Air Bursting Munition ABM
Medium Calibre Applications

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ABM Fuze Components

Fuze Components:
1 Receiving Coil
2 Setback Generator
3 Electronic Timer Module
4 Squib
5 Safe & Arm
6 Booster, Ejection Charge
7 Base-Fuze Housing

Contactless Programming at Gun Muzzle
ABM Programming System
With On-Line Compensation of MV-Variation
ABM KETF
Subprojectile Payload Delivery
Fuze Challenge!
Programmable Payload Delivery

Precise Time Space Payload Delivery up to 5000 rd/min!

10 Rds between 1200 m & 300 m every 100 m!

10th Rd: 300 m
1st Rd: 1200 m

„String of Pearls“ at 550 Rd/min of 35mm Ahead-HETF Ammunition
Fuze Programming without & with Compensation of Muzzle Velocity Variation

7 Rd Burst 35mm Ahead-HETF Ammunition at 1600 m Range
ABM Family of Oerlikon Contraves

35mm x 228
Ahead
NATO Qual.

30mm x 173
selected for
AAAV - FCT

40mm x 53
selected in
Sweden for
evaluation

Other studies on
following calibers:
25mm x 137
27mm x 145
up to 140 mm
One ABM Fuze System (Ahead) -
Two Different Warhead Systems

Programmable Base Fuze

Ejection Charge

SubProjectile Warhead
(KETF: Kinetic Energy Time Fuze)

30mm x 173
(35mm x 228)

Blast Fragmentation Warhead
(HETF: High Explosive Time Fuze)

40mm x 53
ABM KETF
Subprojectile Payload Ejection

10° to 15°
ABM KETF 30mm x 173
Payload Ejection Dynamics

135 Subprojectiles at 1.5 g each
5 Layers at 27 Subprojectiles

Time: 0 µs  100 µs  500 µs
ABM KETF 30mm x 173 against ATGW-Bunker at 1 Km Range

Results: Numerous Full Perforations/100% Damage (Demo: Dec.1999)
Lethality of a 3 Rd Burst against an ATGW Bunker at 1500 m

ABM (KETF & HETF) 35mm x 228

against ATGW-Bunker
ABM KETF 30mm x 173 against Urban Target (Unprogrammed Fuze)

Target: 20 cm Concrete Wall with double Steel-Structure Reinforced
Results: Target Fully Penetrated
ABM KETF 35mm x 228 Ahead
Simulated Lethality > 2 km Range

Target: Maverick Missile

Entry Side

Exit Side

Subprojectile Graze Angle Impact < 10°
ABM HETF Basic Concept for 40mm x 53 Automatic Grenade Launcher AGL

Conventional HE Round (PD-Fuze)

Optimum for Air Burst Munition
ABM HETF 40mm x 53 for AGL
Round Parameters

- Round Length: max. 112 mm
- Round Volume: approx. 130 cm³
- Round Mass: 350 g
- Projectile Mass: 245 g
- High Explosive Mass: > 35 g
- Muzzle Velocity: 245 m/s
- Time of Flight:
  - 500 m: 2.3 s
  - 1000 m: 5.3 s
  - 1500 m: 9.3 s
  - 2000 m: 15.3 s
ABM HETF 40 mm x 53
Muzzle Programming Device

Programming Coil

Ammunition Programming Phase in Muzzle Programming Device

(X-Ray Picture)

Ammunition Programmer & Projectile

Receiving Coil
ABM HETF 40 mm x 53
Firing Trials

Range 200 m

Range 1000 m

3 Round Burst at 570 Shot/min (AGL of ST Kinetics)
ABM Fuze (Ahead):
Main Features

1. Total modularity of components: easy manufacturing, testing & assembly
2. Autonomous power supply (no battery, no storage problems)
3. Allows rapid new fuze developments (recently: 30 mm x 173 & 40 mm x 53)
4. Fuze running time temperature compensated
5. Each bit programmed with double pulse
6. Completeness check on programmed message
7. Reliable component functions at very high g launch (> 100,000 g)
8. Absolutely ECM safe
9. Applicable to all calibers 25 mm upwards, rifled or smooth bore
10. High calculated system reliability (> 97%) confirmed by years of experience
ABM System (Ahead): Main Advantages

1. Smart technology simple and safe in use
2. No rate of fire limitation due to fuze programming
3. Inductive fuze programming at muzzle (not in the gun)
4. On-line compensation for muzzle velocity variation
5. Easy system upgrade: no weapon modification
6. Absolute gun unload safety
7. Insensitive to mud, humidity & other environmental factors
8. Firing through bushes (impact sensor switched off)
9. If no fuze programming required, self-destruct automatically on
10. Lethality level of each round adjustable