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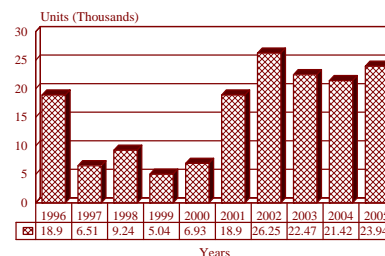
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Kleinbombe-44 - Archived 12/97

Outlook

- Production of this munition for Mehrzweckwaffe-1 application winding down
- Forecast production is for Mehrzweckwaffe-2 and Autonomous Free Flight Dispenser
- Integration with other dispensers ongoing

10 Year Unit Production Forecast
1996-2005



Orientation

Description. An anti-vehicular/anti-structure submunition.

Sponsor. The development and procurement of the Kleinbombe-44 has been sponsored by the Federal Republic of Germany's Ministry of Defense through the Rüstungsabteilung (Armament Department) and Bundesamt für Wehrtechnik und Beschaffung (the Federal Defense Technology and Procurement Agency) through the Materialamt der Luftwaffe.

Contractors. The Kleinbombe-44 was developed and is manufactured by Raketentechnik Gesellschaft mbH, Unterhaching, Bavaria, Federal Republic of Germany.

Licensees. None

Status. The development of the Kleinbombe-44 is complete; the munition is in service with the Mehrzweckwaffe-1 dispenser with serial production continuing. The integration with other dispensers derived from the Mehrzweckwaffe-1 dispenser as well as other design dispensers is ongoing.

Total Produced. As of January 1, 1996, a total of 1,751,190 Kleinbombe-44 submunitions had been manufactured.

Application. An air delivered submunition for the destruction and/or neutralization of light-armored fighting vehicles and emplacements such as anti-aircraft batteries.

Price Range. Based on a buy of 100,000 units, the unit price of the Kleinbombe-44 is put at \$19.00 in equivalent 1996 United States dollars.

Technical Data

Launch/Carrier Vehicle. While the Kleinbombe-44 was designed for the Mehrzweckwaffe-1, it has also been integrated with the dispensers derived from the Mehrzweckwaffe-1, specifically the Dispenser Weapon System-24 which is now being evaluated by Germany as the Mehrzweckwaffe-2, the Dispenser Weapon System-39

dispenser and the Autonomous Free Flight Dispenser. Other potential dispensers include the Low Altitude Dispenser and Tactical Munitions Dispenser SUU-64/65 and various cruise and ballistic missiles; this list is not all inclusive.

Dimensions. The following data are for the present production standard.

	<u>SI units</u>	<u>US units</u>
Munition length	25.4 centimeters	10.08 inches
Munition diameter	4.4 centimeters	1.73 inches
Munition weight	0.6 kilograms	1.32 pounds

Performance. The armor perforation performance is derived from our standardized formula for chemical (High Explosive Anti-Tank) warheads.

Armor perforation	27.72 centimeters	10.91 inches
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Variants/Upgrades

Not applicable to this munition.

Program Review

Background. The Kleinbombe-44 (sometimes called KB-44) is another submunition that was originally developed for the Mehrzweckwaffe-1 dispenser. As part of that program, this submunition is part of the Main Target Group I loading which uses the Kleinbombe-44 with the Mine Flach Flach and Multisplittermine mit Activem Sensor against armored targets.

Description. From one tube of the Mehrzweckwaffe-1 dispenser, three bundles of seven Kleinbombe-44 submunitions are ejected to each side. After ejection, the bundles are pyrotechnically divided in the air; a cutting mechanism severs the steel band holding the munitions together. The submunitions are stabilized by six spring-out fins at the rear and the stand-off probe, necessary for the shaped charge to function correctly, is extended by a spring. A small wind-driven generator is extended into the slipstream; this unit serves to provide electric power for the fusing/ignition unit. Ignition takes place when the probe makes contact with the target. If, for some reason, the probe does not make contact with the target, the munition explodes nonetheless by means of a special component that reacts upon impact. Our standardized formula for armor perforation performance for shaped charges when applied to the Kleinbombe-44 yields a perforation figure of 27.72 centimeters (10.91 inches). In addition to the hollow (shaped) charge warhead designed to perforate light armor, should the submunition miss the vehicle, sufficient fragmentation effect is available to severely damage soft-skinned vehicles.

Each Mehrzweckwaffe-1 dispenser can dispense 4,704 Kleinbombe-44 submunitions in 0.6 second uniformly over a 300 x 400 meter (328.1 x 437.4 yard) area.

Dispenser Weapon System-24/Dispenser Weapon System-39/Mehrzweckwaffe-2. Beginning in the latter eighties, the Mehrzweckwaffe-1 contractor began the development of a stand-off version of the dispenser. Partially funded by Sweden against a requirement for a delivery system of this type for the new JAS-39 aircraft, the new dispenser was designated the Dispenser Weapon System-24. Basically, this dispenser, which is described in the Mehrzweckwaffe-1 report elsewhere in this book, is a gliding or stand-off version of the Mehrzweckwaffe-1 dispenser; in point of fact, the German Ministry of Defense, which is presently evaluating a slightly modified version of the new dispenser system, calls it the Mehrzweckwaffe-2. The Mehrzweckwaffe-2 dispenses the same submunitions (including the Kleinbombe-44) as the original Mehrzweckwaffe-1 dispenser. While the Swedish Dispenser Weapon System-39 is also compatible with the original Mehrzweckwaffe-1 submunitions, it is not known which (if any) of these submunitions are being procured by Sweden; indeed, Sweden has developed two indigenous submunitions for its Dispenser Weapon System-39.

Autonomous Free Flight Dispenser. This is another version of the Dispenser Weapon System-24 designed specifically for the F-16 Fighting Falcon aircraft. Again, the same submunitions as used in the original Mehrzweckwaffe-1 and its variants are used in this dispenser.

Funding

The development and German procurement of the Kleinbombe-44 is funded by the Federal Republic of Germany's Ministry of Defense through the Bundesamt für Wehrtechnik und Beschaffung.

Recent Contracts

Not available as the contractor and the customers do not release contractual information.

Timetable

This timetable relates to the Kleinbombe-44 only and to no other submunition used on the Mehrzweckwaffe-1 dispenser.

Jul	1966	Concept development initiated
	1978	First airborne tests
Dec	1983	Serial production began
Nov	1984	First production deliveries
Early	1985	Initial operating capability
Late	1996	Production winding down for Mehrzweckwaffe-1 requirement; integration with other dispensers ongoing

Worldwide Distribution

Export Potential. As of this writing, the only export sale of the Mehrzweckwaffe-1 dispenser has been to Italy, and the loading for those 100 units is completely the Startbahnbombe submunition. While the Kleinbombe-44 was originally designed to be compatible with the Mehrzweckwaffe-1 and its derivatives, it could be integrated with other dispensers in the future. As of late 1996, it is still not known whether Sweden is procuring the Kleinbombe-44 with its Dispenser Weapon System-39 dispenser which is in production for the Swedish Air Force. The Kleinbombe-44 is being offered with the Autonomous Free Flight Dispenser.

Countries. Federal Republic of Germany.

Forecast Rationale

Up to early 1995, the production of the Kleinbombe-44 has been directly related to the demand for the Main Target Group I loadings of the Mehrzweckwaffe-1 dispenser. The production for this application is terminating as the production of the Mehrzweckwaffe-1, a captive type dispenser which requires the strike aircraft to overfly the target, winds down.

Although not presently reflected in our forecast, there is still a possibility that the Kleinbombe-44 is or will be procured as part of the loading for the Swedish Dispenser Weapon System-39. However, until more information on the Swedish loadings of the Dispenser Weapon System-39 is made definite, we shall refrain from a forecast; this is due to the wide variety of submunitions (including the two indigenous types) available to meet this requirement.

Our latest research on the program now indicates that the Kleinbombe-44 is a certain filling for both the Mehrzweckwaffe-2 and the Autonomous Free Flight Dispenser. The forecast production of both these dispensers is detailed in the pertinent report.

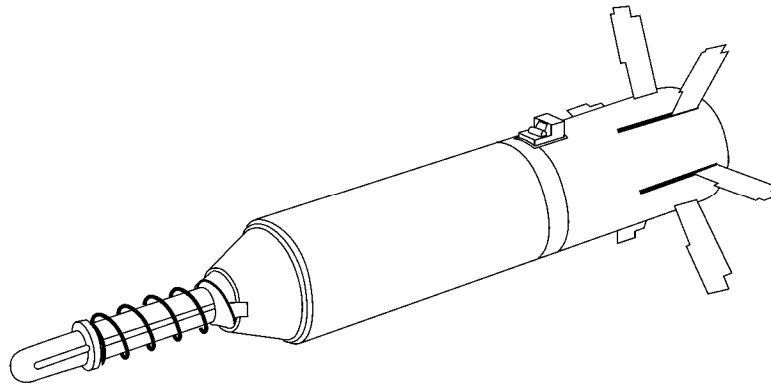
For our forecast of the related Kleinbombe-44 submunition for these applications, we are using the same formulae as detailed in the Mehrzweckwaffe-1 report; we refer the reader to this Mehrzweckwaffe-1 report elsewhere in this book for further information.

Our forecast chart is predicated on the assumption that up to 1987, 20 percent of all Mehrzweckwaffe-1 tubes (22 tubes) were filled with the Kleinbombe-44 submunition; that for the 1987 production, 90 Mehrzweckwaffe-1 dispensers were provided with the Main Target Group I submunitions with the same 20 percent filling level for the Kleinbombe-44; and that for all the remaining years' production, 65 percent of the Mehrzweckwaffe-1 production has been with the Main Target Group I submunitions with the same 20 percent filling level for the Kleinbombe-44. Until further information becomes available, these computations are also being used for the forecast production of the Kleinbombe-44 for the Mehrzweckwaffe-2 and Autonomous Free Flight Dispenser applications.

Ten-Year Outlook

Munition	ESTIMATED CALENDAR YEAR PRODUCTION											Total 96-05
	through 95	High Confidence Level			Good Confidence Level			Speculative				
		96	97	98	99	00	01	02	03	04	05	
RAKETEN TECHNIK GESELLSCHAFT KLEINBOMBE-449 (a)	1751190	18900	6510	9240	5040	6930	18900	26250	22470	21420	23940	159600
Total Production	1751190	18900	6510	9240	5040	6930	18900	26250	22470	21420	23940	159600

(a)The through 1995 production figure contains several thousand developmental Kleinbombe-44 submunitions for functioning, integration and dispensing tests. THE PRODUCTION SHOWN IN THIS FORECAST LINE IS FOR THE MEHRZWECKWAFFE-1, MEHRZWECKWAFFE-2 AND AUTONOMOUS FREE FLIGHT DISPENSER APPLICATIONS ONLY!



KLEINBOMBE-44

Source: Forecast International