



# MAHARSHI DAYANAND COLLEGE GIRLS NCC UNIT

---



## ONLINE CERTIFICATE COURSE IN INFANTRY WEAPONS OF INDIAN ARMY



## ***INFANTRY WEAPONS OF INDIAN ARMY***

- Co-ordinator: -Capt Dr. Mrunalini Kulkarni
- Expert advice by: -Lt Col Amit Mohan Sharma

# COURSE OBJECTIVE:

---

- To provide information about weapons used by Indian Army Infantry in conventional war.



# INDEX

---



# UNIT- I

---

- DEFINITION
- IMPACT OF TECHNOLOGY ON WEAPONS
- WEAPON TECHNOLOGY WITH TIMELINE

## UNIT- II

---

- PISTOL
- CARBINE
- INSAS (INDIAN SMALL ARMS SYSTEM )
- LIGHT AND MEDIUM MACHINE GUNS
- SNIPER RIFLE

## UNIT- III

---

- ANTI TANK GUIDED MISSILE
- MORTARS
- AUTOMATIC GRENADE LAUNCHER
- ROCKET LAUNCHER
- ANTI PERSONNEL MINE
- ANTI TANK MINE





# UNIT- I

---

- DEFINITION
- IMPACT OF TECHNOLOGY ON WEAPONS
- WEAPON TECHNOLOGY WITH TIMELINE

# ***DEFINITION OF A WEAPON***

---

**Weapon** is an instrument used in combat for the purpose of killing, injuring, or defeating an enemy , can be operated by **mechanical power** (as with the crossbow and catapult), or by **chemical power** (as with the rockets, missiles, guns, cannons and rifles).

# TECHNOLOGY AND WEAPONS

---

- As technology has developed throughout history, weapons have changed with it.
- Major innovations in the history of weapons have included the adoption of different materials – from stone and wood to different metals, and modern synthetic materials such as plastics – and the developments of different weapon styles either to fit the terrain or to support or counteract different battlefield tactics and defensive equipment.
- Weapons have changed history and aided in the rise and fall of civilizations. For example, gunpowder, a Chinese invention, led to the development of cannons and guns—revolutionizing warfare in the Middle Ages and beyond.
- Historical timeline of the development of modern weapons starting at 1364 with the first recorded use of a firearm and ending in 1892 with the introduction of automatic handguns. Before the matchlock, guns were fired by holding a burning wick to a "touch hole" in the barrel igniting the powder inside.



# WEAPON TECHNOLOGY WITH TIMELINE

Timeline	Weapons technology
Upto 600 BC	Axe , Spear, Bow-arrow, Sword, Cestus, Boomerangs, Daggers, Sling Balls Of Rock
400BC	Ballista
672 AD	Greek Fire
1083AD	Shuriken
12 <sup>th</sup> century	Trebuchet, Gunpowder
1232AD	Chinese Rocket
13 <sup>th</sup> century	Halberd
1326AD	Cannon Firearms Technology
14 <sup>th</sup> Century	Naval Mine
Pre Columbian era	Bola, Blow Gun
1411 AD	Match Lock
1660 AD	Katar
Pre Columbian era	Bola, Blow Gun
1411 AD	Match lock



## WEAPON TECHNOLOGY WITH TIMELINE

Timeline	Weapons technology
19 <sup>th</sup> Century	Deer Horn Knives, Rockets
1861-1863 AD	Gasting Gun, Submarine, Machine Guns, Iron-clad Warship
1893	Bulletproof Vest
1909	Gun Silencer
1914AD	Poisonous Gas
1915	Fighter Plane, Tank
1942-45	Bazooka, Atomic Bomb
20 <sup>th</sup> century	Biological Agents, Cyber Warfare, Machine Guns,
1952	Hydrogen, Bomb
1953	Ray Gun
1974	Taser, Non-lethal Weapon, The Electric Stun Gun
1997	Anti-satellite Laser
2002	Drone, High-energy Laser To Shoot Down Artillery Fire, Pulsed Energy Projectile (PEP),
2007	Gun, Which Fires A Million Rounds A Minute

UNIT I

---

THE END



# QUESTIONS ON UNIT-I

---

- How is weapon technology developed over time?
- Define weapon.

## UNIT- II

---

- PISTOL
- CARBINE
- INSAS (INDIAN SMALL ARMS SYSTEM )
- LIGHT AND MEDIUM MACHINE GUNS
- SNIPER RIFLE



**INFANTRY WEAPONS -**  
**INDIAN ARMY**

# **INFANTRY WEAPONS – INDIAN ARMY**

The weapons of infantry can be divided as :-

**-Personal weapons** – one personal weapon is carried by all soldiers of infantry at all times in operations of war, either a rifle, carbine or a pistol.

**-Support weapons** – are generally crew served weapons, means which are operated by two or more soldiers. Their role is to support infantry operations.

# PERSONAL WEAPON-PISTOL 9 MM

---



# ***PISTOL 9MM***

---



**Service pistol :**

**Use :**

- for self defense
- as a backup for primary weapons.

Pistols are not typically issued to front-line infantry.



# ***PISTOL 9MM***

## **Specifications**

- Calibre: 9 mm
- Sights: Iron Sights, Front sight: blade dovetailed on the slide; rear sight: notched bar integrated into slide
- Weight: With magazine empty: 0.935 kg, with magazine loaded: 1.075 kg
- Length overall: 205 mm
- Barrel length: 120 mm
- Magazine Capacity: 13 rounds
- Ammunition used: Cartridge SA Ball 9 mm MK.2z(Parabellum)
- Rifling: 6 grooves, 1 turn in 254 mm, R.H.
- Muzzle Velocity: 396.23 m/s.
- Number of components: 54
- Range: 50 m



## **Pistol Auto 9mm 1A**

# CARBINE 9 MM

---

## CARBINE 9 MM

---



A short range personal weapon capable

Range: upto 183 m.

Operated by :spent case projection or blow back action

Firing in fully automatic or single shot modes.

Fitted with a hinged collapsible butt and may be fired with the butt in the extended or folded position.

Casing :in one piece and carries a bayonet boss at the forward end for fitting of bayonet.

# CARBINE 9 MM

SPECIFICATION :	
Calibre	9 mm
Length of the Weapon with Butt Extended	685.8 mm
Length of the Weapon with Butt Folded	482.6 mm
Weight of the Weapon with Loaded Magazine & Sling	3.82 Kgs
Weight of the Weapon with Empty Magazine	3.06 Kgs
Type of the Magazine	Box
Magazine Capacity	34 Rounds
Weight of the Empty Magazine	0.226 Kgs
Weight of Magazine (Loaded)	0.680 Kgs



# CARBINE 9 MM

Type of Sight used with Range Setting:	
Fore Sight	Adjustable Blade Type
Back Sight	Aperture Peep Type
Range Setting	91.44 meters to 182.88 meters
Effective Range	27.43 meters
Maximum Range	182.88 meters
System of Operation	Blow Back Self Loading Type
Ammunition	Cartridge SA 9 mm Ball Mk.2Z
Cyclic Rate of Firing per minute	550 Rounds
Rate of Firing Single per minute	68 Rounds
Type of Bayonet used	Blade Type
Total number of Components	109
Total number of Assy / Sub Assy.	19

# CARBINE 9 MM

<b>BARREL :</b>	
<b>Length of Barrel</b>	199.34 mm
<b>Bore Diameter</b>	H 8.890 mm, L 8.814 mm
<b>Number of Rifling Grooves</b>	6
<b>Twist of Rifling Grooves</b>	Right Hand
<b>Lead of Rifling Grooves</b>	1 turn in 250 mm

# ***INSAS (INDIAN SMALL ARMS SYSTEM ) 5.56 MM***

---

## ***INSAS (INDIAN SMALL ARMS SYSTEM )***

---



***INSAS (INdian Small Arms System )***

**INSAS** :The INSAS assault rifle is the standard infantry weapon of the Indian Armed Forces.

- A family of infantry arms consisting of an assault rifle and a light machine gun (LMG).
- Manufactured by the Ordnance Factories Board at Ordnance Factory Tiruchirappalli, Small Arms Factory Kanpur and Ishapore.



# INSAS RIFLE:



# ***INSAS STANDARD RIFLE***

---

- A gas operated assault rifle with a bayonet.
- A telescopic sight or a passive night sight can be mounted on it.
- It also has a foldable butt version.
- It has a mount point for the ARDE 40 mm under barrel grenade launcher, along with a gas-block for launching grenades and grenade iron-sights.
- The flash suppressor has a blank-firing adaptor
- **Range:** 400m ( same as semi-automatic standard INSAS rifle).
- **Mode of firing:** in single round or three-round burst mode.
- **Ammunition:** NATO-standard 5.56×45mm SS109 and M193.

An INSAS assault rifle with black furniture, incorporating **full-auto mode** was introduced later.

# ***INSAS STANDARD RIFLE***

Type	Assault rifle
Place of origin	India
Service history	
In service	1998–present
Wars	Kargil War Nepalese Civil War Naxalite–Maoist insurgency
Production history	
Designer	Armament Research and Development Establishment(ARDE)
Designed	1980s-1997
Manufacturer	Ordnance Factories Board(OFB)
Produced	1994–present
No. built	700,000—900,000

Specifications	
Mass	4.15 kg (without magazine)
Length	960 mm (37.8 in)
Barrel length	464 mm (18.3 in)
Cartridge	5.56×45mm NATO
Action	Gas-operated Rotating bolt
Rate of fire	600-650 rounds/min
Muzzle velocity	900 m/s(2,953 ft/s)
Effective firing range	400m Insas Rifle 600m Point Target Insas LMG 700m Area Target Insas LMG
Feed system	20- or 30-round detachable box magazine
Sights	In-built iron sights, mount point for telescopic or night sight

## ***INSAS LMG 5.56MM***

---



The LMG (Light Machine Gun)

Range : 700 m

Magazine capacity:30-round

20-round INSAS AR magazine

This model fires in semi and full-auto mode, It also has a foldable-butt version.



# LIGHT MACHINE GUN

---



# LMG 7.62 MM



- A light machine gun capable of delivering a high volume of fire and engaging moving ground targets.
- It is air-cooled gas operated and magazine fed for fully automatic or semi automatic fire.
- It can be fired from a bipod/tripod.
- The gun is supplied with two barrels, which may be quickly changed in the event of overheating.
- The barrels is fitted with flash eliminator and gas regulator.

# **LMG 7.62 MM**

## **PERFORMANCE:**

With standard 7.62 mm ball NATO ammunition the dispersion area will be 38.1 mm x 38.1 mm at 22.86 meters and 152.4 mm x 152.4 mm at 91.44 meters with a series of 5 shots with one elimination each in both the cases.

## LMG GUN M7.6 MM SPECIFICATIONS

Calibre	7.62 mm
Length of Weapon	1130.30 mm
Weight of Weapon with Loaded Magazine	10.35 Kgs
Weight of weapon with Empty magazine	9.64 Kgs
Type of Magazine	Box
Magazine Capacity	30 Rounds
Weight of Empty Magazine	0.40 Kgs
Weight of Loaded Magazine	1.11 Kgs
Type of Sight used with Range Setting :	
- Fore Sight	Adjustable Blade Type
- Back Sight	Adjustable Aperture Slide and Leaf Type
Range Setting	182.8 meters to 1828.8 meters
Effective Range	457.2 meters
Maximum Range	1828.8 meters
System of Operation	Gas Operated, Positive Locking



# LMG7.62 MM '1

Ammunition	Cartridge SA 7.62 mm Ball 'A'
Cycle Rate of Firing Per Minute	500 Rounds
Rate of Firing Single Per Minute	60 Rounds
Total Number of Components	143
Total Number of Assy/Sub Assy	23
BARREL :	
Length of the Barrel	538.48 mm
Bore Diameter	H 7.595 mm/ L 7.544mm
Number of Rifling Grooves	6
Twist of Rifling Grooves	Right Hand
Lead of Rifling Grooves	304.8 mm



# MEDIUM MACHINE GUN

---



# MEDIUM MACHINE GUN- 7.62 MM



A medium machine gun (MMG), in modern terms, usually refers to a belt-fed automatic firearm firing a full-power rifle cartridge.

The only difference between LMG and MMG is the that MMG has a TRIPOD for support which leads to better stabilization and is BELT – FED. The ammunition used is the same.

The stabilization enhances the effective range .

# SNIPER RIFLE

---





# *DRAGUNOV SNIPER RIFLE 7.62 MM*



- The Dragunov - semi-automatic, gas-operated rifle with a short-stroke gas-piston system.
- The barrel breech is locked through a rotating bolt (left rotation) and uses three locking lugs to engage corresponding locking recesses in the barrel extension.
- The rifle has a manual, two-position gas regulator.
- Gas regulator is used for when the rifle does not reliably cycle due to carbon fouling build-up in the gas port, when shooting in extreme cold or high altitude or using low-powered ammunition.
- Cosmetic similarities of the Dragunov with AK variant rifles.

## **DRAGUNOV SNIPER RIFLE -BARREL**

- The barrel profile :thin to save weight with chrome-lined bore for increased corrosion resistance features 4 right-hand grooves.
- Use of tracer and armor-piercing incendiary ammunition possible a faster twist rate for adequate stabilization.

The muzzle is equipped with a permanently affixed long slotted flash hider, front sight and bayonet lug which is pinned to the end of the barrel.

---

## **AMMUNITION FEEDING**

- A detachable curved box magazine with a 10-round capacity
- The cartridges are double-stacked in a staggered zigzag pattern.

# **DRAGUNOV SNIPER RIFLE- AMMUNITION:**

---

- The proprietary 7N1 load has a steel jacketed projectile with an air pocket, a steel core and a lead knocker
- Replaced in 1999 by the 7N14 round-a 151 grain projectile that travels at the same 830 m/s,
- Rifle has a sharp hardened steel core projectile can also fire standard 7.62×54mmR ammunition with either conventional, tracer or armor-piercing incendiary rounds.
- The accuracy requirements demanded of the SVD with sniper grade ammunition.



# *DRAGUNOV SNIPER RIFLE-SIGHTS*



- Mechanically adjustable backup iron sights with a sliding tangent rear sight (the iron sight line can be adjusted from 100 to 1,200 m (109 to 1,312 yd) in 100 m (109 yd) increments).
- A quick-detachable PSO-1 optical sight

The current version of the sight is the PSO-1M2.

**Effective range:** 600 to 1,300 m (656 to 1,422 yd), depending on the nature of the target (point or area target) quality of ammunition and skill of the shooter



# DRAGUNOV SNIPER RIFLE ACCESSORIES



- A blade-type bayonet(AKM clipped point or the AK-74 spear point bayonet),
- Four spare magazines,
- a leather or nylon sling, magazine pouch, cleaning kit and
- An accessory/maintenance kit for the telescopic sight.
- A cold weather battery case with a "shirt clip", with a permanently attached cord [approximately 24" long] ending with another battery case cap that has an extension to press against the internal contact in lieu of the battery to complete the circuit.
- Placing the external battery case into the shooters' clothing close to the body keeps it from freezing; using the clip ensures it remains in place.
- The clamp-style bipod attaches to machine

UNIT II

---

THE END

## QUESTIONS ON UNIT-II

---

- What are personal weapons?
- Give specifications of INSAS.

## UNIT- III

---

- ANTI TANK GUIDED MISSILE
- MORTARS
- AUTOMATIC GRENADE LAUNCHER
- ROCKET LAUNCHER
- ANTI PERSONNEL MINE
- ANTI TANK MINE



# **ANTI TANK MISSILE**

---

**MILAN AND FAGOT**

# MILAN



- A European anti-tank guided missile.
- Was accepted for service in 1972.
- It is a wire guided SACLOS (semi-automatic command to line-of-sight) missile,
- The sight of the launch unit has to be aimed at the target to guide the missile.
- The MILAN can be equipped with a MIRA or MILIS thermal sight to give it night-firing ability.

MILAN

# MILAN

- Consisting of two main components, the launcher and the missile,
- utilizes a semi-automatic command to line of sight (SACLOS) command guidance system.
- Tracks the missile either by a tail-mounted infrared lamp or an electronic-flash lamp, depending on the model.
- Because it is guided by wire by an operator, the missile cannot be affected by radio jamming or flares.
- Drawbacks include its short range, the exposure of the operator, problems with overland powerlines, and a vulnerability to infrared jammers such as Shtora that can prevent the automatic tracking of the missile's IR tail light.

# MILAN



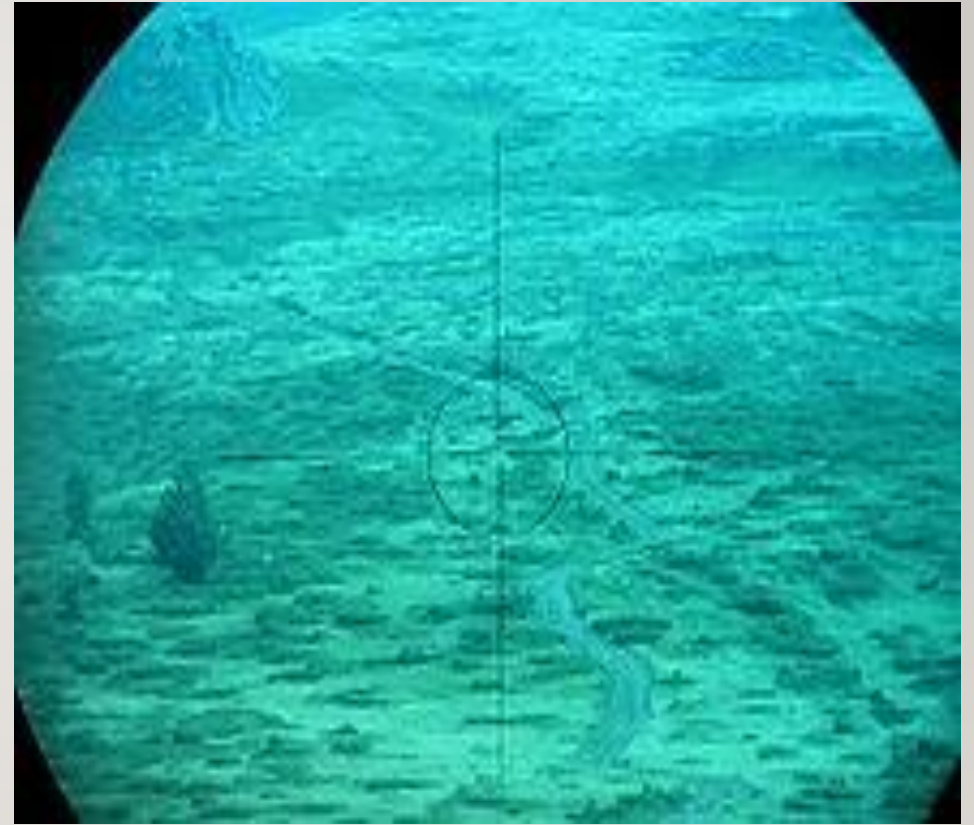
**MILAN 1 missile.**

- The MILAN 2 variant, which entered service with the French, German and British armies in 1984, utilizes an improved 115 mm HEAT warhead.
- The MILAN 3 entered service with the French army in 1995 and features a new-generation localizer that makes the system more difficult to jam electronically.





*MILAN II with stand-off probe which almost doubled penetration*



*View through MILAN optical sight*

# MILAN

- **MILAN 1:** Single, main shaped charge warhead (1972), calibre 103 mm
- **MILAN 2:** Single, main shaped charge warhead, with standoff probe to increase penetration (1984) calibre 115 mm
- **MILAN 2T:** Single main shaped charge, with smaller shape charge warhead at end of standoff probe to defeat reactive armour (1993)
- **MILAN 3:** Tandem, shaped charge warheads (1996) and electronic beacon
- **MILAN ER:** Extended range (3,000 m) and improved penetration

The later MILAN models have tandem HEAT warheads.

The smaller precursor HEAT warhead penetrates and detonates the ERA tiles, paving the way for the main HEAT warhead to penetrate the armour behind.

## MILAN Specifications

Mass	16.4 kg
Length	1.2 m
Diameter	0.115 m
Warhead	Single or tandem HEAT
Detonation mechanism	contact
Engine	solid-fuel rocket
Wingspan	0.26 m
Operational range	200–2,000 m; 3,000 m (MILAN ER)
Speed	200 m/s
Guidance system	SACLOS wire
Steering system	Jet deflector
Launch platform	Individual, vehicle



# **FAGOT**

- The **9K111 *Fagot*** (is a second-generation tube-launched SACLOS wire-guided anti-tank missile system of the Soviet Union for use from ground or vehicle mounts.
- Developed by the Tula KBP Design Bureau for Instrument Building. "9M111" is the GRAU designation of the missile.
- Its NATO reporting name is **AT-4 Spigot**.





# **FAGOT-DESCRIPTION**



- The missile is stored and carried in a container/launch tube.
- It is fired from a **9P135** launcher post, a simple tripod. A **9S451** guidance box is fitted to the tripod with the missile sitting just above.
- The **9Sh119** sight is fitted to the left side (from the gunner's POV). The complete launcher system weighs 22.5 kg (50 lb).
- The gunner lays prone while firing.
- The system can engage moving targets travelling at less than 60 km/h (37 mph).
- The launcher post can traverse through 360 degrees horizontally, and +/- 20 degrees in elevation.
- The sight has a magnification of 10x and a 5 degree field of view.
- Up to three missiles a minute can be fired from a launcher post.

## **FAGOT-LAUNCHER**

- **9P135** 22.5 kg (50 lb). Can only fire the **9M111** *Fagot* series.
- **9P135M** Can fire the **9M111** *Fagot* (NATO: AT-4 *Spigot*) series as well as the **9M113** *Konkurs* (NATO: AT-5 *Spandrel*) series missiles.
- **9P135M1** Updated version of the 9P135.
- **9P135M2** Updated version of the 9P135.
- **9P135M3** Deployed in the early 1990s. Adds 13 kg (29 lb) TPVP thermal imaging night sight – range 2,500 m (8,200 ft; 1.6 mi) at night.
- **9S451M2** A launcher with a night sight featuring an anti-dazzle system has been developed.

## **FAGOT-SPECIFICATIONS**

Mass	12.5 kg (28 lb) (Missile weight) 22.5 kg (50 lb) (9PI35 launching post)
Length	1,100 mm (3 ft 7 in)
Diameter	120 mm (4.7 in)
Action	400 mm versus RHA or 200 mm towards armour inclined at 60°
Rate of fire	3 rds / min
Muzzle velocity	80 m/s (180 mph; 290 km/h) at launch 186 m/s (420 mph; 670 km/h) in flight speed
Effective firing range	70–2,500 m (230–8,200 ft)
Warhead	High Explosive Anti-Tank (HEAT) warhead
Warhead weight	1.7 kg (3.7 lb)
Guidance system	SACLOS wire-guided missile



# **MORTARS**

---

***MORTAR 51 MM & 81MM***



# **MORTAR 51 MM**

## **Specification :**



A light weight, simple and effective artillery equipment at the disposal of the Platoon Commander and operable by one man.

Calibre of barrel plain dia	51.18 mm L 51.28 mm H
Weight of Barrel	2.14 kgs
Weight of Breech base Assy	2.74 kgs
Weight of Mortar complete	4.88 kgs
Length of Barrel	540 mm
Firing Pin Protrusion	3.5 mm H Provisional 2.9 mm L Provisional
Type of firing Mechanism	Percussion; trip action
Muzzle Velocity	107 m/s (Provisional)
Rate of fire	Normal 8 R.P.M. Intense 12 R.P.M.
Range	Maximum – 850 M Minimum – 200 M

## **MORTAR 51 MM**

---

- Ammunition for the 51 mm mortar has a small, ring-pull safety pin on the side of the nose-fuze. The fuze remains unarmed until the pin is withdrawn. Therefore, the safety pin must always be removed and discarded before a mortar shell is fired. A short range insert device allows the weapon to be used in a direct fire mode. Smoke, illuminating and high explosive bombs are available.
- The 51 mm mortar replaced the World War II-vintage 2 inch mortar in the late 1980s. It was due to be phased out by the use of the 40 mm L17A2 UGL (underslung grenade launcher) mounted on the L85A2; however operational experience has led to the decision to replace it with a 60mm Mortar. The Hirtenberger AG M6-895 60 mm Mortar was procured in 2007 as an Urgent Operational Requirement (UOR) to replace the current 51 mm Mortar on current operations.

# ***81MM MORTAR***



The United Kingdom's **L16 81mm mortar** is the standard mortar used by the British armed forces. It originated as a joint design by the UK and Canada. The version produced and used by Australia is named the **F2 81mm Mortar**, whilst the version used by the U.S. armed forces is known as the M252.



## ***81MM MORTAR*** Specifications

Mass	combat 35.3 kg (78 lb)
Barrel length	1,280 millimetres (50 in)
Crew	3
Caliber	81 millimetres (3.2 in)
Action	muzzle loading
Breech	none
Recoil	baseplate and spring buffered mounting clamp
Rate of fire	15 rpm, 1–12 rpm sustained, 20 rpm for short periods
Muzzle velocity	225 m/s (740 ft/s)
Effective firing range	HE: 100–5,675 m (109–6,206 yd) Smoke: 100–5,675 m (109–6,206 yd) Flare: 400–4,800 m (437–5,249 yd)
Maximum firing range	5,650 m (6,180 yd)
Feed system	Manual
Sights	Optical (C2) with Trilux illumination





**View down the smoothbore barrel of the L16 mortar.**



**L16 baseplate**



**L16 C2 sight.**

# 81MM MORTAR

---

- The weapon can be man-packed by the mortar detachment, in which case the ammunition would be carried by other soldiers of the battalion. In addition to their normal equipment, each soldier would carry four bombs in a pair of two-bomb plastic containers (known as *greenies* in the British Army).

- **Used in Wars:**

Nepalese civil war

Borneo, South Arabia, Oman

Vietnam War

Falklands War

Indo-Pakistani War of 1971

Balkans, Kuwait, Iraq, Afghanistan



# **AUTOMATIC GRENADE LAUNCHER**

**AGS-30**

---



# AGS-30

The **AGS-30 *Atlant*** is a Russian-designed automatic grenade launcher currently in production in the Russian Federation and in service with the Russian armed forces.



**AGS-30**

Service history	
In service	1995–present
Wars	Second Chechen War 2008 South Ossetia war Syrian Civil War War in Donbass Yemeni Civil War (2015–present) Saudi Arabian-led intervention in Yemen

# **AGS-30**

## **DESCRIPTION**

---

- provides better mobility, longer range and better accuracy during firing.
- Weighs 30 kg when loaded
- Has specially designed **GPD-30** grenade
- Has adjustable **SAG-30** tripod mount (GRAU index **6P17**)
- Recoil is lessened with a much smoother grenade ejection mechanism
- Range: 2100m.



**AGS 17**



**AGS 30**



# ***AGS-30***

## ***DEVELOPMENT***

---

- AGS-17 grenade launcher used in Afghanistan,
- The new design proved to be reliable and lethal.
- Stays undetectable by the enemy- due to reduced sound when firing, reduced flash and the lightning speed of the grenade
- Can be operated from almost everywhere—from attaching it to a window, to mud and grassy surfaces.
- Officially adopted in 2002 by the Russian Interior Ministry Troops.



## **AGS-30 A DESCRIPTION**

- It is fed from special belt drums that hold 29 linked rounds.
- Weight of Loaded belt drum: about 14 kg.
- Spade grips are installed on a gun cradle integral to the tripod the trigger is located on the right spade grip for controlled and comfortable firing.
- Firing mode-full automatic modes.
- Standard sighting equipment -2.7X magnification **PAG-17** optical sight.
- AGS-30 uses standard VOG-17M, enhanced fragmentation VOG-30, VOG-30D and extended range GPD-30 grenades.
- EXPLOSIVE MATERIAL USED:-
  - VOG-17M (HE)
  - IO-30 (HE)
  - IO-30TP (Practice)
  - VOG-30 (HE)
  - VOG-30D (HE)
  - VUS-30 (Smoke)
  - GPD-30 (HE)

# AGS-30

## 30 MM AUTOMATIC GRENADE LAUNCHER SYSTEM - 30



### Specifications

Mass	16 kg unloaded
Length	1,165 mm
Cartridge	30 × 29 grenade
Caliber	30 mm
Action	Blowback
Rate of fire	400 round/min
Muzzle velocity	185 m/s
Effective firing range	2,100 m
Feed system	29 grenades belt
Sights	Adjustable telescopic sight, day-night sight, mechanical sight, portable radar

# **ROCKET LAUNCHER**

## **84MM RL**

---





# ROCKET LAUNCHER 84 MM

## 84 MM ROCKET LAUNCHER



- The 84 mm RL Rocket Launcher is a recoilless gun which is intended primarily as an antitank weapon but is also well suited for other roles such as attacking armoured personnel carriers, pill-boxes, machine gun posts and troops in the open.
- An ideal all purpose weapon for every direct fire task.



# 84MM RL

Practical firing ranges:

## **HEAT**

**( High Explosive Anti Tank)Shell at a moving target upto 400 metres / 450 yards**

**HEAT Shell at a stationary target up to 500 metres / 550 yards**

**HE ( High Explosive) Shell up to 1000 metres / 1100 yards**

**Smoke Shell up to 1300 metres/ 1400 yards**

**Flare Shell up to 2100 metres/ 2300 yard**

Practical rate of fire :About 6 rounds per minute

The gun and ammunition have very good anti-corrosive properties both being manufactured to ensure safe functioning over a wide climatic and temperature range.

## 84MM RL Specifications

Length of Gun	1130 mm
Length of barrel	856 ± 0.9mm
Bore Dia	L 83.95mm
	H 84.1mm
Number of Grooves	24
Twist	Right Hand
Pitch of rifling	5d- 07'- 45" At Muzzle end
	3d- 20'- 0" At chamber end
Weight of Gun	14.2 Kgs
Weight of Barrel	8.5 Kgs
System of operation	Trigger Pulling
Rate of Fire	6 R P M
Max range on sights	Heat Shells : 400 metres moving , 500 metres stationary
	H E Shells : 1000 metres
	Smoke Shells : 1300 metres
	Flare Shells : 2100 metres
Type of Feed	Manual

# ***ANTI PERSONNEL MINES***

---

***M18 CLAYMORE & M14 MINE***

# ***M18 CLAYMORE MINE***

- A directional anti-personnel mine developed for the United States Armed Forces.
- Fired by remote-control and shoots a pattern of metal balls into the kill zone like a shotgun.
- Can also be victim-activated by booby-trapping it with a tripwire firing system for use in area denial operations
- Fires steel balls, out to about 100 m (110 yd) within a 60° arc in front of the device
- Used primarily in ambushes and as an anti-infiltration device against enemy infantry
- Also used against unarmored vehicles
- **Range of 100 m (110 yd), with a hit probability of around 10% on a prone man-sized 1.3-square-foot (0.12 m<sup>2</sup>) target. The fragments can travel up to 250 m (270 yd)The fragments can travel up to 250 m (270 yd). The optimum effective range is 50 m (55 yd), at which the optimal balance is achieved between lethality and area coverage, with a hit probability of 30% on a man-sized target.**





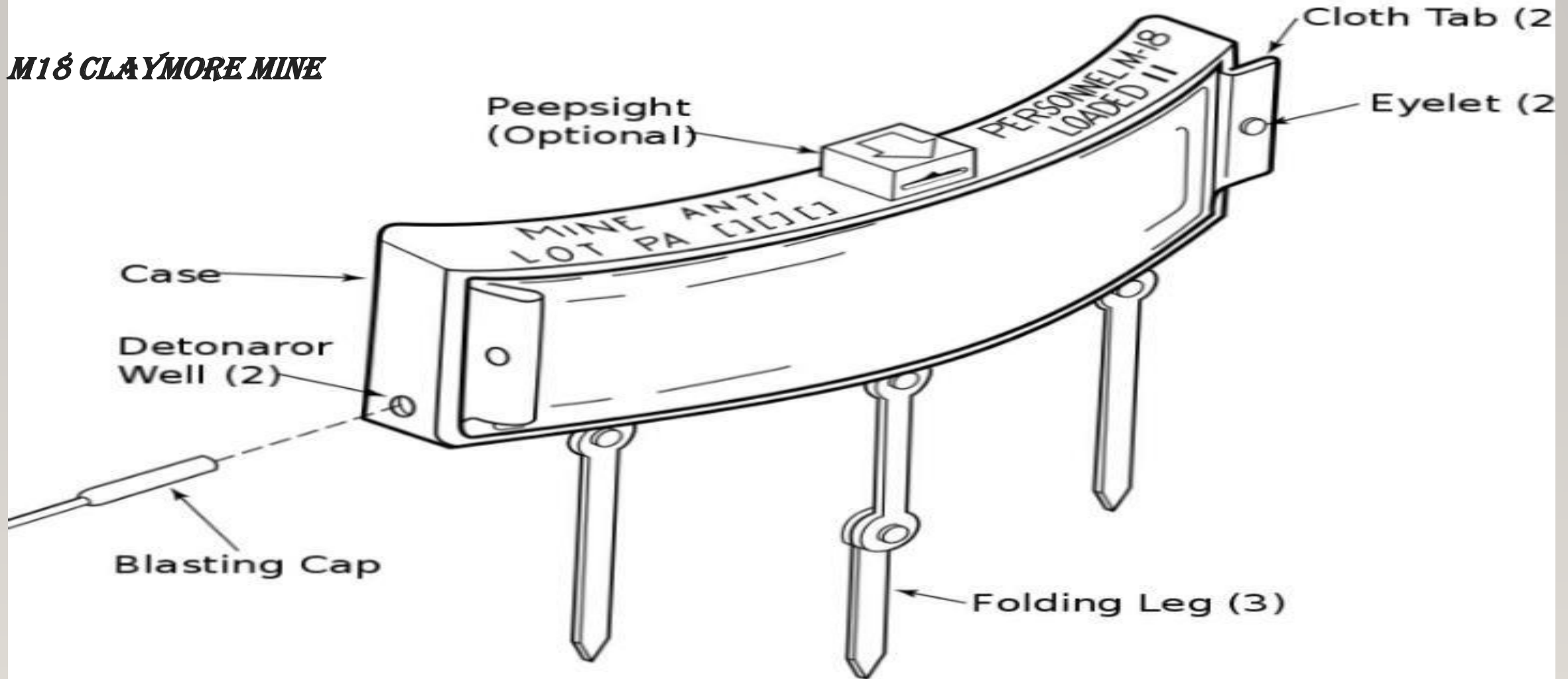
***M18A1 CLAYMORE MINE***

## Specifications

Mass	3.5 lb (1.6 kg)
Length	216 mm (8.5 in)
Width	38 mm (1.5 in)
Height	124 mm (4.9 in)
Caliber	$\frac{1}{8}$ -inch (3.2 mm) steel balls, c. 700 per unit
Muzzle velocity	3,995 ft/s (1,218 m/s)
Effective firing range	50 m (55 yd)
Maximum firing range	250 m (270 yd)
Sights	Peep sight on early models, later a knife edge sight
Filling	C-4
Filling weight	680 g (24 oz)
Detonation mechanism	Blasting Cap Assembly M4

# Throner, Kennedy, Bledsoe, and Kincheloe at Aerojet

## M18 CLAYMORE MINE





## ***M18 CLAYMORE MINE***

Technical challenges to overcome included developing a case to contain the corrosive C-3 explosive that would be durable enough to withstand months of field handling in wide temperature ranges. Using dyes to test various plastics for leaks, they found a suitable plastic called Durex 1661½, which could be easily molded into a case.



# ***M14 MINE***



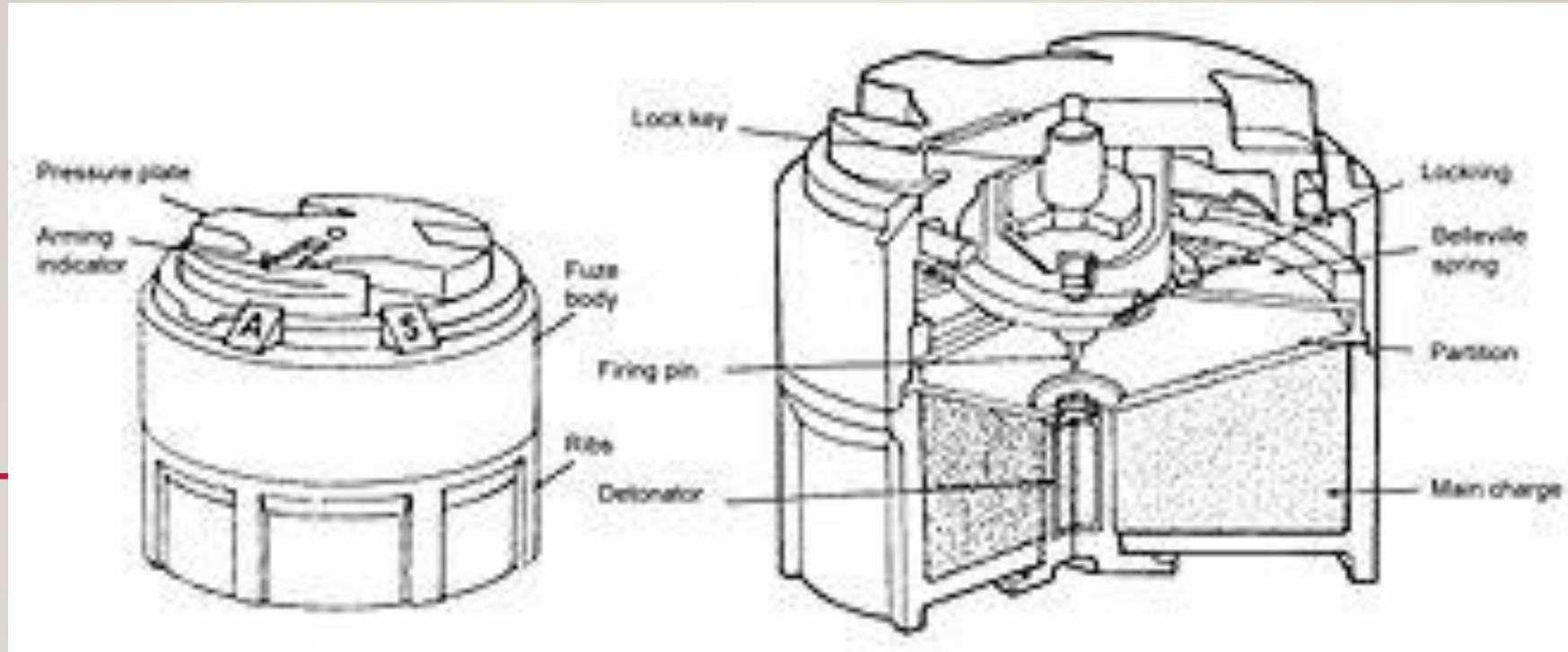
M14 mine with safety clip fitted. The U-shaped safety clip (with green pull-cord attached) and location of the yellow arrow on the pressure plate indicate that this mine has not been armed



## ***M14 MINE***

- The **M14 mine** "Toepopper" is a small (56 mm [2.2 in] diameter) anti-personnel land mine first deployed by the United States circa 1955.
- The M14 mechanism uses a belleville spring to flip a firing pin downwards into a stab detonator when pressure is applied.
- Once deployed, the M14 is very difficult to detect because it is a minimum metal mine, i.e. most of its components are plastic.
- Because of this, the design was later modified to ease mine clearance via the addition of a steel washer, glued onto the base of the mine

# ***M14 MINE***



An M14 mine, showing a cutaway view. The absence of a U-shaped safety clip and the location of the arrow on the pressure plate clearly shows that this mine has been armed

## ***M14 MINE***

- The 29 grams of high explosive in an M14 mine is quite small because it is specifically designed to disable victims, not kill them.
- It usually destroys a significant part of the victim's foot, thereby leading to some form of permanent disability regarding their gait.
- The explosive charge in an M14 is slightly cone shaped (like a shaped charge) focuses most of the blast upwards, increasing its destructive effects.
- In situations where M14 victims are barefoot or wearing sandals (e.g. in Burma), the wounds are more severe.
- Due to the relative simplicity of the firing mechanism, the M14 mine is not resistant to blast-clearing methods

# ***M14 MINE***

## ***Specifications***

Weight: 108 grams

Explosive content: 29 grams (1 ounce) of Tetryl

Diameter: 56 mm

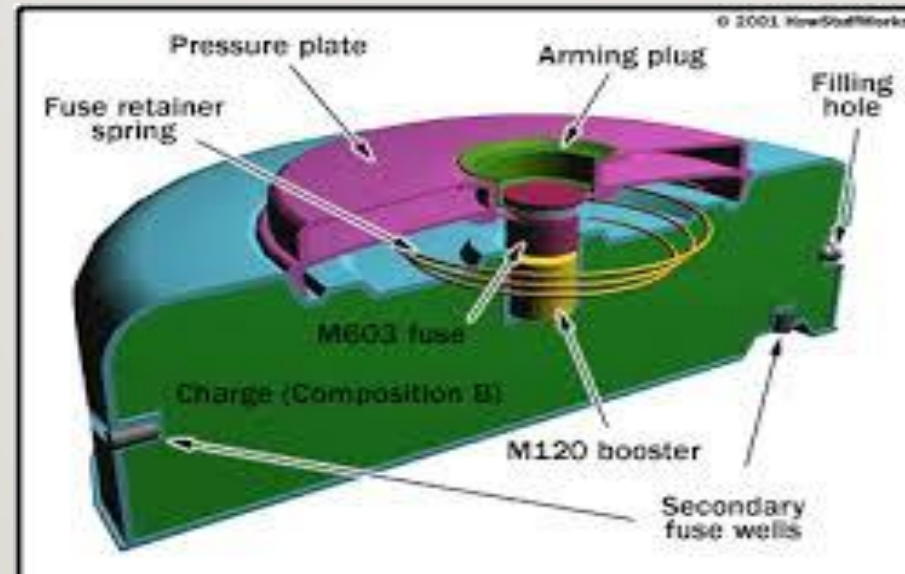
Height: 40 mm

Operating pressure: 9 to 16 kilograms



# ***ANTI TANK MINES***

All **anti-tank mines** are blast **mines**, because the goal of the **anti-tank mine** is to destroy the **tank's** tracks and as much of its body as possible. There's no need for a bounding or fragmentation **anti-tank mine**. They contain a main charge of TNT.



UNIT III

---

THE END

## QUESTIONS ON UNIT-III

---

- What are antitank missiles? Explain development of MILAN?
- Explain working of M14 mine.
- What is a MORTAR? What are their possible uses?

**THANK YOU**