



SENSITIVE MATERIAL DECONTAMINATION STATION

CoBRA-ST is a modular station for the decontamination of sensitive material against chemical and biological agents using cold plasma technology by SMD (Surface Micro-Discharge).

The air inside the chamber is ionised by SMD reactors, generating cold plasma at atmospheric pressure with reactive oxygen species (ROS) and nitrogen species (RNS), UV radiation and free electrons that **inactivate biological agents and degrade chemical agents**. The cold plasma decontamination process developed by IBATECH **does not require water, carrier gases or decontaminating chemicals**. From a logistical point of view, it has an autonomous power supply, **reducing the logistical footprint and maintenance to a minimum**.

The cold plasma technology developed by IBATECH through the Quixote R&D programmes has been validated by the EDA and MINISDEF-DGAM following tests carried out and certifications issued by several NATO military laboratories.



PATENT PENDING

Advantages of cold plasma:

- **Decontamination of chemical and biological agents.**
- **Recovery of material** with high responsibility and its **extended useful life.**
- **No liquid waste management.**
- **Modular and scalable solution** according to needs.
- **validation** from the decontamination by **laboratories NATO military standards** for CWA and BWA.
- **Clean technology.** Only requires atmospheric air at ambient temperature.
- **Cold plasma SMD technology**, in a multi-layer configuration, has been **developed in a multidisciplinary R&D environment**, both European and national, and **validated by laboratories in the NATO environment** against real chemical and biological agents.

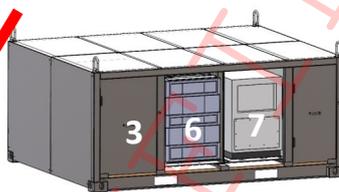
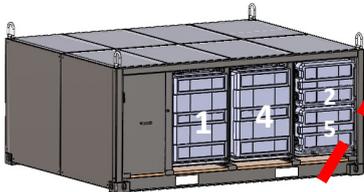
COBRA-ST FEATURES

Dimensions (m)	2.99 x 2.44 x 1.34
Approximate weight (kg)	1200 (CAGE)
Power consumption (W) / Power supply	2800 / 230V AC @ 50Hz

MODULAR SYSTEM

Cobra-ST front view modules

Cobra-ST rear view modules



- Module 1: 400 L decontamination chamber
- Module 2: 70 L atmospheric chamber
- Module 3: Deployable reactors
- Module 4: Power and control unit
- Module 5: Thermal and vacuum pre-treatment unit.
- Module 6: Air treatment unit.
- Module 7: Power generation unit.

OPERATING MODES

MODE 1: Fixed operation.

It has two cold plasma chambers of 400 L and 75 L for the decontamination of small sensitive material.

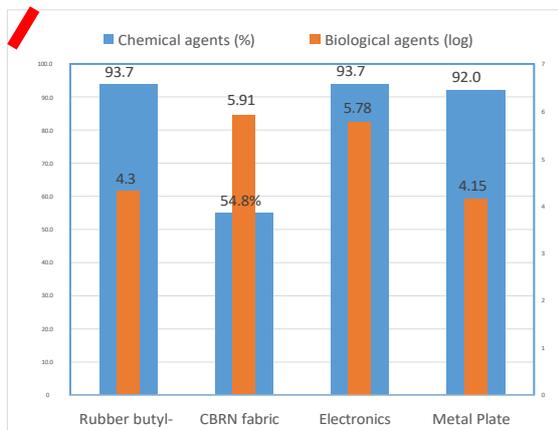


MODE 2: Portable operation.

It has deployable reactors that can be installed inside confined spaces for decontamination.



DECONTAMINATION VALIDATED BY MILITARY LABORATORIES



DECONTAMINATED AGENTS:

- Sulfur Mustard
- Soman (GD)
- VX
- Cyclosarin (GF)
- Tabun
- Bacillus anthracis spores
- Francisella tularensis
- Vibrio cholerae
- Clostridium botulinum
- Cowpox virus





COBRA-ST has a modular design with a self-supporting structure, either as a container or on a trailer. Features:

- **FIVE (5) configurable modules made of rotomoulded medium-density polyethylene (LMDP).**
- **Military certified to MIL-STD-810H against corrosive environments, humidity, thermal shock, vibration, among others.**
- **IP 67 protection rating** against the ingress of solids and liquids and stainless steel butterfly closures.
- **Internal RACK structure cushioned** in aluminium, composed of four (4) elastomer shock absorbers.

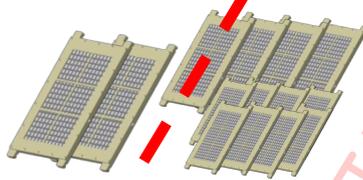
DECONTAMINATION PROCESS: 1) Depending on the operating mode, the sensitive material to be decontaminated is placed inside the chambers of Module 1 or 2 (fixed operation) depending on the dimensions of the object to be decontaminated and/or the deployable reactors are placed inside the confined space to be decontaminated. **2)** The cold plasma decontamination process is initiated by exciting the SMD reactors inside. During the process, the air contained in both chambers is ionised, producing cold plasma, which inactivates biological agents and degrades chemical agents on the surface of the sensitive material. **3)** Once the cold plasma decontamination process is complete, the air treatment module extracts the air contained in the chambers (Module 1 and Module 2) or from the decontaminated confined space. This treatment is carried out by catalytic destruction and activated carbon filtration. **4)** Recovery of the decontaminated sensitive material.

**Modules 1 and 2:
Decontamination chambers**



Technology	Atmospheric SMD
Internal volume (L)	400 (module 1) 70 (module 2)
Number of reactors (u)	4 (module 1) 2 (module 2)
External dimensions (mm)	680 x 915 x 953 (module 1) 680 x 915 x 496 (module 2)
Approx. weight (kg)	100 (module 1) 50 (module 2)
Certification	MIL-STD 810H
Rack material	LMDP

Module 3: Deployable reactors



Technology	SMD
Enclosure material	PPHD
Power (W)	300
Reactor dimensions and (mm)	Large: 623 x 706.5 x 26 Medium: 623 x 444 x 26 Small: 384 x 246 x 14
Weight per unit (kg)	12

**Module 4:
Power and control**



Voltage (kVpp)	0-15
Frequency (kHz)	0-15
Power (W)	2800 W
Modulation	Amplitude and frequency
Process control	Laptop or Panel PC
Variable monitoring	Voltage and ozone
External dimensions	680 x 915 x 953 mm
Weight	Approx. 95 kg
Certification	MIL-STD 810H
Rack material	LMDP

**Module 5:
Pre-treatment**



Method	Thermal and vacuum
Power (W)	1500
Interior volume (L)	75
External dimensions (mm)	680 x 915 x 496
Weight/unit (kg)	50
Certification	MIL-STD 810H
Rack material	LMDP

Module 6: Air Treatment



Treatment of gas treatment	Combination of catalytic destruction and activated carbon filtration.
Power consumption (W)	1250
Dimensions (mm)	680 x 915 x 953
Weight (kg)	60

Monitoring and control

Module 7: Electricity generation



Includes a general electrical protection panel and an 8kW diesel generator with mains monitoring.

Nominal power (kW)	8 @ 3000rpm
Noise level (dBA)	72
Net Weight (kg)	245
Start	Electric/ATS
Standard tank capacity - Consumption	40 L - 4 L/h (50% load)
Model Engine	D680E (678 cc)



IBATECH

CoBRA-ST



Ruggedised, decontaminable portable



Hardware
and
system

Core i5-1235U / i7-1255U (12th generation)
Full IP65 protection
Windows 10 Pro or Windows 11 Pro
16 GB memory
250 GB storage

Ports

4 USB, 1xRS232, 1xHDMI, 2xRJ45

NETWORK

Wi-Fi 6 (802.11ax) + Bluetooth

Modem

4G

Software

Control of the decontamination and air treatment process.
Reactor voltage and amperage monitoring.
Manual or preconfigured default time selection.
Monitoring of decontamination progress with time control, including final air treatment process.
Environmental monitoring of the air treatment process (temperature, humidity, ozone, etc.)
Emergency shutdown.
User control: Basic and Administrator
Database including parameterisation and selection of process times.
Process history