

Trademill Mejac & Co. | Slovenia

### GENERAL DESCRIPTION

The *Minemill MC 2004* is a chain-flail system produced in Slovenia. The machine is based on the chassis of a commercial track-driven prime mover, propelled by a 66 kw diesel engine. Ground penetration depth control is automatic (mechanical) or manual. The machine is designed for AP and AV mine clearance.

The flail unit has 67 chains and is powered by a 165 kw diesel engine. The system is a medium- class flail system (a relatively light weight 9,800 kg), enabling it to work in difficult-to-access areas where larger systems cannot operate. One operator drives the system from a fully armoured cabin. The cabin and engine compartments are protected by a double layer sandwich of 5+5 mm ballistic steel armour and 52 mm bullet-proof glass.

A self-recovery winch is attached to the prime mover. A fire suppression system and an additional emergency exit from the cabin ensure the safety of the operator in case of an accident. According to the manufacturer, the machine can keep to the set working depth and follow the contours of the ground.

On request, the system can be equipped with a video control system enabling the operator to monitor the ground in front of and behind the machine. Optionally the system can be prepared for remote-controlled operation. With its special air filtration system the machine can be used in heavy dust environments.

The manufacturer states that the Minemill is best used for ground preparation and technical survey operations.



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### CLEARANCE METHODOLOGY

The total width of the vehicle with attached flail unit is 2.7 m. The clearance width is 2 m. The 67 chains of the flail rotate clockwise at up to 500 rpm. The machine works at up to 5 km/h. The hammers attached to each chain are intended to either detonate or break up AP or AV mines. The ground penetration depth achieved is up to 250 mm processing up to 2,500 m<sup>2</sup>/h, depending on soil conditions. The Minemill can cut vegetation up to 10 cm in diameter.

## **MACHINES IN USE TO DATE**

Seven machines have been in service since 1999, five of them in South-Eastern Europe (Bosnia and Herzegovina, Serbia and Montenegro), one in Africa and one in Lebanon.

## **ENGINE, FUEL AND OIL**

The Minemill MC 2004 has two diesel engines: one for the prime mover (66 kw) and the other for the flail unit (165 kw). Fuel capacity is 150 litres. Fuel consumption is 10-15 litres per hour. Hydraulic oil capacity is 600 litres.



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## **FACTORY SUPPORT**

Manuals are available in English, Slovenian, Croatian and Serbian. The manufacturer provides a six-month warranty. Specific spares for both the flail unit and the prime mover and their engines are provided worldwide by the manufacturer or through the Iveco and Deutz-Fahr Group service network. Factory training of operators and mechanics is part of the purchase package. Field training of operators and mechanics is negotiable.

## **MAINTENANCE AND SUPPORT**

Daily and weekly checks and maintenance are performed by the operators. According to the operating instructions, a full service is required every 150 hours, carried out by staff trained by the manufacturer.

## **TESTS AND EVALUATIONS**

The machine has been tested by the Bosnia-Herzegovina Mine Action Centre and the National Demining Office of Lebanon.

## **REPORTED LIMITATIONS AND STRENGTHS**

### **Limitations**

- > No information available

### **Strengths**

- > The system is simple and robust.
- > It is relatively lightweight.
- > Capable of clearing AP and AV mines.

**DIMENSIONAL DATA**

1. Length without attachment	5,500 mm
2. Length total	6,800 mm
3. Width without attachment	2,300 mm
4. Width total	2,700 mm
5. Clearing   Working width	2,000 mm
6. Height   Overall	2,400 mm
7. Mass   Basic vehicle	7,400 kg
8. Mass   Detachable unit(s)	2,400 kg
9. Mass   Overall	9,800 kg

**OPERATIONAL DATA**

10. Wheels   Tracks (description)	Tracks (2,300 x 400/450 mm)
11. Ground Bearing Pressure (kPa)	0.45 kg/cm <sup>2</sup>
12. Hill climbing ability (in degrees)	30°
13. Number of Chains   Chisels   Tools	67
14. Beat pattern (hits per m <sup>2</sup> ) at different operating speeds	2,020 hits/m <sup>2</sup>
15. Length of Chains   Tools	700 mm
16. Diameter of drum	Not given
17. Rotation Speed	Up to 500 rpm
18. Clearance   Working depth in varying terrain	Up to 250 mm
19. Working Speed (m <sup>2</sup> /h)	
> Light Soil   Medium Vegetation	2,500 m <sup>2</sup> /h
> Medium Soil   Medium Vegetation	1,700 m <sup>2</sup> /h
> Heavy Soil   Dense Vegetation	1,000 m <sup>2</sup> /h
20. Control of Clearance   Working depth	Automatic (mechanical) or manual
21. Additional attachable working tools	None
22. Armour	Double layer, sandwich construction 5+5 mm, ballistic steel
23. Remote controlled	Optionally
> greatest distance	1,000 m
24. Transportation	
> short distances	Ordinary truck trailer, 40 ft container,
> long distances	air-lift is possible
> sea transport	
> air transport	

## SYSTEM STATUS AND DEPLOYMENT

25. Machines in use	7
26. Other types	No
27. Location of use	Africa, Bosnia and Herzegovina, Serbia and Montenegro, South Lebanon
28. Totally cleared so far (m <sup>2</sup> )	Over 7,000,000 m <sup>2</sup>

## ENGINE | FUEL | OIL

29. Engine	2 x diesel
30. Engine power at the flywheel	66 kw-prime mover, 165 kw-working unit
31. Sufficient power supplied to working tool	127 kw
32. Fuel capacity	150 l
33. Fuel consumption	10-15 l/h
34. Separate engine for working unit	Yes, turbo diesel 165 kw
35. Cooling system	Water / water
36. Oil capacity (both engines)	39 l
37. Hydraulic oil capacity (both engines)	600 l

## COSTS

38. Cost of system	On request
39. Other costs	On request
> training	
> spare part set chains   belts	
> repair costs for one year	
40. Availability for hire	Yes

## OTHER

41. Operator comfort	Self-recovery winch, fire suppression system, seat-belts
42. Air conditioning	Yes