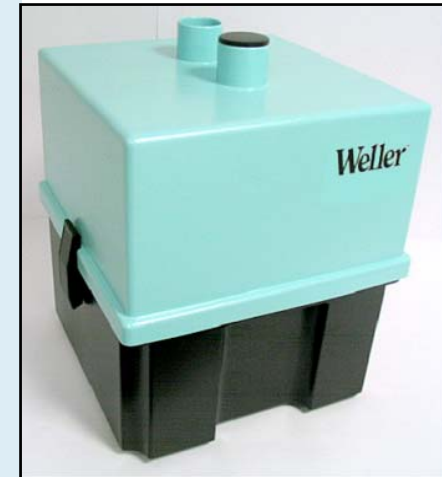


Photo Not
Yet Available

Fume Extraction Attachments

Tip Extraction (POS)



Point of Source Extraction is positioned directly above the tip and the soldering connection

High Vacuum
Less Airflow

Because of its low flow characteristics, it's possible to connect up to 2 irons (WFE 2P)

Volume Extraction



Flexible Extraction for the complete working area

Low Vacuum
High Airflow

Because of its high airflow characteristics, volume extraction works well for many different types of applications (Flux Fumes, Solvents, dust, etc.)

Fume Extraction General

- **Tip Extraction**

- High Maintenance
- Not as efficient under specific conditions (vertical soldering, high traffic areas, etc.)

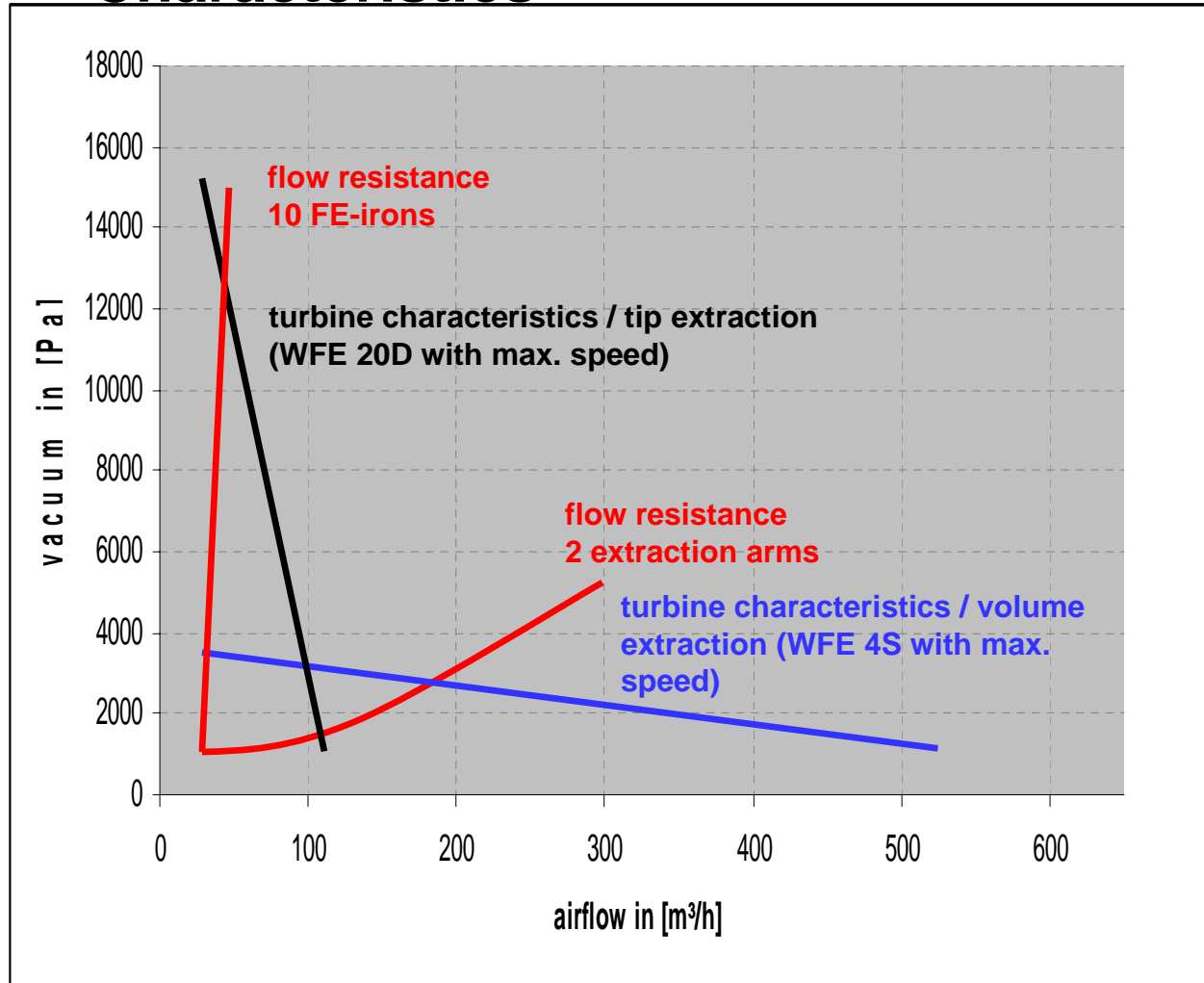


- **Volume Extraction**

- Low Maintenance
- Works well under most all conditions



Characteristics



Tip Extraction



1 iron
1.5 [m³/h]
10000 [Pa]

2 irons
2.7 [m³/h]
10000 [Pa]

Volume Extraction



1 extraction arm
60 - 80 [m³/h]
400 - 700 [Pa]

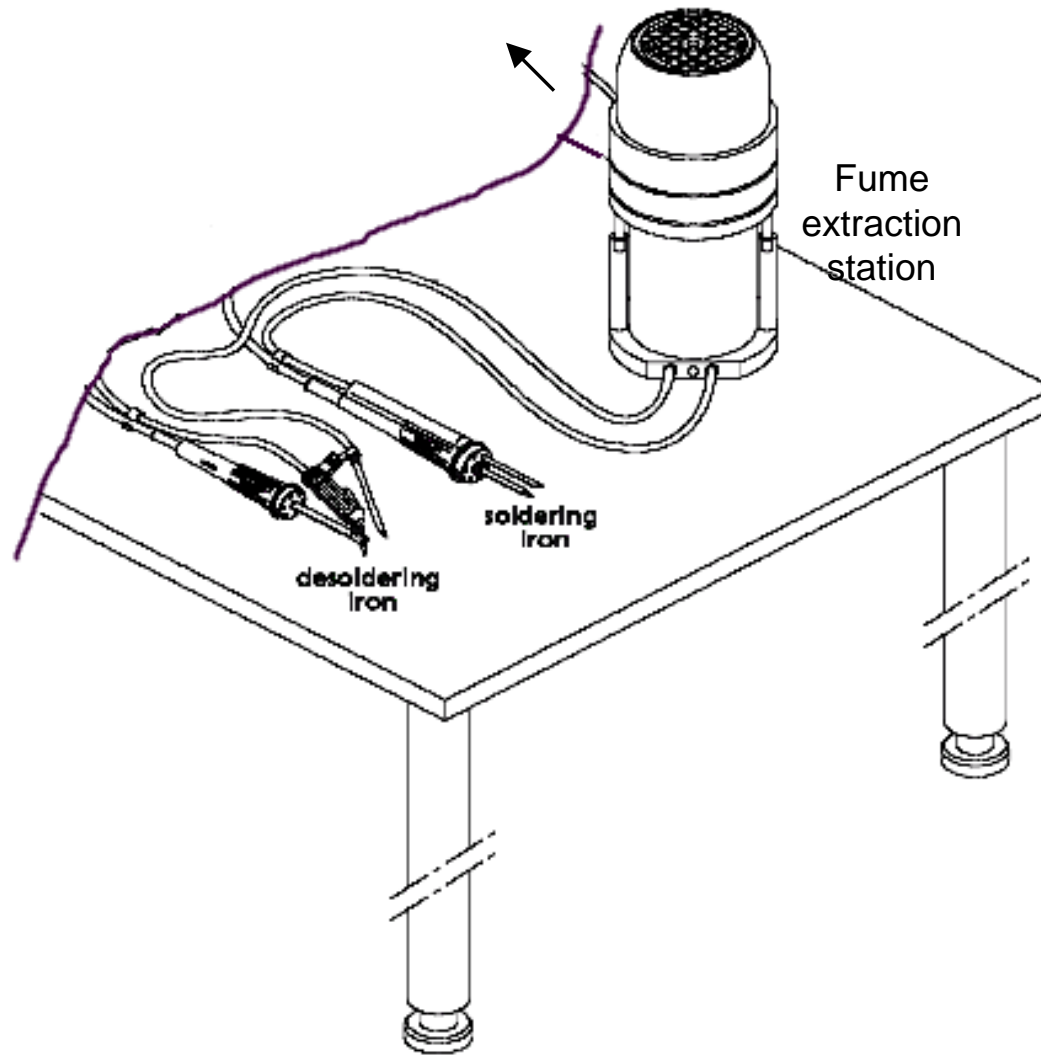
2 extraction arms
240 - 320 [m³/h]
400 - 700 [Pa]



WFE2P

- 2 Point of Source Iron Capability
- Brushless - High Efficiency Motor with Carbon Rotary Vane Pump
- 1 POS Iron = 1.5 [m³/h]
- 2 POS Irons = 2.7 [m³/h]
- Unit does not lose efficiency when used with one or two tools
- Pre-filter F7 (80 - 90 % Gross Particulate Removal)
- HEPA filter H13 (99.95 % High Efficiency Particulate Removal)
- Wide band gas filter
- Active Carbon for Odor Control
- Low noise level (45 dBA)

Tip Extraction



Typical WFE2P Installation

Photo For
Illustration
Only - Unit Not
Yet Available



Volume extraction

WFE 2CS

- Portable extraction unit
- Variable Speed Control
- Filter Monitoring Capability
- Remote Control (Wired) Capability



WFE 2ES

- Portable economy extraction unit
- Lightweight Molded Plastic construction

New July 2007



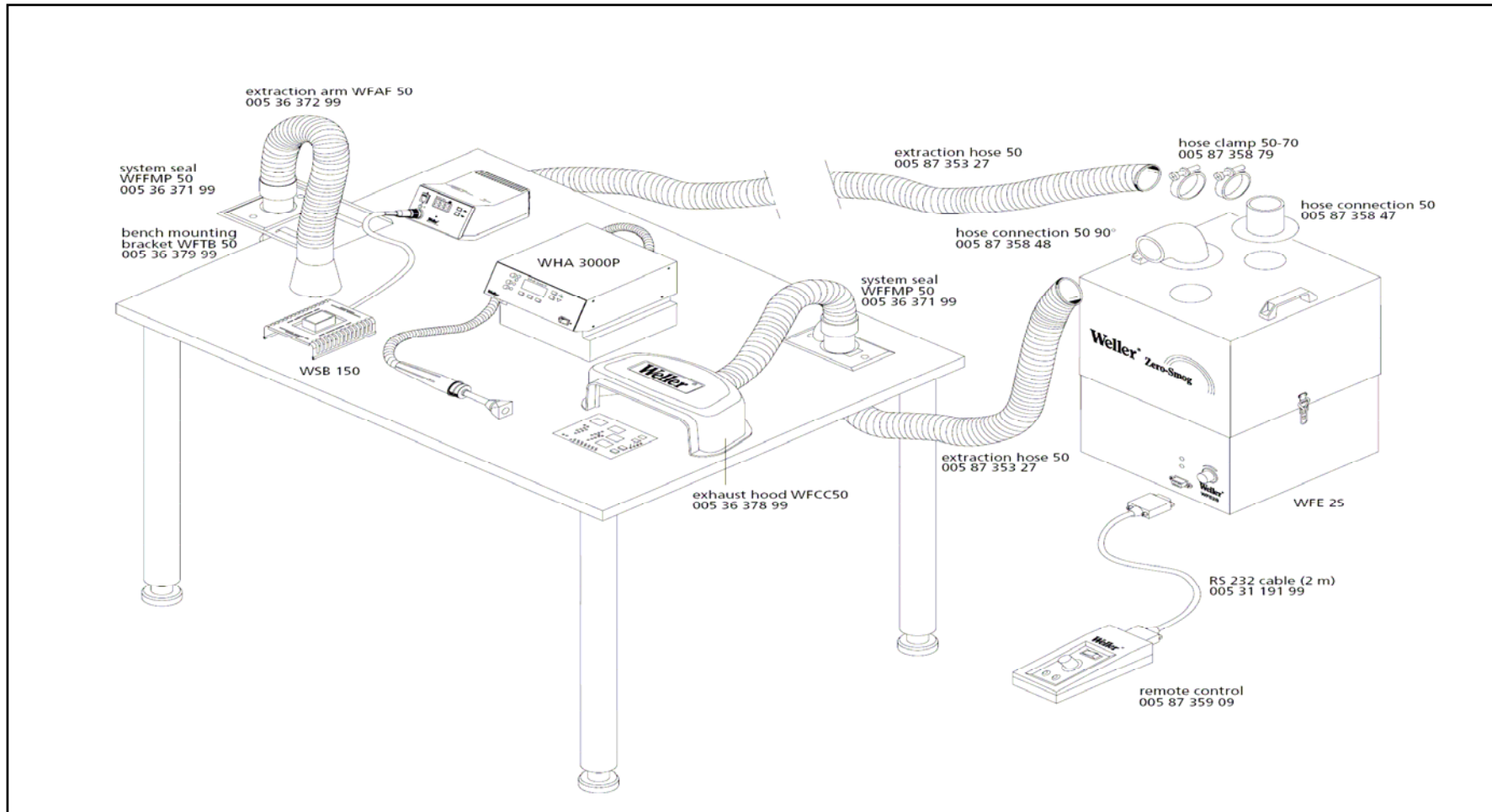
WFE 2CS

Two Volume Extraction Unit
Long Life Brushless Motor
Max. Airflow: 230 [m³/h]
Max. Vacuum: 2700 [Pa]
Electronic filter control
RS 232 interface for PC or
remote control (Software included)
Low noise level (~ 50 - 51 dBA)

System (filtration) consists of:

Pre-filter F5 (40 - 50% Particulate Removal)
(optional F7 - 80 - 90%)
HEPA filter H13 (99.95% Particulate
Removal)
Wide Band Active Carbon Gas Filter (for
odor control)

Typical WFE 2ES or WFE 2CS Installation



NEW

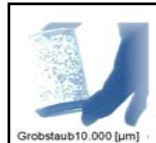


WFE 2ES

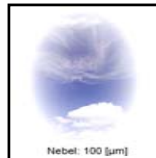
Two Volume Extraction Unit
Long Life Brushless Motor
Max. Airflow: 220 [m³/h]
Max. Vacuum: 1800 [Pa]
Low noise level (~ 50 - 51 dBA)

Economy System (filtration) consists of:
Pre-filter F5 (40 - 50% Particulate Removal)
(optional F7 - 80 - 90%)
HEPA filter H12 (99.5% Particulate Filtration)
(optional HEPA filter H13 - 99.95% Particulate Removal)
Wide Band Active Carbon Gas Filter (for odor control)

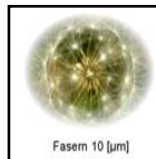
Particle size



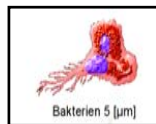
- heavy dust sand 10000 [µm] heavy particulate air filter G1-G4



- fog hair 100 [µm] fine particulate air filter **F5**



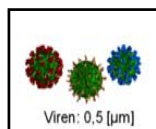
- fibres pollen 10 [µm] fine particulate air filter F7



- bacteria pigments 5 [µm] fine particulate air filter F9



- fume asbestos dust >1 [µm] high efficiency particulate air H11



- 0,75 [µm] high efficiency particulate air H12
- viruses 0,5 [µm] high efficiency particulate air H13

Volume Extraction Filter Effectivity

DIN EN 779	DIN EN 779	DIN EN 1822	BS 3928	US-MIL-Std.	DIN EN 60335	ZH 1/487
Heavy particulate air filter average deposition activity against dust A	Fine particulate air filter middle efficiency(atmospheric) activity against aerosol E	HEPA-and ULPA-filter filtration efficiency A in MPPS ca. 0,1-0,3 [µm]	HEPA-and ULPA-filter filtration efficiency A NaCl 0,3 (0,6) [µm]	HEPA-and ULPA-filter filtration efficiency A DOP 0,3 [µm]	HEPA-and ULPA-filter transmittance D liquid paraffin 61% < 1 [µm]	dust removal units middle transmittance D quartz dust 90% 0,2 [µm]
A 50-65% G1						
A 65-80% G2						
A 80-90% G3						
A >90% G4						
	E 40-60% F5					D <5% U
	E 60-80% F6				D <1% L	D <1% S
	E 80-90% F7					D <0,5% G
	E 90-95% F8					
	E >95% F9					
		A(integr.) >85% H10	A >95% EU10		D <0,1% M	D <0,1% C
		A(integr.) >95% H11		A >95%		
		A(integr.) >99,5% H12	A >99,97% EU12	A >99,97%		D <0,05 Paraffinöl 90% < EM K1, K2
		A(integr.) >99,95% H13	A >99,99% EU13	A >99,99%		
		A(lokal) >99,75% A(integr.) >99,995% H14	A >99,999% EU14	A >99,999%	D <0,005% H	
		A(lokal) >99,975% A(integr.) >99,9995% U15				
		A(lokal) >99,9975% A(integr.) >99,99995% U16				
		A(lokal) >99,99975% A(integr.) >99,99995% U16				
		A(lokal) >99,99975% A(integr.) >99,99995% U16				

Universal Fume Extraction Adapter Kits

- Universal use with Weller soldering irons (Can be adapted to some competitors iron handles) WP 80 WSP 80 WMRP WMP
- Mounting possible on irons with grip diameter 10 - 16 mm (0.394" - 0.630")
- Two different versions with 3.7 and 4.7 mm extraction tube diameter
- Simple mounting on grip area of the soldering irons



Micro Kit

For micro soldering applications with low fume consumption
Recommended for Weller soldering tools: **WMRP** and **WMP**

Extraction tube: **Inner Diameter - 3.7 mm (0.146")**, length 150 mm (5.9")

Kit consists of: **extraction tube with outside Ø 4.5 mm (0.177")**, length 150 mm

4.5 mm Tube Clip

2 O-rings Ø 23mm

2.5 m (8.2') Extraction Hose

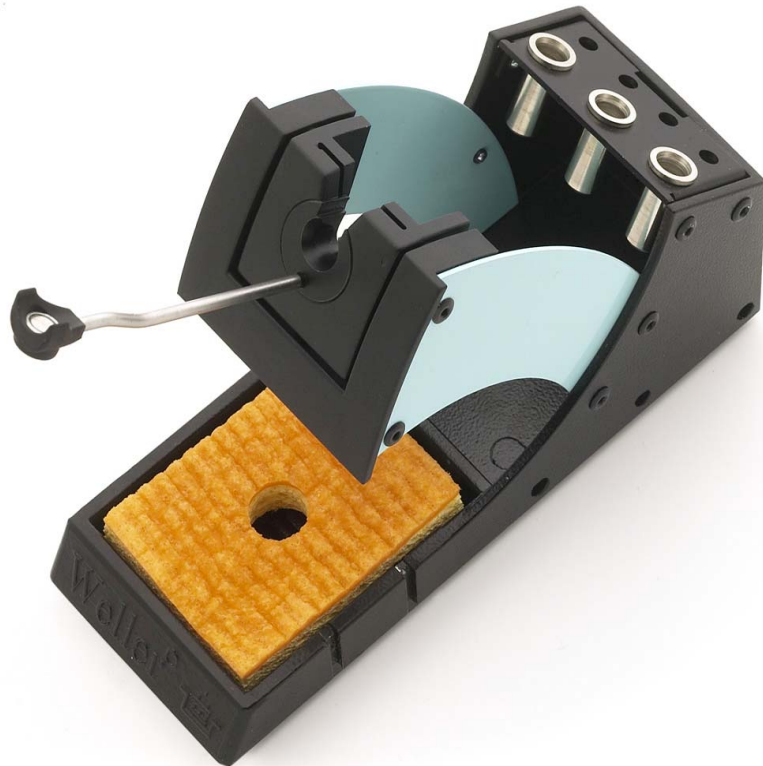
6 Cord Clips

Order no. **0052918599**

Spare parts kit: **Tube-clips (2) and O-rings (4)**

Order no. **0058744875**





WDH 50 Tool Holder for WMRP Soldering Irons

Magnet for stop and go function for **WMRP** soldering pencil

For use with the **WMRP** with mounted fume extraction kit

4 Position adjustable Iron Stand (30 - 80 Degrees)

Storage capacity for up to 3 RT series tips

Order no. **0051515699**

Can be used with optional WDC2 Dry Tip Cleaner

Macro Iron Kit

For soldering applications with larger volumes of fume consumption
Recommended for Weller soldering tools: **WP80 and WSP80**

Extraction tube: **Inner Diameter - 4.7 mm (0.185"), length 150 mm (5.9")**

Will replace kits: 0052916799 + 0052918299

Kit consists of: **extraction - tube 6.0 mm (0.236") outside Ø, length 150 mm**

Tube-clip 6.0 mm

O-rings 26 mm Ø (2)

Extraction Hose 2.5 m (8.2')

Cord Clips (6)

Order no: **0052918699**

Spare parts kit: **Tube-clips (2) O-rings (4)**

Order no: 0058744876



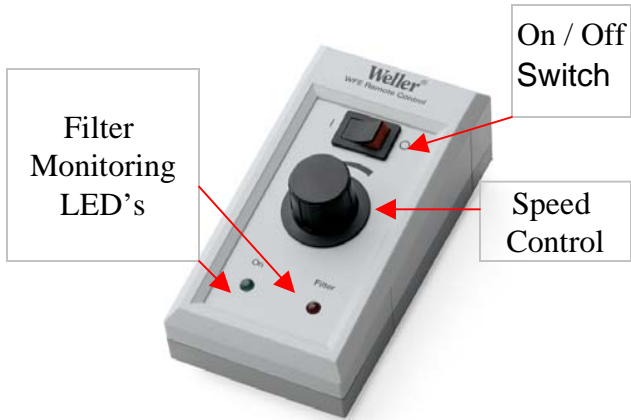
- Accessories



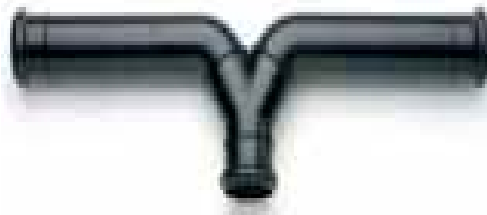
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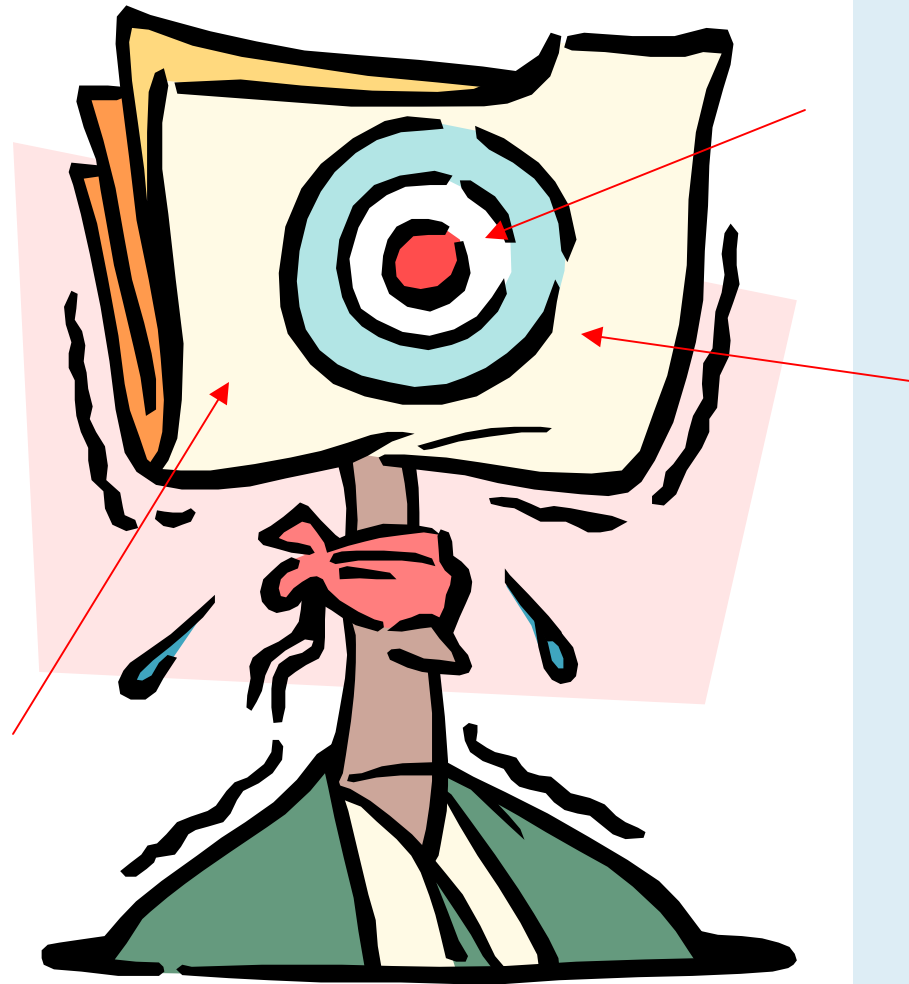


- Accessories



Remote for WFE 2CS





?? Questions ??