

Khabat Zangana Company | Sulaimaniyah, Iraq

GENERAL DESCRIPTION

Founded in 1998, the Khabat Zangana Company (KZC) produced the first flail in Iraq and the Middle East, excluding Israel. The *KZC Medium Flail* consists of a tracked crawler shovel, the Komatsu D65 with a flail unit mounted in front. The flail unit is driven by a second engine mounted at the back of the machine. The overall width of the vehicle is 2.5 m, with a working width of 2.9 m. The flail has 72 hammers, T-shaped and connected with chains. The driver is protected by an armoured cab.

CLEARANCE METHODOLOGY

The flail prepares the mine-affected area for further demining operations. The system achieves an average ground penetration of up to 200 mm, depending on soil conditions. The 72 chains rotate on the 2.9 m-wide flail shaft. The flail action should detonate or break up AP and AV mines. The daily clearing rate achieved, according to the manufacturer, is up to 3,000 m². The machine can operate on slopes up to 35°. No more information was provided by the manufacturer.



KZC

MACHINES IN USE TO DATE

Three machines are in operation in Southern and Northern Iraq.

ENGINE, FUEL AND OIL

No information was provided by the manufacturer.

FACTORY SUPPORT

No information provided

MAINTENANCE AND SUPPORT

No information provided.

TESTS AND EVALUATIONS

No information is available.

REPORTED LIMITATIONS AND STRENGTHS

Limitations

- > No automatic depth control or terrain following mechanism.
- > System creates huge dust clouds, as occurs with all flail systems in dry environments.

Strengths

- > Simple and rugged design.

DIMENSIONAL DATA

1. Length without attachment	5,000 mm
2. Length total	7,500 mm
3. Width without attachment	2,500 mm
4. Width total	3,500 mm
5. Clearing Working width	2,900 mm
6. Height Overall	3,200 mm
7. Mass Basic vehicle	16,000 kg
8. Mass Detachable unit(s)	4,000 kg
9. Mass Overall	20,000 kg

OPERATIONAL DATA

10. Wheels Tracks (description)	Track
11. Ground Bearing Pressure (kPa)	Not given
12. Hill climbing ability (in degrees)	40°
13. Number of Chains Chisels Tools	72
14. Beat pattern (hits per m ²) at different operating speeds	Not given
15. Length of Chains Tools	89 cm
16. Diameter of drum	16 cm
17. Rotation Speed	250 rpm
18. Clearance Working depth in varying terrain	Up to 20 cm
19. Working Speed (m ² /h)	3,000 m ² /day
> Light Soil Medium Vegetation	Not given
> Medium Soil Medium Vegetation	Not given
> Heavy Soil Dense Vegetation	Not given
20. Control of Clearance Working depth	Not given
21. Additional attachable working tools	No
22. Armour	Yes
23. Remote controlled	No
> greatest distance	
24. Transportation	Low loader
> short distances	
> long distances	
> sea transport	
> air transport	

SYSTEM STATUS AND DEPLOYMENT

25. Machines in use	3
26. Other types	No
27. Location of use	Northern and Southern Iraq
28. Totally cleared so far (m ²)	More than 1,500,000 m ²

ENGINE | FUEL | OIL

29. Engine	Cummense / Komatsu D 65
30. Engine power at the flywheel	Not given
31. Sufficient power supplied to working tool	Not given
32. Fuel capacity	250 l
33. Fuel consumption	Not given
34. Separate engine for working unit	DEUTZ
35. Cooling system	Aircooled for DEUTZ and water cooled for Komatsu
36. Oil capacity (both engines)	52 l
37. Hydraulic oil capacity (both engines)	190 l

COSTS

38. Cost of system	On negotiation
39. Other costs	
> training	On negotiation
> spare part set chains belts	On negotiation
> repair costs for one year	On negotiation
40. Availability for hire	No

OTHER

41. Operator comfort	Not given
42. Air conditioning	Not given