Chapter 2

AMMUNITION

GENERAL SPECIFICATIONS (SPECIAL FMJ)

The case is rimmed, straight – tapered and may be Boxer or Berdan - primed. It is normally made of brass and its bullet type is FMJ.

GENERAL SPECIFICATIONS (SPECIAL AND S&W WC(WAD CUTTER)

The case is rimmed, straight – tapered and may be Boxer or Berdan primed. This is normally made of brass. Its bullet type is wad cutter. This cartridge is widely used in air security flight.

GENERAL SPECIFICATIONS(BLANK)

This cartridge produces loud report and is used for alarm and training.

S&W FMJ
Special FMJ

S&W cutter

Special Wad cutter

Blank

TECHNICAL FEATURES

Ammunition type	FMJ	Special FMJ	Wad cutter	Special WC (wad cutter)	Blank
Type of core	lead	lead	lead	lead	lead
Type of Gun	0.38 S&W	0.38 spt	0.38 S&W	0.38 spt	0.38 spt
Type of bullet	FMJ	FMJ	wad cutter	wad cutter	-
Bullet Weight (gr)	-	8.75	-	9.5	-
Muzzle velocity (m/s)	265-295	265-295	228-258	225-255	-
Max.Gas Pressure (kgf/cm²)	P ≤ 1200	P < 2600	P ≤ 1200	P ≤ 1200	P ≤ 1200
Accuracy at 25 (cm)	MD ≤ 9	MD ≤ 10	MD ≤ 12	MD ≤ 12	-
Noise level (db)	-	Max. 157	-	Max. 157	Min. 90
Propellant Powder	Single Base	Single Base	Single Base	Single Base	Single Base
Primer	Boxer	Boxer	Boxer	Boxer	Boxer
Quaintly per Lot	50,000	50,000	50,000	50,000	50,000
Packing	Standard	Standard	Standard	Standard	Standard

9×19 mm
(Ball, AP, Subsonic, Blank)

GENERAL SPECIFICATIONS (BALL)

This cartridge has a rimless straight – tapered case with boxer priming.

General Specifications (AP(SNAIL))

This cartridge has a rimless straight – tapered case with boxer priming. The bullet is made of brass and hard steel optimized to penetrate body armor.

General Specifications (SUBSONIC)

This cartridge has a rimless straight – tapered case with boxer priming. The heavy bullet subsonic rounds are used by suppressed weapons.

General Specifications (BLANK)

This cartridge has no projectile but produces a loud report, it is used for alarm and training. The Material case of this Cartridge is brass and a depression in the neck is crimped.

Ball

AP

Subsonic

Blank

TECHNICAL FEATURES

Type	BALL	AP(Snail)	Subsonic	Blank
Type of bullet	FMJ	AP	Heavy ball-FMJ	-
Bullet Weight (gr)	7.3-7.5	8.75	8.75	-
Type of case	Brass	Brass	Brass	Brass
Muzzle Velocity (m/s)	375 ± 15	320	320	-
Penetrate (st37)	-	6 mm(at 15 m)	Boxer	-
Noise level	Max. 157	Max. 157	-	Min. 90
Primer	Boxer	Boxer	Boxer	Boxer
Propellant Powder	Single Base	Single Base	Single Base	Single Base

Rubber Baton Projectile

GENERAL SPECIFICATIONS

The cartridges including of plastic – bodied shotgun shell filled with a rubber baton projectile that was developed for effectiveness.

TECHNICAL FEATURES

Gauge	12/70
Muzzle Velocity	140 m/s
Projectile Weight	8.7 gr
Type of Projectile	PVC – 70-80 shore A
Type of case	HDPE
Type of gun	Shotgun gauge12

Gauge 12 Rubber shots

GENERAL SPECIFICATIONS

The cartridges including plastic – bodied shotgun shell is filled with rubber spherical projectile.

TECHNICAL FEATURES

Gauge	12/70
Muzzle Velocity	390 m/s
Projectile Weight	0.4 gr
Type of Projectile	Rubber spherical
Type of case	HDPE
Type of gun	Shotgun gauge12

GENERAL SPECIFICATIONS (LEAD CORE)

The case is rimless and bottlenecked of brass and berdan primed . The bullet is made of lead core and CuZn10 brass jacket.

GENERAL SPECIFICATIONS BALL (SOFT STELL CORE)

The case is rimless and bottlenecked of brass and berdan primed. The bullet is streamlined with a steel / lead core and a gilding – metal clad – steel /Cu Zn 10 brass jacket.

GENERAL SPECIFICATIONS (AP)

The case is rimless and bottlenecked of brass and berdan primed. The bullet is made of lead and hard steel core and gilding-metal clad-steel / CuZn10 brass jacket .

GENERAL SPECIFICATIONS (SUBSONIC)

The case is rimless and bottlenecked of brass and berdan primed. The heavy bullet is subsonic rounds which is used with suppressed weapons.

Ball

Ball

AP

Subsonic

TECHNICAL FEATURES

Type	Ball	Ball	AP	Subsonic
Muzzle Velocity (m/s)	710	-	720	310
Type of bullet	Ball (lead core)-FMJ	Ball-FMJ	AP-FMJ	Heavy ball (Subsonic)-FMJ
Type of case	Brass	Brass	Brass	Brass
Bullet Weight (gr)	8.15	8	8	11.85
Type of core	Lead core	Soft steel core	Hard steal core	Lead core
Propellant Powder	Double base	Double base	Double base	Double base
Primer	Berdan	Berdan	Berdan	Berdan
Type of gun	KL/AK47/AK103	KL/AK47/AK103	KL/AK47/AK103	KL/AK47/AK103

GENERAL SPECIFICATIONS (TRACER)

The case is rimless and bottlenecked of brass and berdan primed. The bullet is made of lead core and tracer powder filling in capsule behind core.

GENERAL SPECIFICATIONS (BLANK)

This cartridge is used in rifles and machineguns for army training programs for 7.62-mm weapons. This cartridge consists of a primer and propellant contained in a brass cartridge case. The mouth of the cartridge is crimped and sealed by lacquer to protect against air and moisture.

GENERAL SPECIFICATIONS (PLASTIC BLANK)

Plastic Blank Ammunition is designed to provide military forces communities' realistic training and maximum safety at low cost. Plastic case with extended nose is utilized to simulate blank cartridge.

Tracer

Blank

Plastic Blank

TECHNICAL FEATURES

Type	Tracer	Blank	Plastic Blank
Muzzle Velocity (m/s)	725	-	-
Type of bullet	Trecor-FMJ	-	-
Type of case	Brass	Brass	Plastic
Bullet Weight (gr)	7.55-7.80	-	-
Type of core	Lead - Tracing material	-	-
Propellant Powder	Double base	Double base	Double base
Primer	Berdan	Berdan	Boxer
Noise level	-	> 90 db	KL/AK47/AK103
Type of gun	KL/AK47/AK103	KL/AK47/AK103	KL/AK47/AK103

7.62×51 mm
(Ball, Sniper Ball, Tracer, AP)

GENERAL SPECIFICATIONS(BALL)

The case is rimless and bottlenecked, of brass and berdan primed .The bullet is made of lead core and CuZn 10 brass jacket.

GENERAL SPECIFICATIONS(SNIPER BALL)

The case is rimless and bottlenecked, of brass and berdan primed. The Bullet is full brass and stream line.

GENERAL SPECIFICATIONS(TRACER)

The case is rimless and bottlenecked, of brass and berdan primed. The bullet is made of lead core and direct tracer powder filling or capsule behind bullet.

GENERAL SPECIFICATIONS (AP)

The case is rimless and bottlenecked of brass and berdan primed. The bullet is made of hard steel core.

Ball | Sniper ball | Tracer | AP

TECHNICAL FEATURES

Type	Ball	Sniper ball	Tracer	AP
Muzzle Velocity (m/s)	835	840	825	845
Type of bullet	FMJ	FMJ	Traser-FMJ	FMJ
Type of case	Brass	Brass	Brass	Brass
Bullet Weight (gr)	9.7	9.45	9	9
Type of core	Lead core	Lead core	Lead tracing material	Hard steal core
Propellant Powder	Double base	Double base	Double base	Double base
Primer	Berdan	Berdan	Berdan	Berdan
Type of gun	G3/MG3	---	G3/MG3	G3

GENERAL SPECIFICATIONS(AP)

The case is rimmed and bottlenecked, of brass and berdan primed. The bullet is made of hard steel and lead core in a jacket.

GENERAL SPECIFICATIONS (BALL)

The case is rimmed and bottlenecked, of brass and berdan primed. The bullet is made of Lead core in a jacket.

GENERAL SPECIFICATIONS (SNIPER BALL)

The case is rimmed and bottlenecked, of coated steel. The bullet is made of lead / lead and steel core in a jacket.

Ball

AP

Sniper ball

TECHNICAL FEATURES

Type	Ball	AP	Sniper ball
Muzzle Velocity (m/s)	780	810	820
Type of bullet	FMJ	FMJ	FMJ
Type of case	Brass	Brass	Brass/Steel
Bullet Weight (gr)	11.2	10	11.1
Type of core	Lead core	core Steel	Lead core
Propellant Powder	Double base	Double base	Double Base / Single Base

12.7×76 mm

GENERAL SPECIFICATIONS (12.7X76)

The 12.7x76mm spotting-rifle round is a shortened version of the Browning machine gun round , using a shorter case, a reduced propellant charge and a special bullet. Its ballistics closely matches those of the 106mm recoilless rifles.

TECHNICAL FEATURES

Round length	115.2mm
Case length	76 mm
Round weight	109 gr
Bullet weight	52 gr
Type of powder	Spherical- Double base
Type of primer	Percussion
Mean of Muzzle Velocity	532 m/s
Maximum gas pressure	2500 kgf/cm²
Maximum range	4000 m
Dispersion	70-1300 m
Armament	Flame & Smoke

12.7×99 mm

GENERAL SPECIFICATIONS (12.7X99)

This ammunition is manufactured to a higher level of precision and achieves for greater accuracy than most ammunition manufactured for use in Sniper rifle. This round has rimless brass bottlenecked and is berdan or boxer primed.

TECHNICAL FEATURES

Round length	142mm
Case length	99 mm
Round weight	111 gr
Bullet weight	43 gr
Type of powder	Spherical- Double base
Type of primer	Percussion
Mean of Muzzle Velocity	870 m/s
Maximum gas pressure	3800 kgf/cm²
Maximum range	7000 m
Dispersion	(SDx+SDy) 550 m≤175 mm
Armament	STYER-AM50

GENERAL SPECIFICATIONS

Armor-Piercing ammunition / High-Explosive Incendiary (APHEI) is a form of shell which combines armor-piercing capability and a high-explosive effect. In this respect it is a modern version of an armor-piercing shell.

Ball

AP

APHEI

Sniper ball

TECHNICAL FEATURES

Type	Ball	Ap	Aphei	Sniper Ball
Round length (mm)	147	147	147	147
Case length (mm)	108	108	108	108
Round weight (gr)	134	134	134	127
Bullet weight (gr)	48	48	48	43
Type of powder	Spherical-Double base	Spherical-Double base	Spherical- Double base	Single base cylinder
Type of primer	Percussion	Percussion	Percussion	Percussion
Mean of muzzle velocity (m/s)	828	828	828	820 - 850
Maximum gas pressure (kgf/cm2)	3500	3500	3500	3300
Maximum range (m)	7000	7000	7000	2000
Penetration	-	-	20mm Armor in 0° at 100m	-
Fragmentation	-	-	Approx 10 effective Fragments Affter hitting 4mm-Mo40	-
Incendiary effect	-	-	Ignition of Gas/ Gasoline	-
Accuracy	-	-	R50 at 200 m <12.5	(SDx+SDy) 550 m ≤175 mm
Armament	NSV,OSV	NSV,OSV	NSV,T54	OSV 96

14.5×114 mm Cartridges

GENERAL SPECIFICATIONS

The case is rimless, bottlenecked, is of brass and is berdan primed. These bullets are basically identical in design to the 12.7mm equivalents and use the same identifying bullet tip colours.

AP Ball

TECHNICAL FEATURES

Type	AP	Ball
Round length (mm)	156	156
Case length (mm)	114	114
Round weight (gr)	197	197
Bullet weight (gr)	64	64
Type of powder	Single base type, 5/7 N/A	Single base type, 5/7 N/A
Type of primer	Percussion	Percussion
Mean of muzzle velocity (m/s)	980	980
Maximum gas pressure (kgf/cm2)	Pmed. max ≤ 3300	Pmed. max ≤ 3300
Maximum range (m)	4000	4000
Armament	KPV	KPV

20×102 mm HEI , 20×128mm TP-T

GENERAL SPECIFICATIONS (20X102MM HEI)

This ammunition can be fired by Vulcan guns mounted on helicopter. The rimless bottlenecked case is of steel and electrically primed.

GENERAL SPECIFICATIONS (20X128MM TP-T)

This ammunition is produced for training purposes and is fired by 20mm anti-aircraft cannons. The shell body is same as HEIT type with front section empty and rear section filled with tracer.

HEI TP-T 20x102 20x128

TECHNICAL FEATURES

Type	20x102 HEI	20x102 TP-T	20x128 TP-T
Round length (mm)	168	168	203.5
Case length (gr)	102	102	92.3
Round weight (gr)	257	260	340
Bullet weight (gr)	101	95	126
Type of powder	Double base Core	Double base Core	Double base Core
Type of primer	Electric	Electric	Percussion
Mean of muzzle velocity (m/s)	1030	1030	980
Maximum gas pressure(kgf/cm2)	Pmed. Max. ≤ 3300	Pmed. Max. ≤ 33002	Pmed. Max. ≤ 3600
Minimum tracer range (m)	-	1400	-
Armament	M39 - M61	M39 - M61	KAA , KAB

GENERAL SPECIFICATIONS (APIT)

This round forms part of 23mm series fired by ZU-23 air defense gun. The projectile is a solid steel body with steel ballistic cap and tracer assembly in the base. The tracer burns for at least 5 seconds.

GENERAL SPECIFICATIONS (HEI)

This round is another type of 23mm anti-aircraft series fired by ZU-23 air defense gun. The projectile consists of a steel shell filled with explosive material and ignited by a PD MG-25 nose fuze and the round is equipped with self-destruction mechanism with duration of 5-11 seconds.

GENERAL SPECIFICATIONS (HEIT)

This round is the same as HEI type being fired by ZU-23 air defense gun but with tracer assembly burning for at least 5 seconds.

APIT HEI HEIT Blank PD

TECHNICAL FEATURES

Type	APIT	HEI	HEIT	Blank	PD
Self-destruction duration	-	5-11 s	5-11 s	-	-
Tracer Time	min 5s	-	min 5s	-	-
Round length (mm)	237	237	237	157	237
Round weight (gr)	450	450	450	205	450
Length of projectile (mm)	99	108.8	108.8	-	108.8
Weight of projectile (gr)	190	182	188	-	182
Type of primer	Percussion	Percussion	Percussion	Percussion	Percussion
Muzzle velocity (m/s)	970	965	965	-	965
Armament	ZU 23	ZU 23	ZU 23	ZU 23	ZU 23

GENERAL SPECIFICATIONS (APT)

This is the APT type of 30mm anti-aircraft ammunition which is fired by dual feed cannon 2A42 fitted to BMP-2 and intended to be used against lightly armored targets as well as low flying aerial targets such as helicopters.

GENERAL SPECIFICATIONS (HEIT)

This is the HEIT type of 30mm anti-aircraft ammunition which is fired by dual feed cannon 2A42 and is the same as HEI type but with tracer assembly burning for at least 6 seconds.

GENERAL SPECIFICATIONS (HEI)

This is the HEI type of 30mm anti-aircraft ammunition which is fired by dual feed cannon 2A42 fitted to BMP-2 and intended to be used against lightly armored targets as well as low flying aerial targets such as helicopters. It is equipped with a PD fuze having a self-destructed device functioning between 6 and 14 seconds.

APIT

HEIT

HEI

TECHNICAL FEATURES

Type	APT	HEIT	HEI
Round length (mm)	292	291	292
Case length (mm)	165	165	165
Round weight (gr)	853	830	837
Bullet weight (gr)	400	385	389
Type of powder	Cylindrical Single base	Cylindrical Single base	Cylindrical Single base
Type of primer	Percussion	Percussion	Percussion
Minimum tracer time	3 s	6 s	-
Mean of muzzle velocity (m/s)	970	960	960
Maximum gas pressure (kgf/cm2)	3800	3800	3800
Self-destruction (s)	-	6-14	6-14
Effective range (m)	2500	2500	2500
Penetration	Penetrant in small armorial equipment	-	-
Armament	2A42	2A42	2A42

GENERAL SPECIFICATIONS (HEI)

This round is one of 30mm Aircraft cannon ammunition range being fired by GSH-301 aircraft gun mounting on MIG-29 fighter.
It has a nose-fuzed (PD) streamlined steel-walled projectile containing explosive payload fixed with brass case primed electrically.

GENERAL SPECIFICATIONS (TP)

This round is the target practice type of 30mm aircraft cannon ammunition range is fired by GSH-301 mounted on fighter MIG-29 aircraft and intended to be used for training purposes.

HEI

TP

TECHNICAL FEATURES

Type	HEI	TP
Round length (mm)	284	284
Case length (mm)	165	165
Round weight (gr)	832	835
Bullet weight (gr)	389	385
Type of powder	Cylindrical Single base	Cylindrical Single base
Type of primer	Electric	Percussion
Minimum tracer time (s)	3	6
Mean of muzzle velocity (m/s)	870	960
Maximum gas pressure (kgf/cm2)	3400	3800
Armament	GSH-301	GSH-301

GENERAL SPECIFICATIONS (HEI-HEIT)

35mm anti-aircraft ammunition is produced to operate against enemy's air attacks and to defend air territory of cities, important military and industrial places. It is fired from Oerlikon series cannon and provided in 3 types as HEI, HEIT and TPT. These types are all ballistically the same but different in purpose of use.

GENERAL SPECIFICATIONS (TP-T)

The training projectile tracer type of 35mm anti-aircraft is produced for training purposes. The tracer duration of this type is 7 seconds.

HEI-HEIT

TPT

TECHNICAL SPECIFICATIONS

Type	HEI - HEIT	TPT
Round Length (mm)	387	387
Round Weight (gr)	1575	1575
Projectile Weight (gr)	550	550
Case Length (mm)	228	228
Max. Chamber Pressure (kg f/cm2)	3900	3900
Muzzle Velocity (m/s)	1175	1175
Self Destruction (sec)	6-16	---
Max. Range (m)	11,000	11,000
Trace Duration	Min 4sec (HEIT)	min 6 sec

PACKING DATA

Type	HEI - HEIT	TPT
Rounds in Wooden box	25	25
Wooden box weight (kg)	45	45
Wooden Box Dim. (cm)	58 x 43 x 40	58 x 43 x 40
Wooden Box per Pallet	12	12
Pallet Weight (kg)	555	555
Pallet Dimensions (cm)	115 x 84 x 135	115 x 84 x 135

GENERAL SPECIFICATIONS (HE)

This ammunition is produced to be used with 30mm AK630 naval gun intended for short range defense of warships or as the main armament of small vessels.
The HEI type of this ammunition is equipped with self-destruction device with duration of 12 to 28 seconds and is primed electrically.

GENERAL SPECIFICATIONS (TRACER)

This ammunition is produced to be used with 30mm type 69 or AK630 naval gun intended for tracing purposes.
The tracer of this ammunition burns for at least 6 seconds.

GENERAL SPECIFICATIONS (TP)

The Target Practice (TP) type of 30mm anti-aircraft naval ammunition is produced to be used with the same gun as HEI and tracer types and intended for training purposes.
The round ballistically matches the HEI type.

HEI

Tracer

TP

TECHNICAL SPECIFICATIONS

Type	HEI	Tracer	TP
Round length (mm)	306	306	306
Case length (mm)	210	210	210
Round weight (gr)	1061	1067	1061
Bullet weight (gr)	356	359	356
Type of powder	Single base	Single base	Single base
Type of primer	Electric	Electric	Electric
Minimum tracer time (s)	-	7	-
Mean of muzzle velocity (m/s)	1035	1035	1035
Maximum gas pressure (kg f/cm2)	3300	3300	3300
Self-destruction (s)	12-28	-	-
Armament	TYPE69	TYPE69	TYPE69

40×365 mm (TP-T) Naval Ammunition

GENERAL SPECIFICATIONS

The Target Practice Purposes (TPT) simulates the ballistic properties of service projectile for training in marksman ship. The projectile, which is loaded with an inert material, is fused with either a dummy or an inert PD fuze.

TECHNICAL SPECIFICATIONS

Round length	534 mm
Case length	365 mm
Round weight	2500 gr
Bullet weight	961 gr
Type of powder	Cylindrical Single base
Type of primer	Percussion
Minimum tracer time	4 s
Mean of muzzle velocity	1005 m/s
Maximum gas pressure	3900 Kgf/cm²
Armament	L70

76/62 mm Naval

GENERAL SPECIFICATIONS (HE-VT)

76/62mm naval ammunition is a high explosive round intended for firing against a wide range of targets either surface, coastal or in the air. It is used against surface and coastal targets by a point detonating fuze, and against air targets by a radio proximity fuze.

GENERAL SPECIFICATIONS (TP-T)

The training projectile 76.62mm naval ammunition is produced for training purposes.

TECHNICAL SPECIFICATIONS

Type	HE - VT	TP-T
Max. Range (surface) (m)	16000	16000
Muzzle Velocity (m/s)	900	900
Chamber Pressure (bar)	3155	3155
Type of fuze	Proximity fuze/PD	-
Weight of explosive (gr)	530	-
Type of explosive	Comp. A3	Inert
Armament	76/62 OTO melara	76/62 OTO melara

PACKING DATA

Type	HE - VT , TP-T
1 Round in one Metal Tube	20
20 Tube on one Pack	400 kg
Metal Tube Dim.	108 x 89 x 90 cm

GENERAL SPECIFICATIONS (HEAT M456A1)

This is fixed round high explosive anti-tank ammunition intended to be used against armored targets. The ammunition consists of a steel body projectile and a brass case containing the propellant charge. The body contains a funnel shaped copper liner, a PIBD fuze at the bottom, a nose cap retaining piezoelectric element and is loaded with composition B. When the projectile is detonated on impact by fuze functioning, the cone collapses, creating a high velocity shock wave and a jet of metal particles which penetrates the target.

GENERAL SPECIFICATIONS (HE-TK-M60)

The product is high explosive ammunition with the projectile secured to the brass cartridge case and is fired with M60 series tank guns. Having a muzzle velocity of 864 m/s the projectile reaches a max range of 17,000 m in the field being effective against enemy's personnel and materials by producing both fragmentation and blast.

HE HEAT

TECHNICAL SPECIFICATIONS

Type	High Explosive	High Explosive Anti-tank, M456A1
Total length, fuzed (mm)	1040	999
Total weight, fuzed (kg)	27	22
Filling material (kg)	1.65 TNT	1.1 Composition B
Propellant charge	Triple base M26 powder - 4 bags of 1 kg/ea	M30 - 5 kg
Cartridge case length (mm)	617	-
Cartridge case weight (gr)	-	w/o charges 6300 with charges 11300
Fuze	PDM 557 or PDM 572	PIBD M509A1
Primer	Electric M63	Electric M83 / Percussion
Muzzle velocity (m/s)	864	1174
Max. range (m)	17000	8200
Max. chamber pressure (bar)	3450	5100
Penetration	-	356 mm RHA Plate at 90°
Armament	M60A1 Tank Gun	Tank M60A1 Gun 105 mm

PACKING DATA

Type	High Explosive	High Explosive Anti-tank, M456A1
Quantity per Box (rds)	2	2
Box Weight (kg)	76	78
Box Dimensions (mm)	1200 x 380 x 220	1120 x 375 x 240
Box per pallet	12	15
Pallet Weight (kg)	925	925
Pallet Dimensions (mm)	1200 x 1140 x 960	1150 x 1105 x 1350

105 mm HESH-T

GENERAL SPECIFICATIONS (HESH-T)

105mm high explosive plastic is produced to destroy enemy's light armored and fortification targets.

TECHNICAL SPECIFICATIONS

Total length, fused	511 mm
Total weight, fused	20.5 kg
Filling material	Comp A3
Propellant charge weight	2800 gr
Fuze	L56
Primer	M83/Percussion
Muzzle velocity	730 m/s
Max. Range	9510 m
Max. Chamber pressure	3000 kgf/cm²
Armament	M60A1 Tank Gun

PACKING DATA

Quantity per Box	2 rds
Box Weight	66 kg
Box Dimensions	111 x 350 x 230 cm
Box per pallet	12
Pallet Weight	810 kg
Pallet Dimensions	115 x 110 x 100 cm

120 mm HESH

GENERAL SPECIFICATIONS

This D.I.O product is a general purpose round with a good anti-armour performance. It consists of a thin-walled projectile which collapses when striking a target allowing the explosive to be spread over the surface of the target before the base fuze functions. The resultant detonation creates shockwaves which force off a large high velocity scab of material from the inner surface of the targeted armour.

TECHNICAL SPECIFICATIONS

Length	511 mm
Weight of the shell	16.65 kg
Propellant charge	NQIS 27-09
Propellant charge weight	2.73 Kg
Fuze	L56
Muzzle velocity	670 m/s
Max. Range	2530 m
Filling material	(RDX/WAX-8-1) comp A3
Filling material weight	3.55 Kg

PACKING DATA

Quantity per Box	2
Box Weight	49 kg
Box Dim.	640 x 390 x 230 mm
Box P/Pallet	16
Pallet Dim	610 x 410 x 220 mm

GENERAL SPECIFICATIONS (HEAT M344A1)

This product is provided in two types as HEAT and HEAP. The HEAT type is applied against tanks and armour vehicles. It is fired with Recoilless Rifles M40 or M40A1. The base of the projectile of the HEAT type contains the PIBD M509A1 fuze and the fin assembly. The cartridge case has a steel perforated body and contains the propellant charge fitted with a percussion primer at the base.

General Specifications (RR - HEAP)

This product is provided in two types as HEAT and HEAP. The HEAP type is applied against enemy's personnel. It is fired with Recoilless Rifles M40 or M40A1. The base of the projectile contains the PD M121A fuze and the fin assembly. The cartridge case has a steel perforated body and contains the propellant charge and fitted with a percussion primer at the base.

TECHNICAL SPECIFICATIONS

Type	HEAT	HEAP
Total length, fused (mm)	998	922
Total weight, fused (kg)	About 17	About 17
Filling material (gr)	1200 Comp.B	About 590 A4
Cartridge case length (mm)	610	610
Propellant charge (kg)	M26 double base seven perforated 3.8	M26 double base seven perforated 3.6
Cartridge case weight (kg)	About 5.8 (w/o charges) About 9 (with charges)	About 5.8 (w/o charges) About 9 (with charges)
Fuze	PIBD M509A1 or M509A2	PDM 121A
Primer	M57	M57
Muzzle velocity (m/s)	503	485
Max. range (m)	-	About 6,000
Max. effective range (m)	1350	-
Max. chamber pressure (bar)	874	874
Penetration	152mm RHA plate at 60°	-
Armament	M40 or M40A1 Recoilless Rifle	M40 or M40A1 Recoilless Rifle

PACKING DATA

Type	HEAT , HEAP
Quantity per Box	2 rds
Box Weight	52 kg
Box Dim.	1114 x 346 x 221 mm
Box P/Pallet	15
Pallet Weight	795 kg
Pallet Dimensions	1120 × 1050 × 1180 mm

GENERAL SPECIFICATIONS (HEAT - T FS, 3BK18M)

This is SHOHADA MAHAM PARCHIN separate loading ammunition which is intended for use against armoured targets and fired with 2A46M main gun fitted to T-72 MBT. It is automatically loaded into the breach followed by a semi-combustible cartridge case. The projectile has a steel body encircled by two driving bands and its front, carries a standoff spike inside which is a piezoelectric contact sensor connected by an internal connection to a base-mounted fuze. This ammunition can penetrate 450mm of Rolled Homogenous Armour (RHA) at normal angle or 230mm at an angle of 60 deg. to the normal.

GENERAL SPECIFICATIONS (HE 3VOF19)

The product is a fin stabilized and separate loading ammunition which is fired with 2A46M main gun fitted to T-72 MBT and T-80 UD. It is automatically loaded into the breach followed by a semi-combustible cartridge case. Having a muzzle velocity of 850 m/s the projectile reaches a max. range of 9400 m in the field being effective against enemy's personnel and materials by producing both fragmentation and blasts.

HE HEAT

TECHNICAL SPECIFICATIONS

Type	HE, FS,3V0F19	HEAT - T FS, 3BK18M
Total length, fused (mm)	673	680
Total weight, fused (kg)	23.15	19
Filling material	3/1485 kg	1.600 kg Composition A4
Propellant charge (kg)	ж52	ж52-5
Cartridge case length	-	408 mm
Cartridge case weight	About 3.4 kg (w/o charges) About 10 kg (with charges)	-
Fuze	V-429E / B429E	V-15
Primer	ГУВ-7	ГУВ-7
Muzzle velocity (m/s)	850	905
Max. range (m)	9400	4000
Max. chamber pressure in ambient temperature (bar)	3000	3000
Armament	Tank T-72 & T-80 Gun	Tank T-72 Gun

PACKING DATA

Type	HE, FS,3V0F19	HEAT - T FS, 3BK18M
Quantity per Box	1 rds	1
Box Weight (kg)	52	49
Box Dim. (cm)	74 x 47 x 28	80 x 48 x 28
Box P/Pallet	8	8
Pallet Weight (kg)	About 450	About 450
Pallet Dimensions (cm)	95× 75 ×127	95 × 80 × 127

122 mm
(HE, HE-HB, smoke, WP)

GENERAL SPECIFICATIONS (HE)

122mm Howitzer Ammunition series are semi-fixed and widely used all over the world since World War II as reliable artilleries in military services. High Explosive of-462 intended for use with D-30 Howitzer Gun.

GENERAL SPECIFICATIONS (HE-HB)

122 mm Howitzer Ammunition series are separate loading munitions widely used all over the world since World War II as reliable artilleries in military services. High explosive hollow base is intended for use with D-30 Howitzer Gun.

GENERAL SPECIFICATIONS (SMOKE, WP)

122 mm smoke ammunition uses WP to conceal and spot by limited incendiary effect. The ammunition is semi-fixed; the cartridge case is loaded separately so that where appropriate, the propellant charge can be altered to suit the fire mission.

HE HE-HB Smoke

TECHNICAL SPECIFICATIONS

Type	HE	HE-HB	WP,D-462
Projectile length fused (mm)	571.8	668	571.8
Projectile weight fused (kg)	21.760	21.75	22
Propellant charge (kg)	Full - 3.8, Reduced - 2.5	Full - 3.8	Full - 3.8
Filling material (kg)	4.05 TNT	3.25 TNT	3.8 WP
Primer	MC22/30	MC22/30	MC22/30
Fuze	Fuze PD M557 or PD M572 or B429	Fuze PD M557 or PD M572 or B429	Fuze PDM 557& B429
Muzzle velocity (m/s)	Full Chrg690, Reduced Chrg565	700	Full Chrg690, Reduced Chrg565
Max. range (m)	Full Chrg.15300, Reduced Chrg. 12840	17300	Full Chrg16800m Reduced Chrg13430
Max. chamber pressure (bar)	Full Chrg.2500 bar Reduced Chrg. 2300	2500	Full Chrg2900 bar Reduced Chrg2500
Cartridge case length (mm)	-----	446.4	446.4
Cartridge case weight (kg) (w/o charges)	-----	5.15	5.15
Armament (mm)	122 HOW D30	122 HOW D30	122 HOW D30

PACKING DATA

Type	HE	HE-HB	Smoke
Quantity per box	1	1	1
Box weight	42 kg	42 kg	40 kg
Box dimensions (cm)	64 x 35 x 23	70 x 46 x 25	119 x 39 x 25
Box per pallet	24	8	15
Pallet weight	1008 kg	350 kg	600 kg
Pallet dimensions (cm)	135 x 110 x 110	91 x 72 x 115	105 x 137 x 103

130 mm (HE, Smoke)

GENERAL SPECIFICATIONS (HE, OF 482M)

130mm gun ammunition is semi-fixed series of munitions provided in various types as high explosive, extended range, smoke and illuminating. The range of HE type is 27000m.

GENERAL SPECIFICATIONS (SMOKE, WP, DTS-1)

As the HE type, this product is also semi-fixed ammunition allowing the variable charges (full and reduced), contained in a brass case to vary to suit any particular fire mission and as the other smoke ammunition, and used to conceal and spot smoke. The shell contains white phosphorus as smoking agent which upon contacting the air, ignites and produces a thick cloud of white smoke

HE WP

TECHNICAL SPECIFICATIONS

Type	HE	WP
Projectile length fused (mm)	670	670
Projectile weight fused (kg)	33.400	32.97 - 33.30
Cartridge case length (mm)	845.3	845.3
Propellant charge (kg)	Full - 13.2 , Reduced - 6.75	Full Chrg 13.500 kg Reduced 6.75 kg
Cartridge case weight (kg (w/o charges))	11.32	11.32
Filling material	3700 gr TNT	3.23 kg WP
Primer	MC22/30	MC22/30
Fuze	PDM 572	PDM 572 / B-429 E
Muzzle velocity	Full Chrg.930 m/s Reduced hrg.705 m/s	Full Chrg.930 m/s Reduced hrg.705 m/s
Max. range	Full Chrg. 27500 m Reduced Chrg.19130 m	Full Chrg. 7500 m Reduced Chrg.19130 m
Max. chamber pressure	Full Chrg.3500 bar Reduced Chrg.2800 bar	Full 3350 bar Reduced2700 bar
Armament (mm)	130 mm(M-46,Type 59-I) Gun	130 mm(M-46,Type 59-I) Gun

PACKING DATA

Type	HE	SMOKE
Quantity per box	1	2
Box weight (kg)	75	75
Box dimensions (mm)	964 x 436 x 266	980 x 410 x 230
Box per pallet	12	12
Pallet weight (kg)	920	920
Pallet dimensions (mm)	1330 x 970 x1200	1000 x 1300 x 1000

GENERAL SPECIFICATIONS (HE - BB)

130mm gun ammunition HERA are semi-fixed series of munitions provided in various types as high explosive, extended range, smoke and illuminating. The range of HERA - BB type is 42000m.

General Specifications (HERA - BB)

This is an improved type of 130mm HE-BB ammunition which has a different aerodynamic shape in comparison with the normal one and is equipped with a gas generating system at its base is called Base Bleed Unit. The generated gas replaces the vacuum created at the rear side of the shell and therefore results reduction of the drag force and consequently a remarkable increasing in the range which is around 35000 m at 1000 m above sea level.

HE-BB

HERA

TECHNICAL SPECIFICATIONS

Type	HE-BB	HERA
Total length (fused) (mm)	800	800
Weight of shell (kg)	32	32
Filling material	TNT	TNT
Propellant charge weight (kg)	13.15 (Full)	13.5 (Full)
Primer	MC 22/30	MC 22/30
Fuze	B429	B429
Muzzle velocity (m/s)	965	965
Max. range (m)	35000	42000
Armament	T59-1 or M-46	T59-1 or M-46

PACKING DATA

Type	HE - BB , HERA
Quantity per box	1
Box weight	75 kg
Box dimensions	964 x 436 x 266 mm
Box per pallet	12
Pallet weight	920 kg
Pallet dimensions	1330 x 970 x1200 mm

152 mm HE

GENERAL SPECIFICATIONS

152mm projectile is one of the artillery ammunition series.
The fuze is activated when ammunition is shocked with any type of target and then explosive within the body detonates.
This destroys the person and instruments of foeman.

TECHNICAL SPECIFICATIONS

Projectile length, fused	707.5 mm
Projectile weight, fused	43.560 kg
Cartridge case length	547 mm
Caliber	152.4 mm (6 inch)
Filling material	5860 gr TNT
Primer	MC22/30/52
Fuze	PD-B429, M557, M572
Muzzle velocity	Full chrg. 655 m/s, reduced chrg. 282-511 m/s
Body	Forged Steel
Range	Full chrg. 17400 m, reduced chrg. 6710-13400 m
Chamber pressure	Full chrg. 2400 bar, reduced chrg 2100 bar
Armament	152 mm D-20 Gun

GENERAL SPECIFICATIONS (HE, M107)

155mm HOW ammunition series are supplied in HE, M107, extended range with base bleed unit, as well as smoke and illuminating types. The range of HE type is 16 km.

GENERAL SPECIFICATIONS (HE- ERFB/BB)

155mm HOW ammunition ERFB/BB is equipped with base bleed unit resulting to an enhanced range of 34 km. The ammunition is fired with GHN45 GUN.

HE HE- ERFB/BB

TECHNICAL SPECIFICATIONS

Type	High Explosive, M107	HE- ERFB/BB
Projectile length fused (mm)	710.8	710.8
Projectile weight fused (kg)	43	43.65
Propellant charge (kg)	White Bag M4A2-6	zone 10 - 15.80 , - 16.30
Filling material (kg)	3.5 TNT	3.5 TNT
Primer	M82 or MK2A4	M82
Fuze	PDM 557, PDM 572 or PDM 739	PDM 572 or M 557
Muzzle velocity (m/s)	565.4	686
Max. range (km)	14.5	30
Max. chamber pressure (bar)	3040	3040
Armament	155mm HOW M1A1,M1A2	GHN 45
Weight zone group	-----	5

PACKING DATA

Type	High Explosive, M107	HE- ERFB/BB
Quantity per box	1	1
Box weight (kg)	47	50
Box dimensions (cm)	77 x 28 x 26	77 x 28 x 26
Box per pallet	16	16
Pallet weight (kg)	770	920
Pallet dimensions (cm)	115 x 77 x 120	115×76.5×120

GENERAL SPECIFICATIONS (HOW SMOKE, WP - M110A2)

155mm smoke is used to provide concealing and spotting. It has the same general appearance as the 155mm High-Explosive (HE) M107 and has the same design features. The shell contains white phosphorus and is normally fitted with a nose-mounted Point-Detonating (PD) fuze. On impact, the fuze ignites the internal supplementary charge, which then ruptures the shell casing to release WP filling. As it contacts the air, the WP ignites to produce thick clouds of white smoke.

GENERAL SPECIFICATIONS (HOW ILLUMINATING M485A2)

155mm Illuminating is a separate loading ammunition of 155mm series using a hollow forged steel body with a steel base plug press fitted to the rear of the projectile and held in place by shear and twist pins. The shell interior contains a primary expulsion charge, a canister assembly and a small first parachute. The canister assembly contains a secondary expulsion charge, a delay holder, an illumination composition and the main parachute

WP

Illuminating

TECHNICAL SPECIFICATIONS

Type	Smoke WP	Illuminating
Projectile length fused (mm)	710.8	605
Projectile weight fused (kg)	44	41.7
Propellant charge (kg)	White Bag M4A2-6	White Bag M4A2-6
Filling material (kg)	5 WP	2.6 Illuminant
Primer	M82	M82
Fuze	PDM 557 / PDM 572/B429	M565 MT or M564
Muzzle velocity (m/s)	565.4	565.4
Max. range (km)	14.5	14.5
Max. chamber pressure (bar)	3040	3040
Armament	155 mm HOW M1A1, M1A2 - IH	155 mm HOW M1A1, M1A2 - IH
Weight zone group	---	-----
Min. smoke time (sec.)	50	-----
Illuminating Intensity (cd)	-----	800,000
Min. burning time (sec.)	-----	100

PACKING DATA

Type	Smoke WP	Illuminating
Quantity per box	1	-
Box weight (kg)	50	-
Box dimensions (cm)	77 x 28 x 26	-
Box per pallet (kg)	16	-
Pallet weight (kg)	920	350
Pallet dimensions (cm)	115 × 76.5 × 120	70 x 36 x 80
Qty /Pallet	-	8 rds

GENERAL SPECIFICATIONS

The high flexibility and easy handling on one hand and the accuracy of operation on the other hand, have made the Mortars to be considered as the most worldwide suitable weapons in infantry fighting particularly in hilly or jungle terrains fields.
The 60mm mortar shell is one of the small mortar bombs produced by Iran Defence Industries and characterized by the special process of production and high quality material for the body, resulting in more effective blast and fragments and higher lethality for the ammunition. It is equipped with AZ111-A2 fuze with 2 positions (delayed & quick impact).
LR, LR-A2: Long range and Long range-A2 types of 60mm mortar bomb are two improved types of that. The improvement is not only in the range, but also in their performance with more volume of explosive material. The new types have more explosive power and as a result they cause much better fragments than the previous type, resulting in a better performance. All these improvements are made without any change to the mortar launchers.

HE HE LR

TECHNICAL SPECIFICATIONS

Type	High Explosive	High Explosive (L.r)
Length, Fused (mm)	265 ± 2	305 ± 2
Weight, Fused (gr)	1270 ± 20	1620 ± 25
Caliber (mm)	60	60
Color	Olive green / Khaki	Olive green / Khaki
Filler Material (g)	170 TNT	210 TNT
Charge	3 white	1red + 3 white
Body	Forged steel	Forged steel
Tail	Extruded Aluminum	Extruded Aluminum
Fuze	AZ111-A2	AZ111-A2
Primer	M35	M35
Muzzle Velocity (m/s)	183 ± 3	219 ± 3
Max. Chamber Pressure (bar)	350	450
Max. Range (m)	2300	3200
Armament	60mm mortars	60mm mortars

PACKING DATA

Type	High Explosive	High Explosive (L.r)
Quantity per Box	10	10
Box Weight (kg)	22.5 ± 2	28 ± 2
Box Dim.(mm)	501 x 365 x 232	501 x 402 x 247
Box per Pallet	30	20
Pallet Dim. (mm)	1000 x 1080 x 1200	1000 x 1185 x 800

GENERAL SPECIFICATIONS

ER-HE: Extended range high explosive 60mm mortar is designed to improve range and performance, but launcher in this type is different and a long-barrelled mortar is needed.

Above-surface long range high explosive 60mm mortar bomb

In this kind of mortar shell the basic fuze AZ111-A2 is replaced with AZ111-A2/AS. In case of not using above -surface mechanism it will work as an ordinary long range 60mm mortar shell, but in case of setting fuze to immediate position and using above -surface mechanism, fragments that impact target will increase 30% more and this means that effectiveness of mortar is increased.

LR-AS

HE ER

TECHNICAL SPECIFICATIONS

Type	High Explosive (Er)	High Explosive (Lr-As)
Length, Fused (mm)	400 ± 2	500 ± 2
Weight, Fused (gr)	2345 ± 30	1670 ± 25
Caliber (mm)	60	60
Color	Olive green / Khaki	Olive green / Khaki
Filler Material (g)	315 TNT	210 TNT
Charge	1red + 7 white	1red + 3 white
Body	Forged steel	Forged steel
Tail	Extruded Aluminum	Extruded Aluminum
Fuze	AZ111-A2	AZ111-A2/AS
Primer	M35	M35
Muzzle Velocity (m/s)	320 ± 3	219 ± 3
Max. Chamber Pressure (bar)	850	450
Max. Range (m)	5800	3000
Armament	60mm Long –Barrelled Mortars: 130Cm	60mm mortars

PACKING DATA

Type	High Explosive (ER)	High Explosive (LR-AS)
Quantity per Box	10	10
Box Weight (kg)	37 ± 2	30 ± 2
Box Dim (mm)	531 x 473 x 247	545 x 407 x 232
Box per Pallet	20	20
Pallet Dim. (mm)	1065 x 890 x 1280	1090 x 785 x 800

GENERAL SPECIFICATIONS

Practice type of this production is used for training to show how to operate and shoot.
60mm Smoke mortar bomb is one of the smoke generating ammunitions intended to be used for concealing the combatants and materials from enemy observation or for signalling purposes. They use white phosphorus as the smoke generating agent.

Practice WP

TECHNICAL SPECIFICATIONS

Type	Practice	WP
Length, Fused (mm)	265 ± 2	305.5
Weight, Fused (gr)	1270 ± 20	1620
Caliber (mm)	60	60
Color	BLUE	Light green
Filler Material	DAMMY	250 gr WP
Charge	3 white	1 red + 3 white
Body	Forged steel	Forged Steel
Tail	Extruded Aluminum	Extruded Aluminum
Fuze	DAMMY	AZ111-A2
Primer	M35	M8 or M9
Muzzle Velocity (m/s)	183 ± 3	219
Max. Chamber Pressure (bar)	350	450
Max. Range (m)	2300	3200
Armament	60mm mortars	All 60mm smoothbore mortars

PACKING DATA

Type	Practice	WP
Quantity per Box	10	10
Box Weight (kg)	22.5 ± 2	29
Box Dim. (mm)	502 x 343 x 234	510 × 390 × 230
Box per Pallet	30	30
Pallet Dim. (mm)	1000 x 1080	1000 × 1300 × 900

81mm (Practice, WP)

GENERAL SPECIFICATIONS

Practice type of this production is used for training to show how to operate and shoot.
81 mm Smoke mortar bomb is one of the smoke generating ammunitions intended to be used for concealing the combatants and materials from enemy observation or for signalling purposes. They use white phosphorus as the smoke generating agent.

WP Practice

TECHNICAL SPECIFICATIONS

Type	Practice	WP
Length, Fused (mm)	369 ± 2	369
Weight, Fused (gr)	3930 ± 40	3880
Caliber (mm)	81	81
Color	BLUE	Light green
Filler Material	DAMMY	550 gr WP
Charge	6 white	6 white
Body	Forged steel	Forged Steel
Tail	Extruded Aluminum	Extruded Aluminum
Fuze	DAMMY	AZ111-A2
Primer	M35	M34
Muzzle Velocity (m/s)	282.5 ± 3	286
Max. Chamber Pressure (bar)	790	790
Max. Range (m)	5300	5250
Armament	81mm mortars	All 81mm smoothbore mortars

PACKING DATA

Type	Practice	WP
Quantity per Box	4	4
Box Weight (kg)	24 ± 2	34
Box Dim.(mm)	508 x 263 x 367	500 × 260 × 280
Box per Pallet	32	24
Pallet Dim. (mm)	1030 x 1020 x 954	1300 × 1000 × 990

GENERAL SPECIFICATIONS

The high flexibility and easy handling on one hand and the accuracy of operation on the other hand, have made mortars to be considered as the most worldwide suitable weapon in infantry fighting, particularly in hilly or jungle terrains fields.

The 81mm mortar shell is one of the mortar bombs produced by Iran Defence Industries and characterized by the special process of production and high quality material for the body, resulting in more effective blast and fragments and higher lethality for the ammunition. It is equipped with AZ111-A2 fuze with 2 positions (delayed and quick impact).

Long range: Long range type of 81mm mortar bomb is an improved type of that. The improvement is not only in the range, but also in its performance with more volume of explosive material. The new type has more explosive power and as a result causes much better fragments than the previous type, resulting in a better performance. All these improvements are made without any change to the mortar launchers.

LR-AS: Above-surface Long range high explosive 81mm **mortar bomb:** In this kind of mortar shell the basic fuze AZ111-A2 is replaced with AZ111-A2/AS. In case of not using above-surface mechanism it will work as an ordinary long range 81mm mortar shell, but in case of setting fuze to immediate position and using above-surface mechanism, fragments that impact target will increase 30% more and this means that effectiveness of mortar is increased.

TECHNICAL SPECIFICATIONS

Type	High Explosive	High Explosive (L.R)	High Explosive (LR-AS)
Length, Fused (mm)	369 ± 2	522 ± 2	716 ± 2
Weight, Fused (gr)	3930 ± 40	4520 ± 40	4600 ± 50
Caliber (mm)	81	81	81
Color	Olive green / Khaki	Olive green / Khaki	Olive green / Khaki
Filler Material (g)	520 TNT	960 TNT	960 TNT
Charge	6 white	1red + 5 white	1red + 5 white
Body	Forged steel	Forged steel	Forged steel
Tail	Extruded Aluminum	Extruded Aluminum	Extruded Aluminum
Fuze	AZ111-A2	AZ111-A2	AZ111-A2/AS
Primer	M35	M35	M35
Muzzle Velocity (m/s)	282.5 ± 3	314 ± 3	314 ± 3
Max. Chamber Pressure (bar)	790	790	790
Max. Range (m)	5100	6500	6000
Armament	81 mm mortars	81 mm mortars	81 mm mortars

PACKING DATA

Type	High Explosive	High Explosive (L.R)	High Explosive (LR-AS)
Quantity per Box	4	4	4
Box Weight (kg)	24 ± 2	29 ± 2	30 ± 2
Box Dim. (mm)	508 x 263 x 367	671 x 261 x 277	711 x 243 x 262
Box per Pallet	32	32	32
Pallet Dim. (mm)	1030 x 1020 x 954	1345 x 1025	1422 x 1025 x 935

120 mm (HE,LR,AS)

GENERAL SPECIFICATIONS

The high flexibility and easy handling on one hand and the accuracy of operation on the other hand, have made mortars to be considered as the most worldwide suitable weapon in infantry fighting, particularly in hilly or jungle terrains fields.
The 120mm mortar shell is one of mortar bombs produced by Iran Defence Industries and characterized by the special process of production and high quality material for the body, resulting in more effective blast and fragments and higher lethality for the ammunition. It is equipped with AZ111-A2 fuze with 2 positions (delayed and quick impact).
Long range: Long range type of 120mm mortar bomb is an improved type of that. The new type has more explosive power and as a result causes much better fragments than the previous type, resulting in a better performance. All these improvements are made without any change to the mortar launchers.
Above-surface high explosive 120 mm mortar bombs: In this kind of mortar shell the basic fuze AZ111-A2 is replaced with AZ111-A2/ AS. In case of not using above-surface mechanism it will work as an ordinary 120mm mortar shell, but in case of setting fuze to immediate position and using above-surface mechanism, fragments that impact target will increase 30% more and this means that effectiveness of mortar is increased.

TECHNICAL SPECIFICATIONS

Type	High Explosive	High Explosive (L.R)	High Explosive (AS)
Length, Fused(mm)	581 ± 2	664 ± 2	937 ± 2
Weight, Fused(gr)	12970 ± 200	13650 ± 200	13100 ± 25
Caliber (mm)	120	120	120
Color	Olive green / Khaki	Olive green / Khaki	Olive green / Khaki
Filler Material (g)	2250 TNT	2300 TNT	2250 TNT
Charge	1red + 8 white	1red + 8 white	1red + 8 white
Body	Forged steel	Forged steel	Forged steel
Tail	Extruded Aluminum	Extruded Aluminum	Extruded Aluminum
Fuze	AZ111-A2	AZ111-A2	AZ111-A2/AS
Primer	M35	7512	M35
Muzzle Velocity (m/s)	305 ± 3	323 ± 3	305 ± 3
Max. Chamber Pressure (bar)	900	900	900
Max. Range (m)	6500	6900	6200
Armament	120mm mortars	120mm mortars	120mm mortars

PACKING DATA

Type	High Explosive	High Explosive (L.R)	High Explosive (AS)
Quantity per Box	2	2	2
Box Weight (kg)	38 ± 2	40 ± 2	38 ± 2
Box Dim. (mm)	771 x 348 x 220	860 x 330 x 222	771 x 348 x 220
Box per Pallet	15	15	15
Pallet Dim. (mm)	735 x 1025 x 943	1050 x 830	735 x 1025 x 943

120 mm
(RA, RA-ER, Practice)

GENERAL SPECIFICATIONS

High explosive rocket assistant: To enhance range of 120mm mortar bomb 120mm rocket assistant product is designed. The complete round consists of a symmetrical forged C60 steel projectile body, internal solid-fuel rocket motor and HE filling. There are 6 gas check rings spaced around the waist. The rear taper is considerably thicker than normal and the tail fins are close to the body. The central cartridge container extends behind the fins and the horse-shoe shape increments are fitted around it. The filler is 2.15 kg of composition B and the bomb is drop loaded and fired in the usual manner. Once the bomb is fired to its target, the rocket motor initiates during the final few seconds of the flight, adding approximately 4 km range over conventional bombs.
High explosive rocket assistant (extended range): high explosive 120mm mortar bomb is designed to improve range and performance, but launcher in this type is different and a long-barrelled mortar is needed.
Practice: Practice type of this production is used for training to show the operation and shooting.

RA

RA-ER

Practice

TECHNICAL SPECIFICATIONS

Type	High Explosive(RA)	High Explosive(RA-ER)	Practice
Length, Fused(mm)	738.5 ± 2	1230 ± 2	581 ± 2
Weight, Fused(gr)	16840 ± 25	24700 ± 25	12970 ± 200
Caliber (mm)	120	120	120
Color	Olive green / Khaki	Olive green / Khaki	Blue
Filler Material (g)	2100 comp B	3900 TNT	DAMMY
Charge	1red + 8 white	1red + 14 white	1red + 8 white
Body	Forged steel	Forged steel	Forged steel
Tail	Extruded Aluminum	Extruded Aluminum	Extruded Aluminum
Fuze	AZ111-A2	AZ111-A2	DAMMY
Primer	M35	7512	M35
Muzzle Velocity (m/s)	265 ± 3	295 ± 3	305 ± 3
Max. Chamber Pressure(bar)	1000	1200	900
Max. Range (m)	10000	16000	6500
Armament	120 mm mortars	120 mm Long –Barrelled Mortars (11E)	120 mm mortars

PACKING DATA

Type	High Explosive(RA)	High Explosive(RA-ER)	Practice
Quantity per Box	2	1	2
Box Weight (kg)	49 ± 2	35 ± 2	38 ± 2
Box Dim. (mm)	1081 x 338 x 216	1440 x 185 x 220	771 x 348 x 220
Box per Pallet	15	15	15
Pallet Dim. (mm)	1080 x 1000 x 1200	-	735 x 1025 x 943

120 mm (WP)

GENERAL SPECIFICATIONS

Smoke: 120mm Smoke mortar bomb is one of the smoke generating ammunitions intended to be used for concealing the combatants and materials from enemy observation or for signalling purposes. They use White Phosphorus as the smoke generating agent.

TECHNICAL SPECIFICATIONS

Length, Fuzed	580 mm
Weight, Fuzed	12.970 gr
Caliber	120 mm
Color	Light green
Filler Material	2300 gr WP
Charge	1 red + 8 white
Body	Forged Steel
Tail	Extruded Aluminum
Fuze	AZ111-A2
Primer	----
Muzzle Velocity	310 m/s
Max. Chamber Pressure	900 bar
Max. Range	6500 m
Armament	All 120mm smoothbore mortars

PACKING

Quantity per Box	2
Box Weight (kg)	38 ± 2
Box Dim. (mm)	771 x 348 x 220
Box per Pallet	15
Pallet Dim. (mm)	735 x 1025 x 943

120 mm Mortar Illuminating

GENERAL SPECIFICATIONS

This product is used to determine foeman situations at night time.

TECHNICAL SPECIFICATIONS

Length	591 mm
Weight	12.1 kg
Illuminating Material Weight	940 g
Propellant Charge Weight	370 g
Quantity Propellant Charge	P+5
Fuse Type	delay
Fuse Model	M84A1E1 or same
Luminosity	700000 cd
Burning Time	55 sec
Rate of pileum Descent	5-6 m/s
Final Range	3850 m
Muzzle Velocity	232 m/s

GENERAL SPECIFICATIONS

High explosive 160mm mortar bomb is designed for destruction and demolition of trenches, shelters, bunkers, cross country fieldworks, infantry equipment and personnel of enemy. This mortar bomb leaves the barrel with muzzle velocity approximately 340 ± 3 meter per second and maximum pressure 1450 kg force per meter square. Maximum range of this mortar bomb is 8500 meters and it is equipped with AZ111-A2 fuze with 2 positions (i.e. delayed and quick impact). If this fuze is set to quick impact position, the mortar will blast immediately after impact of mortar to target and if it is set to delayed position, it will blast 35-90 milliseconds after its impact to target.

TECHNICAL SPECIFICATIONS

Type	High Explosive
Length, Fused	986.6 ± 2mm
Weight, Fuzed	40000 ± 400 gr
Caliber	160mm
Color	Olive green / Khaki
Filler Material	7000 g TNT
Charge	1red + 7 white
Body	Forged steel
Tail	Extruded Aluminum
Fuse	AZ111-A2
Primer	7512
Muzzle Velocity	340 ± 3 m/s
Max. Chamber Pressure	1450 bar
Max. Range	8500 m
Armament	160mm mortars

PACKING

Type	High Explosive (RA)
Quantity per Box	1
Box Weight	57 ± 2 kg
Box Dim.	1159 x 247 x 245 mm
Box per Pallet	12
Pallet Dim.	1160 x 1070 x 943 mm

Rifle Grenades Description

GENERAL SPECIFICATIONS

New generation rifle grenade named “BTU” can be fired directly towards the target using 7.62mm rifles. BTU is used for destruction of enemy persons. Anti-armor Rifle grenade BTU is used to attack and destroy armored targets. This ammunition has this advantage that can be fired directly toward enemies’ armored and concrete targets.
Door breaching ammunition is a light and low price warfare that is used in urban wars and hostage solvation. It is also used with gun and is suitable for destruction of medium weight thick wooden or metal doors. It has some advantages like frightening enemies, reducing attack time, domination over the enemy, outflanking enemy from long distance and reducing friendly forces human losses and damages.

BTU

Anti-Armour

Door Destroyer

TECHNICAL SPECIFICATIONS

Type	Rifle Grenade -Btu	Rifle Grenade – Anti Armour	Rifle Grenade – Door Destroyer
Length, Fused(mm)	290 ± 2	400 ± 2	687 ± 10
Total Weight (gr)	470 ± 10	530 ± 10	680 ± 10
Filling Material (gr)	50 COMP B	75 A4	140 PBX
Fuze	PD F61	MBD7 MECHANICAL	FMBD35
Tail	PE	PE	PE
Max. range	350	250	40
Color	Olive green / Khaki	Olive green / Khaki	Olive green / Khaki
GUN	G3	G3	G3
Static Penetration Depth (cm)	-	11	-

PACKING

Type	Rifle Grenade -Btu	Rifle Grenade – Anti Armour	Rifle Grenade – Door Destroyer
Quantity per Box	10	20	8
Box Weight (kg)	17 ± 2	31 ± 2	22.5 ± 2
Box Dim.(mm)	510 x 410 x 240	525 x 412 x 337	636 x 474 x 300
Box per Pallet	10	20	8

GENERAL SPECIFICATIONS

This family of products is a high quality grenade having both blast and fragmentation effects and designed for using against person or material in a close combat. In this product the fuze consists of a delay pyrotechnics charge above a detonator.
Fragmentation: The body which is made of cast iron will act as fragments after blast.
Steel shots: It achieves incapacitation of injury within a range of 8 m of the burst point, as the result of high velocity dispersion of steel shots.
Offensive: This type of product has no fragmentation and is used as an offensive grenade.
Practice: The Practice hand grenade has the same shape and size of fragmentation type but in blue color body and without any steel shots or explosives and the smoke material is HC and the body can be used in several times.

Cast Iron (GS59)

Steel Shots (G57)

Practice (GP57)

Offensive (GO52)

TECHNICAL SPECIFICATIONS

Type	Fragmentation (With Cast Iron)	Fragmentation (With Steel Shots)	Practic Hand Grenades	Offensive Hand Grenades
Length, Fused(mm)	115 ± 5	108 ± 5	115 ± 5	111 ± 5
Dia. of the Body (mm)	57	59	57	59
Total Weight (gr)	550 ± 50	500 ± 50	500 ± 50	385 ± 15
Filling Material (gr)	40gr TNT	45gr PETN-Based	-	115 gr TNT
Delay (sec)	3-6	3-6	3-6	3-6
Lethal Radius (m)	8	8	-	-
Steel Shots	-	300g dia. 2.05 - 3mm	-	-
Color	Olive green / Khaki	Olive green / Khaki	Blue	Olive green / Khaki
Fuze	Delay	Delay	Delay	Delay
Body	Cast Iron	Cast iron ball in polymer casing	Cast Iron	Steel

PACKING DATA

Type	Fragmentation (With Cast Iron)	Fragmentation (With Steel Shots)	Practic Hand Grenades	Offensive Hand Grenades
Quantity per Box	20	20	2Body &72fuze	20
Box Weight (kg)	19 ± 2	16 ± 2	14 ± 2	14 ± 2
Box Dim.(mm)	488 x 380 x 211	488 x 380 x 211	488 x 380 x2 11	488 x 380 x 211
Box per Pallet	30	30	30	30
Pallet Dim. (mm)	990 x 1110 x 105	990 x 1110 x 105	990 x 1110 x 105	990 x 1110 x 105

Grenade Hand Arges 72/91 Practice

GENERAL SPECIFICATIONS

The warlike grenade with 72/91 type is used to train combat troops in operation uses positions

TECHNICAL SPECIFICATIONS

Height (with fuze)	88 mm
Weight(without fuze)	400-420 gr
Dia.of the body	60 mm
Material used for body	Coverd EPDM+cast core
Total weight	470 gr
Max.Desible sound	100 db
Type of fuze	Impact
Delay time	3.5 - 5.5 sec
Material used in the fuze head and fly of lever	Steel
Type of detonator for fuze	M82-Disruptive
Material used in the fuze body	Poly p.

Incendiary Hand Grenade

GENERAL SPECIFICATIONS

This product is applied to produce high temperature heat that fires the oil platforms and foeman ammunitions.

TECHNICAL SPECIFICATIONS

Diameter	60 mm
Height	141 mm
Weight	500 gr
Type and delay Time	Impact 0.7-2 sec
Min.Burning Time	20 sec
Style Use	Hand Form
Packaging Type	A case one grenade with a humid absorbent and 20 pcs s case placed into a wooden box

Signal Cartridges

GENERAL SPECIFICATIONS

This product is used to alarm in emergency times and manoeuvres as a lighter to illuminate the oil and gas towers torch, too.

TECHNICAL SPECIFICATIONS

Type	Short	Long
Length (mm)	80	149
Diameter (mm)	26.5	26.5
Weight (gr)	50	100
Illumination Time (sec)	About 7	About 15
Luminosity (cd)	2500	3000
Illumination Color	Red Green Yellow White	Red Green Yellow White
Altitude (m)	100-140	About 70
Armament	26.5 mm gun	26.5 mm gun

Flash Bang

GENERAL SPECIFICATIONS

is is used to disperse illegal gatherings and hostage triggering

TECHNICAL SPECIFICATIONS

Type	38 mm- Flash Bang
Length	122±2 mm
Diameter	39.3mm
Weight	130±10gr
Smoke Duration	-
Max. Range	TPT 80m
Flash Intensity	1/000/000 cd
Sound Intensity	130db

Anti-Personnel SMOKING Mine (YM-I-S, YM-IB)

APPLICATION (YM-1-S Smoking)

YMI-S is used for training, warning or alert during military maneuvers.
This mine can be laid like normal anti- personnel mine which is activated by 7-15 kg force and then will release smoke in 30 seconds. There are four types of this mine in four different colors: red, blue, orange and green marked by their pressure plate color. These mines are used to evaluate the performance of mine fields and army.

APPLICATION (YM-1B)

YMI-B is a resilient plastic-cased scatterable anti-personnel blast mine fitted with a pressure fuze.
YMI-B is provided with an anti-shock device and fitted with an arming knob offset from the center of the base. The knob has two modes: "A" (armed) and "S" (safe) to block the movement of the pivoting shutter. The mine can be disarmed by unscrewing the detonator from its base.

YM-1-S

YM-1B

TECHNICAL SPECIFICATIONS

Type	Smoking (YM-1-S)	Anti-personnel (YM-1B)
Operating Pressure (kg)	7-15	7-15
Dimensions	Diameter 90 mm × Height 45 mm	Diameter 95 mm × Height 45 mm
Weight (gr)	175	180
Smoking Time (seconds)	20-30	-
Body Material	Plastic	Plastic
Effective Radius	-	10m
Starting date of mass production	2002	1996

APPLICATION YM-IV

YM-IV is an anti-personnel jumping mine with a cylindrical cast-iron case and removable fuze mounted on the top. The removable fuze will be activated by pressure force about (7-15) kg and traction force about (4-8) kg. When the fuze is activated, the detonator fires the propelling charge and the mine body is projected about 50 cm into the air.
The inner traction fuze fixed to the bottom of body fires the detonator and the booster.
When the body is exploded, the metal fragments are scattered in all directions.

APPLICATION YM-IV-F

YM-IV-F is an anti-personnel jumping flare mine with a cylindrical cast-iron case and removable fuze mounted on the top. The removable fuze will be activated by pressure when enemy touches the trip wire. When the fuze is activated, the detonator fires the propelling charge and the mine body is jumped about 70-100 m into the air. The activated flare will light up the field in about 100m diameter and descend by a parachute on the ground. This mine is designed to extend the vision field and alert more efficiently about protected area or mine field.

YM-IV

YM-IV-F

TECHNICAL SPECIFICATIONS

Type	Jumping mine (YM-IV)	Jumping flare mine (YM-IV-F)
Safe Radius (m)	120	-
Effective Radius (m)	50	-
Dimensions	Diameter 92 mm × Height 220 mm	Diameter 92 mm × Height 220 mm
Weight (kg)	2.85	1.5
Body Material	Cast iron	Cast iron and Plastic
Explosive Type	TNT	-
Fragment Number	1200	-
Operating Force	Pressure (7-15 kg) Traction (4-8 kg)	-
Starting date of mass production	2012	2014
Lighting Times	-	20
Rebound Height (m)	-	70-100

Anti-Personnel Fragmentation off-Rout Mine (M18A1, M18A2)

APPLICATION (M18A1)

M18A1 is a claymore off-rout anti-personnel mine that shoots the steel balls to 100 meters within a 60° arc in front of the mine. It is used primarily in ambushes and as an anti-infiltration device against enemy infantry.
This mine can be activated by:

- Detonator wire
- Electronic timer fuze
- Remote control

APPLICATION (M18A2)

M18A2 is a claymore off-rout anti-personnel mine that shoots the steel balls to about 150 meters within a 60° arc in front of the mine. It is used primarily in ambushes and as an anti-infiltration device against enemy infantry. It can also be used against unarmored vehicles.
This mine can be activated by:

- Detonator wire
- Electronic timer fuze
- Remote control

M18A1

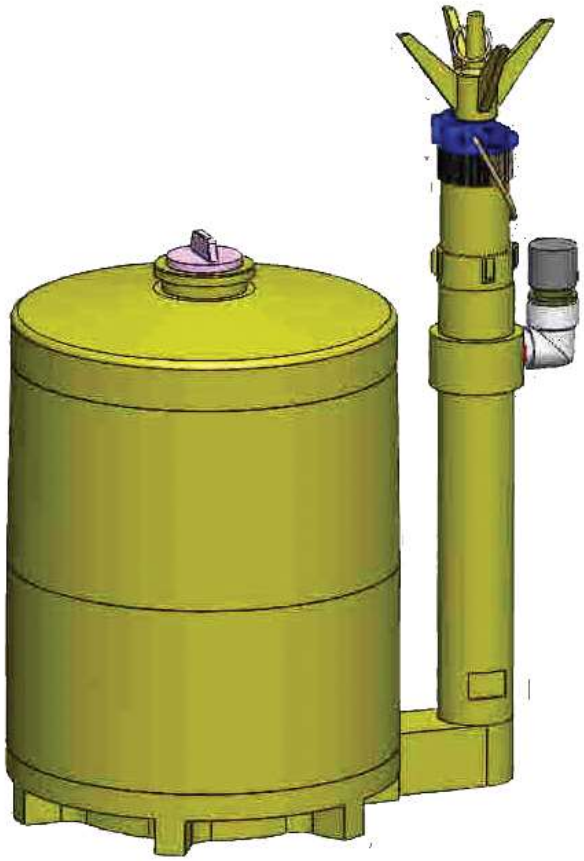
M18A2

TECHNICAL SPECIFICATIONS

Type	M18A1	M18A2
Effective Radius (m)	30	50
Dimensions (mm)	220 × 125 × 55	300 × 190 × 100
Weight (kg)	1.45	5.7
Body Material	Plastic	Plastic
Explosive Type	C4	Comp.B
Explosive Weight (gr)	550	2700
Fragment Number	600	2300
Fragment Diameter (mm)	6	6
Starting date of mass production	2004	2014

APPLICATION

Ababil is an anti-personnel fragmentation jumping mine (top attack) which has the ability to jump about 60 meters height. This product is considered as a big achievement in defense tactics. When the mine reaches its maximum height, the warhead will descend by a parachute and explode in 15-25 meters height. After explosion, the fragments will be scattered toward the enemy. Mine fragments form 5-millimeter balls covering an area about 50 meters in diameter.



TECHNICAL SPECIFICATIONS

Type	Anti-personnel Jumping mine
Explosion altitude	15-25 meters
Effective radius	25 m
Dimensions	Diameter 145 mm × Height 291.5 mm × Width 194 mm
Weight	5 Kg
Body material	Steel-Plastic
Explosive type	TNT
Fragment number	1000
Fragment diameter	5mm
Operating force	Pressure (7-15 Kg). Tension(3-7 Kg)
starting date of mass production	2013

APPLICATION (YM-II)

This kind of anti-vehicle and anti-light tank mine operates when an armored vehicle crosses it over.
It is extremely resistant against FAE explosion. Anti-shock ability, high explosion force, high damages, easy arming and defusing and simple construction are its advantages.
This mine is fitted with a pressure fuze and provided with a double anti-shock device.

APPLICATION (YM-II-S)

YM-II-S can be used for training, warning or alert during military maneuvers.
This mine can be laid like normal anti- vehicle mines and operates when an armored vehicle crosses it over and then will release the smoke.
There are four types of this mine in four different colors: red, blue, orange and green marked by their pressure plate color. These mines are used to evaluate the performance of mine fields and army.

YM-II

YM-II-S

TECHNICAL SPECIFICATIONS

Type	YM-II	YM-II-S
Effective radius (m)	30	-
Smoking Time(Sec.)	30-40	30-40
Operating Pressure(kg)	150-300	75-150
Dimensions	Diameter 232mm× Height 90mm	Diameter 232mm× Height 90mm
Weight (kg)	3.4	1.6
Body material	Plastic	Plastic
Explosive type	Comp. B	-
Starting date of mass production	2002	2004

APPLICATION (LAUNCHING ROCKET SCATTER MINE)

Launching rocket mine is an anti-tank mine which can penetrate the armored surface of the tank using the last technology of anti-vehicle mines.
This mine can be launched by a specific rocket (BARAD) to 14 kilometers and then descends by a parachute on the ground and activated automatically by electronic combined magnetic and seismic influence fuze when an armored vehicle or tank moves above it.

APPLICATION (MAGNETIC MINE)

This anti-tank mine is designed to be used for disabling and destroying armored vehicles and trucks.
It is equipped with two magnetic and seismic sensors that can detect the presence of a tank over the mine. The Miszany Schardin (MS) warhead can penetrate more than 150mm inside armored steel and creates a hole about 45mm in diameter.
The safety and arming device is claimed to ensure complete safety during transportation, storage and arming.

APPLICATION (YM-III)

This anti-tank mine is designed to be used for disabling and destroying armored vehicles and trucks.
It is also extremely resistant to overpressure and will not detonate against FAE explosion.
Anti-shock ability, high explosion force, high damaging, easy arming/defusing and simple construction are its advantages. Mine explosion transforms everything around it to fragments and will disable tanks and other armored vehicles.

Launching Rocket Scatter Mine

Magnetic Mine

YM-III

TECHNICAL SPECIFICATIONS

Type	Launching Rocket Scatter Mine	Magnetic Mine	YM-III
Penetration Depth	150mm (steel armored)	120mm (steel armored)	-
Dimensions	Diameter 110mm×Height 180mm	Diameter 112mm× Height 190mm	Diameter 270mm × Height 110mm
Weight (kg)	3.8	3	6.9
Body Material	Aluminium-Steel	Aluminium-Steel	Plastic
Explosive Type	Comp. B	Comp. B	Comp. B
Fuze Type	Magnetic & Seismic	Magnetic & seismic	-
Safe radius	-	-	100 m
Effective radius	-	-	50 m
Starting date of mass production	2009	2014	2002

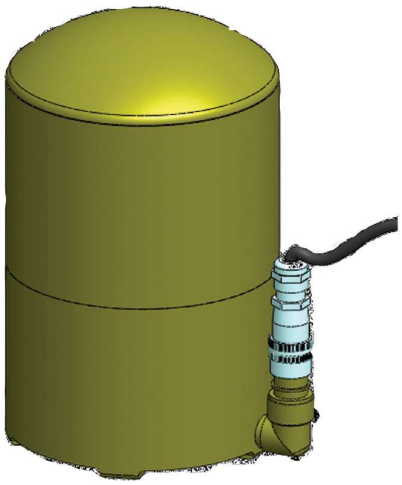
Anti-Helicopter Fragmentation Jumping Mine (YM-J-AHM, YM-J-AHM2)

APPLICATION (YM-J-AHM)

This is a kind of anti-helicopter mine which makes an unsafe situation for enemy's helicopters. If the fragments hit the helicopter, they can cause a hard situation for it.
This mine can attack aggressive helicopters intending to land the soldiers, fire equipment and facilities in low height.
This mine should be installed on the ground and can be used from less than 5 kilometers by a radio controller. It should be installed from 150 to 200 meters of enemy's equipment with 35-45 degrees angle on the ground.

APPLICATION (YM-J-AHM2)

Anti-heliborne jumping mine 'Saegheh' is a kind of anti-helicopter mine which creates an unsafe flight zone for enemies' helicopters. If fragments hit the helicopter, they can cause a hard situation for it. This mine detonates in height of 250-300 meters by detecting the peak point and aims or harms the helicopters by shooting the 8mm ball fragments.
This mine can attack aggressive helicopters which tend to land the soldiers or aim the facilities in low height. It is installed on the ground or is laid and can be activated from maximum 5 kilometers by a remote controller (transmitter and receiver).



YM-J-AHM

YM-J-AHM2

TECHNICAL SPECIFICATIONS

Type	YM-J-AHM	YM-J-AHM2
Explosion Altitude (m)	120-150	250-300
Effective Radius (m)	50	50
Dimensions (mm)	Diameter 112 × Height 180	Diameter 130 × Height 300
Weight (kg)	6.2	9.2
Explosive Type	TNT	TNT
Starting date of mass production	2012	2018

SAFIR II
(Radio Recever & Transmitter)

APPLICATION

This product is used to control firing and explosion without presence of user and it improves the efficiency of ammunitions destruction. Each transmitter can control 10 receivers and can be used for intelligent wars. It works in 5 kilometers range showing the Global Positioning System (GPS). This connection is reversible and several transmitters can operate with several specific receivers.

TECHNICAL SPECIFICATIONS

Type	Remote Control
Effective Range	5 Km.
Dimensions	Receiver 85 ×75 × 65 mm Transmitter 180 × 100 × 45 mm
starting date of mass production	2012

Maham 1 Mine

Maham 1 Moored Mine (01,02,02B,02A2)
Description

Maham 1 is a moored mine with a capability of determining its laying point through under water stream. It could be floated in depth of 1-3 meters. By knowing the speed of stream, the laying point is estimated and mine's timer can be adjusted. When the pre-set time comes, the buoy detaches from anchor and the mine is settled.
During floating time, the mine will destroy any target that hits it; otherwise the mine detaches from anchor and sinks on sea bottom. When the pre-set lifetime ends, the mine neutralizes itself and sinks on seabed while there is no possibility for explosion.

Mine Capability

The mine's lifetime can be adjusted between 3-270 days.

Easy Programming

This mine has a special pre-setter to set laying time and end time. In this unit, it is enough to enter the information just one time, and for the mines that are programmed the same way there is no need to enter the data again. After connecting with related socket, only the command of multiplication is to be given.

02A2

02B

01 & 02

TECHNICAL SPECIFICATIONS

Dimensions	02A2	02B	01	02
Total weight (kg)	472	316	250	-
Outer dimensions of box (mm)	1620 x 1260 x 1220	1340x1140x1100	800 x 750 x 1300	1340 x 1140 x 1100
Application depth	Max.5 m (in floating state)	Max.5 m (in floating state)	Max.5 m (in floating state)	Max.5 m (in floating state)
	3-100 m (in laying area)	3 - 100 m	10 - 50 m (in laying area)	3-100 m (in laying area)
Weight of explosives (kg)	120	120	20	120
Type of explosives	B Composition	TNT	TNT	TNT
Type of primers	Electrical	Electrical	Electrical	Electrical
Storage life	20 years	20 years	20 years	20 years
Number of horns	5 pcs	5 pcs	3 pcs	5 pcs
Number of safety locks	10	7	7	10

Maham 2 Mine

DESCRIPTION

Maham 2 is a stationary self-contained bottom mine with two magnetic & non-directional acoustic sensors. The mine's safety system is very reliable and simple presenting good performance. When the mine is placed in water, its safety system activates the mine and provides suitable delay time.
Its arming system arms the mine after activation of the safety system in depth of more than 10 meters. An anti-sweeping system has been installed in the mine's electronic system as a vessel counting circuit.
The mine which contains 350 kg explosive charge could be placed on sea bed in depth of 10-50 meters to destroy submarines and surface vessels (ships) with a weight of more than 250 tons. The mine can be transported and laid by various types of ships.

TECHNICAL SPECIFICATIONS

Total weight	About 480 kg
Weight of explosives	About 350 kg
Weight of mine into the water	About 135 kg
Total length	2050 mm
Diameter	460 mm
Intervals of mine services	3 years
Minimum Mine laying distances	100 m
Mine laying depth	10-50 m
Adjustable times for activating of mine	4' - 22" - 8'- 44"
	34' - 57" - 17'- 28"
	2 hours - 19' - 48"
	18 hours - 38'- 28"
Adjustable times for inactivating of mine	49 days - 17 hours
	99 days - 10 hours
	198 days - 20 hours
	397 days - 16 hours
Adjusting limit of target counter	1 - 15
Adjusting limit of surface ship tonnage	Over than 250 tones
Min. & max. speed of surface ship within mine laying	4-15 sea knots

Maham 3 Mine

DESCRIPTION

Maham 3 is a moored mine with magnetic and acoustic sensors which can sense targets instead of using horns or direct contact with a target. The mine is able to aim enemy ships from a distance of about 3 meters in both radius and depth.
Another advantage of this mine is that it can estimate the best point for approaching and aiming a vessel.
An electronic timer with following specification is used in the mine to provide starting and finishing time:

Starting time of mine	1-30 days	With separate 1 hour
Finishing time of mine	1-365 days	With separate 1 days
Finishing method of mine	cods:1-3	Self-destruction neutral sinking
Vessel counter	1-99	-

MINE'S STRUCTURE

This mine has one magnetic and two passive acoustic sensors. Various optimum combinations of these sensors have been considered to make it easy for users to work with the mine by entering codes as following table:

Code 1	Acoustic low frequency	Against steel ships
Code 2	Acoustic low frequency + directional acoustic	Against non-steel ships
Code 3	Acoustic low frequency + magnetic	Against submarine

EXISTING SYSTEMS IN MINE

- Control system
- Pre-setter
- Safety device system

MAIN TECHNICAL AND TACTICAL SPECIFICATIONS

Total weight	383 kg	
Weight of charge	120 kg	
Mine dimensions	Diameter	800 mm
	Height	1324 mm
Max. mine laying depth	100 m	
Time intervals of service	10 Months	

Maham 4 Mine

DESCRIPTION

Maham 4 is a naval limpet mine with possibility of sticking on various ships platforms, different metal and non-metal structures by a frogman with two methods of permanent magnet and nail shooter.
The operating depth of the mine is 1-40 meters. After adjusting the mine's timer and installing it on an intended place, it is armed with pulling the safety fork by operator, and the timer is activated, then after passing the pre-set time, the mine will be exploded. For the safety of diver and operator, one safety lock with high reliability has been used in the mine. The timer is a mechanical type which is adjustable with interval time of 10 minutes up to 6 hours. (This time can be changed by user, if necessary).

MAIN TECHNICAL AND TACTICAL SPECIFICATIONS MINE

Applying Depth		1-40 m
Dimensions & Weight	Max. Diameter	360 mm
	Max. Height	220 mm
	Total Weight	13 kg
	Weight in water	500 g
	Weight of explosive	5 kg
	Type of explosive	C4 pulp
Inspection & Storage	Inspecting period	5 years
	Storage period	20 years
	Operating Temperature	-15°c to +40°c
	storage temp	-15°c to +55°c

Maham 5 Mine

DESCRIPTION

Maham 5 is a coastal mine which is laid in depth of 1 meter min. (in complete ebb) and 5 meters Max. (in complete tide) to defend island and coasts. This mine with a passive magnetic sensor can be applied against ships and landing crafts that are approaching the coast.

MAIN TECHNICAL AND TACTICAL SPECIFICATIONS MINE

Applying depth	Installation	1 - 5 m
	Performance radius	1 - 5 m
Dimensions & weight	max Diameter	314 mm
	Mine height with screw anchor	750 mm
	Total weight with screw anchor	43 kg
Mine Life	Operational	Max. 9 months
	Storage life	20 years
Quantity of safety locks		3 pcs
Explosives	Type	Torpex
	Weight	20 kg
Inspection & storage period	Inspection period	3 years
	Operational temperature	-2.5°c to +40°c
	Storage temperature	-15°c to +55°c

Maham 6 Mine (Depth charge)

DESCRIPTION

Maham 6 is a depth charge used as an Anti-Submarine Weapon (ASW). The mine can be laid by surface ships equipped with a projector (max. distance of 150 yards) or a release track. The design of its nose and tail gives it a tear-drop shape which provides the lowest resistance to water.

PERFORMANCE

This weapon is composed of safety and arming device, explosive train, battery and electronic board, electronic hydrostatic sensor, explosive charge and body. As soon as launching the mine into water, it sinks and is armed in the depth of 15m.
Then the system is activated by reaching pre-set depth and is exploded. If the charge is not exploded for any reason, the mine will be exploded after passing the specified time (that is adjusted by the timer). All adjusted operations are done by selectors installed on the mine. Three selectors have been considered for setting of numbers ones, tens and hundreds of depth performance and also one selector has been considered for adjusting time of self-destruction on the panel.

MAIN TECHNICAL AND TACTICAL SPECIFICATIONS MINE

Type/ amount of explosives	TNT / 190 pounds
Weight (empty case)	90 pounds
Max. depth	1000 ft
Launching system	Release track & Projector
Fuse	Hydrostatic pressure sensor
Max. Projection range	150 yards
Sinking speed	Approx. 20 ft/s

Maham 7 Mine

DESCRIPTION

Maham 7 is a bottom mine with 3 acoustic, subsonic and 3-axes magnetic sensors known as a hidden mine. It is used against medium tonnage ships, landing crafts, and small submarines. This mine can be laid by surface ships, airplane (by parachute) and helicopter.

ADVANTAGES

This low weight mine can be applied in very shallow waters by ships. Its low weight and volume make it possible for mine-laying ships to carry more mines. The mine's G.R.P body and its special form can deviate sonar waves sent by minesweepers, so detection is difficult for minesweeper. The weight proportion of explosive charge to total weight is more than others. The mine has safety mechanism against explosions around it.

SAFETY MEASURES

- Transportation safety lock
- Hydrostatic switch,
- Separation of primer from booster until complete laying into the water

ADJUSTABLE SPECIFICATION

Target type	Surface vessels or submarines
Target depth	3-25 m against surface vessels
	25-100 m against submarines
Starting time	0-127 days with separate 1 hour
Mine life (inactivation of mine)	Up to 1 year with interval of 1 hour
Target counter	1-99 ships
Arming time	20-25 minutes

PHYSICAL PROPERTIES OF MINE

Height	440 mm
Max. Diameter	980 mm
Weight	220 +15 kg
Weight of explosives	150 +10 kg
Type of explosive	TORPEX or TNT
Material of body	G.R.P

TACTICAL SPECIFICATION

Operation depth	3-100 m
Storage life	20 years
Operating life time	1 year

GHASED SMART BOMB

Ghased is a guided, long-range and 2000 pound bomb with an air- to- surface passive system. It has been designed by using the world's most advanced technologies. The bomb was designed to destroy military, economic and strategic targets in the depths of enemy territory. This guided bomb carries a 2000 pound warhead which gives it a very high destruction capability. Besides, the bomb's image guiding system is among the most advanced type of its own class.

MAIN TECHNICAL PARAMETERS

Type of bomb	GHASED
Type of aircraft	Western fighters (F4 , F5)
Guidance	Seeker (TV)
Length (mm)	4070
Diameter (mm)	400
Weight (kg)	1100
Type of explosive	H6/ Tritonal
Lugs span (in)	30
CEP (m)	≤ 10

JADAM-ER

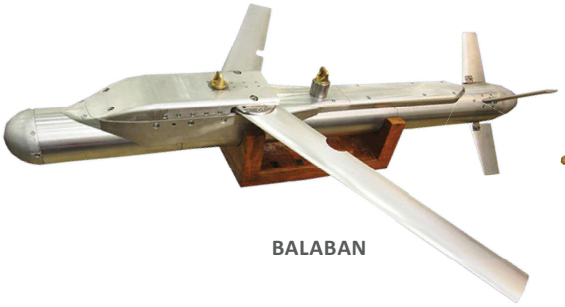
A long-range smart guided bomb which is equipped with retractable wings to increase its flight range and a guiding system based on INS and GLONASS/GPS to enhance precision bombing. This long-range smart guided bomb can be released from a distance of 50 km. Then it flies toward a target and hits it.

BALABAN SMART BOMB

Balaban is a guided smart bomb which has retractable wings to increase its range. It is also equipped with a guiding system based on GPS & INS to increase its accuracy. The way the bomb functions is that the target's coordinate is loaded to the bomb's flight computer and when an aircraft reaches the releasing point, the pilot acts to release the bomb. Then, the bomb corrects the direction by its controlling fins and moves toward a target. After releasing the bomb, its retractable wings are extended and it moves toward a target by using inertial guidance system. When it hits the target, its high explosive warhead shows an appropriate capability.

SADID GUIDED BOMB

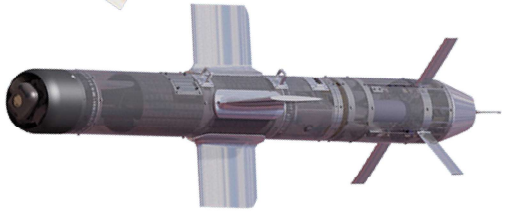
Sadid guided Bomb is from smart fragmentation aerial bomb series which is used to destroy different types of moving or stationary targets like aircrafts in hangars, armored equipment, vehicles, etc. The seeker assembly installed in bomb's head includes an optical seeker (TV) used during daylight, infrared seeker (IR) used during day and night, laser seeker (L) used during day and night. Sadid bomb is from pre-fragmented series which can be carried and dropped from different UAVs.



BALABAN

JADAM

SADID



MAIN TECHNICAL PARAMETERS

Type of bomb	JADAM-ER	BALABAN	SADID
Type of aircraft	Eastern and western fighters	UAV	UAV
Guidance	Integration of INS/ GLONASS/GPS	Integration of INS / GPS	Seeker (TV,IR,L)
Length (mm)	2500 ± 15	2000 ± 15	Max. 1635
Diameter (mm)	273 ± 5	153 ± 3	Max. 155
Weight (kg)	290	125	Max. 32
Type of explosive	Tritonal/H6	H6 or Tritonal	H6
Lugs span (in)	14	14	250
CEP (m)	CEP ≤ 30	CEP ≤ 30	≤ 10

Ojan-250, Ojan-500, OFAB-100-120, OFAB-250-270 Bombs

These four air-drop dumb bombs can be used to destroy enemy industrial sites, buildings, fortifications, trenches, railway stations, aircraft hangars, outdoor ammunition stores, vehicles, ships, gasoline tanks and such like and to kill enemy forces in open areas. They can be dropped from Eastern and Western aircrafts.

NIGHT TRAINING BOMB OFAB-100-120

A night training airdrop bomb from eastern series used to train pilots for night bombardments. The way the bomb operates is that a pilot releases the bomb in accordance with the ballistic table. After the bomb passes its ballistic path, it hits the ground. Immediately upon the bomb hits the ground, it detonates and provides a proper illumination from its back

LIGHT AERIAL SMALL BOMB (SB)

SB as a light bomb (10 kg) is designed for small UAVs. It functions in accordance with the ballistic table loaded on the flight computer of a carrying UAV in which the bomb is released in a specified point automatically or manually with accuracy less than 10 meters which is within the destruction radius and a target will be destroyed.

OJAN-250,

OJAN-500,

OFAB-100-120,

OFAB-250-270

SB Bomb

Night Training Bomb Ofab-100-120

MAIN TECHNICAL PARAMETERS

Type of bomb	Ojan-250	Ojan-500	OFAB-100-120	OFAB-250-270	Training OFAB	SB Bomb
Type of aircraft	Eastern fighters	Eastern fighters	Eastern fighters	Eastern fighters	Eastern fighters	UAV
Warhead type	Blast	Blast	Fragmentation	Fragmentation	Illuminator	Blast
Length (mm)	1920 ± 10	2430 ± 10	1040 ± 5	1423 ± 10	1040 ± 5	670 ± 5
Diameter (mm)	300 ± 5	300 ± 5	273 ± 5	325 ± 5	273 ± 3	112 ± 2
Weight (kg)	227 ± 4	502 ± 5	123 ± 5	268 ± 10	120 ± 4	10 ± 2
Fin span (mm)	370	370	340	410	344	148 ± 4
Lugs span (mm)	250	250	-----	250	Single lug	Without lug
Explosive	H6	H6	TNT	TNT	TNT	H6

SIMURGH CLUSTER BOMB

Simurgh cluster bomb is an advanced weapon which causes relatively high destruction in attacks from low altitude. Among other features, its high destruction power is effective against a variety of armored and non-armored targets. The bomb contains 147 bomblets, each weighting 1kg. The body of the bomblet is fragmenting which increases its effectiveness against armored and non-armored targets. Besides, the existence of shaped charge increases the effectiveness of the bomb against armored targets.

MAIN TECHNICAL PARAMETERS

Type of bomb	SIMURGH
Type of aircraft	Eastern/Western fighters
Warhead type	Frag/pen
Length	2450 ± 10 mm
Diameter	419 ± 5 mm
Weight	277 ± 5 kg
Fin span	570 ± 5 mm
Lugs span	14"
Explosive	Comp B

TNT Blocks 1 Pound

GENERAL SPECIFICATIONS

These are various products to be used as demolition charges. The one pound blocks are used to explode and destroy enemy's buildings, obstacles and Bridges.

TECHNICAL SPECIFICATIONS

Type	1 lb. TNT Block
Total Weight	1 lb.
Each half lb. Dim.	78 x 45 x 45mm
Density	1.46 g/cm^3
TNT Type	Flake 80.2
Explosive Velocity	7000 m/s
Detonator	No.8

TNT Block

APPLICATION

One pound TNT blocks are produced to explode and destroy targets like bridges, vehicles, facilities, shelters, buildings and so on. This product has some advantages like low cost, higher explosion power and safe transport that make it more useful.
This product can be equipped with an electronic timer fuze.

TECHNICAL SPECIFICATIONS

Armament	TNT
Dimension	3 × 3 × 15 cm
Weight	1/2 lb
Start date of mass production	2014

Ammunition type 40 x 53 mm – High velocity

Description

The high velocity ammunition grenade is used either as anti – personnel or as anti – armor against light armor vehicles and engages against of combat materiel.
The grenade can be launched by MK19, NA40 and Hoor ol Azim grenade launcher or similar standard type.
All ammunitions are delivered with special metal links.

HE

Dummy

Anti-Riot

FAE(TB)

TECHNICAL SPECIFICATIONS

Grenade type	HE	HEDP	Dummy	Anti-Riot	TB(FAE)
Fuze type	PD	PD	-	-	PD
Propellant	Single base	SB	SB	SB	SB
Explosive material	A4	A4	-	-	TB
Muzzle velocity (m/s)	240	240	240	240	240
Min safety distance (m)	18	18	-	-	18
Lethal radius (m)	5	5	-	-	5
Max. range (m)	2000	2000	2000	2000	2000

Ammunition 40x46 mm – Low velocity

Description

These are low velocity ammunitions which can be fired by M79 – MGL, M203 and HK 69 grenade launchers. It has some kind of Ammo as HE, TB, AR, HEPF, HEDP, CS, RP and Dummy which is used as anti – personnel against manpower or as anti – armor against light armor vehicles and engage against materiel.

FAE (TB)

HEPF

Anti-Riot

RP

CS

Dummy

TECHNICAL SPECIFICATIONS

Grenade type	HE	TB (FAE)	HEPF	HEDP	Anti-Riot	RP	CS	Dummy
Fuze type	PD	PD	PD	PD	---	Pyrotechnic	Pyrotechnic	---
Propellant	DB	DB	DB	DB	DB	DB	DB	DB
Explosive material	A4	TB	A4	A4	---	---	---	---
Muzzle velocity (m/s)	76	76	76	76	76	76	76	76
Safety distance (m)	18	18	18	18	---	Delay time	Delay time	---
Lethal radius (m)	5	3	5	5	Non-lethal	Non-lethal	Non-lethal	Non-lethal