Vallon VMH3CS

General description

The VMH3CS Metal Mine Detector has been designed for the highly accurate detection of all types of metallic mines, plastic mines with minimal metal content, bombs, ammunition and other metallic objects in the ground or in shallow water. A round 30 cm or round 60cm search head can additionally be used to locate metal-cased mines and unexploded ordnance at greater depths.

Ease of operation and a robust mechanical design ensure reliable operation for professional clearing in battlefield operations, military training programmes and humanitarian demining. The metal alarm is by audio signal, visual bargraph and vibration alarm.

Along with its digital signal processor, the VMH3CS uses an advanced pulse-field function, specially improved by Vallon. It works in mineralised soils, such as laterite, magnetite and magmatite, as well as in shallow salt
and fresh water and under the electromagnetic influence of main power lines without having it’s sensitivity greatly affected.

Data-input allows for further upgrades of the detector firmware, and data-output enables measured data to be evaluated using Vallon EVA2000® software, running on a laptop or a personal computer. The detector can also be connected to the Vallon data loggers.

Main components of the VMH3CS:

1) Detector electronics with integrated arm-rest, non-magnetic loudspeaker, power supply, battery compartment, ON/OFF switch for two different ground conditions and vibrator. Handgrip with visual bargraph (14 elements), four robust push-buttons for sensitivity control, volume control, ground compensation and pinpointing. Two-piece telescopic carrying bar with plug-in connection for search head

2) Watertight oval search head with carrying bar and plug-in connection to the electronics unit

3) Non-magnetic test piece

4) One set (3 EA) single D cell batteries

5) Operation manual

6) Field manual

7) Field backpack for storing the detector set with all accessories

Optional accessories: (available on request)

1) Headset

2) Hard case for storing the complete detector set VMH3CS with all accessories

3) UXO search head (search head with 60 cm diameter) with soft case

4) Universal hard case for storing the complete detector set VMH3CS with all accessories and 60-cm-search head

5) Stick probe

6) Data recording and software

The detector complies with environmental conditions according to MIL STD 810F, 501.4-II, 502.4-I, 502.4-II, 503.4, 506.4-III, 514.5 C1.
Working characteristics

The search head acts as both an emitter of electromagnetic pulses and a receiver sensing the pulsed field. If there is a metal object in the magnetic field, the following happens:

- The electronics unit detects a deviation from the previous state; thus an alarm signal is produced, depending on the size of the metal target
- The shape of the pulse in the VMH3CS is bipolar to reduce the effect on magnetically fused mines

For use worldwide under different soil conditions, the VMH3CS can be switched to set optimal detection features.

The correct programme setting and the wide range of detection sensitivity allow detection of plastic mines with minimum metal content in mineralised soil, even close to 50 Hz/60 Hz-power lines.

The detector has a built-in test procedure, continuously checking the reliability and proper function of the detector. The pulse signal generation, signal processing, battery voltage, external connections, and, very importantly, the internal functions, are constantly monitored. Visual and acoustic alarms are produced when a fault is found.

With such reliability, the user can operate the VMH3CS easily and concentrate fully on detection tasks.

Detectors in use to date

The detectors are in service with various humanitarian aid organisations, commercial mine clearance organisations and armed forces.

Power supply

VMH3CS is powered by three 1.5V mono-cells IEC R20 (ANSI std. D) or rechargeable RSH 4 KR 35/62. The operational life of batteries is said to be approximately 25-30h depending on the age, quality and capacity of the batteries.

Factory support

- Vallon runs a worldwide servicing network with all current spare parts in stock. Spare parts can be delivered with a corresponding maintenance manual directly to the customer for on-site repair
- Operation and maintenance training are offered either in the Vallon facilities or at the customer’s location.
- Operation and maintenance manuals are available in different languages.
- Warranty is for 12 months.

**Maintenance and support**

There are no special requirements for technicians or workshop facilities. All tools needed are standard and available in most workshops. For each detector, a maintenance manual is available, with step-by-step explanations.

**Test and evaluation**

The manufacturer allows access to several available test reports.

The detector was tested by the EC’s Joint Research Centre in Laos in 2004.

The following test result is available in the "Related Reports & Publications" in the right-hand column:

Systematic Test and Evaluation of Metal Detectors (STEMD).


**Technical specification**

Detector

Model
Vallon VMH3CS
Detection technology used
Metal detector/Pulse induction
Detector systems
Metal detectors

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**Dimensional data**

**Working length**

Min. length
920 mm
Max. length
1'320 mm

**Search head**
Weight
1.10 kg
Shape
Oval

**Transport case**
Weight
8 kg
With equipment (full)
15 kg
Dimensions
550x280x150, 660x700x110, 560x350x230 mm
Hard | Soft case (material)
Field back pack/textile, hard case for oval search head/plastic, soft case for UXO search head /textile
Weight, Hand-held unit
3 kg
Weight, carrying (operational detection set)
3 kg
Weight, additional equipment
0 kg
Other specifications
Search heads: Size: 170x310mm (oval search head) 600mm diameter (60cm search head) 40mm diameter x 445mm long(stick probe) Weight: Approx. 0.63kg(oval search head) Approx. 1.1kg (60cm search head) Approx. 1.5kg (stick probe) Shape: Oval (oval search head), round (60cm search head), stick (stick probe) Transport case: Weight: Field back pack(for oval search head)- approx.0.9kg/with equipement 3.4 Soft case (for 60cm search head) - approx. 1.7kg/ with equipment 2.8kg Hard case(for oval search head) - approx. 5kg/with equipment 8.8 kg Dimentions: Field back pack(for oval search head)- approx. 550x280x150mm Soft case (for 60cm search head) - approx. 660x700x110mm Hard case(for oval search head) - approx. 560x350x230mm Hand held unit: Weight:approx.2.5kg(with oval search head), 2.9kg (with 60cm search head),2.4kg (with stick probe) Operational detection set: Weight/carrying: 2.5kg (with oval search head), 2.9kg(with 60cm search head)

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**System status and deployment**

Status
Environmental influence

Humidity (limitations)
According to MIL STD 810F
Water resistant
Yes
Shock/Vibration resistant
Yes
Environmental compensation
Auto

**Temperature (limitations)**

Storage
-51 to 71 °C
Operational
-31 to 63 °C

**Operational hours/Operating endurance**

At around 0°C
15h
At around 20°C
30h
At around 30°C
30h

Detection operation

**Calibration / Set-up**

Auto/Manual
Automatic
Duration
A few seconds

**Detection range/Sensitivity details/Detection performance / Working depth**
Output indicator (sound/display/other)
Sound, visual bargraph, vibration
Pinpointing feature
Yes
Adjustment of search head angle
With a joint
Soil influence
Adjustable
Best use in
✔ Sand
✔ Peat
✔ Clay
✔ Ferruginous soil (laterite)
Optimal sweep speed
Standard 0.2-1.5m/s, pinpoint mode 0-0.2m/s
Search coil/antenna
Oval shape with 170x310mm, round shape with 30cm diameter, round shape with 60 cm diameter, stick probe with 40mm diameter and 445 mm length
Limitations
No
Interference (with other detectors)
2 detectors with oval search head should have a minimum distance of 2 m to each other

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**Power**

Power supply/source
Battery
Operating time
Low temperature =15h, medium temperature = 30h, high temperature = 30h (depending on battery type and capacity)

**Power supply**

Batteries
3EA 1.5V standard batteries D-size
Rechargeable
3EA 1.24V rechargeable batteries KR35/62

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**Costs**

**Base price for the unit (US$)**

Reduction for higher quantity
Yes

**Complete system price (US$)**

Spare parts
On request

Extended warranty
On request

Total
TBD

Possible to rent
On request

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**Others**

Duration of warranty
12 months

Additional equipment
Headset, hard case, universal hard case, 30cm search head, 60cm search head, stick probe, data recording and software.

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**Approved by**

Compliant standards
Civil

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