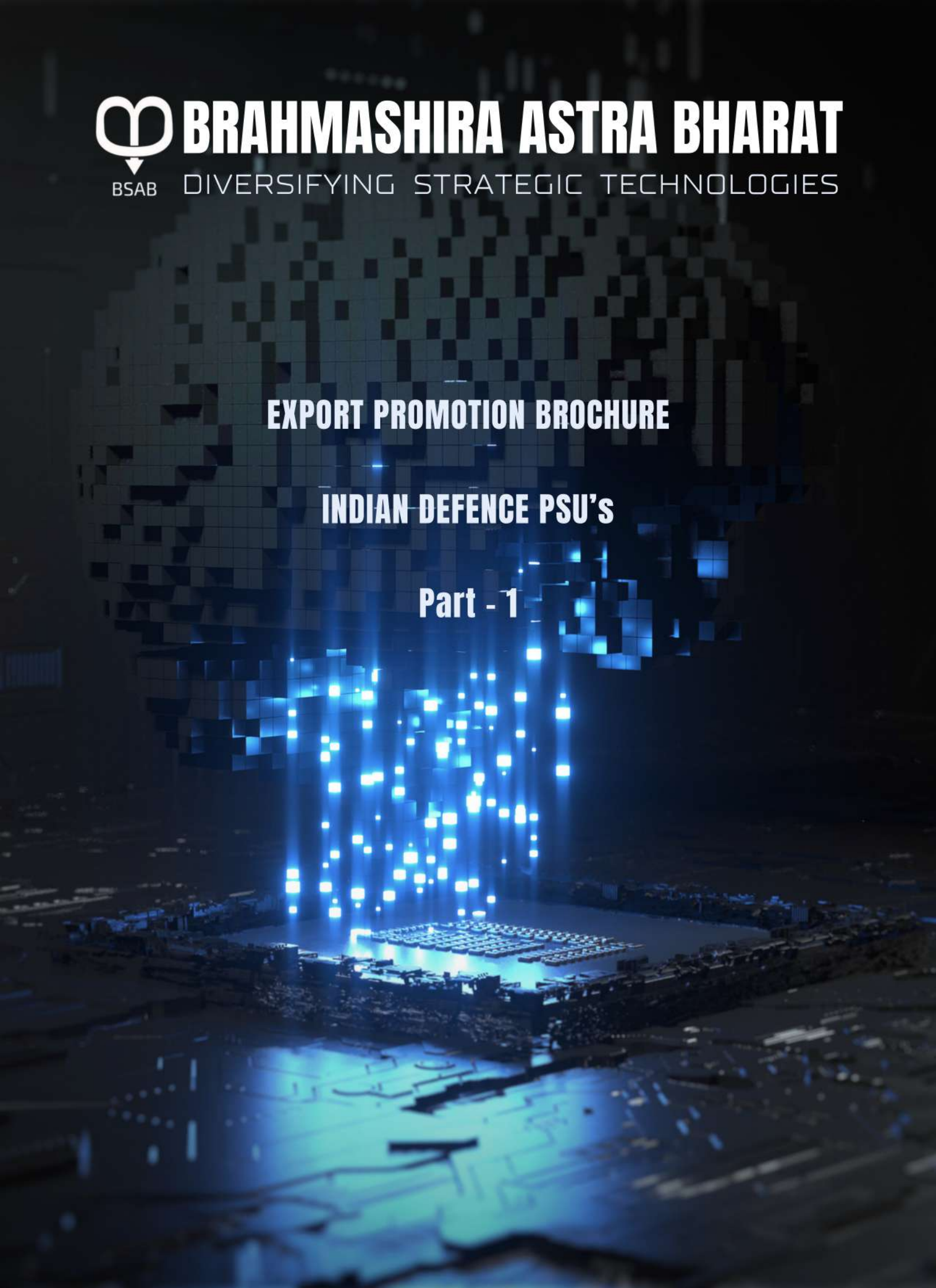
BRAHMASHIRA ASTRA BHARAT

BSAB DIVERSIFYING STRATEGIC TECHNOLOGIES

EXPORT PROMOTION BROCHURE

INDIAN DEFENCE PSU's

Part - 1



- Quantum leap in Exports
- Over 95% Indigenisation
- Strong technological base

SMALL ARMS AMMUNITION

Cartridge
0.22" Ball

Cartridge
SA 5.56X 45MM
M-193

Cartridge
5.56X45MM
SS109/M855

Cartridge
SA 7.62 X 39MM
Ball

Cartridge
SA 7.62 X 51MM
Tracer

Cartridge
SA 9X19MM Ball

Cartridge
SA 12 BORE 70MM
Plastic Astram

Cartridge
SA 12.7MM
API

Cartridge
SA 14.5MM
TAPD

MEDIUM CALIBER AMMUNITION

Cartridge
20 mm
AMR HEI

Cartridge
20 mm
AMR SAPHEI

Cartridge
20 mm
AMR TP

BMP-II 30mm
HE/I, AP/T, HE/T

40 mm HE

40 mm HEDP

40 mm RP

40 mm
P (PRF)

Multi Mode
Hand Grenade

Cartg.
40 mm
L /70

Cartg.
40 mm
L/60

LARGE CALIBER AMMUNITION

Shell 155 mm
HE ERFB BT

Shell 155 mm
HE ERFB BB

Shell 155 mm
Illuminating ERFB

Shell 155 mm
HE M77 B

Shell 155 mm
Screening
Smoke ERFB

Shell 155 mm
HE M 107

Charge 9

Charge 8

Charge M4A2

BMCS M91 & M92

RCL & TANK AMMUNITION

84 mm
Smoke 469 C

84 mm
TPT 65

84 mm
Heat 651

84 mm
HE 441B

84 mm
Illg 545

84 mm
Heat 751

84 mm
HEDP 502

Round 120mm
FSAPDS

Round 120mm
HESH T 1A

Shell 125 mm
HE 1A

125 mm
FSAPDS

125 mm
SCCC

Shell 125 mm
Heat 1A

MORTAR BOMB

51mm
HE

51mm
Smoke

51mm
Illuminating

81mm
HE

81mm
Smoke

81mm
Illuminating

120mm HE

120mm Smoke

120mm
Illuminating

PINAKA

Pinaka MK - I

Guided Pinaka

Pinaka - MK - II

NAVY AMMUNITION

Cartg. 30mm
AK 630
HE/I & PRAC.

Cartg. 76/62 mm
SRGM - 1

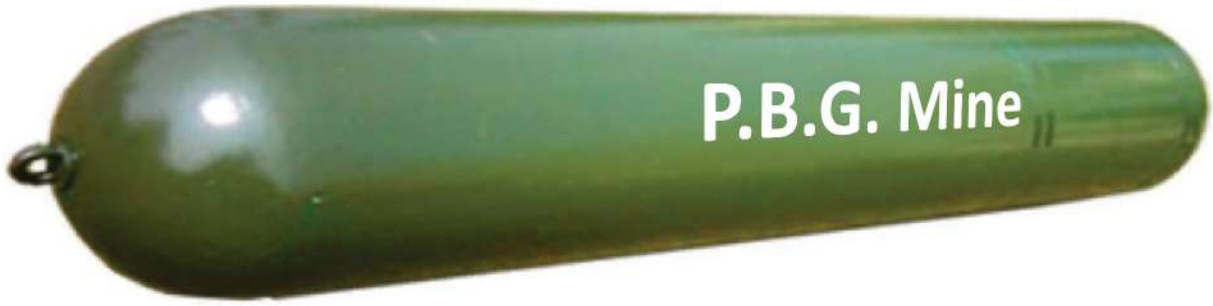
SRCR

MRCR
Chaff Rocket

LRCR

Mine Maindeka

RGB 60 Rocket



P.B.G. Mine

AIR FORCE AMMUNITION

Aerial Bomb 100-120 Kg

Aerial Bomb 250 Kg

Aerial Bomb 1000 Lbs

Aerial Bomb 450 Kg

68mm Rocket
HE/HC/ Practice

Aerial Bomb 500 Kg

EXPLOSIVES & PROPELLANTS

DNT

TNT

HNS

RDX_TNT

RDX_WAX

TETRYL

PETN

PICRITE

NAVAL AMMUNITION

CARTG 30MM AK-630 HEI/HET/PRACTICE

The Indigenous 30mm ammunition for AK 230 gun has the following three variants:

a) Cartridge 30 mm HE — Rounds with HE Shell and Nose fuze DASD (Direct Action and Self - destruction)

b) Cartridge 30 mm PRACTICE — Round with inert shell and PRF (Plug Representing Fuze)

c) Cartridge 30 mm TRACER — Round with tracer shell and ballistic cap

SPECIFICATIONS

Gun Mount	AK 230
Caliber	30mm
Muzzle Velocity	890 $^{\pm 15}$
Rate of Fire	4000 to 5000 rounds / minute
Weight of Cartridge	830 gms
Length	289.45 to 292.84mm
Range	4 Km Slant, 5 Km by reverse post
Target	Air borne target (It can also be used against surface targets)

CARTRIDGE OF 40MM L/60 NAVAL

- It is anti aircraft ammunition mounted on Bofors or similar automatic guns.

SPECIFICATIONS

Total length of ammunition	447 mm
Total mass of ammunition	2.1 kg
Mass of Projectile	0.9 kg
Propellant (ACM)	0.4 kg
Muzzle velocity	869 + 10 m/sec
Rate of fire	120 rounds per minute
Maximum range @45"	9830 meters
Armor class 'B' Penetration from 5500 meters	11 mm

CARTG 76.2MM NAVAL HE AND PRACTICE

This Ammunition is designed to fight against enemy Aircraft / ships from Warship. It is made in two versions. Cartg. 76.2 mm HE Fuzed with variable time fuze for combat purpose and Cartg. 76.2 mm Practice used for practice purpose.

SPECIFICATIONS

Total length of Ammunition	815.5 mm
Total Mass of Ammunition	15.30 kgs (Approx.)
Weight of Projectile (Filled) and with PRF	5.9 kgs (Approx.) ± 0.045 kg
Propellant	Triple Base Propellant NA2P/M 109
Muzzle Velocity	994.5 m/s
Rate of firing	90 Rds/min
Maximum Range	6900 m (approx.)

CARTG 76.2MM NAVAL HEPF

SPECIFICATIONS

Total Length of Ammunition	815.5 mm
Total Mass of Ammunition	13.10 kgs to 13.40 kgs (approx)
Weight of Projectile with fuze	5.9 kgs ±0.045 kgs
Type of fuze	Radio proximity or Direct Action
Muzzle velocity	983 ± 10 m/s
Pressure	4250 ± 80 Kg/cm 2
Prop. Of charge mass	2.895 kgs
Volume of Cartg case	3800 C.C.
Wt of Cartg case	3.580 kgs
Rate of Firing	
- AK 176	90 rds / min
- AK 726	180 rds / min
Max Range	15.5 km

CARTG. 76/62 SRGM

SPECIFICATIONS

Mass of Round	12.5 Kg (nominal)
Length of Round	907mm
Muzzle velocity	905+/- 5 M/sec, Sd Not More Than 3 M/sec
Pressure	3792 Kg/sq Cm [305 Mpa (mean)]
Max. Pressure At 60°C	3975 Kg/sq Cm
Range	16000m
Dispersion Over 500m At +21°C	< 1m Vertically & 1m Horizontally
Rate of Fire	**120 RPM**
Components	
Cartg Case	70/30 Brass
Propellant	**Single Base Smokeless**

KAVACH/ CHAFF ROCKETS

- Used as soft kill missle counter measure or defence system
- Designed for dispensing Chaff payload at designated ranges

SPECIFICATIONS

Parametere	KAVACH ROCKET		
	1	2	3
	SRCR	MRCR	LRCR
Caliber	98.00mm	105.00mm	105.00mm
Muzzle velocity	80m/s	450m/s	450m/s
Range	**1500m**	2000m	**10000m**

SRCR MRCR LRCR

RGB 60 ROCKET

- Rocket is used against under water target
- Fuze YDB-60 is used in Anti-Submarine Rocket RGB-60.
- Time Mode:- by timer mechanism at preset depth
- Direct Action mode : On striking the target
- Sympathetic mode: activated by shock waves due to explosion of adjacent anti-submarine Rocket.

SPECIFICATIONS

Diameter	0.212 m
Length	1830 mm
Explosive	Torpex 4 -A
Range	350 m to 5500 m
Fuze	YDB 60
Motor	2 stage
Rate of sinking	11.5 m/s
Launcher	RBU - 6000 (Russian System) & Indian indigenous Rocket Launcher
Length of Fuze	361mm
Max. Diameter of Fuze	135mm
Weight of Fuze	6.5 kg

MINE MAINDEKA

SPECIFICATIONS

Diameter	310 mm,
Height	135 mm
Weight	6.00 kgs
Explosive weight	810 gms
Type of explisive	RDX/TNT 60:40 TYPE B
Arming Delay	
- Mechanical	Max. 25 Minutes
- Electronic	Max. 9999 min. in steps of one minute.
Max. Operating Depth	50 meters.
Adhesivebility	Upto 8 knots
Shelf life	15 years
Buoyance in water	100 to 350 gms (Negative)

SMALL CALIBER AMMUNITION

1. Cartridge
   SA 5.56 x 45 mm
   M-855/SS-109
2. Cartridge
   SA 5.56 x 45 mm
   M193
3. Cartridge
   SA 7.62 x 39 mm Ball
4. Cartridge
   SA 7.62 x 51 mm
   NATO M-80 Ball
5. Cartridge
   SA 7.62 x 51 mm
   NATO Tracer M-62
6. Cartridge
   SA 7.62 x 51 mm
   Linked Ammunition
7. Cartridge
   SA 7.62 x 51 mm
   Marksman
8. Cartridge
   SA 7.62 x 54 R mm
   Steel Core
9. Cartridge
   SA 9 x 19 mm
10. Cartridge
    RIM FIRE .22" BALL
11. Cartridge
    SA 12.7 x 108 mm
    API
12. Cartridge
    SA 14.5 mm
13. Cartridge
    20 mm AMR
    TP
14. Cartridge
    20 mm AMR
    TPT
15. Cartridge
    20 mm AMR
    HEI
16. Cartridge
    20 mm AMR
    SAPHEI

CARTRIDGE

SA 5.56 x 45 mm

M-855/SS-109

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 15 years	5.56mm 57.4 ±0.5mm 12.8 gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope steel insert and lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile Weight	4.0 gm
Muzzle Velocity	910 ± 10m/s (at 25m from muzzle)
Consistency	165 mm (at 457 m)
Penetration	Max 3.45 mm mild steel plate at 700 m
Chamber Pressure Avrg.(Max)	342 Mpa
Operating Temp.	-52°C to 72°C

CARTRIDGE

SA 5.56 x 45 mm

M193

CARTRIDGE	Calibre	5.56mm
	Length	57.4±0.5mm
	Mass	12. 5 gm
	The shelf life of ammunition is 15 years	
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile Weight	3.62 gm (-0.12)
Muzzle Velocity	964 ± 10m/s (at 24m from muzzle)
Consistency	25 mm (at 100 m) and 51 mm at (182 m)
Chamber Pressure Avrg.(Max)	359 Mpa
Operating Temp.	-54°C to + 52°C

CARTRIDGE

SA 7.62 x 39 mm BALL

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 15 years	7.62 mm 56.00 mm 18.60 gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope steel insert and lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile Weight	7.95±0.1 gm
Muzzle Velocity	700 ± 20m/s (at 25m from muzzle)
Consistency	300 mm (at 300 m)
Penetration	Max 3.45 mm mild steel plate at 400 m
Chamber Pressure Avrg. (Max)	288 Mpa
Operating Temp.	-40°C to 52°C

CARTRIDGE

SA 7.62 x 51 mm

NATO M-80 BALL

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 18 years	7.62 mm 71.10 mm 25.40 gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.65 gm
Muzzle velocity	817±9 m/s (at 23.7 m from muzzle)
Consistency	190 mm (at 550m)
Penetration	Max 3.45mm mild steel plate at 550m
Chamber Pressure Avg (Max)	348 MPa
Operating Temp.	-54°C to + 52°C

CARTRIDGE

SA 7.62 x 51 mm

NATO TRACER M-62

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 10 years	7.62 mm 71.10 mm 25.08 gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.46 gm
Muzzle velocity	817±9m/s (23.8m from muzzle)
Consistency	Max 38 cm at 550 m
Tracer	777.2 m bright crimson red trace
Chamber Pressure Avg.(Max)	348 Mpa
Operating Temp.	-40^{0} C to $+52^{0}$C

CARTRIDGE

SA 7.62 x 51 mm

LINKED AMMUNITION

Technical Details
For Technical details refer NATO Ball M-80 & NATO Tracer M-62 specification

The ammunition is available in following versions
- Ball M80: TCR M62 (4:1) Belt ammunition with M 13 Links
- Straight Belt Ball (M 80) ammunition with M 13 Links

PACKING DETAILS					
Mode of Packing	No. of Rds.	No. of Rds. Per box	No. of Rds. Per carrier	Box Type & Size (mm)	Carrier Type & Size (mm)
Cartg. 7.62mm BALL & TCR Sequence Belt	(188 Ball Rds+ 47 TCR Rds) 235/ Belt	235 (Links)	940	H5A (255 x 182 x 90)	7A/L (428 x 300 x 206)
Cartg. 7.62mm BALL Straight Belt	235/Belt	235 (Links)	940	H5A (255 x 182 x 90)	7A/L (428 x 300 x 206)

CARTRIDGE

SA 7.62 x 51 mm

MARKSMAN

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 18 years	7.62 mm 71.1 mm 26.276 gm
CASE	Rimless, Brass 70:30 Bottle Necked, Boxer	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile weight	10.90 gm
Muzzle velocity	740±15 m/s (at 23.8 m from muzzle)
Consistency	max 3cm (at 100m)
Chamber Pressure Avg.(Max)	360 Mpa (Avg. Chamber pressure)
Operating Temp.	-52^{0} C to $+72^{0}$C

CARTRIDGE

SA 7.62 x 54 R mm

STEEL CORE

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 18 years	7.62 mm 77.16 mm 25.40 gm
CASE	Rimless, Brass 70:30 Bottle Necked, Boxer	
BULLET	Guilding Metal envelope Steel insert and lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.60 gm
Muzzle velocity	820-835 m/s at a distance 25m from muzzle
Consistency	15 cm or less at 300 m (R-50)
Penetration	3.5 mm steel plate at 400 m
Chamber Pressure Avg.(Max).	284 Mpa
Operating Temp.	-52^{0} C to $+72^{0}$C

CARTRIDGE

SA 9 x 19 mm BALL

CARTRIDGE	Calibre	9 mm
	Length	29.69 mm
	Mass	11.94± 0.65gm
	The shelf life of ammunition is 7 years	
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	NC 688	
PRIMER	Berdan with VH2/E1 Composition	

PERFORMANCE CHARACTERISTIC	
Projectile weight	7.45 (± 0.13 gm)
Muzzle velocity	397±15 m/s (at 18 m from muzzle)
Consistency	75.2 mm Mean FoM at 45m
Chamber Pressure	Avg (Max) 201 Mpa
Individual	215 MPa
Operating Temp.	-52^0 C to +72^{0}C

CARTRIDGE

0.22" BALL (LONG RANGE)

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 10 years	0.22" 25 mm (approx) 3.370 gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	3 N 36 or SPA I	
PRIMER	Rim Fire	

PERFORMANCE CHARACTERISTIC	
Projectile Weight	2.6 gm
Muzzle Velocity	305 ± 23m/s (at 9m from muzzle)
Consistency	95% within 3/4" dia (19 mm) Circle Mean Figure of Merit at 23 m
Chamber Pressure Avrg.(Max)	22 Mpa
Operating Temp.	-52°C to 72°C

CARTRIDGE

SA 12.7 x 108 mm

API

CARTRIDGE	Calibre Length Mass The shelf life of ammunition is 7 years	12.7 mm 147.50 mm 137gm
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Bimetallic envelope with Steel core in lead sleeve along with incendiary composition	
PROPELLANT	Ball Powder 4/7	
PRIMER	Berden	

PERFORMANCE CHARACTERISTIC	
Projectile weight	49 gm
Muzzle velocity	817 m/s (at 25 m from muzzle)
Consistency	R50- 180 mm (at 300 m)
Penetration	20 mm armor plate at 100 m
Chamber Pressure Avg.(Max).	304 Mpa
Operating Temp.	-52^{0} C to $+72^{0}$C

CARTRIDGE

14.5 mm ATA

FOR ARTILLERY TRAINING AMMN

PERFORMANCE CHARACTERISTIC		
Mass of complete round	67 9	
Length	65 mm (Approx.)	
Mass of projectile	59 + 1 g	
Mass of propellant	**Velocity**	**Range**
Charge I - 0.25 g (Approx.)	115 ± 4 m/s	894 m
Charge II - 0.28 g (Approx.)	125 ± 4 m/s	994 m
Charge III - .33 g (Approx.)	135 ± 4 m/s	1146 m
Hazard Classification	1.4 S	

Chamber Pressure

- The average chamber pressure must not exceed 1300 bar at 294 K ± 2 K.

Function

- Point Detonation

CARTRIDGE

20 mm AMR

TP

TECHNICAL DATA	
Extraction of projectile	4.0 to 9.0 KN
Mass of projectile	110± 3 g
Weight of complete round	206 ± 6g
Length of round	146.6 ± 1mm

PERFORMANCE	
Muzzle velocity	720 ± 20 m/s
Pressure	275 MPa
Range	1500 meters

Weapon
Anti Material Rifle system.

Salient Features
Use for Training & Practice Purpose

CARTRIDGE

20 mm AMR

TPT

TECHNICAL DATA	
Extraction of projectile	4.0 to 9.0 KN
Mass of projectile	110 ± 3g
Weight of complete round	206 ± 6g
Length of round	146.6 ±1mm

PERFORMANCE	
Muzzle velocity	720 ± 20 m/s
Pressure	275 MPa
Range	1500 meters
Tracer timing	>2 sec

Weapon
Anti Material Rifle system.

Salient Features
The Accommodation of tracer gives visibility of trajectory.

CARTRIDGE

20 mm AMR

HEI

TECHNICAL DATA	
Extraction of projectile	4.0 to 9.0 KN
Mass of projectile	104.5 ± 5g
Weight of complete round	200 ±10g
Length of round	146.6 ±1.0mm

PERFORMANCE	
Muzzle velocity	720 ± 20 m/s at 21° ± 2°C

Weapon
Anti Material Rifle system.

Salient Features
20 mm AMR SAPHEI Ammunition is a high explosive incendiary round, with Base Fuze designed for firing from Anti material rifle.
This ammunition is intended for deployment against targets which include anti-personnel, sniper role. This can also be used against radar installation, communication equipment, parked air craft and fuel storage facilities.

CARTRIDGE

20 mm AMR

SAPHEI

TECHNICAL DATA	
Extraction of projectile	4.0 to 9.0 KN
Mass of projectile	106.5 ± 5g
Weight of complete round	206 ±10g
Length of round	146.6 ±1.0mm

PERFORMANCE	
Muzzle velocity	720 ± 20 m/s
Pressure	275 MPa
Range	1500 meters
Penetration	15 mm fixed RHA plate at 90 m, angle of impact 90

Weapon
Anti Material Rifle system.

Salient Features
- Used against high value targets at extended ranges which include Radar installations, Communication equipments, parked air craft and fuel storage facilities.
- This ammunition has mechanical impact fuze (Based fuze).

GRENADE

GRENADE 40mm HEAP

Technical Specification:

- Mass of Round :240gm
- Length, Max: 104mm
- Mean Muzzle Velocity: 76 ± 3 m/s
- Effective Mean Range: 375m
- Functioning Temperature: -20°C to +45°C
- Fuze: PIBD (Point Initiating Base Detonation)
- Fuze arming distance: 8m to 28m
- Accuracy at 75m: Within 0.95m x 0.95m
- Lethality radius: 5m
- Shelf-life: Min 10 Years
- Reliability 90%

Application:

- Used against personnel and soft targets.
- Fired from 40mm MGL/UBGL Weapon

GRENADE 40mm HEDP

Technical Specification:

- Mass of Round: 240gm
- Length, Max: 104mm
- Mean Muzzle Velocity: 76 ± 3 m/s
- Effective Mean Range: 375m
- Functioning Temperature: -20°C to + 45°C
- Fuze arming distance: 8m to 28m
- Accuracy at 75m: Within 0.95m x 0.95m
- Penetration : 50mm Armour /65 mm MS Plate
- Lethality radius: 5m
- Shelf-life: Min 10 Years
- Reliability 90%

Application:

- Used for Anti personal, Anti Armour (Penetration) & anti-fortification capabilities.
- Fired from 40mm MGL/UBGL Weapon

GRENADE 40mm RED PHOSPHOROUS

Technical Specification:

- Mass of Round :240gm
- Length, Max: 104mm
- Mean Muzzle Velocity: 76 ± 3 m/s
- Effective Mean Range: 375m
- Functioning Temperature: -20°C to +45°C
- Fuze: PIBD (Point Initiating Base Detonation)
- Fuze arming distance: 8m to 28m
- Accuracy at 75m: Within 0.95m x 0.95m
- Lethality radius: 1.5m
- Shelf-life: Min 10 Years
- Reliability 90%

Application:

Used for spreading smoke screen particles over a wide area and igniting the readily combustible material. It is extremely effective for the cleaning of trenches, bunkers & building. Fired from 40mm MGL/UBGL Weapon

GRENADE 40mm PRACTICE PRF

Technical Specification:

- Mass of Round: 240gm
- Length, Max: 104mm
- Main Charge: Inert
- Mean Muzzle Velocity: 76 ± 3 m/s
- Effective Mean Range: 375m
- Functioning Temperature: -20°C to + 45°C
- Fuze: Plug representing fuze
- Accuracy at 75m: Within 0.95m x 0.95m
- Shelf-life: Min 10 Years

Application:

- Projectile hits the target without any explosion.
- The version is used for practice purpose.
- Fired from 40mm MGL/UBGL Weapon

GRENADE 40MM HE WITH SELF DESTRUCTION

Technical Parameters :

• Calibre	40 mm
• Maximum Range	400 m
• Maximum Length	102 mm
• Weight of Round	250 g
• Weight of Explosive	40 g
• Explosive used	RDX WAX (95:05)
• Type of Fuze	Direct action with SD mechanism
• Arming distance	10 m-40 m
• Casualty Radius	7 m
• Muzzle velocity	76 m/s
• Self-destruction time	14 secs to 19 secs
• Operating conditions	-20 °C to +55 °C
• Weapon	40mm UBGL (EX OFT), 40mm MGL(Ex SA) & (Ex OFT), 40mm UBGL (Ex Arsenal), 40mm UBGL (Ex Israel).
• Shelf life	Minimum 10 yrs
• Reliability	90%

MULTI MODE HAND GRENADE

Key Features

Grenade Body :

• length	140mm
• Maximum diameter	63mm
• Diameter of the blast cup	46mm
• Mass of RDX/TNT (60:40)	92±2 gm
• Mass of the fragmenting sleeve	230 gm (approx.)
• Length of the fragmenting sleeve	77 ± 0.5mm
• Total number of fragments	4000 (approx.)
• Material (Fragmenting sleeve)	MS fragments in plastic matrix
• Mass of each fragment	45±5 mg
• Total mass of fragments	170 gm (approx.)

GRENADE ACTIVE TRAINING SYSTEM (36ATS)

FOR HAND GRENADE 36M

The 36 ATS has been specially designed for Training / Practice purpose. It is ideal for handling & lobbing by fresh recruits as we as veterans without exposure to dangers of high explosive practicing. grenades. The 36 ATS Grenades is made out of real grenade body and striker mechanisms thus for all practical purpose.

Technical Specification:

- Made of Original Components of Grenade 36M.
- Sound and delay matched with 36M.
- Hand / Rifle application.
- Field Serviceable
- Repeated use.
- Safe for Training / Practice
- Only Detonator is consumable
- Non-Lethal / No fragments even if drops nearby.

GRENADE 36 HE

- Hand thrown & Non-lethal ammunition
- Reusable (up to 6 throw)

Technical Parameters

- Grenade body : Cast iron
- Delay time of ATS Grenade: 4.00 to 5.5 sec
- Mass of Round : 680 g
- Main Charge : HES
- Detonator : 4 Sec delay (Polycoated)
- Dentity: with colour yellow

Prospective Users :

- Military Training Academy / Institute of Armed Forces
- MHA / Police Units.
- Para Military Forces.

HAND GRENADE 36 M (ATS) - TRAINING PURPOSE

- An anti-personnel ammunition of fragmentation type, Hand thrown.
- Ranges from 23 to 27 m.
- Effective radius of 27.5m.

Technical Parameters

Grenade body	Cast iron, segmented externally for better Fragmentation
Explosive	TNT
Detonator	4 second delay (hand grenade)
Mass of grenade	Hand - 680 g

MORTAR AMMUNITION

MORTAR AMMUNITION

MORTAR BOMB 51MM HE

PURPOSE :

Mortar Bomb 51 mm HE is designed for use as Area Targeted / Anti-personnel.it explodes immediately on impact and effictive against troops,soft skinned vehicles and light shelters.It is muzzle loaded and fin stabilized Bomb at low muzzle velocity employed for high angle fired in a short span of time.It is fired from 51 mm Mortar Weapon.

CHARACTERISTICS :

• Mass of the Filled Bomb	850 g
• Maximum dia	50.7 ± 0.1 mm
• Filling type (Standard)	TNT
• Length of Bomb with Fuze & Tail Unit	282.96 mm
• Filling mass	215 ± 5g
• Fuze	Mechanical Fuze
• Shelf Life	10 years

PERFORMANCE :

• Muzzle velocity	101 m/s ± 10
• Range	1000 m

PACKAGES :

Packing consists of inner and outer packages. Inner packages are HDPE/ LDPE containers. 6 such containers are packed in canvas bag with shoulder strap. Canvas bags are then packed in wooden box.

MORTAR BOMB 51 MM SMOKE

PURPOSE :

Bomb 51 mm smoke is an emission type screening smoke ammunition capable of producing effective screen over wide area. Used for facilitating tactical deployment of troops and screening from enemy fire. Bomb is fired from 51 mm mortar, smooth bore, muzzle loading weapon. Ammunition is provided with delay unit of 10 sec. to facilitate emission of the smoke just on landing on the ground.

CHARACTERISTICS :

• Mass of the Filled Bomb	960 ± 25 g
• Maximum dia	50.85 mm
• Filling type (Standard)	Hexachloroethane based composition
• Length of Bomb with Fuze & Tail Unit	282 ± 1mm
• Filling mass	500 g (approx.)
• Colour of smoke	White
• Shelf Life	10 years
• Hazard Division	1.2 G

PERFORMANCE :

• Muzzle velocity	110 m/sec
• Range	830 m
• Duration of screening smoke	120 Sec. min
• Time required to build up smoke	10 Seconds

PACKAGES :

Packing consists of inner and outer packages. Inner packages are HDPE/ LDPE containers. 6 such containers are packed in canvas bag with shoulder strap. Canvas bags are then packed in Steel Box.

MORTAR BOMB 51 MM ILLG

PURPOSE :

Bomb 51 mm Illuminating belongs to the family of Illuminating ammunition extensively used to support night warfare. The bomb provides enough illumination to support infantry for combats, aerial photography and army movements. Bomb is fired from 51 mm mortar, smooth bore, muzzle loading weapon.

CHARACTERISTICS :

• Mass of the Filled Bomb	930 ± 25 g
• Maximum dia	50.7 -0.1 mm
• Length of Bomb	283 ± 2mm
• Filling mass	215 g (approx.)
• Shelf Life	10 years
• Hazard Division	1.2
• Compatibility	G

PERFORMANCE :

• Muzzle velocity	115 ± 2.5 m/s
• Range	300 to 900 meters
• Height of burst	600 m. (Optimum)
• Time of burning	30 Sec.(min)
• Area of illumination	600 m (radius)
• Luminosity	2.5 Lakh Candela (min)

PACKAGES :

Packing consists of inner and outer packages. The inner package is HDPE/LDPE container. 6 such containers are packed in a canvas bag with shoulder strap. 4 bags are then finally packed in a Steel Box.

MORTAR BOMB 81 MM HE

PURPOSE :

Mainly used for firing at troops in the open and enemy assembly areas, which cannot be engaged by flat trajectory. Very effective for counter mortar task and enemy position on reverse slope of mountains.

CHARACTERISTICS :

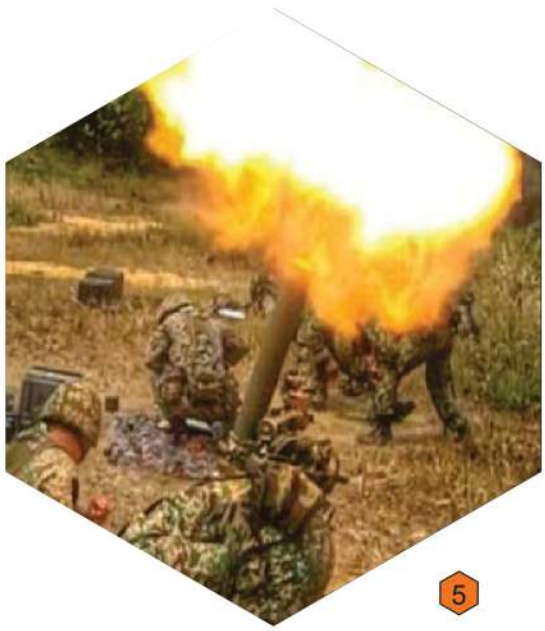
• Mass of the Filled Bomb	4.4 kg ± 0.125 kg
• Maximum dia	80.8 mm
• Filling type (Standard)	TNT Grade 1 E
• Length of Bomb with Fuze & Tail Unit	379 mm (Max.)
• Filling mass	705 ± 5g
• Fuze	Mechanical Fuze
• Shelf Life	10 years

PERFORMANCE :

• Muzzle velocity	305 m/s ± 10
• Range	5000 m

PACKAGES :

Two Bombs are Packed in one Plastic Carrier. Further Two plastic Carriers are Packed in One Steel Carrier.



MORTAR BOMB 81 MM SMOKE

PURPOSE :

Basically, a smoke type screening Ammunition. Achieves a dense smoke screen for facilitating tactical deployment of troops and screening from enemy observation and aimed fire.

CHARACTERISTICS :

• Mass of the Filled Bomb	4.31Kg to 4.51 Kg
• Maximum dia	80.80 mm
• Filling type (Standard)	Plasticized White Phosphorous
• Length of Bomb with Fuze & Tail Unit	379 mm approximately
• Filling mass	0.500 ± 0.025 kg
• Fuze	Mechanical Fuze
• Colour of smoke	White
• Shelf Life	10 years

PERFORMANCE :

• Muzzle velocity	300 m/sec
• Range	5000 Meters
• Duration of screening smoke	25 Seconds
• Time required to build up smoke	5 Seconds

PACKAGES :

Two Bombs are Packed in one Plastic Carrier. Further Two plastic Carriers are Packed in One Steel Carrier.

MORTAR BOMB 81 MM ILLG

PURPOSE :

It is an illuminating Mortar Ammunition. It is fired from 81mm mortar, smoothbore, muzzle loading weapon. On firing, the gas pressure from the Primary Cartridge and Augmenting Cartridges propel the Bomb. The explosive charge contained in magazine of the fuze ignites the Buster Bag which in turn ignites the star / Candle through hole provided in the metallic disc (Baffle Plate) placed below.

CHARACTERISTICS :

• Mass of the Filled Bomb	3.85 kg
• Maximum dia	80.6 - 0.1mm
• Length of Bomb	552 mm
• Filling mass	743 gm (approx)
• Fuze	Mechanical Fuze
• Shelf Life	10 years
• Hazard Division	1.2
• Compatibility Group	G
• Fire Fighting	2

PERFORMANCE :

• Muzzle velocity	321m/s
• Range	4800 m
• Height of burst	600 m. (Optimum)
• Time of burning	40.0 sec. (min)
• Area of illumination	600 m (radius)
• Luminosity	9 Lakh Candela (min)

PACKAGES :

Packing consists of inner & outer packages.
The inner package is HDPE/LDPE carrier which accommodates 2 bombs. 2 such packages are then put in a carrier

MORTAR BOMB 120 MM HE

PURPOSE :

Mainly used for firing at troops in open areas and enemy assembly areas which cannot be engaged by flat trajectory weapons, very effective for counter mortar task and enemy position on reverse sloped mountains.

CHARACTERISTICS :

• Mass of the Filled Bomb	13.4 Kg
• Maximum dia	119.6 mm
• Filling type (Standard)	TNT 1E
• Length of Bomb with Fuze & Tail Unit	674.64 mm approximately
• Filling mass	2.488 kg ± 0.08 Kg
• Fuze	Mechanical Fuze
• Shelf Life	10 years

PERFORMANCE :

• Muzzle velocity	335 m/sec approximately
• Range	Not less than 6500 Meters

PACKAGES :

One Bomb Packed in Container 63A Further Two Containers 63A Packed in Steel Box B7A

MORTAR BOMB 120 MM SMOKE

PURPOSE :

Basically, a smoke type screening Ammunition. Achieves a dense smoke screen for facilitating tactical deployment of troops and evading from enemy firing.

CHARACTERISTICS :

• Mass of the Filled Bomb	13.5 Kg
• Maximum dia	119.6 mm
• Filling type (Standard)	Plasticized White Phosphorous
• Length of Bomb with Fuze & Tail Unit	674.64 mm approximately
• Filling mass	1.700±0.025kg
• Fuze	Mechanical Fuze
• Colour of smoke	White
• Shelf Life	10 years

PERFORMANCE :

• Muzzle velocity	335 m/sec
• Range	6500 Meters
• Duration of screening smoke	25 Seconds
• Time required to build up smoke	5 Seconds

PACKAGES :

One Bomb Packed in Container 63A Further Two Containers 63A Packed in Steel Box B7A

MORTAR BOMB 120 MM ILLUM

PURPOSE :

Bomb 120mm illuminating belongs to the family of illuminating ammunition used extensively to support night warfare and aerial survey. The bomb is fired from 120 mm Mortar, smooth bore, Muzzle Loading Weapon. The bomb is provided with Time Mechanical Fuze which function along the trajectory at the pre-set time enabling illuminate canister supported by parachute to eject an deploy in the air.

CHARACTERISTICS :

• Mass of the Filled Bomb	13.05 kg ± 0.20 kg
• Maximum dia	119.6mm
• Length of Bomb	677 mm (max)
• Filling mass	1.030 Kg (approx)
• Fuze	Mechanical Fuze
• Shelf Life	10 years
• Hazard Division	1.2
• Compatibility	G

PERFORMANCE :

• Muzzle velocity	330 ± 4.30 m/s
• Range	6000 m
• Height of burst	600 m. (Optimum)
•Time of burning	40.0 sec. (min)
• Area of illumination	600 m (radius)
• Luminosity	10 Lakh Candela (min)

PACKAGES :

Packing consists of inner and outer packages. Inner packages are LP containers with steel end caps. Two such container bombs are packed in steel box

84 mm RCL
AMMUNITION

ROUND 84 mm HEAT - 751

Tandem shell provided with both penetrating precursor and main charge of hollow- charges type resulting damage in targets with or without Explosive Reactive Armour (ERA). The shell is provided with rocket motor. The Piezoelectric fuze system based on shock wave communication grants function both at large impact to the normal and in targets, provided with protective armour grids, protruding corners etc.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	760 mm
Total mass of ammunition	3.8 kg
Mass of projectile	2.9 kg
Propellant (ACM)	0.4 kg
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15 gm
Explosive filling in Projectile	0.7 Kg.
Explosive filling in fuze	0.410 gm
Net explosive content	1.215 kg
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	210 m/s
Range	500 meters

ROUND 84 mm HEDP - 502

Designed to be used against light concrete & bricks walls and light armored vehicles. The shell has a follow charge warhead filled with cast HMX/TNT which gives good residual effect against armored targets. The Fuze system is designed in such a way that depending on the orientation when loading, the shell will act with instantaneous or delayed function.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	437mm
Total mass of ammunition	3.3 kg
Mass of projectile	2.5 kg.
Propellant (ACM)	0.3 kg
Explosive filling in primer (cap)	0.14 gm
Explosive filling in Igniter	10 gm
Explosive filling in Projectile	0.6 kg
Explosive filling in fuze	6.19 gm
Net explosive content	1 kg
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	225 m/s
Range	500 meters

ROUND 84 mm HEAT 551

The 84mm HEAT Round FFV-551 is designed to be fired in the 84mm RCL CARL-GUSTAF MK-III weapon system. It is a recoilless, multipurpose, man portable light weapon for direct fire. This High Explosive Anti Tank (HEAT) ammunition is intended for use against all types of Armoured Vehicles fitted with protective devices such as striking plates, grids, etc. It is also effective against concrete bunkers, landing craft and similar hard target.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	600 mm
Total mass of ammunition	3.2 kg
Mass of projectile	2.4 kg
Propellant (ACM)	0.4 kg
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15.0 gm
Explosive filling in Projectile	0.550 kg
Explosive filling in fuze	0.2 gm
Net explosive content	937 gm
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	255 m/s
Maximum Velocity at 450m	339 m/s
Range	700 m
Time of Flight to 700 m	2.2 sec
Penetration in Solid Armour	400 mm

RCL AMMUNITION

This ammunition is fired from Gun 84 mm RCL Carl Gustaf M2 from the shoulder. The cartridge combines some of the characteristics of 14LM Rocket and Artillery ammunition in its design. The ammunition is of fixed type and is spin established. This ammunition is intended for use against troops in the open and in slit trenches, machine gun posts soft skinned transport vehicles and similar types of targets. It is fitted with a combined mechanical time and impact fuze

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	370 mm
Total mass of ammunition	3.1 kg
Mass of projectile	2.3 kg
Propellant (ACM)	0.4 kg
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15.0 gm
Explosive filling in Projectile	0.40 kg
Explosive filling in fuze	3.08 gm
Net explosive content	803.36 gm
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	240 m/s
Range	1000 m
Time of flight at 600 m	2.83 sec

ROUND 84 mm SMOKE 469 C

The Shell contains a special smoke composition based on titanium tetra chloride The longitudinal projection in the Shell body make the smoke composition follow the spin of the Shell giving the Shell stability in the flight. The fuze have function both on direct impact with nose and at small angle of impact. Smoke does not cause fire.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	442 mm
Total mass of ammunition	3.1 kg
Mass of projectile	2.2 Kg.
Propellant (ACM)	0.35 Kg.
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15.0 gm
Explosive filling in Projectile	0.8 kg
Explosive filling in fuze	17.68 gm
Net explosive content	1.2 kg
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	240 m/s
Range	1300 m

ROUND 84 mm TPT - 65

This ammunition is fired from Gun 84 mm RCL Carl Gustaf M2 from the shoulder. This ammunition is ballistically identical to the 84 mm HEAT round. Except for a tracer, there is no other explosive in the shell. This round is provided in order to save on the costlier HEAT rounds.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	535 mm
Total mass of ammunition	2.6 kg
Mass of projectile	1.8 kg
Propellant (ACM)	0.4 kg
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15.0 gm
Explosive filling in tracer	1.4 gm
Net explosive content	416.53 gm
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	305 m/s
Range against static target	500 m

84 mm ILLUMINATING FFV 545

The illuminating round has been designed to meet the requirement for a very quick illumination of target areas, offering facilities for all types of direct fired weapons and guided anti-tank weapons to engage, Armoured fighting vehicles, support weapons etc. The illuminating round is also intended to facilitate for the sub-units of the battalion, supply of their own illumination of battle field, even continuous, when required.

PHYSICAL CHARACTERISTICS :	
Total length of ammunition	450 mm
Total mass of ammunition	3.1 kg
Mass of projectile	2.2 kg
Propellant (ACM)	0.4 kg
Explosive filling in primer (cap)	0.13 gm
Explosive filling in Igniter	15.0 gm
Explosive filling in fuze	18.13 gm
Net explosive content	932.81 gm
Shelf life of the ammunition	10 years

PERFORMANCE CHARACTERISTICS :	
Muzzle velocity	260 m/s
Range	300 to 2100 m
Height of burst	200 m
Illuminated area, diameter	400-500 m
Candlepower	6,50,000 candela
Burning time	30 + 5 sec

Munitions India Limited [MIL] is Defence Public Sector Enterprise [CPSE] under the Ministry of Defence, Government of India.

MIL, India's biggest manufacturer and market leader is engaged in Production, Testing, Research & Development and Marketing of comprehensive range of ammunition & explosives for Army, Navy, Air Force & Para-Military Forces.

With Corporate Office at Pune (India), MIL in its 12 state-of-the-art manufacturing units located across the country employs skilled workforce of around 23,000. These factories have proven integrated base for production of Small, Medium & High Calibre Ammunition, Mortars, Rockets, Hand Grenades etc. with in-house manufacturing of Initiatory Compositions, Propellants and High Explosives for over 150 years. Our primary objective is to provide competitive edge to the Armed Forces by equipping them with modern and quality battlefield ammunition.

Our foreign customers include countries located in North America, South America, Europe, Africa and Asia. The patronage we receive from our customers both in India and abroad reflects their faith in quality of our products and services. We are the Force behind the Armed Forces.

MIL with its 12 manufacturing units provide :

- A broad and versatile production base with multi-technology capabilities
- State-of-the-art manufacturing facilities
- Large pool of skilled and professionally qualified manpower and managerial personnel
- Strict adherence to quality standards (all units are ISO-9001 certified)
- Original as well as adaptive Research & Development
- A strong base for industrial training & testing

RCL AMMUNITION

TANK
AMMUNITION

ROUND 120 MM FSAPDS MK-II MBT

PURPOSE :

Fin Stabilized Armour Piercing Discarding Sabot (FSAPDS) capable of defeating NATO target upto 2000 mtrs.

CHARACTERISTICS :

Gun (Bore)	120mm Rifled Gun
Mass of the filled Shell	20.840 kg
Length of complete round	998 mm
Filling type in Shell	NO/M 110
Filling Mass	8.5 kg
Weight of	
• SCCC Liner (Set Weight)	0.910 kg
• Steel Cup	3.4 kg
• Primer	0.487 kg
Weight of Projectile	7.30 Kg
Length of Projectile	566 mm
Type of Primer	SCP MK II 'C' NATO
Tracer	Red PMT for MK-II

PERFORMANCE:

Maximum Range	1600-1700 mtrs.
Muzzle velocity	1650 m/sec
Penetrator	Tungsten Heavy Alloy
Penetration capability	515 mm
Shelf Life	10 years

ROUND 120 MM HESH

PURPOSE :

Round 120 mm HESH having high explosive squash head capable of defeating NATO target upto 2000 mtrs.

CHARACTERISTICS:

Gun (Bore)	120mm Rifled Gun
Mass of the filled Shell	22.52 kg
Length of complete round	998 mm
Filling type in Shell	AP/S 400-120
Filling Mass	3.3 kg
Weight of	
• SCCC Liner (Set Weight)	0.790 kg
• Steel Cup	3.4 kg
• Primer	0.620 kg
Weight of Projectile	14.4 kg
Type of Primer	L1 A4 MK-II (NATO)
Type of Fuze	L29 A3 Base Fuze
Tracer	No. 30 MK ½

PERFORMANCE:

Maximum Range	2000 Meters.
Muzzle velocity	736 m/sec
Scab Area	230 mm (Mass of scab 5 kg)
RHA Plate Thickness	120 mm
Weight of scabbed material	5 kg
Shelf Life	10 years

SHELL 125MM HEAT 1A

PURPOSE :

Main role is for direct fire against armored vehicles, SP Guns, Mortars & other heavy armored targets. Effective against targets fitted with protective devices such as skirting plates & girders. It can also be used against bunkers.

CHARACTERISTICS :

Gun (Bore)	125mm Smooth Bore Gun
Mass of the filled Shell	18.401-19.541 Kg.
Filling type in Shell	RDX / WAX(95:5)
Filling Mass	1.661 Kg.
Propellant -	
• Single base propellant 15/1	3 Kg.
• Single base propellant 12/7	2.2 Kg.
Alternatively Triple Base Propellant -	
• NQ/S 400-100	3.00 Kg
• NQ/M 119	2.2 Kg.

PERFORMANCE :

Maximum Range	4000 m
Point blank Range	960 m
Muzzle Velocity +15°C	905 m/s
Armour Thickness defeated at -	
Angle of attack	60°
Normal Effective Penetration	400 mm in RHA plate
Maximum Chamber Pressure	370 ± 7 MPa at 40°C
Rate of Fire	8 Rounds per minute

SHELL 125 MM HE 1A

PURPOSE :

Designed for destroying enemy shelters, vehicles personnel.

CHARACTERISTICS :

Gun (Bore)	125mm Smooth Bore Gun
Mass of the filled Shell	22.575 ± 0.705 kg.
Filling type in Shell	TNT 1E SPL.
Filling Mass	2.95 ± 0.05 Kg.
Propellant - Method of Filling	Screw Filling
• Single base propellant 15/1:	3 Kg.
• Single base propellant 12/7:	2.2 Kg.
Alternatively Triple Base Propellant -	
• NQ/S 400-100	3.00 Kg
• NQ/M 119	2.22 Kg

PERFORMANCE :

Maximum Range	5000 m
Muzzle Velocity +15°C	850 m/s
Maximum Chamber Pressure	430 ± 7 MPa
Rate of Fire	8 Rounds per minute

125MM FSAPDS AMMUNITION

PURPOSE :

125mm FSAPDS ammunition with 3BM42 armor piercing projectile for D81 tank gun is used with T-72 and T-90 Tanks.

CHARACTERISTICS :

Gun (Bore)	125mm Smooth Bore Gun
Weight of Round	20.4 Kg
Length of Projectile	566.9 to 571.4 mm
Weight of Projectile	7.05 Kg
Muzzle Velocity	1700 m/s at 15°C
Standard Deviation	0.35 miles
Density of Hits in Range (max)	≤0.6 m
Density of Hits in Direction (max)	≤0.6 m
Tracer	Visibility min. 3000 m
Bore Pressure	Max 600MPa at +50°C
Armor Penetration Depth	460mm i.e. 230 mm plate at 60°

CHARGE MASS

Propellant	Primary	Secondary
NQ/S 400-100	3.0 Kg.	1.8 Kg.
NQ/m 119	2.34 Kg.	0.95 Kg.

ENVIRONMENTAL CONDITION :

Minimum Temperature for use	- 40°C
Maximum Temperature for use	+50°C
Minimum Temperature for Storage	- 40°C
Maximum Temperature for Storage	+50°C
Maximum Relative Humidity	95%
Average Relative Humidity	65%
Average Annual Temperature	32°C

ARTILLERY AMMUNITION

SHELL 155MM
HE ERFB BT

Rapid and accurate firing at long ranges to attack the ground targets by 155 mm Howitzer

TECHNICAL SPECIFICATION	
Maximum Range	30 Km.
Muzzle Velocity	897 ± 5 m/s
Max. Chamber Pressure	444 MPa
Mass of Shell without Fuze	42.84 to 45.34 kg
Length of Shell without Fuze	842.3 mm
Shelf Life	10 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.1
Compatibility	D

PACKAGING DETAILS

Packed in 12 nos. in 01 wooden/Steel pallet named unit load
Length x Width x Height: 1130 mm x 990 mm x 580 mm

SHELL 155MM
HE ERFB BB

Rapid and accurate firing at long ranges to attack the ground targets by 155 mm Howitzer.

TECHNICAL SPECIFICATION	
Maximum Range	38.4 km
Muzzle Velocity	897 ± 5 m/s
Max. Chamber Pressure	444 MPa
Mass of Shell without Fuze	45.27 to 47.77 kg
Length of Shell without Fuze	861 mm
Shelf Life	10 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.1
Compatibility	D
PACKAGING DETAILS	
Packed in 12 nos. in 01 wooden/Steel pallet named unit load.	
Length x Width x Height : 1128mm x 960mm x 562 mm	

SHELL 155MM HE M107

Often used for training / practice, in addition to its normal role as anti-personnel, ammunition.

TECHNICAL SPECIFICATION	
Maximum Range	18 km
Muzzle Velocity	685 m/sec
Max. Chamber Pressure	386 MPa
Mass of Shell without Fuze	42.1 kg
Length of Shell without Fuze	604 mm
Shelf Life	10 years
Operating Temperature	-2 °C to +60 °C
Hazard Division	1·1
Compatibility	D

PACKAGING DETAILS

Packed in 12 nos. in 01 wooden /Steel pallet named unit load.
Length x Width x Height : 880mm x 1060mm x 575 mm

SHELL 155MM HE M77 B

Rapid and accurate firing at long ranges to attack the ground targets by 155 mm Artillery Gun.

TECHNICAL SPECIFICATION	
Maximum Range	24 km
Max. Chamber Pressure	440 MPa
Mass of Shell without Fuze	41.7 kg
Length of Shell without Fuze	728 mm
Shelf Life	10 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.1
Com atibilit	D

PACKAGING DETAILS

Packed in 12 nos. in 01 wooden /Steel pallet named unit load.
Length x Width x Height : 900 mm x 1060 mm x 556 mm

SHELL 155MM
ILLUMINATING ERFB

Designed to support night warfare. The illumination provided by this ammunition is sufficient for identification and engagement of all types of moving and non-moving objects.

TECHNICAL SPECIFICATION	
Weapon	155 mm Howitzer FH77B 39
Maximum Range	24 Km
Luminosity	750,000 Cd (Min)
Time of Burning	90 sec. (Min)
Mass of Shell without Fuze	42.84 to 45.34 kg
Length of Shell without Fuze	843mm
Diameter	154.5 mm
Net Explosive Content	2.6 Kg.
Height of payload ejection	1200m
Fuze	Electronic Fuze
Shelf Life	10 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.3
Compatibility	G

PACKAGING DETAILS

Packed in 12 nos. in 01 wooden/Steel pallet named unit load.
Length x Width x Height : 1128 mm x 960 mm x 565mm

SHELL 155MM
SCREENING SMOKE ERFB

The shells are normally used to mask the movement or redeployment of own forces from enemy observation, thereby neutralizing direct enemy fire.

TECHNICAL SPECIFICATION	
Maximum Range	24 km
Smoke Screening Time	120 sec
Descent Rate of Canister	5m/s
Mass of Shell without Fuze	42.84 to 45.34 Kg.
Length of Shell without Fuze	843 mm
Shelf Life	10 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.3
Compatibility	G

PACKAGING DETAILS

Packed in 12 nos. in 01 wooden/Steel pallet named unit load.
Length x Width x Height : 1128 mm x 960mm x 565mm

FUZE PD

ELECTRONIC

The Fuze is compatible to fire with 155mm Ammunition. It has two modes of operation i.e. Point Detonation Super Quick and Point Detonation Delay as per requirement.

TECHNICAL SPECIFICATION	
Mass	1000 gms
Length	151.5 mm max
Diameter	61.2 mm max
Shelf Life	15 years
Operating Temperature	-30 °C to +55 °C
The Fuze is safe for use in the muzzle velocity range of 180 to 1000 m/s and can withstand chamber pressure up to 444 MPa	

FUZE PD

M557P1

The Point Detonating M557P1 is an impact fuze used in the High Explosive projectiles of 155mm Howitzer. This Fuze complies fully with all NATO military specifications and test methods.

TECHNICAL SPECIFICATION	
Mass	950 g
Length (Overall)	151 mm
Length (Visible)	96.4 mm
Thread	25.4 mm
Operating **Temperature**	-62°C to +71°C
PACKAGING	
8 / 12 Fuzes per box, 2 metal boxes per wooden box	

BI- MODULAR CHARGE SYSTEM

It is a state of the art replacement for conventional propellant charges.

BMCS M91

SINGLE BASE PROPELLANT

Low Zone (consisting of 1 to 2 low zone modules, for smaller ranges and training purpose)

BMCS M92

TRIPLE BASE PROPELLANT

High Zone (consisting of 3 to 5 high zone modules for 39 Cal, or 3 to 6 for 45Cal & 52 Cal)

TECHNICAL SPECIFICATION

Parameter	BMCS M-91 (Single Base Propellant)	BMCS M-92 (Triple Base Propellant)
Type	Completely Combustible	Completely Combustible
Weight (1 module)	1.9 Kg. (Nominal, Based on ACM)	2.8 Kg. (Nominal, Based on ACM)
Length (1 module)	167 mm (Nominal)	167 mm (Nominal)
Muzzle Velocity	445 m/sec (at Zone-2)	878 m/sec (at Zone-6)
Maximum Range	12 km (Zone-2)	40 km (Zone-6)
Shelf Life	15 years (when storage at +5°C to +45°C)	15 years (when storage at +5°C to +45°C)
Operating Temperature	-30 °C to +60 °C	-30 °C to +60 °C
Weapon Compatible	155 mm Howitzer	155 mm Howitzer
Packing	5 modules in one Final Packaging Tube	5 modules in one Final Packaging Tube
Packing Weight	14 Kg.	18 Kg.

PACKAGING DETAILS

Each module is sealed in a multi-layered barrier bag with a protective packing piece. The barrier bags are partially vacuumed and hermetically sealed then packed in cylinder (with five modules) then put in palletized Unit (with 25 final packing tube).
Dimension of Wooden Crate: Length x Width x Height: 1100 mm x 1050 mm x 1078 mm
Dimension of Metallic Crate: Length x Width x Height: 1115 mm x 1085 mm x 1036 mm

HAZARD CLASSIFICATION

UN Number	0242
Hazard Division	1.3
Compatibility	C

DOUBLE BASE PROPELLANT

The product is used with 155 mm ammunition.

CHARGE 8

CHARGE 9

TECHNICAL SPECIFICATION	CHARGE 8	CHARGE 9
Length	735 ± 5 mm	740 ± 5 mm
OD	6.4 ± 0.30 mm	12.1 ± 0.2 mm
Hole Dia	3.30 ± 0.30 mm	1.28 ± 0.04 mm
Web	1.55 ± 0.05 mm	2.02 ± 0.03 mm
Cal Value	700 ± 25 Cal/gm	800 ± 25 Cal/gm
BALLISTICS	**CHARGE 8**	**CHARGE 9**
V of A	685 m/s at 21°C	827 m/s at 32°C
SD	3.2 m/s	3.5 m/s
ACP Mean	241 Mpa	309 Mpa
Range	19km	27 km

CHARGE M4A2

Single Base Propellants Charge M4A2 In White Bag, Cylindrical and Perforated Propellant Grain Used in 155 mm Howitzer Gun

PRESSURE	
P mean	218 Mpa
P average	153 to 190 Mpa
MUZZLE VELOCITY	
CHARGE NO.	**MV**
3	274 m/s
4	347 m/s
5	403 m/s
6	482 m/s
7	569 m/s

PRIMER M191 A2

The Primer is composed of a finished metal alloy cartridge which contains various components sealed within. In the rear end of the primer there is plunger while a sealing disc, percussion cap and Gun powder charge (GPC-20) are placed within the inner case.

TECHNICAL SPECIFICATION	
Body of Projectile	Brass
General Chemical Composition	Combination of Potassium Nitrate, Charcoal & Sulphur
Cap F-26	Combination of Lead Styphnate, Tetrazene, Barium Nitrate, Lead Dioxide & Antimony Trisulphide
Base Substance	Potassium Nitrate
Hazard Division	1.4
Compatibility	G
PACKAGING DETAILS	
It is packed in Plastic box viz. M31A containing 560 nos. each & 18 such plastic boxes packed in a box. Length x Width x Height : 1200 mm x 1000 mm x 822 mm	

SHELL 130 MM HE

The 130 mm, gun M-46 is a long range medium gun and is capable of direct as well as indirect laying fire. The gun is designed to :

i) Destroy/neutralise hostile artillery including self propelled artillery.
ii) Fight the enemy heavy tanks.
iii) Destroy enemy pill boxes and strong field works.
iv) Fire at enemy rear areas and concentration areas

TECHNICAL SPECIFICATION	
Maximum Range FVC / RVC	27 km / 19 km
Muzzle Velocity FVC/ RVC	FVC/ 810 to 930 m/s RVC- 525 to 705 m/s
Max. Chamber Pressure	425 MPa
Mass of Shell without Fuze	32.05 ± 0.55 Kg.
Length of Shell without Fuze	565.30 mm to 568.70 mm
Shelf Life	Shell-20 Yrs Carts 10 Yrs Fuzed 7 Yrs
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.2
Compatibility	E
PACKAGING DETAILS	
Shell of 130 mm HE & 1 Cartridge of 130 mm RVC/FVC packed in 1 Steel Box	

FUZE DA

B429

Fuze B429 is a percussion type of nose fuze having direct, delay and Graze action. This fuze is used for Shell 130 mm HE Filled. The fuze can be set externally to 'I' and 'D' mode corresponding to 'O' and '3' markings on fuze body respectively with the help of selector mechanism incorporated in fuze body.

TECHNICAL SPECIFICATION	
Mass of Filled Fuze	429 g
Length of fuze	103.02 mm to 105.71mm
Diameter	40 mm Max
Shelf Life	07 Years
Operating Temperature	-20°C to +60°C
HAZARD CLASSIFICATION	
Hazard Division	1.2
Compatibility Group	D
PACKING DETAILS	
Steel Box used for packing of 20 no of Fuze. With adaptor Box M23 B and plastic container 67 A having total Qty. 15 Nos.	

SHELL 105 MM
HEER (BB)

It is a high explosive extended range (HEER) Shell. Better fragmentation is achieved by introducing high quality steel alloy and thinning the body of the shell.
The optimised ballistic shape of the shell improve the ballistic coefficient (Reduced drag) & provide better accuracy.
The Base Bleed Unit (BBU) at base reduces the drag and gives additional thrust to carry the shell further.

TECHNICAL SPECIFICATION	
Maximum Range	20.4 km
Muzzle Velocity	731 m/sec
Maximum Chamber Pressure	332 MPa
Mass of filled Shell	15.765 kg
Length of Shell (plugged)	611 mm
HAZARD CLASSIFICATION	
Hazard Division	1.2
Compatibility	F
PACKAGING DETAILS	
One Wooden / Steel Box holding two Shells in laminated container Length x Width x Height : 671 mm x 312 mm x 185 mm	

SHELL 105 MM

HE

The ammunition is employed to demolish army concentrations, fortifications, bunkers and many other defence installations. This is suitable for use both in the plains as well as mountains.

TECHNICAL SPECIFICATION	
Maximum range	17.6 km
Muzzle velocity	591m/sec (normal charge) 710 m/sec (super charge)
Maximum Chamber Pressure	332 ± 8 MPa
Mass of the filled shell	16.97 kgs max
Length of Shell without Fuze	451.56 ±2.5 mm
Shelf life	30 years
Operating Temperature	-20 °C to +60 °C
Hazard Division	1.2
Compatibility Group	D

PACKING DETAILS

One Wooden / Steel Box holding two Shells in laminated container
Length x Width x Height : 671 mm x 312 mm x 185 mm

SHELL 105 MM
ILLG

This ammunation provides intense illumination for identification and engagement of all types of stationary and moving objects.

The shell is fired with time mechanical fuze, present to ensure ejection at the desired height and range. The illuminant canister supported with parachute and spin break system provides intense illumination on the ground covering an area of 600 mtrs. radius.

TECHNICAL SPECIFICATION	
Weapon	105 mm IFG
Maximum range	17 Kms
Luminosity	700,000 candela
Time of burning	25 sec (min)
Height of burst	400 mtrs (Approx)
Duration of illumination	25sec (min)
Rate of descent	10 m/sec (max)
Net explosive content	800 gm (Approx)
Estimated mass	15.88 ± 0.1 Kgs
Length	450 mm (Approx)
Diameter	108-0.3 mm(Approx)
Fuze	213P MK5 (M2) or M85P13T1 (Electronic)
Shelf life	10 years.
Hazard Division	1.2
Compatibility Group	G

PACKING DETAILS

One Wooden / Steel Box holding two Shells in laminated container
Length x Width x Height : 671 mm x 312 mm x 189 mm

SHELL 105 MM

BE SMOKE (SCREENING & COLOUR)

The BE Smoke is used for screening and counter surveillance purpose in the combat field. It produces uniform thick opaque screen over a wide area to facilitate tactical deployment of troops and shielding from direct enemy attack.

BE colour smoke is similar emission type smoke ammunition producing uniform dense colour smoke in red, orange and blue colours for signalling purposes.

TECHNICAL SPECIFICATION	
FOR COLOUR	
Estimated mass	15.970 Kgs
Net explosive content	Red - 450 gm (approx) Orange - 450 gm (approx) Blue - 410 gm (approx)
Length	450 mm (approx)
Diameter	104.5 + 0.2 mm (approx)
Time of burning (including built up time)	45 sec (min)
Fuze	Time - Fuze
Range	17 km (Max)
Shelf Life	10 years
Compatibility Group	G
Fire Fighting Class	2
Hazard Division	1.2
FOR BE SMOKE	
Mass of filled bomb	16.49 ± 0.13 Kg.
Length	465mm (approx)
Diameter	104.5 + 0.2 mm (approx)
Duration of smoke	Over 45 sec
Range	11 Km
Smoke	Dense white
Fuze	Time - Fuze
Shelf Life	10 years
Hazard Division	1.2
Compatibility group	G
Fire Fighting Classification	2
PACKING DETAILS	
One Wooden / Steel Box holding two Shells in laminated container Length x Width x Height : 671 mm x 312 mm x 189 mm	

FUZE PERCUSSION
DA NO.117

Fuze 117 is a direct action and graze fuze. It is used in a variety of equipment, with HE, bursting smoke and chemical shells. It functions at low angle of impact and is rapid in action.

TECHNICAL SPECIFICATION	
Mass of Filled Fuze	1.188 Kg ± 10 gms.
Length of fuze	124.689 mm to 126.848 mm
Diameter	61 mm Max
Shelf Life	18 Years
Operating Temperature	-20°C to +60°C
HAZARD CLASSIFICATION	
Hazard Division	1.2
Compatibility Group	D
PACKING DETAILS	
Container 47B is used for packing of Fuze Box M104 is used to hold 20 fuzes	

FUZE 213 MK5

M1& M2 M3 & M4

Fuze 213 MK5 (M-1) & (M-2)

These are high precision mechanical time and impact fuzes which offer a choice of air burst at a desired point above the target or detonation on impact. Time setting is 0-80 seconds in steps of 0.5 seconds. Reliable and versatile the fuzes are compatible to all guns and howitzers from 75 mm to 152 mm calibers. M1 is used with HE shells whereas M-2 is employed with cargo shells/smokes base ejection type shells.

Fuze 213 MK5 (M-3) & (M-4)

Very accurate mechanical time and direct action fuzes, specially suited for accurate laying of smoke screens, battle field illumination and release of cargo at the precise point over the target.

CARTG. 105 MM
SUPER CHARGE & NORMAL CHARGE

Cartg 105 mm SC & NC is loosely assembled with the shell in the chamber of the gun to release required pressure to project the ammunition at a muzzle velocity sufficient to perform effectively at the target.

TECHNICAL SPECIFICATION SUPER CHARGE	
Max mass of the cartg case	3.2 K_gs
Total weight of the propellant	3135 g
Muzzle velocity	703.1m/sec
Maximum pressure	330 Mpa max.
TECHNICAL SPECIFICATION NORMAL CHARGE	
Max mass of the cartg case	3.2 Kgs
Total weight of the propellant	2286 g
Muzzle velocity	595.8 /m sec
Maximum pressure	354 Mpa
Hazard division	1.3
Compatibility	E
Fire Fighting classification	3
PACKING DETAILS	
One Wooden / Steel Box holding four Cartgs. in laminated container Length x Width x Height : 663 mm x 650 mm x 248 mm	

AIR FORCE AMMUNITION

AIR FORCE AMMUNITION

AERIAL BOMB 500 KG GP

- 500 kg GP Bomb is an air-dropped weapon intended to neutralize a variety of targets varying from soft skinned to moderately protected targets in the close vicinity of bomb impact
- The bomb has two modes of functioning i.e. on impact and with impact delay.
- In the impact mode.bomb generates blast and natural fragmentation effects
- In the impact delay mode, the bomb penetrates into the RCC targets and explodes within the target causing extensive structural damage and confined blast effects.

PHYSICAL PARAMETERS	
Total length of Ammunition	3031 mm
Weight of Empty Bomb	280 Kg (Approx.)
Filled weight of Bomb	463 KGs ± 3 Kgs
Weight of filing	185 KGs ± 3 Kgs
Center of gravity	1200 ± 15 mm
Density	1.68 ± 0.02 gm/ cc (min)
Explosive used	Torpex-4B

AERIAL BOMB 1000 LBS HE

The Bomb HE 1000 LB is made of Cast Steel construction open at both ends. The Bomb body is filled with high explosive. The nose opening is closed by an exploder container. The rear end of the body is under cut internally, to form a lip in which are out two diametrically opposite slots. It can be dropped from heights as high as 15000 metres. It penetrates deep into subsoil strats and detonates giving earthquake effect. Against concrete runways penetrates deep and detonates leaving a crater of approx 6m x 3m deep thus putting them out of commission.

PHYSICAL PARAMETERS	
Length of Ammunition with Tail Unit	7 ft.6 inch approx.
Total Weight of filled Bomb W/O Tail Unit	450 Kg Approx.
Tail Unit Length	2ft. 4.5 inch approx.
Weight of Tail Unit	25.36 Kgs
Charge Mass	186 KGs ± 5 Kgs
Centre of gravity	808± 20 mm
Explosive Used	Torpex-4A

AERIAL BOMB 450 KG HSLD

It is carried on different fighter planes and dropped from heights . It penetrates deep into subsoil and starts to detonate giving earthquake effect. Against concrete runways penetrates deep and detonates leaving a crater thus rendering it non operational.

PHYSICAL PARAMETERS	
Total length of Ammn	280 cm
Weight of Empty Bomb	255±7kgs
Volume of Empty Bomb	117000 cc
Filled weight of Bomb with BTU	450 KGs ± 25Kgs
Weight of filing	200 Kgs ± 5kgs
Center of gravity	1155 ± 20mm
Density	1.70 gm/cc (min)
Explosive used	DENTEX

AERIAL BOMB 250 KG HSLD

It is carried on different fighter planes and dropped from heights . It penetrates deep into subsoil and starts to detonate giving earthquake effect. Against concrete runways penetrates deep and detonates leaving a crater thus rendering it non operational.

PHYSICAL PARAMETERS	
Length of Ammunition	237 cm
Weight Empty of Bomb	135 Kgs
Volume of filled Bomb	60000cc
Weight of Bomb with tail unit	250 KGs ± 25 Kgs
Empty weight Bomb	145 ± 5 Kg
Filled weight	250 ± 8 Kg
Charge Mass	103 ± 3 kg
Center of gravity	972 ± 20mm
Density	1.7 gm/ cc (min)
Explosive Used	Dentex

AERIAL BOMB 100 - 120 KG

100-120 Kg aerial bomb is used to target industrial, military field installations, railway junctions and airfields etc. Primarily as well as also for anti personnel applications. The aerial bomb 100-120 Kg is intended to be used as a target bomb at horizontal flights and altitudes between 50 to 500 m and airplane speed between 500 to 1150 km/hr. The bomb is delivered by aircraft such as MiG-21, MiG-27 & MiG-29

PHYSICAL PARAMETERS	
Weight of Bomb with AVU - ETM fuze	123+3 kg
Empty weight of Bomb	73.5 kg Max
Total filed weight	Max 122kg
Charge Mass	47±1.5 kg
Center of gravity	345- 355mm
Density	1.70 gm/cc (min)
Explosive used	DENTEX

ROCKET 68 MM

ROCKET
68 MM HE

ROCKET
68 MM HC

ROCKET
68 MM PRACTICE

Weight without Fuze	4.100kg ±110 gm.	5.275 kg ±110 gm.	4.100kg ±110 gm.
Length without Fuze (Plugged)	820.50 mm	942.20 mm	838 mm
Filling type standard RDX	TNT 60:40 Type 'A'	TNT 60:40 Type 'A'	HE Substitute (inert Composition)
Filling Weight	760 ± 25 gm.	250 gm.	550 gm. Approx
Compatible Fuze	Fuze Rocket 24A HE (Base Fuze)	MK-II (Base Fuze)	Fuze Rocket 24A HE
SNEB Propellant (inhibited)	1.5 kg	1.5 kg	1.5 kg
Maximum Pressure	300 kg / sq cm	300 kg / sq cm	300 kg / sq cm
Thrust	500 kg	500 kg	500 kg
Operating Temp.	-40° C to + 70°C	-40° C to + 70°C	-40° C to + 70°C
Packages	1 Rocket packed in container 1203 and 06 containers packed in 1 Steel Box 412-S/4	1 Rocket packed in container 1203 and 06 containers packed in 1 Steel Box 412-S/4	1 Rocket packed in container 1203 and 06 containers packed in 1 Steel Box 412-S/4
PURPOSE:	Designed primarily for Air to Ground deployment. Very light, fast and accurate.		

Pinaka Multi-Barrel Rocket

Pinaka Mk-I Enhanced

Features :

The Pinaka Multi Barrel Rocket System (MBRS) is an all-weather indirect fire free flight artillery Rocket System. The free flight Rockets are fired from launch vehicles each of which can fire 12 Rockets. The System delivers accurate and massive fire power at a high rate over extended ranges. A Battery of six launchers can fire a solvo of 72 Rockets in 44 Seconds. Over 7.2 Ton of pay load in the form of lethal warhead can be delivered up to range of 48 Km and can effectively neutralize the target 1000m x 800m.

The Pinaka Multi Barrel Rocket launching System, is a state of the art weapon for destroying/neutralizing enemy troop concentration areas, communication centres, 'air terminal complexes, gun/rocket locations and for laying mines by firing rockets with several warheads from launching vehicle.

The system delivers accurate and massive fire power at a high rate over extended ranges. The system has a high operational mobility, flexibility and accuracy which provide edge in modern artillery warfare. The Pinaka is meant as a supplement to the existing artillery system at a range beyond 30 km and it can be fitted with a variety of warheads. like PF, RHE & DPICM.

Technical Specification :

Range	13 km to 48 Km.
Calibre	214 mm.
Length	4.72 m.
Rocket Weight	280 Kg.
Propellant Weight	111 Kg.
Warhead Weight	100 Kg.
Accuracy	<1.5% of range (PE).
Warheads	PF, RHE, DPICM.
Guidance	Free Fight.
Rate of Fire	Approximately 44 s.
Flight Stabilization	6 flat fins (WAF).
Salvo reload time	4 minutes.
Detonation Mechanism	Electronic Time & Proximity Fuze.
Shelf life	15 years.
POD	6 Nos. of Rockets are loaded in each POD.

Guided Pinaka

Features:

The Pinaka Multi Barrel Rocket launching System, is a state of the art weapon for destroying/neutralizing enemy troop concentration areas, communication centres, air terminal complexes, gun/rocket locations and for laying mines by firing rockets with several warheads from launching vehicle.

Guided Pinaka Rocket system (GPRS) is capable of striking targets located deep into enemy territory up to 75 km range with accuracy of ≤ 60 m (CEP).

It is equipped with a Guidance and Navigation (GNC) Kit and has canard based aerodynamic control to achieve an accuracy of ≤ 60 m (CEP). The Guided Pinaka Rockets are fired from launch vehicles each of which can fire 8 Rockets. Only 2-3 rockets are required for achieving a kill probability of 99% against a single target. The Pinaka is meant as a supplement to the existing artillery system at a range beyond 30 km and it can be fitted with a variety of warheads like PF, RHE & DPICM. The system delivers accurate and massive fire power at a high rate over extended ranges. The system has a high operational mobility, flexibility and accuracy which provide edge in modern artillery warfare.

Technical Specification :

Range	20 km to 75 Km.
Calibre	214 mm.
Length	5.17 m.
Rocket Weight	325 Kg.
Propellant Weight	131.5 Kg.
Warhead Weight	100 Kg.
Accuracy	< 60m of range (CEP).
Warheads	PF, RHE, DPICM.
Guidance	INS+GPS.
Rate of Fire	Approximately 44 s.
Flight Stabilization	6 flat fins (WAF).
Salvo reload time	4 minutes.
Detonation Mechanism	Electronic Time & Proximity Fuze.
Shelf life	15 years.
POD	4 Nos. of Rockets are loaded in each POD.

Pinaka DPICM

Features :

Aerial Denial Munition (ADM) Type-1 warhead which is also known as Dual Purpose Improved Conventional Munition (DPICM) Warheads consists of outer ballistic casing made up of FRP. Pinaka DPICM W/H is the different version of existing Pinaka W/H which was designed and developed by DRDO. This casing comprises of Shell assembly, Ogive assembly & PUF Container Assy. Shell assembly is screwed to the rear adapter with matching threads.

In case if it fails, SD (self-destruction) mechanism works and demolishes bomblet. Bomblet generates a shaped charge jet & can perforate 80 mm RHA plate. Further fragments generate from the munition body will cause the anti personal effect. Usage: These Warhead cab be used for anti-tank and anti personal targets.

Technical Specification :

Length of entire rocket	4883 mm
Length of warhead	1740 mm
Caliber	214 mm
Weight of Warhead	100kg
Propulsion system	same as existing PINAKA MK-I.
Operating temperature Range	-15°C to + 45°C
Fuze	Impact type with self destruction mechanism
Self Destruct time	Min. 30 Sec.
No of sub-munitions per /WH	Min. 220
Mass of each Sub-munition	230 g
Reliability of sub-munition functioning	more than 90%
Reliability of Fuze functioning	Min. 95%
Shelf life	Min. 10 Years
Accuracy when measured in PE	less than equal to 1.5% of the map range.
Consistency	less than equal to 1.5% of the map range.
Lethal area	Min. 120m x 90m
Self storage temperature range	-20°C to + 55°C

Pinaka Mk-II

Features :

Pinaka - II of a free-flight artillery rocket having a maximum range of 38 km with different types of warhead & fuzes, a multi-tube launcher vehicle, a replenishment-cum-loader vehicle, a replenishment vehicle and a command post vehicle. There are two pods containing 6 rockets each, capable of firing in salvo mode within 48 sec neutralizing the area of 700 x 500 m. In light of the requirement of the Army for a free flight rocket with enhanced range, Pinaka Mk-II rocket with 60 km range.

Technical Specification :

Range	60 km (37mi)
Lenght	5.17 m (17.0 ft)
Rocket Diameter	214 mm (8.4 in)
Warhead Weight	100 kg (220 Ib)
Rocket Weight	325 kg (717 Ib)
Propellant Weight	131.5 kg (290 Ib)
Rate of Fire	Approximately 44 seconds
Accuracy	≤ 1.5% range
Reload time	4 minutes
Warheads	PF, RHE, DPICM
Detonation mechanism	Electronic time and Proximity fuze
Guidance	Free flight
Flight stabilization	6 flat wrapped around fins
Launching pod	2 detachable pods, each carrying 6 rockets

AKASH WEAPON SYSTEM

APPLICATION:

AKASH is a Short Range Surface to Air Missile System to protect vulnerable areas and points from air attacks. Akash Weapon System (AWS) can simultaneously engage Multiple Targets in Group Mode or Autonomous Mode. It has built-in Electronic Counter-Counter Measures (ECCM) features. The entire weapon system has been configured on mobile platforms.

FEATURES:

- Effective range : 3-25 km
- Speed range : 1.8 - 2.5 Mach
- Altitude of operation : 30 m - 20 Km
- Propulsion system : Integral Ramjet Rocket
- Length : 5.87 m
- Diameter : 350 mm
- Weight : 710 kg
- Warhead type : High explosive, pre-fragmented with RF proximity fuse
- Guidance system : Command Guidance Single Shot Kill
- Probability (SSKP) : Better than 88%
- Target types : Helicopters, Fighter AC, UAV etc.
- Each troop is capable of tracking 64 targets in the background and launch 8 missiles against 4 targets simultaneously.
- Fully automatic with quick response time from target detection to kill.
- Open system architecture ensures adaptability to existing and futuristic Air Defence environments.
- High immunity against active and passive jamming.
- Secured mode of communication between combat elements.
- Self-sufficient in electrical power with in-built power sources.
- Road and rail transportable with quick mobilization and deployment capabilities.
- In-built safety features with IFF.

3D Central Acquisition Radar (3D CAR)

Troop Level Radar (TLR)

Troop Control Centre (TCC)

Combat Command and Control Centre (CCC)

ASTRA WEAPON SYSTEM

APPLICATION:

ASTRA is an indigenously developed Air - to - Air Beyond Visual Range missile comprising of Astra Missile and Launcher.

FEATURES:

• Range	: :	80 -110 km
• Altitude	: :	up to 20 km
• Length	: :	3840 mm
• Diameter	: :	178 mm
• Flight Duration	: :	100 – 120 Sec
• Warhead	:	HE Pre Fragmented
• Max Speed		Mach 4.5
• Propulsion		Solid Rocket Motor
• Detonation Mechanism • Guidance		Radar proximity Fuse. Inertial, mid-course update and terminal active radar homing (13 km) Su-30 MKI
• Launch platform		

SMART ANTI-AIRFIELD WEAPON (SAAW)

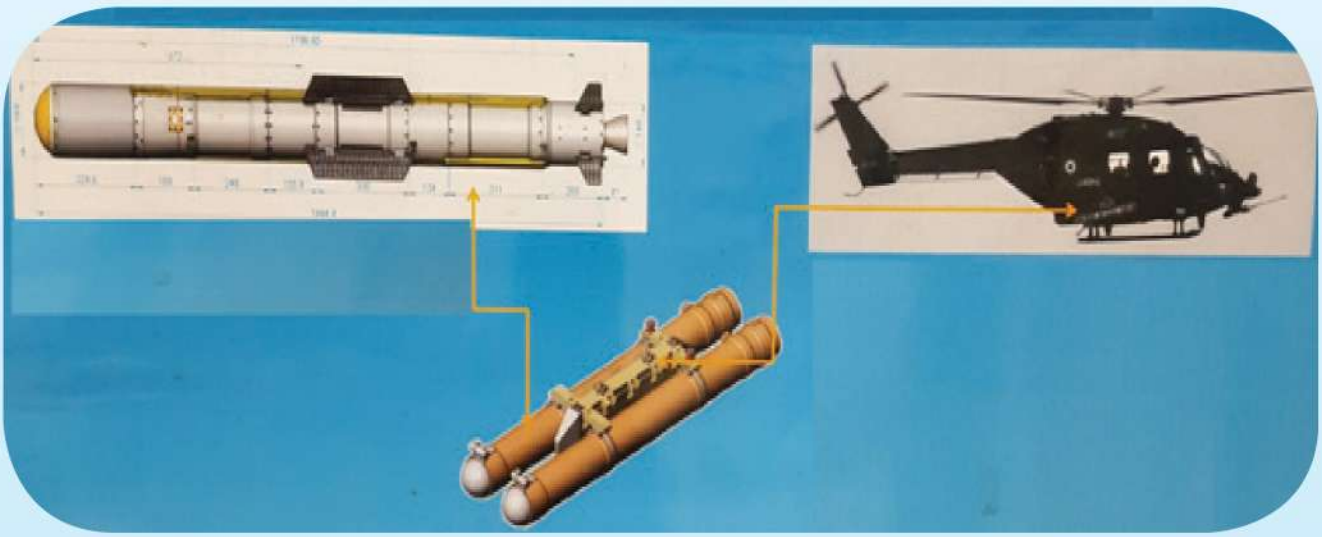
APPLICATION:

Smart Anti - Air Field Weapon (SAAW) is long range, standoff, precision air-to-surface weapon.

FEATURES

- Capable of engaging ground targets when launched from fighter
- Aircrafts Mass: 125 kg and Length: 1.85 m
- Accuracy < 7m with (IN-GPS) & < 3m with Seeker
- Range : upto 90 - 100 km based on release conditions.

HELINA (DHRUVASTRA)

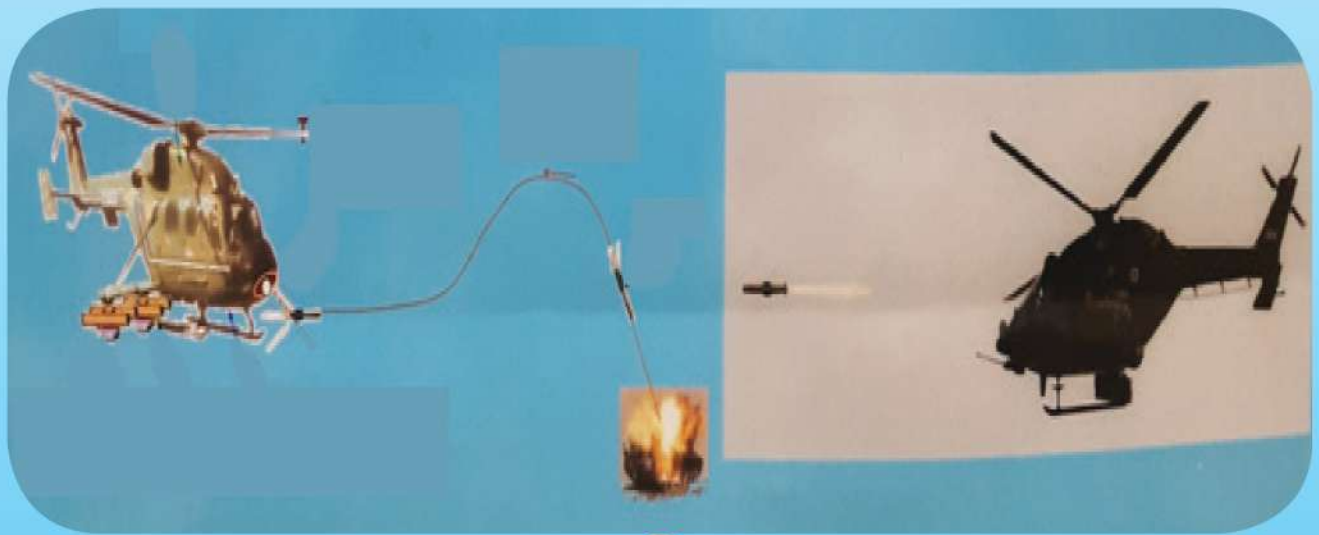


APPLICATION:

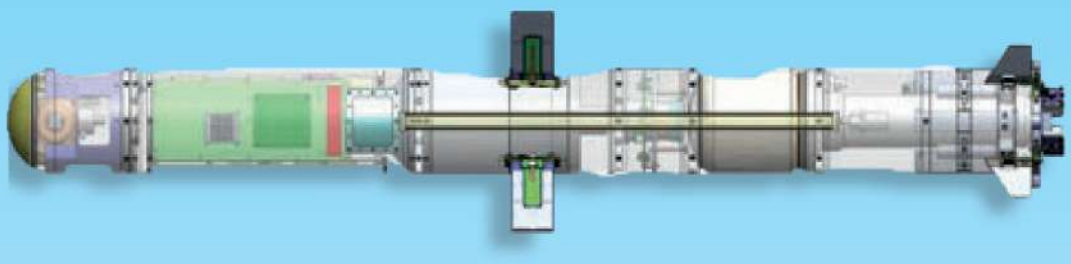
HELINA is an abbreviation for Helicopter launched NAG and is an Air to Surface Missile system. HELINA is launched from Advanced Light Helicopter (ALH). The ALH is equipped with 2 Twin launchers, one on either side, carrying a total of 8 missiles. HELINA is equipped with High Resolution Imaging Infrared Seeker (IIR) capable of automatic target detection and tracking in adverse weather conditions.

FEATURES

- Range : 500m – Min. and 7000m (Max.)
- Guidance : IIR LOBL
- Attack modes : Top and Direct
- Length : 1946 mm
- Dia : 150 mm
- Weight : 44 Kg.



MAN PORTABLE ATGM



APPLICATION:

Man Portable Anti - Tank Guided Missile or M P ATGM is for infantry and Parachute (Special Forces) of the Indian Army. It is 'Soft' launched from a canister using an Ejection Motor. It uses a state-of-the-art IIR seeker for homing on to the target.

FEATURES:

- Weight of Missile : 14.5 Kgs
- Length : 1340 mm
- Diameter : 120 mm
- Max range : 2500 Mtrs
- Max Flight Time : 17 Secs
- Propulsion : (a) Dual Thrust with Blast tube
  (b) Main Motor Ignition >9 Mtrs from gunner
- Guidance : IIR Seeker

AMOGHA – III ATGM

APPLICATION:

Amogha-III is a third generation fire-and-forget Anti-Tank Guided Missile designed and developed by the in - house R&D Division of BDL.

FEATURES

- Range: 200 – 2500 m.
- Attack mode: Top / direct attack.
- Man-portable.
- Tandem warhead with penetration in excess of 650 mm beyond Explosive Reactive Armor (ERA).
- Dual Mode Imaging Infra-Red (IIR) Seeker.
- Aerodynamic and Thrust Vector Control.
- Smokeless, Signature-free Propulsion System.
- Soft launch.
- Command Launch Unit (CLU) with remote operation capability.

NAG ATGM

APPLICATION:

NAG is a third generation Anti-Tank Guided Missile with Fire and Forget top attack capability..

FEATURES:

- Length : 1832 mm
- Diameter : 150 mm
- Guidance : Passive Homing through IIR Seeker
- Control : Aerodynamic Tail Fin Control
- Warhead : Tandem
- Max Range : 4000 metres
- Min Range : 500 meters
- Missile Speed : 220 - 230 m / sec
- All Up Weight : 42 Kg
- Deployment : Namica & ALH
- Operation : Day & Night

KONKURS – M ATGM

APPLICATION:

- KONKURS-M is a Second Generation, mechanized infantry ATGM, to destroy armored vehicle equipped with Explosive Reactive Armour, moving and stationary targets.

FEATURES:

- Can defeat armoured targets fitted with ERA
- Can be launched either from BMP-II or from ground launcher
- Equipped with tandem warhead
- High hit and kill probability.
- Length : 1260mm
- Caliber : 135mm
- Range : 4000m
- Flight time : 19 s
- Armour Penetration : 800 mm behind ERA
- Weight : 16.5 kg

MILAN - 2T ATGM

APPLICATION:

MILAN - 2T is a man portable (Infantry) second generation ATGM, to destroy Tanks fitted with Explosive Reactive Armour, moving and stationary targets.

FEATURES:

- Highly Reliable
- Require No maintenance / No Pre-fire checks
- Light weight
- Fiber Glass logistic container for transportation of 4
- missiles Man portable
- Ground Launcher
- Caliber : 115 mm
- Length : 1123 mm
- Weight : 7.1 kg

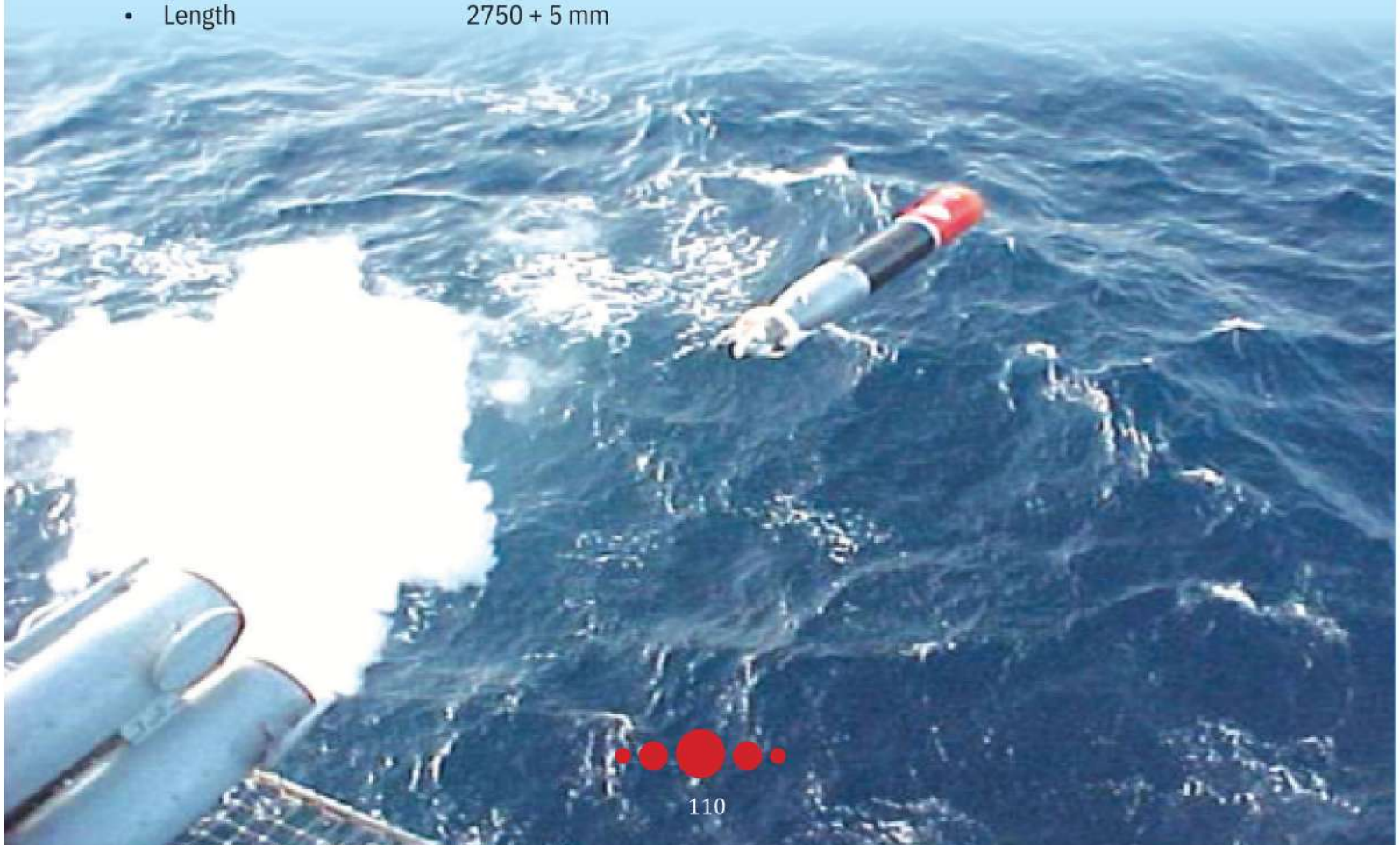
LIGHT WEIGHT TORPEDO (TAL-XP)

APPLICATION:

LIGHT WEIGHT TORPEDO is a state-of - art underwater weapon which can be launched from a ship and/or a Helicopter.

FEATURES

- Role : : Light weight anti – submarine.
- Homing : : Active & Passive
- Control : : Rudders
- Power Source : : Seawater activated battery
- Thrust : : By means of contra Rotating Propulsion motor.
- Operating Depth : : 10 m – 450 m
- Maximum Speed : 33 Knots
- Endurance 6 Min (minimum)
- Range 6 km (minimum)
- Weight 220 + 5 kg (Warhead version)/197 kg (Exercise
- Explosive version) 44 Kg
- Dia 324 mm +1 mm
- Length 2750 + 5 mm



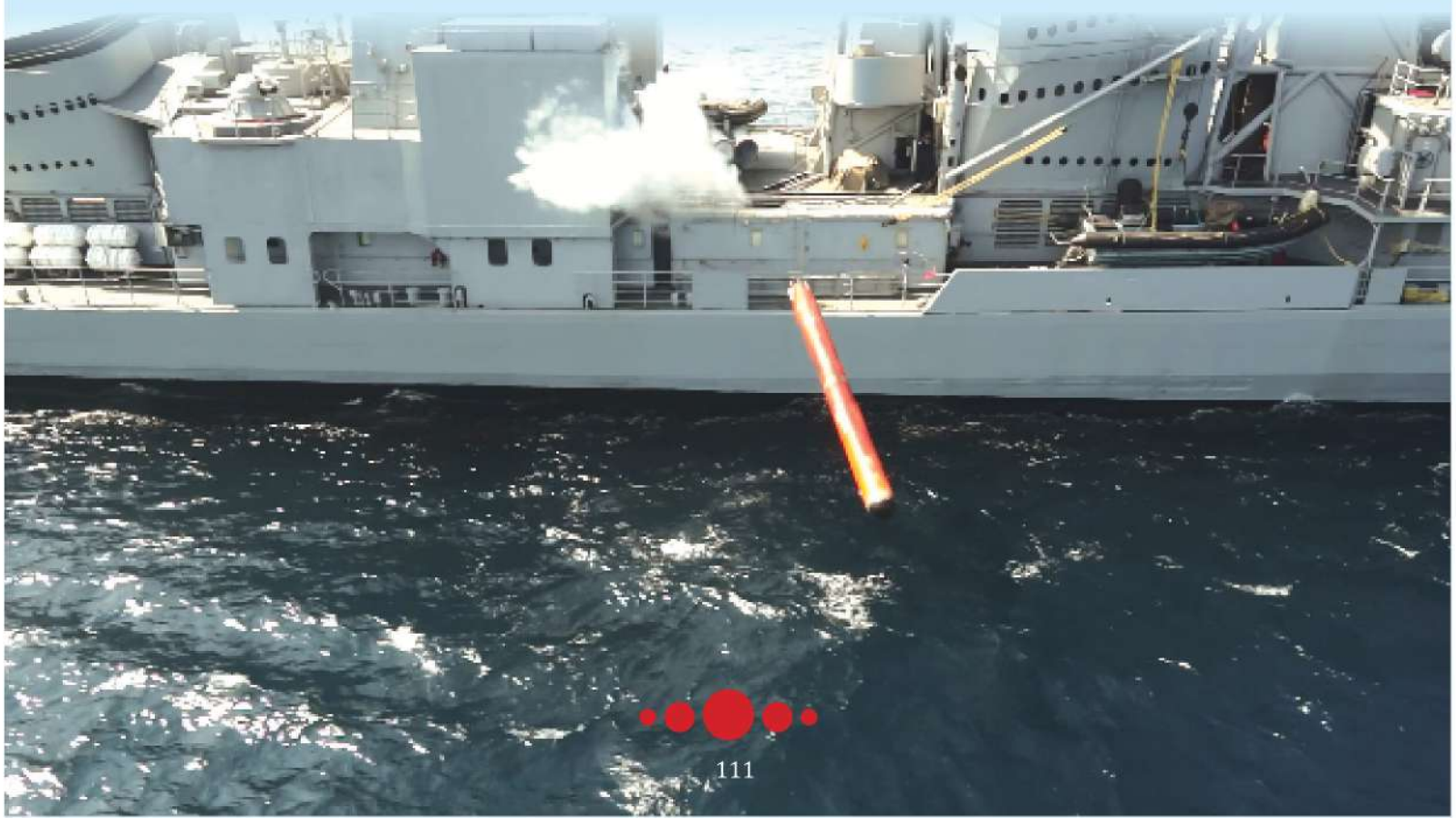
HEAVY WEIGHT TORPEDO (VARUNASTRA)

APPLICATION:

VARUNASTRA is an advanced state-of-the-art, ship launched heavy weight, anti-submarine Torpedo capable of targeting submarines operating in shallow / deep waters.

FEATURES:

- Length : 7.780 m
- Diameter : 533.4 mm
- Speed : 27 & 40 knots
- Operating depth : 8 to 600 m
- Propulsion : contrarotating propellers
- Weight of the torpedo : 1605 ± 10 kgs(exercise version)
  : 1850 ± 10 kgs(combat version)
- Long range with multi maneuvering capabilities.
- Acoustic homing with wide look angle capable of tracking silent targets.
- ACCM features and multiple signal tracking system.
- Autonomous advanced guidance algorithms.
- Low drift navigational systems over long endurance.



KONKURS – M ATGM

APPLICATION:

- KONKURS-M is a Second Generation, mechanized infantry ATGM, to destroy armored vehicle equipped with Explosive Reactive Armour, moving and stationary targets.

FEATURES:

- Can defeat armoured targets fitted with ERA
- Can be launched either from BMP-II or from ground launcher
- Equipped with tandem warhead
- High hit and kill probability.
- Length : 1260mm
- Caliber : 135mm
- Range : 4000m
- Flight time : 19 s
- Armour Penetration : 800 mm behind ERA
- Weight : 16.5 kg

MILAN - 2T ATGM

APPLICATION:

MILAN - 2T is a man portable (Infantry) second generation ATGM, to destroy Tanks fitted with Explosive Reactive Armour, moving and stationary targets.

FEATURES:

- Highly Reliable
- Require No maintenance / No Pre-fire checks
- Light weight
- Fiber Glass logistic container for transportation of 4
- missiles Man portable
- Ground Launcher
- Caliber : 115 mm
- Length : 1123 mm
- Weight : 7.1 kg