VALENT APPLICATIONS

MAMBA

LIGHTWEIGHT, MODULAR CASE ENTRY SYSTEM

Remotely operated, sealed access, physical sampling & emptying in a single compact & economical system

- Entire system weighs less than 10kg & fits in a standard rucksack.
- Sealed access, sample drain and backflush through one penetration.
- Modular configuration allows operators to optimise the equipment.
- Simple to use, cost effective re-useable system

Mamba System - Schematic Overview



Lightweight. Portable. Powerful.

The Mamba is a compact system designed for simple remote, access into a range of CBRN devices. It all fits into a single rucksack for ultimate mobility. Its modular design ensures maximum reusability across multiple operations.

Engineered to enable safe sampling and disposal. It's high-pressure capability, allows the depressurisation of containers for safer handling and transport — minimising risk, maximising efficiency.

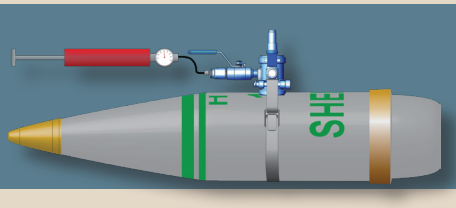
Not to scale

Mamba System - Operational Sequence

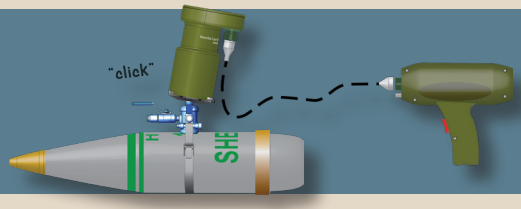
Step 1: Attach & Test the Seal

Simple:
- Attach to any target 100 to 880mm diameter
- Use band clamp or ratchet strap
- Can be attached in any orientation

Safe:
- Test seal integrity prior to drilling
- Simply re-position if no seal achieved
- Can cope with corroded surfaces



Step 2: Prepare to Drill

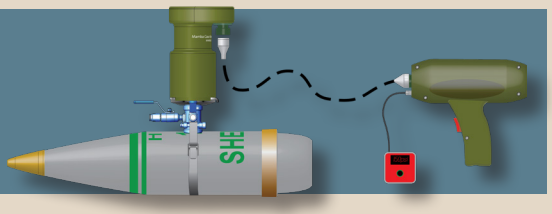


Simple:
- Drill Unit simply clips onto the Drill Head
- One handed operation
- Easy connections for power & air
- Hand controller and Drive Unit joined by single umbilical

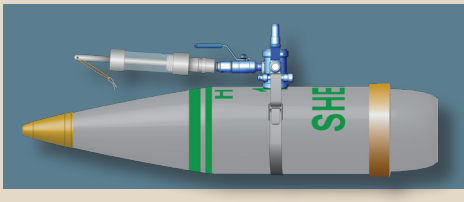
Step 3: Drill the Target

Simple:
- Easy fill air reservoir using COTS pump
- Designed to be used in PPE
- One button operation

Safe:
- Remote stand-off drilling for operator safety
- Drill directly into the liquid phase
- Drill into elevated internal pressures



Step 4: Sample the Contents



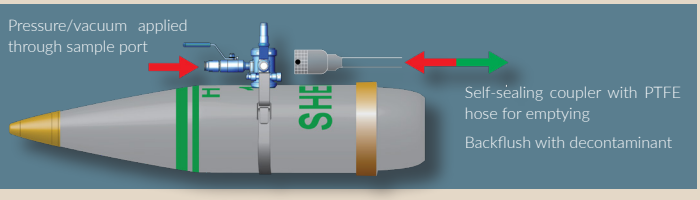
Simple:
- Drive Unit disconnects with one click
- Standard Valent syringe attaches automatically
- Analysis of sample using Raman through the body

Safe:
- Completely sealed through the entire operation
- Syringe and Drill Head seal automatically when disconnected

Step 3: Drill the Target

Simple:
- One penetration for sample/empty/backflush
- Same hose for emptying and backflushing

Safe:
- Completely sealed operation

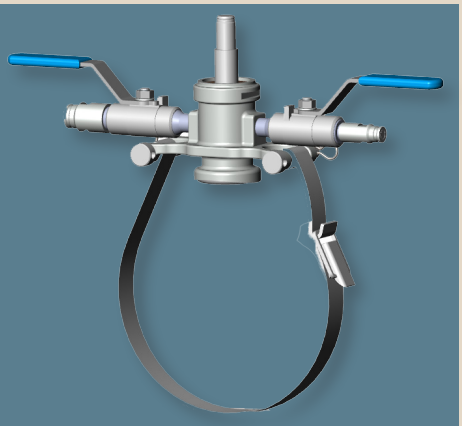


Mamba System - Main Components

The Mamba has been developed by Valent to be a lightweight, remote access & empty system that is simple to use and can be easily transported in a single rucksack. It is also modular, with most of the elements designed to be re-useable on most operations.

The key components are as follows;

Mechanical Drill Head:



The Drill Head (DH) is the component which attaches to and seals with the target surface. It can be supplied in 1 of 2 configurations;

1. Sampling & emptying (shown): This has 2 ports with self-sealing couplers.
   The smaller port allows for sampling using the Valent syringe. It is also used for testing the seal prior to drilling and for pressurising the target during emptying operations.
   The larger port is for emptying & backflushing the target.
2. Sample Only: This only has the smaller port

Attachment is either by stainless steel band clamp (shown) or ratchet strap. It can attach to targets with diameters of between 120 an 880mm.

The system can drill targets with wall thicknesses between 1.6mm and 16mm and handle elevated internal pressures up to 150psi.



Drive Unit:

The Drill Unit (DU) is a reusable component and provides the downforce and rotation for the drilling unit. It is ergonomically designed to be held in one hand. All power and pneumatics are provided from the Hand Controller.

Attachment and release from the Drill Head is via a mechanical quick connect.

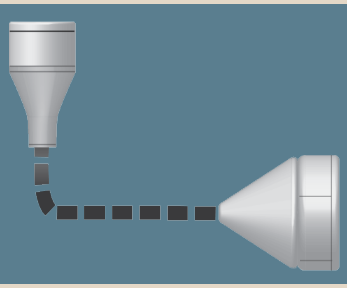
The Service Umbilical is attached via milspec and pneumatic connectors.

Dimensions:

Height: 170mm

Width: 75mm

Service Umbilical:



The Service Umbilical allows for the remote operation of the target drill.

A single cable transfers all electrical and pneumatic services between the Hand Controller and the Drill Unit.

Connection is simple via milspec and pneumatic connectors.

Hand Controller:



The Hand Controller (HC) is the interface between the operator and DU.
It consists of;

- Pneumatic Reservoir. This is user filled, utilising either compressed air, a COTS mini pump or even a manual bike pump. The pressure tank has sufficient downforce for up to 2 drilling operations.
- Downforce Trigger. This allows the operator to control the amount of downforce being exerted by DU on the drilling operation.
- COTS Rechargeable Battery. This provides the power to the DU for the drilling operation

Safer – through invasive technology

Valent Applications invent, develop and manufacture specialist equipment for the investigation and remediation of toxic hazards found in defence and civilian sectors.

Our equipment is used in CBRN, HAZMAT and decommissioning operations across the globe.

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