

# AMMUNITION & EQUIPMENT CATALOG



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With a forward-thinking approach and a global perspective, “Azersilah” Defence Industry Holding” CJSC continues to shape the future of defence, ensuring stability and safety for generations to come.



MINISTRY OF DEFENCE INDUSTRY  
OF AZERBAIJAN REPUBLIC

**AZERSILAH**  
DEFENCE INDUSTRY HOLDING

# PISTOL & RIFLE CARTRIDGES



# 9x18 mm Pistol Cartridge with Rubber Bullet

9x18 mm pistol cartridge with rubber bullet is intended for less-lethal use in law enforcement and personal defense scenarios. It provides controlled impact with limited penetration at close range.

Parameter	Value
Caliber, mm	9x18
Bullet weight, g	4.2
Cartridge length, mm	23 ±1.0
Effective range of fire, m	5–10
Operating temperature range	-15°C to +40°C



# 9x18 mm Cartridge with Steel Core Bullet

57-N-181S

9x18 mm steel core bullet cartridge (57-N-181S) is designed for enhanced penetration against soft barriers and is compatible with standard PM-type pistols and submachine guns.

Parameter	Value
Caliber, mm	9x18
Cartridge weight, g	9.26 – 10.07
Bullet weight, g	5.75 – 6.15
Cartridge case weight, g	3.09 – 3.44
Powder charge weight, g	0.25
Cartridge length, mm	25 <sup>-0.52</sup>
Case length, mm	18.1 <sup>-0.27</sup>
Muzzle velocity, m/s	300-330
Max mean gas pressure, MPa	≤252.0 (1200)
Accuracy (R <sub>50</sub> ), cm at 25 m	≤3.2
Case material	Steel or brass



# 9x19 mm Pistol Parabellum Cartridge

9x19 mm Parabellum cartridge is designed for semi-automatic pistols and submachine guns. It delivers reliable ballistic performance for military and law enforcement use.

Parameter	Value
Caliber, mm	9x19
Cartridge weight, g	12.0 ±0.4
Bullet weight, g	7.9 ±0.1
Powder charge weight, g	0.34
Cartridge length, mm	29.69 <sup>-0.79</sup>
Case length, mm	19.15 <sup>-0.3</sup>
Muzzle velocity, m/s	350 ±10
Max mean gas pressure, MPa	≤252.0 (2570)
Accuracy (R <sub>50</sub> ), cm at 25 m	≤3.2
Case material	Steel or brass



# 5.45x39 mm Cartridge with Enhanced Penetrating Bullet 7N10

5.45 mm cartridge with 7N10 bullet is designed to engage unshielded targets at up to 1,200 m, flak vest-clad manpower at up to 100 m, personnel behind lightly armored barriers at up to 1,000 m, and aerial targets at up to 900 m. It is compatible with all weapons chambered for the 5.45 mm cartridge. The bullet is unpainted.

Parameter	Value
Caliber, mm	5.45x39
Cartridge weight, g	10.19 – 11.08
Bullet weight, g	3.49 – 3.63
Cartridge case weight, g	5.1 – 5.75
Powder charge weight, g	1.44
Cartridge length, mm	57 <sup>0.8</sup>
Muzzle velocity, m/s	870 – 890
Max gas pressure, MPa	≤294.2 (3000)
Accuracy (R <sub>50</sub> ), cm at 100 m	≤3.5
Penetration range, m	16 mm St3 – 100
Case material	Steel
Grade powder	SSNf-30/3.69 (SB-410)



# 5.45 mm Cartridge with a Tracer Bullet

This tracer cartridge is used for target designation and fire correction. It can be fired from all 5.45 mm chambered weapons. The bullet tip is painted green.

Parameter	Value
Caliber, mm	5.45x39
Cartridge weight, g	10.3
Bullet weight, g	3.23
Powder charge weight, g	1.44
Cartridge length, mm	57 <sup>0.8</sup>
Muzzle velocity, m/s	883
Max gas pressure, MPa	≤294.2 (3000)
Accuracy (R <sub>50</sub> ), cm at 300 m	≤14
Tracer action distance, m	800
Case material	Steel
Grade powder	SSNf-30/3.69



# 7.62 mm Cartridge with a Tracer Bullet

57-T-231P, Mod.1943

Tracer cartridge 57-T-231P is used for target designation and correction. It is fired from 7.62 mm Kalashnikov assault rifles, SKS carbine, and RPD machine guns. The bullet tip is painted green.

Parameter	Value
Caliber, mm	7.62x39
Cartridge weight, g	16.1
Bullet weight, g	7.57
Powder charge weight, g	1.56
Cartridge length, mm	56 <sup>-1</sup>
Muzzle velocity, m/s	718
Max gas pressure, MPa	≤274.6 (2800)
Accuracy (R <sub>50</sub> ), cm at 300 m	≤14
Tracer action distance, m	800
Case material	Steel or brass
Grade powder	SSNf-30/3.97



# 7.62 mm Cartridge with Steel Core Bullet

## 57-N-231S Mod.1943

This cartridge is intended to engage hostile personnel at 800 m with assault rifles and 1,000 m with light machine guns. Used in AK, SKS, and RPD systems. Bullet is unpainted.

Parameter	Value
Caliber, mm	7.62x39
Cartridge weight, g	15.8 – 16.8
Bullet weight, g	7.75 – 8.05
Cartridge case weight, g	6.25 – 6.8
Powder charge weight, g	1.56
Cartridge length, mm	56 <sup>-1</sup>
Muzzle velocity, m/s	710 – 725
Max gas pressure, MPa	≤274.6 (2800)
Accuracy (R <sub>50</sub> ), cm at 100 m	2.5
Case material	Steel or brass
Grade powder	SSNf-30/3.97



# 7.62 mm Cartridge with Low Velocity Bullet

57-N-231U

Designed for covert operations at ranges up to 400 m, this subsonic cartridge is used with AKM/AKMS rifles fitted with PBS-1 suppressor. The bullet tip is painted black and green.

Parameter	Value
Caliber, mm	7.62x39
Cartridge weight, g	20.2
Bullet weight, g	12.55
Powder charge weight, g	1.0
Cartridge length, mm	56 <sup>-1</sup>
Muzzle velocity, m/s	293
Accuracy (R <sub>50</sub> ), cm at 100 m	≤3.5
Case material	Steel or brass
Grade powder	P-45



# 7.62 mm Cartridge with Steel Core Bullet

## 57-N-323S

This cartridge is designed to engage hostile manpower and fire weapons. It is fired from PK (PKM), PKS (PKMS), PKB (PKMB), PKT (PKTM), UP-7.62, HP-7.62, SGM and GShG-7.62 machine guns, as well as SVD (SVDS), PSL, SV-98 and "Yiritji" sniper rifles. The bullet is not painted.

Parameter	Value
Caliber, mm	7.62x54
Cartridge weight, g	22.15 – 23.1
Bullet weight, g	9.45 – 9.75
Powder charge weight, g	3.15
Cartridge length, mm	77.18 <sup>-1, 25</sup>
Grade powder	VT or .308 Win
Muzzle velocity, m/s	820 – 835
Max gas pressure, MPa	≤284.4 (2900)
Accuracy (R <sub>50</sub> ), cm at 100 m	≤3
Case material	Brass or steel



# 7.62x54 mm Cartridge with a T-46 Tracer Bullet

This cartridge is designed to designate targets and adjust fire. It is fired from UP-7.62, HP-7.62, PK (PKM), PKS (PKMS), PKB (PKMB), PKT (PKTM), GShG-7.62 machine guns as well as SVD (SVDS), PSL, SV-98 and "Yirtiji" sniper rifles. The tip of the bullet is painted green.

Parameter	Value
Caliber, mm	7.62x54
Cartridge weight, g	21,8-22,3
Bullet weight, g	9,4-10,5
Powder charge weight, g	3.2
Cartridge length, mm	77.18 <sup>-1.25</sup>
Grade powder	VT or .308 Win
Muzzle velocity, m/s	825-855
Max gas pressure, MPa	284.4
Accuracy (R <sub>50</sub> ), cm at 100 m	≤5
Tracer burning time, s	3
Case material	Steel or brass



# 7.62x54 mm Cartridge with API Bullet

This armor-piercing incendiary cartridge is designed for use with PK, PKM, PKS, PKMS, UP-7.62, PKT machine guns and SVD sniper rifles under various climatic conditions. The cartridge is produced in different variants designated as "API"pg, "API"bg, and "API"dg. It is suitable for engaging lightly armored targets and features high kinetic energy combined with incendiary effect.

Parameter	Value
Caliber, mm	7.62x54
Cartridge weight, g	API pg: 21.6 – 23.6 API bg: 22.9 – 24.41 API dg: 21.6 – 23.4
Bullet weight, g	10.4 <sup>-0.8</sup>
Powder charge weight, g	3.15
Muzzle velocity at 25 m, m/s	860 ±15
Max gas pressure, MPa (kgf/cm <sup>2</sup> )	≤303.9 (3100)
Primer	KV-27 (GOST B23241-96)
Armor penetration, mm 200 m	10 (perpendicular plate)
Accuracy (R <sub>50</sub> ), cm at 100 m	≤5



# 12.7x108 mm Cartridge with API-T Bullet

## 57-API-T-542

Cartridge is used for target designation, fire correction, and ignition of flammable targets. It effectively penetrates 15 mm of perpendicular armor at distances up to 70 m and ignites B-70 petrol. The bullet tip is painted red and violet.

Parameter	Value
Caliber, mm	12.7x108
Muzzle velocity, m/s	810 – 825
Accuracy ( $R_{50}$ ), cm at 100 m	≤6
Max gas pressure, MPa (kgf/cm <sup>2</sup> )	≤303.8 (3100)
Bullet weight, g	43.2 – 44.8
Cartridge weight, g	125 – 132
Powder charge weight, g	16
Cartridge length, mm	147 <sup>-1.5</sup>
Tracer action time, s	≥3
Grade powder	4/7
Case material	Brass
Armor penetration, 100 m	15 mm(perpendicular plate)



# 12.7x108 mm Cartridge with API Bullet

## (57-API-542)

Designed to engage lightly armored vehicles, infantry, and low-flying aerial targets. Penetrates 20 mm armor at 100 m with 90% probability. Fired from NSV-12.7, NSVT-12.7, DShKM machine guns, and OSV-96, 1ST-12.7, ASVK rifles. Bullet tip is black with a red tip.

Parameter	Value
Caliber, mm	12.7x108
Muzzle velocity, m/s	820-870
Accuracy ( $R_{50}$ ), cm at 100 m	≤6
Max gas pressure, MPa (kgf/cm <sup>2</sup> )	≤303.8 (3100)
Bullet weight, g	47.4 – 49.0
Cartridge weight, g	130-137
Powder charge weight, g	17
Cartridge length, mm	147 <sup>-1.5</sup>
Grade powder	4/7
Case material	Brass
Armor penetration, 100 m	20 mm(perpendicular plate)



# 14.5x114 mm Cartridge with API-T Bullet

## 57-API-T-561S

This cartridge is used for target designation, fire correction, and ignition of flammable targets. It effectively engages lightly armored ground targets up to 1,000 m, emplacements and targets behind light barriers, infantry and vehicles up to 2,000 m, and low-flying air targets at altitudes up to 2,000 m. Fired from KPV, KPVT, PKP, SKP machine guns, and IST-14.5 anti-material rifles. The bullet tip is painted red and violet.

Parameter	Value
Caliber, mm	14.5x114
Muzzle velocity, m/s	995-1015
Accuracy ( $R_{50}$ ), cm at 100 m	100m $\leq$ 7
Max mean gas pressure, MPa (kgf/cm <sup>2</sup> )	3300 (323.6)
Bullet weight, g	58.5 – 60.5
Powder charge weight, g	30
Cartridge weight, g	178-188
Cartridge length, mm	156 <sup>-1.5</sup>
Tracer range, m	2000
Armor penetration at 20° (20 mm plate), m	100
Grade powder	5/7
Case material	Steel



# 14.5x114 mm Cartridge with API Bullet

## 57-API-561S

Designed for engaging lightly armored vehicles, field fortifications, and low-flying aircraft, this cartridge is used in heavy machine guns (KPV, KPVT) and anti-aircraft systems (ZPU-1 to ZPU-4), as well as IST-14.5 anti-materiel rifles. The API bullet combines armor-piercing and incendiary effects, with a distinctive red and black tip.

Parameter	Value
Caliber, mm	14.5x114
Muzzle velocity, m/s	970-1010
Accuracy ( $R_{50}$ ), cm at 100 m	≤6,7
Max mean gas pressure, MPa (kgf/cm <sup>2</sup> )	≤323.6 (3300)
Bullet weight, g	63-64,8
Powder charge weight, g	31
Cartridge weight, g	185-195
Cartridge length, mm	156 <sup>-1, 5</sup>
Armor penetration at 20° (20 mm plate), m	100
Grade powder	5/7
Case material	Steel



**BLANK /  
TRACER / AP  
CARTRIDGES**



# 9x18 mm Pistol Blank Cartridge

57-N-181 B

9x18 mm blank cartridge (57-N-181 B) is used for training, sound simulation, and testing of automatic firing mechanisms. It contains no projectile and requires a blank-firing adapter.

## Parameter

Caliber, mm

Cartridge weight, g

Cartridge length, mm

Case material

Operating temperature range

## Value

9x18

4.2

23 ±1.0

Steel

-15°C to +40°C



# 5.45 mm Blank Cartridge

7Kh3

5.45 mm blank cartridge (7Kh3) is used to imitate firing sound. It fits all 5.45 mm weapons. A muzzle plug is required to build up sufficient gas pressure to operate the weapon's mechanism and disintegrate the dummy bullet, which is painted white.

Parameter	Value
Caliber, mm	5.45x39
Cartridge weight, g	6.6
Bullet weight, g	0.24
Powder charge weight, g	1.0
Cartridge length, mm	57 <sup>0.8</sup>
Grade powder	Sf 033fl (SB-620)
Case material	Steel



# 7.62 mm Blank Cartridge

57-Kh-231

Used in training to simulate fire with 7.62x39 mm weapons. Requires a muzzle plug to function properly in gas-operated firearms and to break the dummy bullet.

Parameter	Value
Caliber, mm	7.62x39
Cartridge weight, g	7.7 – 8.7
Powder charge weight, g	0.77
Cartridge length, mm	47,2-48,2
Grade powder	P-125
Case material	Steel or brass



# 7.62 mm Rifle Blank Cartridge

57-Kh-340

Rifle blank cartridge used with 7.62x54 mm rifles for training.  
Requires special muzzle and internal devices to function effectively.

Parameter	Value
Caliber, mm	7.62x54R
Cartridge weight, g	11
Powder charge weight, g	1.25
Cartridge length, mm	53.7-1
Grade powder	Xqr
Case material	Steel or brass



# 12.7x108 mm Blank Cartridge

7-H-1

Used in training to simulate firing from large caliber machine guns like NSV-12.7, KORD. Requires blank firing devices including muzzle attachments and internal inserts.

Parameter	Value
Caliber, mm	12.7x108
Cartridge weight, g	77,8-85
Powder charge weight, g	10
Cartridge length, mm	112
Grade powder	P-125
Case material	Brass



# 14.5x114 mm Blank Cartridge

57-H-561

Designed to simulate fire from weapons using 14.5 mm ammunition. Used with blank firing devices including modified extractors and internal components.

Parameter	Value
Caliber, mm	14.5x114
Cartridge weight, g	114.5
Powder charge weight, g	18
Cartridge length, mm	117.2
Case length, mm	114
Grade powder	VTJ
Case material	Steel



# AUTOMATIC CANNON ROUNDS



# 23x152 mm Practice HEI Projectile

23x152 Round with Practice HEI (High Explosive Incendiary) Projectile is intended for drill firing and gun ballistic tests. The round has the same ballistic characteristics as the HEI rounds and is intended to replace them in target-practice firing. It is compatible with guns 2A14, 2A14M, 2A7, and 2A7M on ZU-23-2 and ZSU-23-4 SHILKA mounts. The ammunition ensures reliable performance in all weather conditions and is safe during storage and handling.

## Basic Characteristics:

- **Caliber:** 23x152 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 15 years (10)

## Elements Of Round:

- **Projectile:** Practice HEI
- **Fuze:** Dummy
- **Propellant:** 5/7 Cfl
- **Cartridge Case:** Steel
- **Primer:** KV №3

## Ballistic Data:

- **Muzzle Velocity:** 970 ±10 m/s
- **Probable Deviation:** ≤8 m/s
- **Average Pmax:** ≤2925 kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round:** 234.28 – 237.12 mm
- **Weight of Round:** 0.450 kg
- **Weight of Projectile:** 1.885 ±0.0035 kg
- **Length of Cartridge Case:** 151.5<sup>-0.058</sup> mm
- **Weight of Cartridge Case:** 0.172 ±0.008 kg
- **Propellant Charge Mass:** 0.077 kg



# 23x152 mm Round with HEI-T Projectile

23 mm round is intended to defeat aerial targets, enemy manpower, and equipment. It is used in twin-barrel AA guns ZU-23-2 and quad-barrel AA mounts ZSU-23-4 SHILKA. It features a High Explosive Incendiary Tracer (HEI-T) projectile and reliable point-detonating fuze. The round ensures stable operation in all weather conditions and is safe for transport, storage, and handling.

## Basic Characteristics:

- **Caliber:** 23x152 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 15 years

## Elements Of Round:

- **Projectile:** HEI-T
- **Fuze:** UT-M88 SP
- **Explosive Charge:** 18.4 g (A-IX-2)
- **Tracer Burning Time:**  $\geq 3$  s
- **Propellant:** 5/7 Cfl
- **Cartridge Case:** Steel
- **Primer:** KV №3

## Ballistic Data:

- **Muzzle Velocity:**  $970 \pm 10$  m/s
- **Probable Deviation:**  $\leq 8$  m/s
- **Average Pmax:**  $\leq 2925$  kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round:** 234.28 – 237.12 mm
- **Weight of Round:** 0.450 kg
- **Weight of Projectile:**  $1.885 \pm 0.0035$  kg
- **Length of Cartridge Case:**  $151.5^{+0.058}$  mm
- **Weight of Cartridge Case:**  $0.172 \pm 0.008$  kg
- **Propellant Charge Mass:** 0.077 kg



# 23x152 mm Practice API-T Projectile

The 23x152 Round with Practice API-T (Armor Piercing Incendiary Tracer) Projectile is intended for drill firing and gun ballistic tests. The round has the same ballistic characteristics as the API-T rounds and is intended to replace them in target-practice firing. It is compatible with guns 2A14, 2A14M, 2A7, and 2A7M on ZU-23-2 and ZSU-23-4 SHILKA mounts. The ammunition ensures reliable performance in all weather conditions and is safe during storage and handling.

## Basic Characteristics:

- **Caliber:** 23x152 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Elements Of Round:

- **Projectile:** Practice API-T
- **Fuze:** Dummy
- **Propellant:** 5/7 Cfl
- **Cartridge Case:** Steel
- **Primer:** KV №3

## Ballistic Data:

- **Muzzle Velocity:** 970 ±15 m/s
- **Probable Deviation:** ≤8 m/s
- **Average Pmax:** ≤3200 kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round:** 234.36 – 237.16 mm
- **Weight of Round:** 0.450 kg
- **Weight of Projectile:** 0.190 ±0.003 kg
- **Length of Cartridge Case:** 151.5<sup>-0.058</sup> mm
- **Weight of Cartridge Case:** 0.172 ±0.008 kg
- **Propellant Charge Mass:** 0.077 kg



# 30x165 mm Practice HE-T Projectile

30x165 Round with Practice HE-T (High Explosive Tracer) Projectile is intended for practice firing. The projectile is inert and contains no explosive. The ammunition is safe for transport, storage and handling, and ensures reliable performance of the gun systems in all weather conditions. It is used in automatic guns 2A42, 2A38, 2A72, and their modifications, installed on infantry fighting vehicles, reconnaissance vehicles, air-defense systems, and attack helicopters.

## Basic Characteristics:

- **Caliber:** 30x165 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 15 years

## Elements Of Round:

- **Projectile:** Practice High Explosive Tracer
- **Fuze:** Dummy
- **Explosive Filling:** Inert sulfur mixture
- **Propellant:** 6/7 P-5BPfl
- **Cartridge Case:** Steel
- **Primer:** KV-3-1

## Ballistic Data:

- **Muzzle Velocity:** 950 – 970 m/s
- **Probable Deviation:** ≤5 m/s
- **Average Pmax:** ≤3600 kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round:** 288.45 – 291.84 mm
- **Weight of Round:** 0.835 kg
- **Length of Projectile:**  $147.5^{-1.55}$  mm ( $147.5^{-1.55}$ )
- **Weight of Projectile:**  $0.385 \pm 0.006$  kg
- **Length of Cartridge Case:**  $165^{-1}$  mm
- **Weight of Cartridge Case:**  $0.321 \pm 0.010$  kg
- **Propellant Charge Mass:** 0.122 kg
- **Burning Time of Tracer:** ≥10 sec



# 30x165 mm Round with Practice HEI Projectile

30x165 Round with Practice HEI (High Explosive Incendiary) Projectile is intended for practice firing. The projectile is inert and contains no explosive. The ammunition is safe in transport, storage and handling and ensures the reliable performance of the gun systems in all weather conditions. It is used with automatic guns 2A42, 2A38, 2A72 and modifications on infantry fighting vehicles, reconnaissance vehicles, air-defense systems, and attack helicopters.

## Basic Characteristics:

- **Caliber:** 30x165 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 15 years

## Elements Of Round:

- **Projectile:** Practice High Explosive Tracer
- **Fuze:** Dummy
- **Explosive Filling:** Sulfur mixture
- **Propellant:** 6/7 P-5BPfl
- **Cartridge Case:** Steel
- **Primer:** KV-3-1

## Ballistic Data:

- **Muzzle Velocity:** 950 – 970 m/s
- **Probable Deviation:**  $\leq 5$  m/s
- **Average Pmax:**  $\leq 3600$  kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round (max):** 289 – 293 mm
- **Weight of Round:** 0.842 kg
- **Weight of Projectile:**  $0.389 \pm 0.0006$  kg
- **Length of Cartridge Case:**  $165^{-1}$  mm
- **Weight of Cartridge Case:**  $0.321 \pm 0.010$  kg
- **Propellant Charge Mass:**  $0.123 \pm 0.0003$  kg



# 30x165 mm Practice AP-T Projectile

30x165 Round with Practice AP-T (Armor Piercing Tracer) Projectile is intended for practice firing. The projectile is inert and contains no explosive. The ammunition is safe in transport, storage and handling and ensures the reliable performance of the gun systems in all weather conditions. It is fired from 2A42, 2A38, 2A72 guns installed on infantry fighting vehicles, reconnaissance vehicles, air-defense complexes, and attack helicopters.

## Basic Characteristics:

- **Caliber:** 30x165 mm
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Elements Of Round:

- **Projectile:** Practice High Explosive Incendiary
- **Fuze:** Dummy
- **Explosive Filling:** Sulfur mixture
- **Propellant:** 6/7 P-5BPfl
- **Cartridge Case:** Steel
- **Primer:** KV-3-1

## Ballistic Data:

- **Muzzle Velocity:** 960–980 m/s
- **Probable Deviation:** ≤5 m/s
- **Average Pmax:** ≤3600 kgf/cm<sup>2</sup>

## Technical Data:

- **Length of Round (max):** 292.84<sup>-3.45</sup> mm
- **Weight of Round:** 0.858 kg
- **Length of Projectile:** 148.5<sup>-1.61</sup> mm
- **Weight of Projectile:** 0.400 ±0.006 kg
- **Length of Cartridge Case:** 165 mm
- **Weight of Cartridge Case:** 0.321 ±0.010 kg
- **Propellant Charge Mass:** 0.123 ±0.003 kg



# HAND GRENADES



# RGD-5 Hand Grenade

RGD-5 hand grenade is a time-delay, anti-personnel fragmentation grenade designed for use in close-range combat, both offensive and defensive. It is intended to inflict damage on enemy personnel within a limited radius. The grenade is equipped with a UZRQM fuze and provides effective performance with controlled detonation timing.

Parameter	Value
Overall height	113 ± 2 mm
Body diameter	57.5 ± 0.5 mm
Throwing distance (average)	40–50 m
Fuze delay	3.2–4.2 s
Effective fragmentation radius	25 m
Weight (complete grenade)	0.315 ± 0.015 kg
Explosive charge weight	0.114 ± 0.002 kg
Explosive filling	TNT
Fuze type	UZRQM



# URQN Training Simulation Hand Grenade

URQN training grenade is designed for instructing personnel in proper hand grenade throwing techniques. Simulating the RQD-5 grenade in form and function, the URQN provides realistic training through visual and acoustic effects upon detonation, without creating lethal fragmentation. The grenade is equipped with a UZRQM fuze and is safe for controlled training environments.

Parameter	Value
Overall height	128 ± 2.5 mm
Body diameter (max)	55 mm
Fuze delay	3.2–4.2 s
Sound and smoke effect	Yes
Weight (complete grenade)	345 ± 10 g
Simulation fuze weight	65 ± 2 g
Simulation body weight	19 ± 2 g
Fuze type	UZRQM



# URQ Training Simulation Hand Grenade

The URQ training simulation hand grenade is designed to train personnel in proper grenade throwing techniques during exercises. It replicates the F-1 hand grenade in shape, handling, and weight. Upon detonation, the grenade produces sound and smoke effects, simulating a realistic combat environment without causing fragmentation. It is equipped with a UZRQM fuze.

Parameter	Value
Fuze delay	3.2–4.2 s
Height	128 ±2.5 mm
Maximum diameter	55 mm
Total mass (assembled)	Up to 600 g
Mass of fuze	67 ±2 g
Mass of simulation component	19 ±2 g



# RGN Hand Grenade

## Offensive Hand Grenade

RGN hand grenade is intended for offensive operations, designed to eliminate enemy personnel and suppress firing points. It features a UDZ fuze with a short arming time and controlled delay, delivering a concentrated fragmentation effect over a wide area.

Parameter	Value
Throwing distance (average)	40–50 m
Arming delay (UDZ fuze)	1.0–1.8 s
Fuze delay	3.2–4.2 s
Number of fragments	220
Average fragment weight	0.42 g
Lethal area	100 m <sup>2</sup>
Overall height	114 ± 2 mm
Diameter	max 61 mm
Weight (complete grenade)	0.31 ± 0.02 kg
Explosive charge weight	0.114 ± 0.01 kg
Fuze type	UDZ



# RGO Hand Grenade

## Defensive Hand Grenade

RGO hand grenade is designed for defensive combat operations to eliminate enemy personnel and neutralize firing positions. It is equipped with a UDZ fuze and produces a high-density fragmentation effect, making it effective when used from covered positions.

Parameter	Value
Throwing distance (average)	35–45 m
Arming delay (UDZ fuze)	1.0–1.8 s
Fuze delay	3.2–4.2 s
Number of fragments	700
Average fragment weight	0.42 g
Lethal area	210 m <sup>2</sup>
Overall height	114.5 ± 2 mm
Diameter	max 63 mm
Weight (complete grenade)	0.53 ± 0.02 kg
Explosive charge weight	0.092 ± 0.01 kg
Fuze type	UDZ



# F-1 Hand Grenade

## Defensive Fragmentation Hand Grenade

F-1 hand grenade is intended for defensive combat use to neutralize enemy personnel. Due to its high fragmentation effect, it is designed to be thrown only from behind cover, inside armored vehicles (APCs), or tanks. The grenade ensures effective suppression in enclosed and fortified zones.

Parameter	Value
Fuze delay	3.2–4.2 s
Lethal area	up to 82 m <sup>2</sup>
Number of fragments	up to 300 pcs
Throwing distance (average)	35–45 m
Overall height	127 mm
Diameter	55 mm
Weight (complete grenade)	0.6 kg
Explosive charge weight	0.06 kg



# TM-62P2 and MVP-62 Mine System

## Anti-Tank Mine with Pneumatic Fuze Mechanism

TM-62P2 and MVP-62 mine system is designed for the rapid deployment of anti-tank minefields aimed at disabling tanks, self-propelled rocket and artillery systems, armored vehicles, and military transport trucks. The system consists of the TM-62P2 mine body and the MVP-62 pressure-activated fuze, which includes a pneumatic time-delay mechanism to ensure safe activation.

Parameter	TM-62P2	MVP-62
Weight	8.5–9 kg	0.55 kg
Explosive content	6.5 kg (TNT)	4 g (tetryl)
Diameter	320 mm	125 mm
Height	131.5 mm (with MVP-62)	93.5 mm
Activation force		120–750 kgf
Delay mechanism type		Pneumatic
Pressure on striker (activation force)		1–20 kgf
Arming delay		20–300 s
Activation displacement		2–4 mm



**GRENADE  
LAUNCHER  
ROUNDS**



# HE Grenade VOG-25

40 mm

40 mm High Explosive Grenade VOG-25 provides effective action against enemy troops in open terrain or in light shelters at distance of up to 400 m. The grenade is self-contained and fitted with a distance-armed, self-destruct fuze. It is safe in storage, handling and operation and ensures reliable performance of grenade launchers in all weather conditions.

## Basic Characteristics:

- **Maximum Firing Range:** 400 m
- **Effective Bursting Radius:**  $\geq 6$  m
- **Operational Temperature Range:**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 10 years

## Fuze:

- **Type:** Point Detonating, SQ, Distance-Armed, Self-Destruct
- **Arming Distance:** 10–40 m or 15–50 m
- **Self-Destruction Time:** 14–19 s or 12–20 s

## Technical Data:

- **Length of Grenade (max):** 102.6 mm
- **Weight of Grenade:** 0.25 kg
- **Weight of Explosive Charge:** 0.048 kg

## Ballistic Data:

- **Muzzle Velocity:** 76.5 m/s
- **Probable Deviation:** 1 m/s
- **Average Pressure (max):** 800 kgf/cm<sup>2</sup>

## Elements of Grenade:

- **Fuze:** VMG-K or UT MOO SP
- **Grenade Body:** Steel
- **Explosive Filling:** A-IX-1 (RDX)
- **Propellant:** P-200
- **Primer:** KVM-3



# Bouncing Air Burst Grenade VOG-25P

40 mm

40 mm Round with Fragmentation Bouncing Grenade VOG-25P provides effective action against enemy troops in open terrain or in light shelters at distances from 40 up to 400 m. The grenade is self-contained and equipped with a distance-armed, self-destruct fuze. It ensures safe operation, storage, and reliable performance in all weather conditions.

## Basic Characteristics:

- **Maximum Firing Range:** 400 m
- **Effective Bursting Radius:**  $\geq 6$  m
- **Jump Height:** 0.5 – 1.5 m
- **Operational Temperature Range:**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 10 years

## Fuze:

- **Type:** Point Detonating, SQ action, Distance-Armed, Self-Destruct
- **Arming Distance:** 10 – 40 m
- **Self-Destruction Time:** 14 – 19 s

## Technical Data:

- **Length of Round (max):** 122 mm
- **Weight of Round:** 0.278 kg
- **Weight of Explosive Charge:** 0.037 kg

## Ballistic Data:

- **Muzzle Velocity:** 75 m/s
- **Probable Deviation:** 1 m/s
- **Average Pressure (max):** 78.4 MPa

## Elements of Grenade:

- **Fuze:** VMG-P or FSD1
- **Grenade Body:** Steel
- **Explosive Filling:** A-IX-1 (RDX)
- **Propellant:** P-200
- **Primer:** KVM-3



# Smoke Round M99

40x46 mm

40x46 mm Smoke Round M99 is intended to provide a smoke screen or to mark targets at distances up to 400 meters. It is compatible with various under-barrel and stand-alone grenade launchers and ensures effective signaling and concealment capabilities under a wide range of environmental conditions.

Parameter	Value
Caliber	40 mm
Round Mass	236 g
Grenade Mass	186 g
Round Length	106 mm
Delay Time	2–4 s
Smoke Time	30 s
Smoke Type	White
Muzzle Velocity	76 m/s
Firing Range	50–400 m
Operating Temperature Range	-30°C to +50°C
Weapon Compatibility	M203, M79, RBG 40 mm/6M11, MGL MK1, HK69A1, F2000 or similar



# HE Round M99

40x46 mm

40x46 mm M99 High Explosive Round is designed to defeat enemy troops and unarmored vehicles at distances up to 400 m. The round is compatible with a wide range of shoulder-fired grenade launchers and ensures reliable performance across harsh environmental conditions.

Parameter	Value
Caliber	40 mm
Round Mass	245 g
Grenade Mass	192 g
Explosive Mass	48 g
Round Length	max 104.5 mm
Muzzle Velocity	78 m/s
Vertical Precision at 100 m (Vp/Vs)	$V_p \leq 0.25$ m, $V_s \leq 0.35$ m
Max Range	400 m
Effective Bursting Radius	$\geq 5$ m
Operating Temperature Range	-42°C to +63°C
Weapon Compatibility	M203, M79, RBG 40 mm/6M11, MGL MK1, HK69A1, F2000 or similar



# M04 Illuminating Round with Parachute

40 mm

M04 illuminating round is used for target marking, signaling, and battlefield illumination in night or low-visibility conditions. It contains a parachute-deployed flare that produces intense white light, ensuring long-range visibility. The round is compatible with a wide range of under-barrel and stand-alone grenade launchers.

Parameter	Value
Caliber	40 mm
Round Mass	250 g
Grenade Mass	200 g
Delay Time	2.5 – 3.5 s
Burning Time	20 s
Light Intensity	80,000 cd
Operating Temperature Range	-30°C to +50°C
Weapon Compatibility	RBG 40 mm/6M11, MSGL, M79, M203, HK69A1, F2000 or similar



# M99 HEDP Round

40 mm

M99 HEDP (High-Explosive Dual Purpose) round is designed to defeat enemy personnel and light armored targets. It combines fragmentation and armor-penetration capabilities and is used with various shoulder-fired grenade launchers at ranges up to 400 m.

Parameter	Value
Caliber	40 mm
Round Mass	252 g
Grenade Mass	200 g
Explosive Mass	42 g
Round Length	106.5 mm
Muzzle Velocity	78 m/s
Armor Penetration (steel)	60 mm
Effective Bursting Radius	≥5 m
Max Range	400 m
Vertical Precision at 100 m	$V_p \leq 0.25$ m, $V_v \leq 0.35$ m
Operating Temperature Range	-42°C to +63°C
Weapon Compatibility	RBG 40 mm/6M11, MSGL, M79, M203, HK69A1, F2000 or similar



**ROCKET-  
PROPELLED  
GRENADE  
ROUNDS (RPG)**



# GG-7A Round with Fragmentation Grenade

GG-7A is an anti-personnel grenade round used with RPG systems to neutralize enemy troops, light vehicles, and fortifications. It features a super-quick point detonating fuze that functions independently of the angle of impact, ensuring detonation even on ricochet. The grenade contains A-IX-1 high explosive for lethal fragmentation effect within a wide radius.

## Specifications:

- **Maximum Range:** 700 m
- **Muzzle Velocity @ 15°C:** 150 ±10 m/s
- **Round Weight:** 2.1 ±0.030 kg
- **Operating Temperature Range:** -40°C to +50°C

## Grenade (GG-7):

- **Caliber:** 40 mm
- **Length (with fuze):** 425 mm
- **Weight:** 1.710 ±0.025 kg
- **Explosive Type:** A-IX-1 (RDX)
- **Explosive Mass:** 0z.295 ±0.010 kg
- **Lethal Radius:** >22 m
- **Fuze Type:** Super-quick point detonation, non-ricochet



# GG-7A IN Round with Practice Grenade

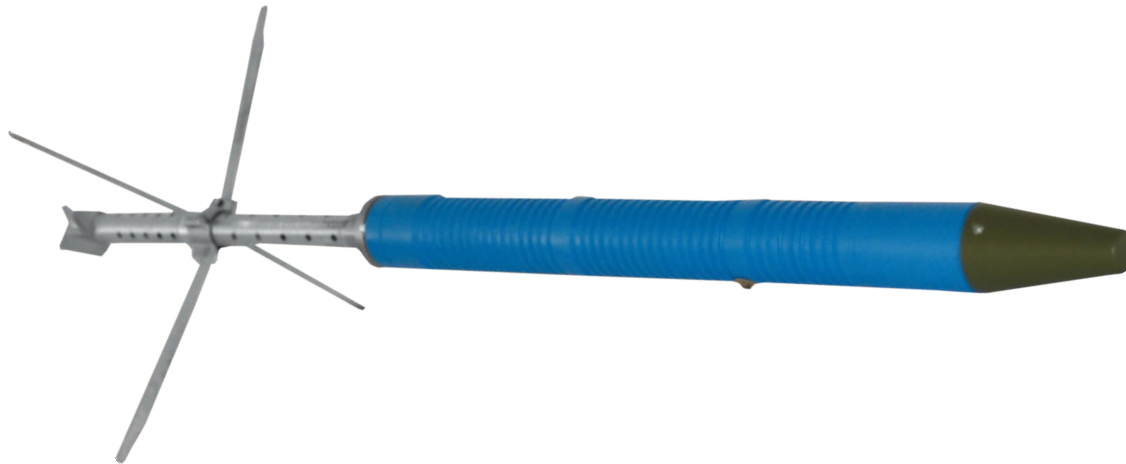
GG-7A IN is the inert training version of the GG-7A anti-personnel round, designed for instructional and simulation use with identical weight and dimensions to the live variant. It allows for realistic training in RPG launcher operation without explosive risk.

## Specifications:

- **Maximum Range:** 700 m
- **Muzzle Velocity @ 15°C:** 150 ±10 m/s
- **Round Weight:** 2.1 ±0.030 kg
- **Operating Temperature Range:** -40°C to +50°C

## Grenade (GG-7IN):

- **Caliber:** 40 mm
- **Length:** 425 mm
- **Weight:** 1.710 ±0.025 kg
- **Filling:** INERT



# AT-7V Round with AT-7

AT-7V is an anti-tank grenade round designed to destroy tanks, self-propelled guns, and field fortifications. It is fired from RPG-type launchers, including the TƏQ-7V2 and RPG-7V systems. The round contains a shaped charge warhead capable of penetrating up to 500 mm of steel armor. It is effective in various battlefield conditions and ensures reliable performance across temperature extremes.

## Specifications:

- **Launcher Caliber:** 40 mm
- **Warhead Caliber:** 93 mm
- **Round Weight:** 2.600 kg
- **Grenade Weight:** 2.200 kg
- **Propellant Charge:** 0.390 kg
- **Muzzle Velocity:** 112 m/s
- **Direct Fire Range:** 250 m
- **Direct Sighting Range:** 300 m
- **Armor Penetration:** 500 mm
- **Operating Temperature Range:** -40°C to +50°C
- **Firing Rate:** 4–6 shots/min
- **Packing:** 6 rounds per case
- **Case Dimensions (mm):** 899 × 498 × 294
- **Gross Weight per Case:** 38 kg



# AT-7V IN Round with Practice Grenade

AT-7V IN is an inert training version of the AT-7V anti-tank grenade round. It replicates the external dimensions, weight, and ballistic characteristics of the live round, ensuring safe and effective training for RPG-7V and TØQ-7V2 launcher systems.

## Specifications:

- **Launcher Caliber:** 40 mm
- **Warhead Caliber:** 93 mm
- **Round Weight:** 2.600 kg
- **Grenade Weight:** 2.200 kg
- **Propellant Charge:** 0.390 kg
- **Muzzle Velocity:** 112 m/s
- **Operating Temperature Range:** -40°C to +50°C
- **Firing Rate:** 4–6 shots/min
- **Packing:** 6 rounds per case
- **Case Dimensions (mm):** 899 × 498 × 294
- **Gross Weight per Case:** 38 kg



# PG-7VLT Round with PG-7LT Tandem HEAT Grenade

PG-7VLT is a tandem High-Explosive Anti-Tank grenade round designed to neutralize armored targets equipped with Explosive Reactive Armor (ERA). It is fired from RPG-type launchers such as RPG-7V, TØQ-7V2, RPG-7DN-1, and RPG-7DN-3, and includes a precursor and main shaped charge for increased penetration effectiveness.

## Specifications:

- **Launcher Caliber:** 40 mm
- **HEAT Warhead Caliber:** 93 mm
- **Precursor Warhead Caliber:** 50 mm
- **Round Weight:** 3.290 kg
- **Grenade Weight:** 2.900 kg
- **Propellant Charge:** 0.390 kg
- **Muzzle Velocity:** 90 m/s
- **Direct Fire Range:** 220 m
- **Sighting Range:** 250 m
- **Armor Penetration (ERA):** >500 mm
- **Operating Temperature Range:** -40°C to +50°C
- **Firing Rate:** 4–6 shots/min
- **Packing:** 6 rounds per case
- **Case Dimensions (mm):** 1136 × 474 × 307
- **Gross Weight per Case:** 50 kg



**AUTOMATIC  
GRENADE  
LAUNCHER  
AMMUNITION**



# VUS-17 Training Round

30x29 mm

VOG-17IN is an inert training round used for simulating real combat in automatic grenade launcher systems. It provides safe, realistic instruction and is compatible with AGS-17, AGS-30, AG-17A, AGK-30, ARCUS-17 AGL, and M93 launchers.

## Basic Characteristics:

- **Caliber:** 30x29 mm
- **Maximum Firing Range:** 1700 m
- **Operational Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Elements of Grenade:

- **Fuze:** Ballistic Plug
- **Explosive Filling:** Inert
- **Cartridge Case:** Steel
- **Propellant:** NBpl 14-10
- **Primer:** KVM-3

## Ballistic Data:

- **Muzzle Velocity:** 185 m/s
- **Probable Deviation:** 2.5 m/s
- **Average Pressure (max):**  
1200 kgf/cm<sup>2</sup> (122.5 MPa)

## Technical Data:

- **Length of Round:** 132 mm
- **Weight of Round:** 0.35 kg



# VOG-17M High Explosive Round

30x29 mm

VOG-17M is a 30x29 mm high-explosive round designed to engage enemy personnel in open areas or field shelters. It is fired from automatic grenade launchers such as AGS-17, AGS-30, AG-17A, AGK-30, ARCUS-17 AGL, and M93. The round features a point-detonating, distance-armed, self-destruct fuze, providing a high degree of operational safety and effectiveness.

## Basic Characteristics:

- **Caliber:** 30x29 mm
- **Maximum Firing Range:** 1700 m
- **Effective Radius of Defeat:**  $\geq 6$  m
- **Operational Temperature Range:**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 10 years

## Technical Data:

- **Length of Round (max):** 132 mm
- **Weight of Round:** 0.35 kg
- **Weight of Explosive Charge :** 0.032 kg

## Fuze:

- **Type:** Point Detonating, SQ Action, Distance-Armed, Self-Destruct
- **Arming Distance:** 10–60 m
- **Self-Destruction Time:** 28–36 s

## Elements of Grenade:

- **Projectile:** High Explosive
- **Fuze:** VMG-M or UT M99 SP
- **Explosive Filling:** A-IX-1 (RDX)
- **Cartridge Case:** Steel
- **Propellant:** NBpl 14-10
- **Primer:** KVM-3

## Ballistic Data:

- **Muzzle Velocity:** 185 m/s
- **Probable Deviation:** 2.5 m/s
- **Average Pressure (max):** 1200 kgf/cm<sup>2</sup> (122.5 MPa)



# GPD-30 Grenade Launcher Round

## 30 mm

GPD-30 High Explosive round is intended for AGS-30 automatic grenade launcher systems. It is designed to defeat enemy personnel and light military equipment in open terrain. The round includes a point-detonating fuze with self-destruct capability, offering effective range and fragmentation lethality under various operational conditions.

Parameter	Value
Caliber	30 mm
Round Length	132.3 mm
Round Weight	0.340 kg
Muzzle Velocity	185 ± m/s
Explosive Charge Mass	0.040 kg
Effective Firing Range	2100 m
Fuze	Point Detonating (M99)
Effective Bursting Radius	6 m
Fuze Arming Distance	10–60 m
Self-Destruction Time	25 s
Weight of Booster Charge	0.003 kg
Max Powder Pressure	50 kg/cm <sup>2</sup>



**MORTAR  
BOMBS(HE &  
PRACTICE)**



# 60 mm High-Explosive Mortar Bomb

60 mm High-Explosive Mortar Bomb is intended for engagement of troops in open terrain or in light shelters. The ammunition is designed for use with NATO-standard 60 mm smooth-bore mortars, including M2, M19, M224, Hirtenberger "Commando", C-08, C-576, and 20N6M. The mortar bomb is safe in storage and handling and ensures reliable performance of the mortar system in all weather conditions.

## Basic Characteristics:

- **Caliber:** 60 mm
- **Maximum Range:** 3200 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Ballistic Data (Practice Bomb):

- **Muzzle Velocity (max):** 195 ±5 m/s
- **Maximum Pressure:** 441 kg/cm<sup>2</sup>

## Technical Data:

- **Length of Mortar Bomb (fuzed):** 300 mm
- **Weight of Mortar Bomb (fuzed):** 1.6 kg
- **Weight of Explosive Charge:** 0.2 kg

## Elements of Mortar Bomb:

- **Fuze:** M-6H or AZ111A2
- **Body:** Cast iron
- **Explosive Filling:** TNT
- **Number of Charges:** 1 + 4 Increment charges



# 60 mm Practice Mortar Bomb

60 mm Practice Mortar Bomb is intended for training and instructional use. The ammunition is designed for use with NATO-standard 60 mm smooth-bore mortars, including M2, M19, M224, Hirtenberger "Commando", C-08, C-576, and 20N6M. The mortar bomb is safe in storage and handling and ensures reliable performance of the mortar system in all weather conditions.

## Basic Characteristics:

- **Caliber:** 60 mm
- **Maximum Range:** 3200 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Elements of Mortar Bomb:

- **Fuze:** Dummy
- **Body:** Cast iron
- **Number of Charges:** 1 + 4 Increment charges

## Technical Data:

- **Length of Mortar Bomb (fuzed):** 300 mm
- **Weight of Mortar Bomb (fuzed):** 1.6 kg

## Ballistic Data (for practice bomb):

- **Muzzle Velocity (max):** 195 ±5 m/s
- **Maximum Pressure:** 441 kg/cm<sup>2</sup>



# 81 mm / 82 mm Practice Mortar Bomb

81 mm / 82 mm Practice Mortar Bomb is designed for training purposes and simulates the live ammunition in weight and dimensions. It is compatible with 81 mm / 82 mm smooth-bore mortars, ensuring safe instruction and functional realism under all operational conditions.

## Basic Characteristics:

- **Caliber:** 81 mm / 82 mm
- **Maximum Range (increment):** 3000 m
- **Maximum Range (long range):** 4500 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Technical Data:

- **Length of Mortar Bomb:** 300 mm
- **Weight of Mortar Bomb:** 3.2 ±0.009 kg

## Elements of Mortar Bomb:

- **Fuze:** Dummy
- **Body:** Cast iron
- **Number of Charges:** 1+3 Increment or long range charges

## Ballistic Data (Practice Bomb):

- **Muzzle Velocity (max):** 211 m/s
- **Maximum Pressure:** 450 kgf/cm<sup>2</sup>



# 81 mm / 82 mm High Explosive Mortar Bomb

81 mm / 82 mm High Explosive Mortar Bomb is designed to defeat enemy personnel, shelters, and lightly armored targets. It is compatible with standard 81 mm and 82 mm smooth-bore mortars. The bomb delivers effective fragmentation and is safe to handle, transport, and operate in all environmental conditions.

## Basic Characteristics:

- **Caliber:** 81 mm / 82 mm
- **Maximum Range (with increment):** 3000 m
- **Maximum Range (long range):** 4500 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Technical Data:

- **Length of Mortar Bomb (fuzed):** 332.5 mm
- **Weight of Mortar Bomb (fuzed):** 3.2 ±0.09 kg
- **Weight of Explosive Charge:** 0.454 kg

## Elements of Mortar Bomb:

- **Fuze:** M-6
- **Body:** Cast iron
- **Explosive Filling:** TNT or TD-42
- **Number of Charges:** 1 + 3 Increment or long range charges

## Ballistic Data:

- **Muzzle Velocity (max):** 211 m/s
- **Maximum Pressure:** 450 kgf/cm<sup>2</sup>



# 120 mm Practice Mortar Bomb

120 mm Practice Mortar Bomb is used for training purposes with 120 mm smooth-bore mortars. It replicates the size and ballistic properties of a live high-explosive round without an explosive payload. The bomb is suitable for realistic instructional use under all environmental conditions and ensures safe storage and handling.

## Basic Characteristics:

- **Caliber:** 120 mm
- **Maximum Range (Increment):** 5800 m
- **Maximum Range (Long Range):** 7100 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Technical Data:

- **Length of Mortar Bomb (fuzed):** 673 mm
- **Weight of Mortar Bomb:** 16.07 ±0.050 kg

## Elements of Mortar Bomb:

- **Fuze:** Dummy
- **Body:** Cast iron
- **Number of Charges:** 1 + 6 Increment or Long Range Charges

## Ballistic Data:

- **Muzzle Velocity (max):** 272 m/s
- **Max Pressure:** 1030 / 1300 kgf/cm<sup>2</sup>



# 120 mm High Explosive Mortar Bomb

120 mm High Explosive Mortar Bomb is designed to defeat enemy troops, shelters, and light armored targets. Compatible with standard 120 mm smoothbore mortars, this ammunition ensures effective fragmentation impact under all environmental and operational conditions.

## Basic Characteristics:

- **Caliber:** 120 mm
- **Maximum Range (Increment):** 5800 m
- **Maximum Range (Long Range):** 7100 m
- **Operating Temperature Range:** -50°C to +50°C
- **Shelf Life:** 10 years

## Technical Data:

- **Length of Mortar Bomb (fuzed):** 673 mm
- **Weight of Mortar Bomb (fuzed):** 16.07 ±0.050 kg
- **Weight of Explosive Charge:** 1.36 kg

## Elements of Mortar Bomb:

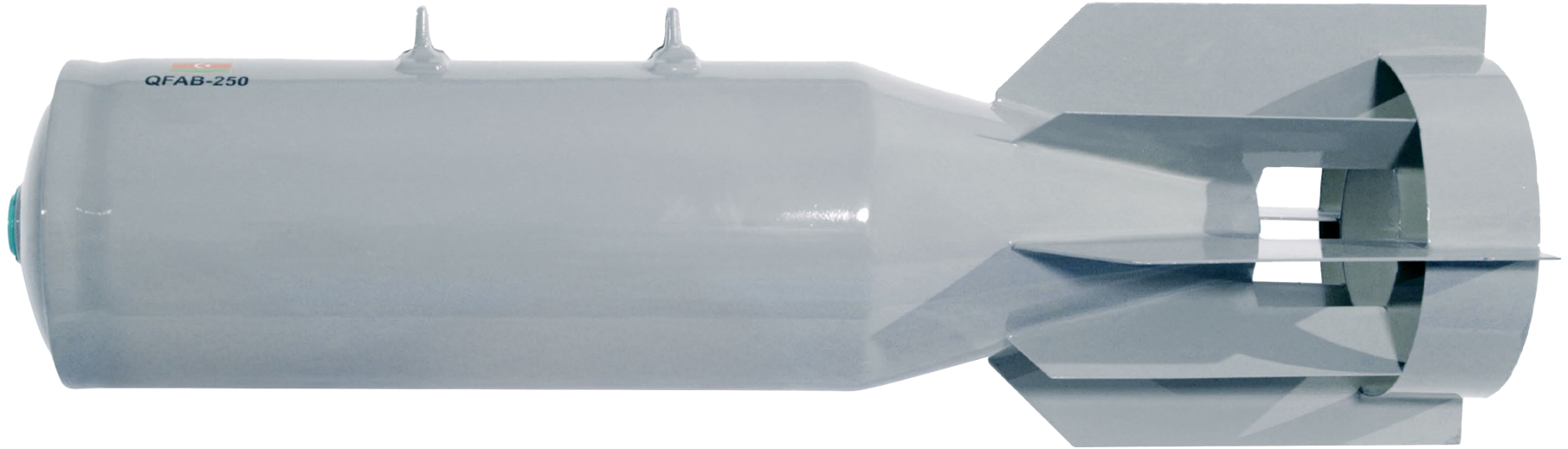
- **Fuze:** M-12
- **Body Cast:** iron
- **Explosive Filling:** TD-50
- **Number of Charges:** 1 + 6 Increment or Long Range Charges

## Ballistic Data:

- **Muzzle Velocity (max):** 272 m/s
- **Maximum Pressure:** 1030 / 1300 kgf/cm<sup>2</sup>



**AIRCRAFT  
BOMBS**



# BETAB-250

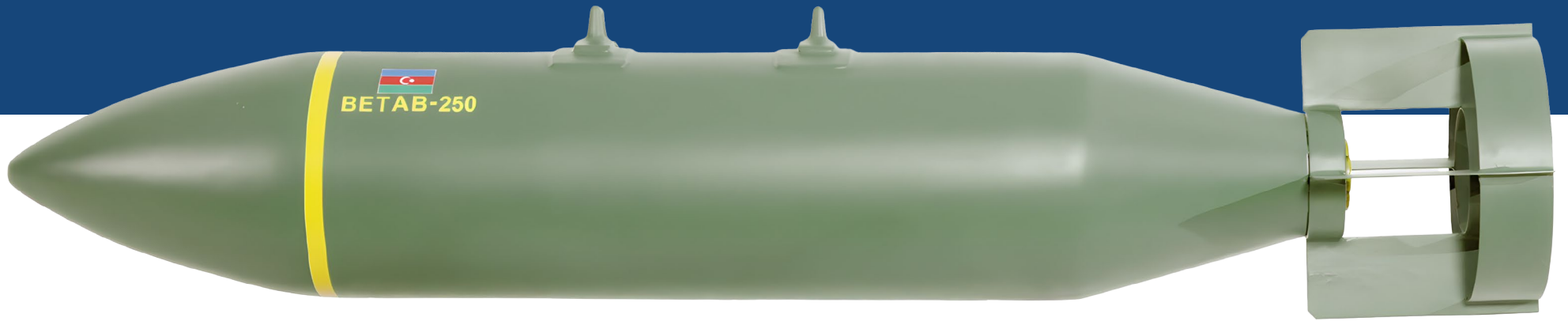
## 250 kg Free-Fall Armor Penetration Aviation Bomb

BETAB-250 is a 250 kg free-fall concrete penetration aviation bomb designed to destroy fortified enemy structures. It is specifically intended for striking concrete-covered constructions, underground depots, shelters, and armored decks of ships. The bomb delivers concentrated destructive power, capable of piercing reinforced targets at depth before detonation.

### Key Parameters:

- **Calibre:** 250 kg
- **Length:** 1608–1615 mm
- **Diameter:** 273 mm
- **Armor-penetration:** 0.4–1.1 m
- **Mass of explosive:**  $59 \pm 0.5$  kg





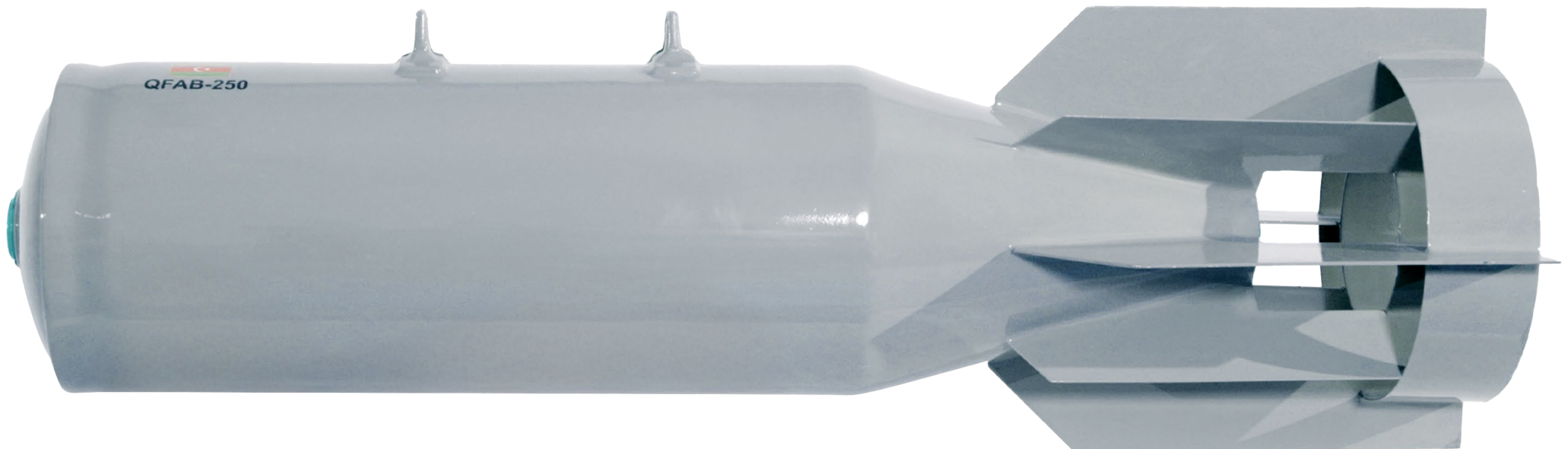
# QFAB-250

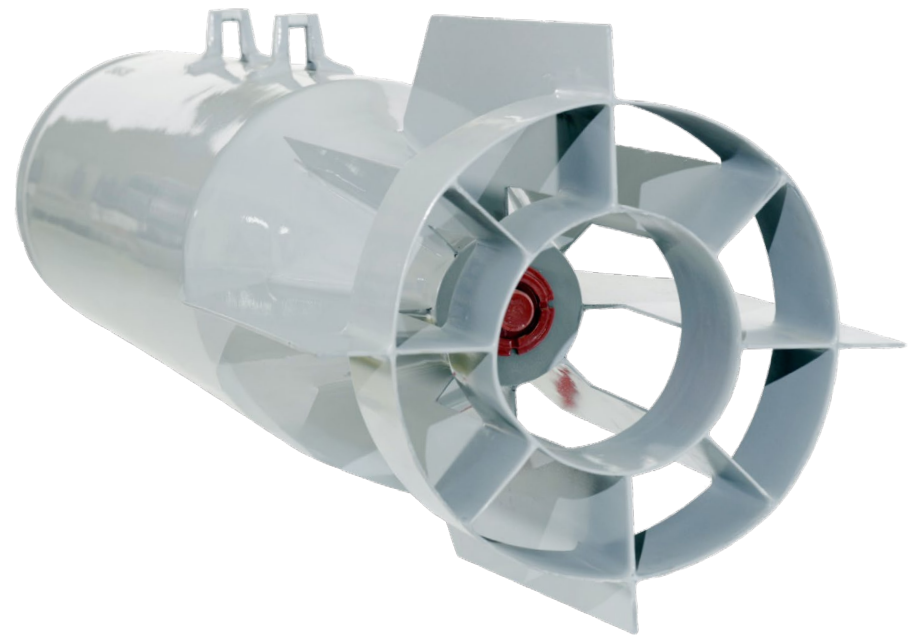
## 250 kg HE Fragmentation Aircraft Bomb

QFAB-250 LGD is a laser-guided 250 kg high-explosive fragmentation bomb with enhanced targeting precision. It is designed to destroy enemy military equipment, artillery systems, vehicles, aircraft on the aerodrome, industrial infrastructure, depots, bridges, and manpower by delivering a powerful fragmentation effect with controlled impact accuracy.

### Key Parameters:

- **Calibre:** 250 kg
- **Flying distance (maximum):** 12,000 m
- **Flight speed:** 0.71 MACH
- **Length:** 3322 ± 150 mm
- **Diameter:** 325 mm
- **Mass:** 301.5 ± 20 kg
- **Mass of explosive:** 59 ± 0.5 kg
- **Number of submunitions:** 3240 pcs
- **Deviation:** ≤10 m





# ARTILLERY ROUNDS



# High-Explosive Round M79

## 130 mm

M79 High-Explosive (HE) round is intended for defeating enemy troops, artillery, anti-missile systems, and fortifications in open terrain or shelters. It is also suitable for breaching minefields and engineering obstacles. The round is compatible with 130 mm artillery guns using either full or reduced variable powder charge cartridge cases.

Parameter	Value
Caliber	130 mm
Type	M79
Round Mass (with fuse)	33.4 kg
Explosive Charge Weight	3.668 kg
Length of Round (with fuse)	674.06 mm
Fuse	M72B1
Cartridge Case with FPC	M46
Cartridge Case with RVPC	M46
Muzzle Velocity (FPC)	930 m/s
Muzzle Velocity (RVPC)	705 m/s
Powder Charge Pressure (Pmsr)	≤3090 bar



# M86A1 High-Explosive Round

125 mm

M86A1 High-Explosive (HE) round is designed to neutralize enemy manpower, artillery systems, and field fortifications. It is fired from 125 mm artillery guns and is compatible with both full and reduced variable powder charges. The round provides extended range and destructive force under varied battlefield conditions.

Parameter	Value
Caliber	125 mm
Type	M86A1
Round Mass (with fuse)	23 kg
Explosive Charge Weight	3.312 kg
Length of Round (with fuse)	565.27 mm
Fuse	M85P1
Muzzle Velocity (FPC)	850 m/s
Maximum Firing Range	12,220 m
Powder Charge Pressure (Pmsr)	≤3432 bar



# M88 High-Explosive Round

## 152 mm

M88 High-Explosive round is designed to destroy enemy personnel, artillery positions, anti-missile systems, and field fortifications. It is also effective for clearing minefields and obstacles. Compatible with 152 mm artillery systems, the round is used with both full and reduced variable powder charges.

Parameter	Value
Caliber	152 mm
Type	M88
Round Mass (with fuse)	43.56 kg
Explosive Charge Weight	5.93 kg
Length of Round (with fuse)	710 mm
Fuse	M72B1
Cartridge Case (FPC)	M77
Cartridge Case (RVPC)	M77
Muzzle Velocity (FPC)	655 m/s
Muzzle Velocity (RVPC)	511 m/s
Powder Charge Pressure (Pmsr)	$\leq 2696$ bar



# 462A1 High-Explosive Round

122 mm

462A1 is a 122 mm high-explosive artillery round intended to destroy enemy manpower, light armored vehicles, field fortifications, and engineering structures. It is compatible with standard 122 mm artillery systems and supports both full and reduced variable propellant charges. The round is safe in storage, handling, and reliable in extreme operational conditions.

Parameter	Value
Caliber	122 mm
Type	462A1
Round Weight (with fuse)	21.76 kg
Explosive Charge Weight	3.61 kg
Length (with fuse)	565.27 mm
Fuse	M72B1
Cartridge Case	M78 (FPC / RVPC)
Muzzle Velocity (FPC)	690 m/s
Muzzle Velocity (RVPC)	565 m/s
Powder Charge Pressure (Pmsr)	≤2450 bar



# CARTRIDGE CASES



# 100 mm Steel Cartridge Case

100 mm steel cartridge case is used in artillery systems that require robust, reusable cases for firing high-caliber ammunition. Made from high-strength steel, it ensures mechanical integrity and consistent chamber pressure during repeated firing cycles.

## Parameter

Material

Weight

Total Height

Flange Diameter

Mouth Internal Diameter

## Value

Steel

8.243 ±0.64 kg

913<sup>-2.2</sup> mm

Ø147.46<sup>-0.53</sup> mm

Ø100<sup>-0.46</sup> mm



# 122 mm Steel Cartridge Case

As the workhorse of Soviet-inspired artillery systems, the 122 mm steel cartridge case forms the backbone of divisional-level firepower in howitzers like the D-30 and M-30. Its steel construction with corrosion-resistant coatings withstands the rigors of prolonged field deployment while maintaining consistent ballistic performance. The separate-loading design accommodates variable propellant charges, enabling trajectory optimization for targets at ranges between 5-15 km.

Parameter	Value
Caliber	122 mm
Material	Steel
Max diameter	147.46 mm
Typical Projectile	HE, Fragmentation, Smoke
Weight (empty)	3.66±0.18 kg
Volume	5.75dm <sup>3</sup>
Length	447 mm



# 130 mm Brass Cartridge Case

## for M-46 gun

130 mm brass cartridge case is intended for use with the M-46 field gun. Made of durable brass material, it ensures reliable sealing, structural integrity, and reusability during high-pressure artillery operations.

### Parameter

Material

Weight

Total Height

Flange Diameter

Mouth Internal Diameter

### Value

Brass

11.35 kg

846<sup>-2.2</sup> mm

Ø185<sup>-0.6</sup> mm

Ø143.33<sup>-0.53</sup> mm



# 152 mm Brass Cartridge Case

for D-20 gun-howitzer

152 mm brass cartridge case is intended for use with the D-20 gun-howitzer, providing high strength, reliable sealing, and compatibility with high-pressure charges in heavy artillery operations.

Parameter	Value
Material	Brass
Weight	10.7 kg
Total Height	857 <sup>-3,5</sup> mm
Flange Diameter	Ø223 mm
Mouth Internal Diameter	Ø190 mm



# TRAINING & DUMMY CARTRIDGES



# IM82 / IM100 / IM120 Simulation Cartridge

IM82 / IM100 / IM120 simulation cartridges are designed to imitate the sound effect of 82 mm, 100 mm, and 120 mm mortar bomb detonations during tactical training exercises. They create a realistic sonic burst to enhance the combat readiness and situational awareness of troops.

## Specifications:

- **Effect:** Sonic bang simulating 82/100/120 mm mortar bomb explosion
- **Safety Range from Detonation Site:**  $\geq 50$  m
- **Diameter:** 43 mm
- **Height:** 82  $\pm$  2 mm
- **Mass:** 140 g



# Shiras-M Simulation Cartridge

Shiras-M simulation cartridge is developed for training air and artillery reconnaissance personnel. It creates a realistic sound effect simulating an artillery shell burst, thereby enhancing situational awareness and reaction time during tactical drills.

## Specifications:

- **Safety Range from Explosion Site:**  $\geq 25$  m
- **Diameter:** 43 mm
- **Height:**  $82 \pm 1$  mm
- **Mass:**  $\leq 145$  g



**FUZES**



# UT-M88 SP Fuze

## for 23x152 mm ammunition

UT-M88 SP is a mechanical, nose, point-detonating fuze with delayed action and integrated self-destruction. It is used with 23x152 mm HEI and HEIT rounds fired from automatic guns 2A14, 2A14M, 2A7, and 2A7M, typically mounted on ZU-23-2 and ZSU-23-4 SHILKA air-defense systems. The fuze is safe in storage, handling, and operation, and provides reliable ammunition function in all weather conditions.

### Basic Characteristics:

- **Action:** PD; Delayed
- **Arming Mechanism:** Set-back and rotational forces
- **Temperature Range (Firing):** -50°C to +50°C
- **Temperature Range (Storage):** -50°C to +50°C
- **Shelf Life:** 15 years

### Technical Data:

- **Length of Fuze (max):** 52.6 mm
- **Visible Length (max):** 31.2 mm
- **Intrusion Length (max):** 21.4 mm
- **External Diameter (max):** 20.0 mm
- **Weight of Fuze:** 37 g
- **Booster Type:** A-30-T
- **Booster Weight:** 1 g
- **Thread Size:** Spec. M17.96 × 0.75cl.2a



# Fuze UT-M00 SP

for 40 mm HE grenades VOG-25

UT-M00 SP is a mechanical point-detonating fuze with super-quick action, used with 40 mm VOG-25 high-explosive grenades. It is armed by set-back and rotational forces and incorporates a self-destruct mechanism. The fuze ensures safe storage and effective operation across a wide range of environmental conditions.

## Basic Characteristics:

- **Action:** PD; Super Quick
- **Arming:** Set-back and rotational forces
- **Muzzle Safety Distance:**  $\geq 15$  m
- **Time of Self-Destruction:** 12–20 s
- **Temperature Range (Firing):**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Temperature Range (Storage):**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 10.5 years

## Technical Data:

- **Length of Fuze (max):** 58 mm
- **Visible Length (max):** 260 mm
- **Intrusion Length (max):** 32 mm
- **External Diameter (max):** 29.7 mm
- **Weight of Fuze:**  $60 \pm 1.5$  g
- **Type of Booster:** A-30-T
- **Weight of Booster:** 1 g
- **Thread Size:** Spec. M28x1-6 g



# Fuze UT-M01

## for 40×46 mm rounds

UT-M01 is a point-detonating instantaneous fuze designed for NATO-type 40×46 mm shoulder-fired grenade launchers, including RBG-type systems. It provides reliable performance across all environmental conditions and ensures rapid detonation upon target impact.

### Specifications:

- **Action:** Point Detonating
- **Self-Destruction Time:** 12–20 s
- **Shelf Life:** 15 years
- **Length of Fuze (max):** 50.5 mm
- **Thread Size:** M33×1.5-6g
- **Weight of Fuze:** 64 ±0.15 g
- **Diameter:** 39.8<sup>-0.1</sup> mm
- **Operating Temperature Range:** -50°C to +50°C



# Fuze UT-M99 SP

for 30 mm HE round VOG-17M

UT-M99 SP is a point-detonating, super quick fuze used with 30 mm high-explosive rounds VOG-17M. It arms through set-back and rotational forces at a distance and includes a reliable self-destruct mechanism. The fuze provides safe storage and consistent performance in harsh environmental conditions.

## Basic Characteristics:

- **Action:** PD; Super Quick
- **Arming:** Distant, by set-back and rotational forces
- **Muzzle Safety Distance:**  $\geq 10$  m
- **Time of Self-Destruction:** 28–36 s
- **Temperature Range (Firing):**  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Temperature Range (Storage):**  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 10.5 years

## Technical Data:

- **Length of Fuze (max):** 53 mm
- **Visible Length (max):** 27 mm
- **Intrusion Length (max):** 26 mm
- **External Diameter (max):** 29.7 mm
- **Weight of Fuze:**  $48 \pm 0.5/2$  g
- **Type of Booster:** A-30-T
- **Weight of Booster:** 1 g
- **Thread Size:** Spec. M28x1-6 g



# M-12 Fuze

## for 120 mm Mortar Ammunition

M-12 is a mechanical, nose, point-detonating fuze with selectable super-quick or delayed action, used with 120 mm High-Explosive and Smoke mortar bombs. It features a highly sensitive impact mechanism and functions effectively on solid ground, marshy surfaces, and snow. The fuze is safe in storage, handling, and ensures reliable functioning of ammunition under all weather conditions.

### Basic Characteristics:

- **Action:** PD; SQ or Delayed
- **Arming:** Set-back forces
- **Muzzle Safety Distance:** 2 m
- **Time of Delay:** 0.006 – 0.015 s
- **Temperature Range (Firing):** -40°C to +50°C
- **Temperature Range (Storage):** -40°C to +50°C
- **Shelf Life:** 15 years

### Operation Modes:

Mode Position	Function Type
“0”	Super Quick (SQ)
“3”	Delayed Action

### Technical Data:

- **Length of Fuze (max):** 121.39 mm
- **External Diameter (max):** 40.0 mm
- **Weight of Fuze:** 534 g
- **Type of Booster:** Tetryl
- **Weight of Booster:** 12.5 g
- **Thread Size:** Spec. 36.18 × 10 tpi



# M-6 Fuze

## for Mortar Ammunition

M-6 is a mechanical, nose, point-detonating fuze with super-quick action, used with 82 mm High-Explosive and Smoke mortar bombs. It ensures reliable detonation upon impact across various terrain types and is safe in storage, handling, and field conditions.

### Basic Characteristics:

- **Action:** PD; Super Quick
- **Arming:** Set-back forces
- **Muzzle Safety Distance:**  $\geq 10$  m
- **Temperature Range (Firing):**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Temperature Range (Storage):**  $-50^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- **Shelf Life:** 15 years

### Technical Data:

- **Length of Fuze (max):** 83.39 mm
- **External Diameter (max):** 40.0 mm
- **Weight of Fuze:** 168 g
- **Type of Booster:** Tetryl
- **Weight of Booster:** 6 g
- **Thread Size: Spec.**  $36.18 \times 10$  tpi



# PD-G17R2A-SQD

PD-G17R2A-SQD is mechanical, nose, point detonating fuze with selectable Super-Quick and Delay action. The fuze features highly sensitive impact mechanism and function on the solid and soft ground. Fuze has interrupted the initial chain and is safe during storage, handling and use. It ensures the safety and reliability of ammunition in all weather conditions. The Fuze completes 122 mm HE artillery rocket, launched from "GRAD" MLR system.

## Basic Characteristics:

- **Action:** "SQ" - Super-quick
- **Arming:** The fuze is armed after burning of rocket propellant by the set back forces
- **Temperature Range (Firing):** -40° C to +60° C
- **Temperature Range (Storage):** -53° C to +74° C
- **Shelf Life:** 10 years

## Packing:

Mode Position	Function Type
"0"	Super Quick (SQ)
"3"	Delayed Action

## Technical Data:

- **Safety Type:** in accordance with MIL-STD-1316 B
- **Acceleration:** min. 25 g
- **Drop safety:** 3 m
- **Environmental Effects:** in accordance with MIL-STD-331 C
- **Airtightness:** Airtight
- **Length of Fuze (max):** 195,3 mm
- **Intrusion Length (max):** 54,7 mm
- **External Diameter (max):** 64 mm
- **Thread size:** Spec. M44.96x2
- **Weight of Fuze:** 710±20 gr.
- **Weight of Booster pellet (max):** 25 gr. (FH5)
- **Thread Size:** Spec. 36.18 × 10 tpi



# UTIU M72B1

The fuze UTIU M72B1 is mechanical, point-detonating fuze located at the nose, with superquick, inertia and delay action (it can be set at superquick and delay action). It is intended for the assembling the HE projectiles in calibers 85 mm, 100 mm, 122 mm, 130 mm and 152 mm for guns and howitzers. The fuze with cap is safe for firing in snow and rain. It is safe in all conditions of transportation and handling.

## Parameter

- Action type (setting)
- Total height of fuze (mm)
- Depth of fuze intrusion (mm)
- Delay time
- Muzzle safety (m)
- Drop safety
- Action type
- Ready to act
- Safety
- Arming during axial acceleration (m/s<sup>2</sup>)
- Rotation (min-1)
- Muzzle velocity (m/s)
- Fuze mass (kg)
- Operating temperature (° C)

## Value

Superquick, delay  
Max 105.71  
Max 46.8  
Delay action (ms) 20 ÷ 50  
Min 10  
1,75 m  
Superquick, inertia and delay 0,020 to 0,050 s  
Armed (m) max 200  
Mechanical, centrifugal, pyrotechnic (ms) 100 ÷ 200  
24000 ÷ 230000  
Min 3100  
Max 1100P  
0.42  
-30 ÷ +50



# MUP-4 Mine Fuze

The MUP-4 mine fuze is an instantaneous-action anti-personnel mine fuze with a hydromechanical delay mechanism. It is designed for use with MD-2 and MD-5M type detonators, and compatible with anti-personnel mines such as OZM-72, OZM-4, POMZ-2M, PMD-6M, and PMP.

## Parameter

- Mass (plastic delay components)
- Mass (metal delay components)
- Overall dimensions
- Delay time
- Pull force (T-shaped firing pin)
- Pull force (P-shaped firing pin)

## Value

32 g  
38 g  
114 × 26 mm (max)  
1 – 30 minutes  
3.06 – 11.2 kgf  
2.04 – 2.5 kgf



**SIGNAL,  
SMOKE &  
ILLUMINATION  
DEVICES**



# Colored Smoke Can

## Signal and Warning Device

Colored Smoke Can is designed to mark disaster zones, signal positions, or provide visual alerts in various operational environments. It produces dense, vividly colored smoke for short durations and is available in multiple color options for clear visibility.

### Specifications:

- **Parameter:** Value
- **Smoke emission duration:** Not less than 30 seconds
- **Smoke colors:** Red, Green, Yellow, Purple, White
- **Height:** max 120 mm
- **Diameter:** 48 mm
- **Weight:** 185 ± 10 g



# Electric Smoke Puff Charge

Electric Smoke Puff Charge is used to simulate the sound bursts of artillery shell explosions during tactical training. It produces a distinct sonic bang at height and serves as a realistic indicator of indirect fire effects for personnel training.

## Specifications:

- **Sonic Bang Altitude:** 45–65 m
- **Range of Audibility:** Up to 2 km
- **Safe Radius:** 30 m
- **Diameter:** 64 mm
- **Height:**  $\leq 150$  mm
- **Mass:**  $415 \pm 10$  g



# Smoke Puff Charge

Smoke Puff Charge is designed to simulate the sound of artillery shell explosions during tactical exercises. It is activated by time delay and generates a loud burst to indicate indirect fire effects, enhancing the realism of training scenarios.

## Specifications:

- **Actuation Time:**  $8.5 \pm 1$  s
- **Range of Audibility:**  $\leq 2$  km
- **Safe Radius:**  $\geq 10$  m
- **Diameter:**  $33 \pm 2$  mm
- **Height:**  $70 \pm 2$  mm
- **Mass:**  $54 \pm 2$  g



# 26 mm Illumination / Signal Cartridge

## Area Illumination and Visual Signaling

26 mm illumination cartridge is designed to illuminate surrounding areas and objects within a specified perimeter, typically during night operations. It is launched from a signal pistol at an angle of 45–50°, providing a bright, short-duration light source for tactical or emergency use.

### Specifications:

- **Launch angle:** 45–50°
- **Maximum flight distance:** 120 m
- **Illumination duration:** up to 7 s
- **Illumination radius (at night):** up to 100 m
- **Length:** max 80 mm
- **Diameter:** max 26.6 mm
- **Weight:** 51 ± 2 g



# 30 mm Signal Cartridges

## Day and Night Visual Communication Device

30 mm signal cartridges are used for signaling and coordination within and between military units. Emitting bright red, green, or yellow star signals, these cartridges provide high-visibility cues suitable for both day and night operations.

### Specifications:

- **Launch angle:** 70–80°
- **Flight distance:** 150 m
- **Illumination duration:** 8–10 s
- **Visibility range (night):** up to 10 km
- **Visibility range (day):** up to 2 km
- **Luminous intensity:** 10,000 cd
- **Light colors:** Red, Green, Yellow
- **Length:** 230 mm
- **Diameter:** 32 mm
- **Weight:** 160 g



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