

 **Monmouth** Circulaire T-PRO

# Project Case Study

## Recirculating Fume Cupboard

### The Client

CSA Catapult

### Location

Newport, UK

### Sector

Manufacturing & Engineering

**LPKF**  
Laser & Electronics

# Custom Recirculating Fume Cupboard elevates CSA Catapult's Lab.

## The Client

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**CSA Catapult is a leading UK-based innovation centre, driving advancements in compound semiconductor applications.**

In their Radio Frequency [RF] Lab, engineers and researchers develop high-performance packaging and printed circuit board [PCB] device prototypes for use in transformative industries like future telecoms. The Advanced Packaging Team plays a key role in creating demonstrator-level solutions, often using high-spec equipment.

## The Challenge

At the forefront of compound semiconductor innovation, CSA Catapult needed more than just precision, they needed protection.

With PCB processes using hazardous chemicals and sensitive components, the Advanced Packaging Team required a custom fume extraction solution to house the LPKF Contac S4 PCB Through Hole Plating system.

This machine performs intricate plating through up to eight chemical baths, bonding vertical layers of PCBs for advanced interconnectivity.

The plating process uses a variety of

hazardous substances, including:

- Sulphuric acid at elevated temperatures, generating sulphurous gases.
- Potassium peroxomonosulphate, a strong oxidiser.
- Sodium Metaborate, known to cause eye irritation.
- Isopropyl alcohol, used in ultrasonic cleaning.

The lab environment needed a ventilated, chemical-resistant, and light-protective solution to ensure safety and product integrity.

## **The Solution**

**Monmouth Scientific provided a custom specification Circulaire® Pro Recirculating Fume Cupboard, purpose-built for CSA Catapult's RF Lab requirements.**

Key features included:

- High-performance, activated carbon filter extraction system to handle



multiple chemical vapours.

- UV-filtered, tinted sliding sash to protect light-sensitive PCB components.
- Custom internal layout to accommodate the LPKF Contac S4 machine.
- Corrosion-resistant stainless steel worksurface, for handling aggressive chemical use.
- Integrated storage and proximity access to a chemical cabinet.

## **The Result**

With the new fume cupboard installed, one of several Monmouth Scientific clean air solutions on site, the Advanced Packaging Team at CSA Catapult now operates with:

- Enhanced reliability for sensitive PCB prototypes.
- Improved protection from chemical exposure and UV damage.
- Streamlined workflow with a tailored lab setup.
- Full compliance with health & safety regulations.

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**The fume cupboard has really made a difference in our day-to-day lab work.**

We use the fume hood primarily for our plating machine, as it involves chemicals and requires proper ventilation for breathing safety and air circulation.

Additionally, I use the remaining space for other chemical treatments and for storing pre-treated samples.”

**Azadeh Aliaskarian, Senior PCB Engineer | Packaging Team**

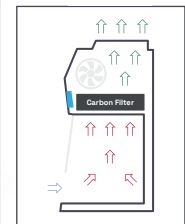


## Recirculating Fume Cupboard

### Features & Benefits

INFO

- Recirculating Technology
- Energy Efficient
- Ultra-Deep Carbon Filters
- Auto-Airflow Compensation
- Touchscreen Interface
- Airflow Safety Monitoring



### Our Solution

The Circulaire® Recirculating Fume Cupboard is an advanced laboratory fume cupboard designed to provide protection against hazardous fumes and vapours. Featuring a touchscreen interface, it offers intuitive control and monitoring, ensuring a safe and efficient working environment.

This non-ducted hood is ideal for workspaces where external venting is impractical, providing flexibility without compromising safety.

### How It Works

The Fume Cupboard operates by drawing in contaminated air from the work area and passing it through a series of high-efficiency filters. The filtration system typically includes pre-filters for particulates and main filters with activated carbon.

The clean air is then recirculated back into the working environment.

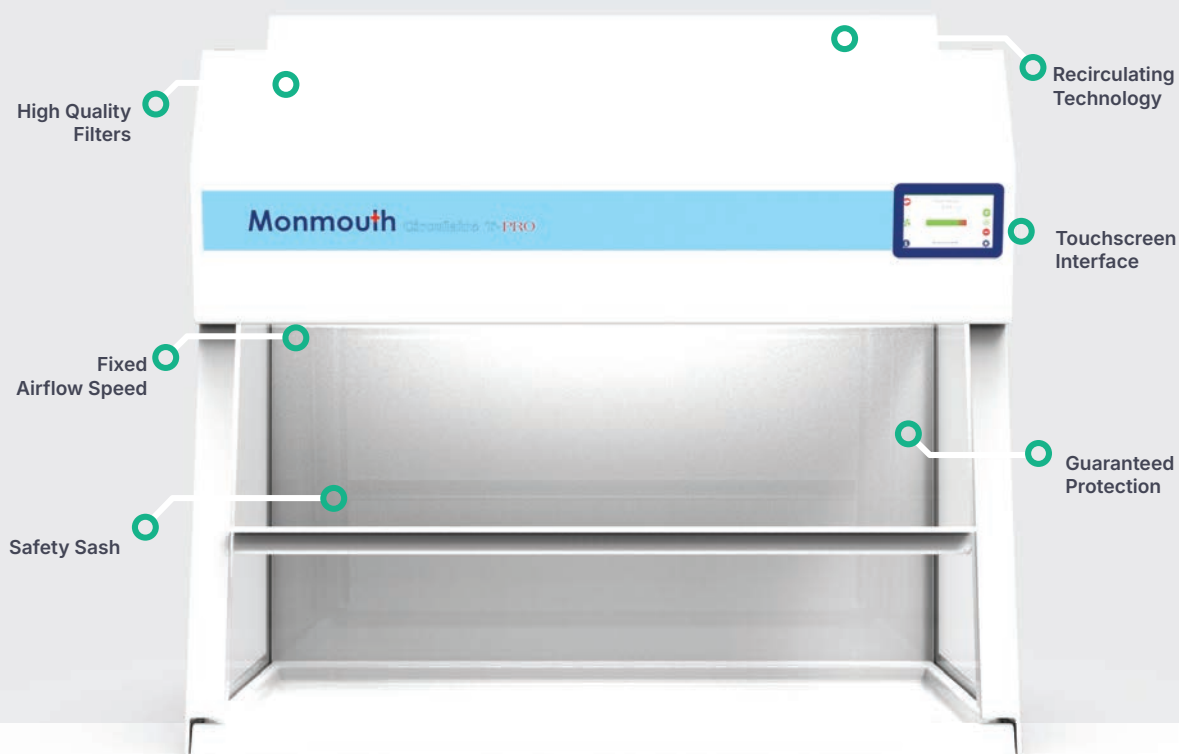
### Technical Information

INFO

	CT800	CT1100	CT1400	CT1800
<b>External Dimensions*</b> (W x D x H)	800mm x 700mm x 1284mm	1100mm x 700mm x 1284mm	1400mm x 700mm x 1284mm	1800mm x 700mm x 1284mm
<b>Internal Dimensions</b> (W x D x H)	784mm x 650mm x 840mm	1084mm x 650mm x 840mm	1384mm x 650mm x 840mm	1784mm x 650mm x 840mm
<b>Face Velocity</b>	0.55m/sec - Automatically Maintained			
<b>Airflow</b>	300m³/hr	475m³/hr	650m³/hr	890m³/hr
<b>Primary Filter</b>	Large Capacity CARBON or HEPA			
<b>Power Consumption</b>	57 watts	100 watts	110 watts	160 watts
<b>Sound Level</b>	circa. 48db(A)	circa. 54db(A)		circa. 55db(A)

\*CTPro - 1345mm high + sliding sash & large touchscreen.

## Recirculating Fume Cupbaord



### **Activated Carbon Filters**

The high-quality Activated Carbon Filters guarantee efficient, effective and safe toxic fume removal.



### **Touchscreen Interface**

The Visionaire® Touchscreen Control Interface provides unparalleled operator monitoring and precise control.



### **Safety Conformity**

Fully compliant with BS7989:2001 [Filtration Fume Cupboards] and COSHH regulations.

# Controlled clean environments for critical applications

Fume Containment | Biological Safety | Modular Cleanrooms | Powder Handling | Laminar Flow

**Monmouth**<sup>+</sup>  
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