CATALOGUE OF PRODUCTS

SUMMARY

ARMORED VEHICLES

Armored Vehicles on tracks

TR-85-M1
Main Battle Tank

Armored Vehicles on tracks

Technical Specification	
Combat weight	50 t
Crew	4 persons
Weapon system main gun type	rifled bore
Weapon system main gun calibre	100 mm
Weapon system main gun rate of fire	4 - 7 rounds/min
Weapon system coaxial machine gun	7.62 mm
Weapon system anti-aircraft machine gun	12.7 mm
Engine	Diesel, 8 cylinders, 4 stroke cycle, turbocharged
Engine power	860 HP
Transmission	hydro-mechanical
Power to Weight Ratio	17.2 HP/t
Average ground pressure	1 daN/cm^2
Maximum speed	60 km/h
Forward slope	32°
Range	400 km
Ammunition on Board	41 rounds - 100 mm; 500 rounds - 7.62 mm; 750 rounds - 12.7 mm

Aiming system	gun/turret electric drive in two planes, with integrated laser finder and computer control
Maximum thickness of armor	TURRET 320+20 mm with auxiliary armour CHASSIS 200 mm stratified
Measuring distance	200...5000 m. Stroke distance with APFSD round - 4000 m
Foreign sub-assemblies	Turret bearing, generator, thermal imaging sight, fire suppression system, commander's sight, stabilization system, radio

Armored Vehicles on tracks

DMT-85-M1

Mine Dredger

Technical Specification	
Total weight	43 t
Engine	Diesel, 8 cylinders, 860 CP
Travel speed	62 km/h
Dredging depth	300 mm
Dredging speed	7 - 12 km/h
Width of the dredged portion	3900 mm
Longitudinal gradient	32°
Cross slope	17°

Armored Vehicles on wheels

Non-hazardous bend radius	65 m
The width of the antitank crossed ditch	2.8 m
Max. load of the crane	6.5 t
Weapon Systems:	Fire remote control platform, equipped with thermal chamber
Equipment:	• machine gun cal. 7.62mm or 12.7 mm (EAST) • machine gun cal. 7.62 mm or 12.7 mm (NATO) • device for the first cocking with electric control • installation for launching smoke shells

ARMORED VEHICLES

Armored Vehicles on wheels

SAUR 2

8x8 Armored Personnel Carrier

Technical Specification			
Type	8×8, wheeled amphibious vehicle	**Main dimensions - length**	7960 mm
Hull	Armored, sealed	**Main dimensions - width**	3040 mm
Protection	LEVEL 2 by STANAG 4569	**Main dimensions - height**	2340 mm without turret
Crew access	Power operated ramp with emergency access door on the rear side of the vehicle	**Ground clearance**	Min. 420 mm
Speed	on road 100 km/h / on water 10 km/h	**G.V.W.**	16000 kg
Gradient	30°	**Power to weight ratio**	Min. 20.3 hp/t

Side slope	20°	**Armament**	Turret RCWS-RO 12.7 or 7.62 mm
Range on the road	Min. 600 km	**Crew protection systems**	filtering installation, automatically fire extinguishing installation, fresh air intake system

RN 94

6x6 Armored Personnel Carrier

Technical Specification

Type	6×6, wheeled amphibious vehicle	**Main dimensions - length**	6785 mm
Hull	Armored, sealed	**Main dimensions - width**	2850 mm
Crew	10, including driver, commander and gunner	**Main dimensions - height**	2340 mm without turret
Speed	on road 100 km/h / on water 10 km/h	**Ground clearance**	450 mm
Gradient	Max. 32°	**Wheel base**	3400 mm
Side slope	Max. 20°	**Wheel track**	2460 mm
Range on the road	Min. 700 km	**Armament**	Turret RCWS-RO 12.7 or 7.62 mm
		G.V.W.	12800 kg

AM 7.0 M

4x4 Armored Anti-Riot Vehicle

Technical Specification

Type	4×4, Armored Anti-riot vehicle	**Main dimensions length**	6620 mm
Protection	Level 2 with in STANAG 4569, including windows and windshield	**Main dimensions width**	2510 mm
Crew	14, including driver	**Main dimensions height**	3210 mm
Crew access	• 2 sideways front doors for driver and commander • 2 sideways middle doors for crew members • 1 rear door for crew members • 2 access hatches on ceiling	**Filtering installation**	
Speed	on road 100 km / h	**Fire extinguishing installation for tyre**	Available
Gradient	Max. 20°	**Dye cleaning installation for windshields**	Available
Side slope	Max. 20°	**Self protection installation with tear gas**	Available
Range on the road	Min. 600 km	**Independent air heater**	Available
TV and video system	Available	**Communication system**	Available

SMALL ARMS & AMMUNITION

Small arms and ammunition

CALIBER 5.45 mm

5.45 mm Ammunition and arms

Caliber 5.45 mm

Caliber	Material			Length		Weight			Muzzle velocity V_{25} (m/s)	Maximum gas pressure (kgf/cm²)
	Bullet core	Bullet jacket	Cartridge case	Total (mm)	Bulet (mm)	Total (g)	Bullet (g)	Cartridge case (g)		
5.45x39mm Ball	Steel	Bimetal	Brass	56.0	23.4	11,8	4	6.5	810	3200
5.45x39 Blank	-	-	Steel	46.3	-	7.25	-	6	-	-
5.45x39mm FMJ	Lead	Bimetal	Steel	56.9	24.95	11.3	4	5.65	830	3100

5.45 mm ROMARM ASSAULT RIFLE

Cartridge	5.45×39 mm	**Muzzle velocity**	880 m/s
Operation	gas, selective fire (optional, 3-rds burst facility)	**Rate of fire**	cyclic, 600 rounds/min
Locking	rotating bolt	**Rifling**	4 grooves rh, 1 turn in 195 mm
Feed	detachable box magazine	**Weapon Length**	fixed butt - 940 mm; lateral folding butt 940/735
Magazine capacity	30 rounds	**Barrel Length**	415 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷1000 m	**Line of sight**	380 mm
Weight without magazine	3.30 kg	**Weight of empty magazine**	0.32 kg

5.45 mm ROMARM SUBMACHINE GUN

Cartridge	5.45×39 mm	**Muzzle velocity**	790 m/s
Operation	gas, automatic	**Rate of fire cyclic**	600 rounds/min
Locking	rotating bolt	**Rifling**	4 grooves rh, 1 turn in 195 mm
Feed	detachable box magazine	**Weapon Length**	805/605 mm
Magazine capacity	30 rounds	**Barrel Length**	305 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷1000 m	**Weight of empty magazine**	0.32 kg
Line of sight	260 mm	**Weight without magazine**	3.10 kg

5.45 mm ROMARM LIGHT MACHINE GUN

Cartridge	5.45×39 mm	**Muzzle velocity**	30 rounds
Operation	gas, automatic	**Rate of fire**	cyclic, 600 rounds/ min
Locking	rotating bolt	**Weapon Length**	1080 mm
Feed	detachable box magazine	**Barrel Length**	590 mm
Magazine capacity	30 rounds	**Line of sight**	560 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷1000 m	**Rifling**	4 grooves rh, 1 turn in 195 mm
Muzzle velocity	910 m/s	**Weight without magazine**	5.20 kg
		Weight of empty magazine	0.32 kg

CALIBER 5.56 mm & 7.65 mm

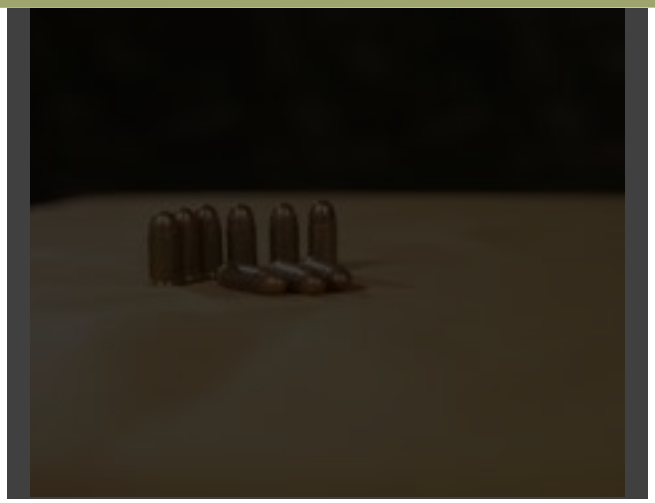
Ammunition

aliber 5.56 mm

artridge	5.56 x 45 mm with ball bullet, SS 109	**Medium velocity of the bullet at 24 m**	V = 915 m/s ± 9 m/s V = 3000 fps ± 40 fps
artridge case	case made of 70/30 brass	**Mean case mouth max. pressure**	$P_{med.\ max} \leq 405$ MPa $P_{med.\ max} \leq$ 55000 psi
Bullet of 4 g (1.5 gr) with:	• bullet jacket made of 90/10 brass • core made of steel and lead;	**Individual max. case mounth pressure**	$P_{med.\ max} \leq 445$ MPa $P_{med.\ max} \leq$ 61000 psi
		Mean port pressure	$P_{med.\ max\ port} \leq 106$ MPa $P_{med.\ max\ port} \leq$ 12700 psi
Primer	boxer type, non corrosive	**Accuracy** - Standard deviation at 550 m	St. Dev. ≤ 17.2 cm. St. Dev. ≤ 6.8 inch
Propellant	double base type	**Identification**	Unpainted

Caliber 7.65 mm

Caliber	Material			Length		Weight			Muzzle velocity V_{16} (m/s)	Maximum gas pressure (kgf/cm²)
	Bullet core	Bullet jacket	Cartridge case	Total (mm)	Bulet (mm)	Total (g)	Bullet (g)	Cartridge case (g)		
7.65x17mm	Lead	Tombak	Brass	25	12	7.9	4.8	2,6	$V_{12.5}$=305	1350



CALIBER 7.62 mm

7.62 mm Ammunition and arms

Caliber 7.62 mm

Caliber	Material			Length		Weight			Muzzle velocity V_{25} (m/s)	Maximum gas pressure (kgf/cm^2)
	Bullet core	Bullet jacket	Cartridge case	Total (mm)	Bulet (mm)	Total (g)	Bullet (g)	Cartridge case (g)		
7.62x51	Lead	Tombak	Brass	71.1	28.95	25.46	9.65	11.65	838	3875
7.62x39 Ball	Steel	Bimetal	Steel/Brass	56	26.8	16.8 / 17.5	8.05	6.8 / 7.5	710	2800
7.62x39 Tracer	-	Bimetal	Steel	56	28	16.5	7.7	6.8	710	2800
7.62x39 Blank	-	-	Steel	49.4	-	8.8	-	7.3	-	-
7.62x39 FMJ*	Lead	Bimetal	Steel	56	26.8	16.8	8.05	6.8	710	2800

** Cartridges 7.62x39 mm FMJ are only for the civil market (hunting cartridges).*

7.62 mm ROMARM ASSAULT RIFLE

Cartridge	7.62×39 mm	**Muzzle velocity**	715 m/s
Operation	gas, selective fire	**Rate of fire**	cyclic, 600 rounds/min
Locking	rotating bolt	**Rifling**	4 grooves rh, 1 turn in 240 mm
Feed	detachable box magazine	**Weapon Length**	870 mm
Magazine capacity	30 rounds	**Barrel Length**	415 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷1000 m	**Sight radius**	384 mm
Weight without magazine	3.30 kg	**Weight of empty magazine**	0.35 kg

7.62 mm ROMARM ASSAULT RIFLE - FOLDING BUTT

Cartridge	7.62×39 mm	**Muzzle velocity**	680 m/s
Operation	gas, automatic	**Rate of fire**	cyclic, 600 rounds/min
Locking	rotating bolt	**Rifling**	4 grooves rh, 1 turn in 240 mm
Feed	detachable box magazine	**Weapon Length**	805 / 605 mm
Magazine capacity	30 rounds	**Sight radius**	260 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷500 m	**Weight without magazine**	3.10 kg
		Weight of empty magazine	0.35 kg

7.62 mm ROMARM LIGHT MACHINE GUN

Cartridge	7.62×39 mm	**Muzzle velocity**	730 rounds
Operation	gas, automatic	**Rate of fire**	cyclic, 600 rounds/min
Locking	rotating bolt	**Rifling**	4 grooves rh, 1 turn in 240 mm
Feed	detachable box magazine	**Weapon Length**	1035 mm
Magazine capacity	30 rounds, optional drum magazine 75 rounds	**Barrel Length**	590 mm
Sight	mechanical fore pillar rear, U notch calibrated from 100÷1000 m	**Sight radius**	560 mm
Weight without magazine	4.68 kg	**Weight of empty magazine**	0.32 kg

CALIBER 7.62 mm

7.62 mm Ammunition and arms

Caliber 7.62 mm

Caliber	Material			Length		Weight			Muzzle velocity V_{25} (m/s)	Maximum gas pressure (kgf/cm²)
	Bullet core	Bullet jacket	Cartridge case	Total (mm)	Bulet (mm)	Total (g)	Bullet (g)	Cartridge case (g)		
7.62x54R Ball	Steel	Bimetal	Steel/ Bimetal	76.91	32.3	23.2	9.75	8.65	820	2900
7.62x54R Tracer	Lead	Bimetal	Steel	76.91	35.4	23.1	9.65	8.65	790	2900
7.62x54R Blank	Steel	-	Steel/ Bimetal	53.72	-	10.8	-	8.65	-	-
7.62x54R FMJ*	Lead	Bimetal	Steel	76.91	28.4	23.2	9.75	8.65	820	2900
7.92x57 FMJ*	Lead	Bimetal	Steel	77	28.95	24	11	9.7	750	3200

**Cartridges 7.62x54R mm and 7.62x57 mm FMJ are only for the civil market (hunting cartridges).*

7.62 mm ROMARM SNIPER RIFLE

Cartridge	7.62×54R mm	**Muzzle velocity**	830 m/s
Operation	gas, semiautomatic	**Rifling**	4 grooves rh, 1 turn in 320 mm
Locking	rotating bolt	**Weapon Length**	1150 mm
Feed	detachable box magazine	**Barrel Length**	620 mm
Magazine capacity	10 rounds	**Line of sight**	590 mm
Sight	- mechanical fore pillar rear, U Notch calibrated from 100÷1200 m - optical 4x6° telescope, calibrated from 100÷1300 m	**Weight without magazine**	4.06 kg
Weight of empty magazine			0.21 kg

7.62 mm ROMARM HEAVY MACHINE GUN

Cartridge	7.62×54R mm	**Muzzle velocity**	825 m/s
Operation	gas, automatic	**Sight radius**	660 mm
Locking	rotating bolt	**Barrel Length**	- without suppressor 605 mm - with suppressor 658 mm
Feed	belt, 200 rounds	**Weapon Length shoulder closed**	1196 mm
Rate of fire	cyclic, 600-650 rds/min	**Weapon weight with bipod**	7.50 kg
Sight	mechanical fore pillar rear; rear, U notch calibrated from 100÷1500 m	**Barrel weight**	2.40 kg
Rifling	4 grooves rh, 1 turn in 240 mm		

7.62 mm ROMARM COMMANDO MACHINE GUN

Cartridge	7.62×54R mm	**Muzzle velocity**	800 rounds
Operation	gas, automatic	**Barrel**	4 grooves rh, 1 turn in 240 mm
Locking	rotating bolt	**Weapon Length**	1100/810 mm
Feed	belt, 100 rounds	**Barrel Length**	510 mm
Sight	mechanical fore, pillar; rear, U notch	**Line of sight**	570 mm
Sight	mechanical fore pillar rear, U notch	**Weapon weight**	8.25 kg

CALIBER 9 mm

Caliber	× 19 mm Parabellum
Operation system	short recoil operation
Trigger system	double/single action
Magazine capacity	rounds
Frame	steel
Grip	polymer
Length between sights	mm
Overall length	206.5 mm
Height	mm
Width	mm
Barrel length	mm
Barrel rifling	grooves
Weight without magazine	g
Weight of empty magazine	g

9 mm
Ammunition and arms

Effective range	m
Maximum range	m
Standard set	PISTOL cal. 9 x 19 mm with magazine

aliber 9 mm

Caliber	Material			Length		Weight			Muzzle velocity V_{16} (m/s)	Maximum gas pressure (kgf/cm²)
	Bullet core	Bullet jacket	Cartridge case	Total (mm)	Bulet (mm)	Total (g)	Bullet (g)	Cartridge case (g)		
9x18mm Makarov	Lead or Steel	Bimetal	Brass	24.95	12.3	10.65/10.2	6.45/6.0	3.85	$V_{12.5}$350	1800
9X19mm Parabellum	Lead	Bimetal	Brass	29.6	15,2	12.6/12.0	8/7.45	4.2	385/370	2345
X19mm afety	-	-	Brass	29.6	16	10.1	5.45	4.2	435	2345
X19mm Blank	-	-	Brass	28	-	5	-	4.4	-	-
9X19mm Subsonic	Lead	Bimetal	Brass	29.6	16	12.5	8	4.2	305	min. 1350
X19mm uger	Lead	Bimetal	Brass	29.6	15.65	12.2	7.45	4.2	380	2345
9X19mm Frangible	Composite	-	Brass	29.3	17.4	9	4.2	4.2	430	2345

9 mm SUBMACHINE GUN

Specification	LP 7	LP 7C*
Caliber	9x19 mm Parabellum	9x19 mm Parabellum
Operation	blowback	blowback
Feed	from magazine, 30 round capacity	from magazine, 30 round ca
Firing mode	single shot, automatic fire	semi-automatic shot by shot

Sights	rear: adjustable for 50 m; 100 m front: front sight	rear: adjustable for 50 m; 100 front: adjustable front sight
Effective range	100 m	100 m
Maximum range	1800 m	1800 m
Weapon length	stock extended: 650 mm; stock folded: 427 mm	427 mm
Weight of weapon without magazine	2.7 kg	2.7 kg

gun is designed for the civil

9 mm PISTOL

CALIBER 9 mm

9 mm Ammunition and arms

9 mm BERETTA PX4 STORM (under license)

The PX4 Storm is a semiauto pistol, developed to meet the very demanding requirements. Beretta Px4 Storm is a recoil-operated pistol with a geometrically closed rotary barrel.

Caliber	9 × 19 mm	9 x 21 mm IMI	.40S&W	.45ACP
Overall length	192 mm	192 mm	192 mm	195 mm
Barrel length	102 mm	102 mm	102 mm	105 mm
Magazine capacity	17	15	14	10
Overall height	140 mm	140 mm	140 mm	140 mm
Overall width	36 mm	36 mm	36 mm	36 mm
Width grip	30 mm	30 mm	30 mm	30 mm
Twisting procentage	250 mm	250 mm	400 mm	406 mm
Sight radius	146 mm	146 mm	146 mm	149 mm
Rifling	Right hand, 6 slots			
Weight unloaded	785 g	7850 g	810 g	800 g
Action	single / double	single / double	single / double	single / double
Safety	Automatic safety with pull pin, de-cocking handle / ambidextrous manual safety on mobile handle			
Firing pin	Exposed			

CALIBER 12.7 mm

12.7 mm Ammunition and arms

Caliber 12.7 x 99 mm

Type	Use	Bullet weight (g)	Accuracy at 300m (cm)	Specific info	Muzzle velocity at 24m (m/s)
case made of brass case made of steel	For use in all 12.7x99mm machine guns, such as: .50 Z03 M.G., .50 Browning M2, Browning M85, etc.	42 45	- $R_{50} \leq 19$	Bullet jacket made of gilding metal (CuZn10). Bullet core made of mild steel Bullet jacket made of brass plated steel Core made of mild steel	V=886 ± 9
rmor Piercing AP)		45	$R_{50} \leq 19$	Armor piercing capacity through 20mm thick armor at 100 m: 90%	V=886 ± 9
cer Incendiary IT)		42	$R_{50} \leq 19$	Tracer capacity at 1500 m:80% Incendiary capacity of gasoline behind 15 mm thick armor at 70 m: 80%	V=886 ± 9
Tracer (T)		42	$R_{50} \leq 19$	Tracer capacity at 1500 m: 80%	V=886 ± 9
Armor Piercing Incendiary (API)		45	$R_{50} \leq 19$	Armor piercing capacity through 20 mm thick armor at 100 m: 90% Incendiary capacity of gasoline behind 15 mm thick armor at 70 m: 80%	V=886 ± 9
Armor Piercing Incendiary Tracer (APIT)		42	$R_{50} \leq 19$	Armor piercing capacity through 20 mm thick armor at 100 m: 90% Incendiary capacity of gasoline behind 15 mm thick armor at 70 m: 80%.Tracer capacity at 1500 m: 80%	V=886 ± 9

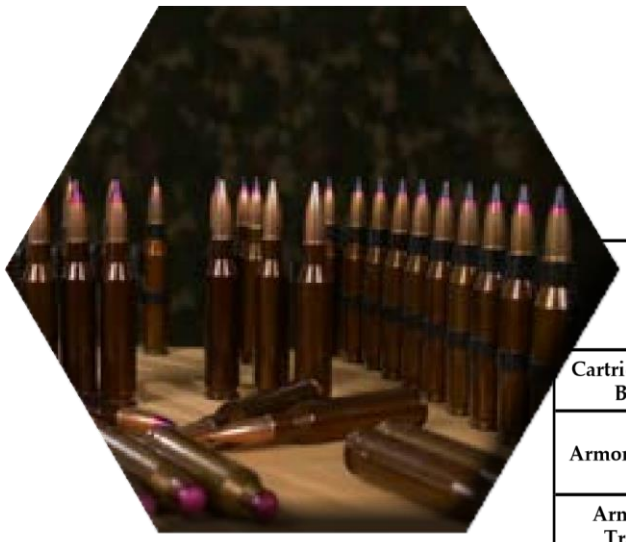
High pressure cartridge with stell case	For use in proof testing caliber.50 weapons, during manufacture, test and repair	45	-	Bullet jacket made of brass (CuZn10) plated steel. Core made of mild steel.	-

12.7 x 99 mm MACHINE GUN

Cartridge:	12.7 x 99 mm
Operation:	gas operated
Feed:	belt, "KRAB" type; 5 times reused
Firing mode:	single shot, automatic fire
Sights:	rear: folding leaf; front: front sight
Mean expected barrel life	7000 rds
Effective range:	1800 m
Maximum range:	6700 m
Weapon length:	1630 mm
Barrel length:	1003 mm
Rate of fire:	520-600 rds/min
Weight of weapon:	32.5 kg

CALIBER 12.7 mm

12.7 mm Ammunition and arms



Caliber 12.7 x 108 mm

Type	Use	Bullet weight (g)	Rim diameter (mm)	Round length (mm)	Muzzle velocity at 25m (m/s)
Cartridge with B106 Ball Bullet	For use in all 12,7x108 mm machine guns, such as: DShKM, NSV, KORD, IAKB	48	13.9	147	V_{25}=810~825
Armor Piercing (AP)		48	13.9	147	V_{25}=810~825
Armor Piercing Tracer (APT)		44	13.9	147	V_{25}=810~825
Tracer (T)		44	13.9	147	V_{25}=810~825
Armor Piercing Incendiary (API)		48	13.9	147	V_{25}=810~825
Armor Piercing Incendiary Tracer (APIT)		44	13,9	147	V_{25}=810~825
Blank	Designed to be fired from the DShKM-type machine gun, with recoil hardener system and a special feeding device	-	14.05	110	-

12.7 x 108 mm ROMARM MACHINE GUN

Cartridge	12.7 × 108 mm
Operation	gas operated
Feed	belt
Firing mode	automatic fire
Sights	rear: folding leaf; front: front sight
Effective range	2000 m
Maximum range	7000 m
Weapon length	1590 mm
Barrel length	1065 mm
Rate of fire	520 to 600 rds/min
Weight of weapon	33 kg

Mean expected barrel life	7000 rds
Weight of tripod	60 kg
PACKING	
Machine gun, Tripod and Accessories	
Wooden Box	1650 × 560 × 430 mm
Net/Gross Weight	130/168 kg
Pallet for 6 products	
Dimensions	1650 × 1120 × 1410 mm
Net/Gross Weight	780/1038 kg

CALIBER 14.5 mm

14.5 mm Ammunition and arms

Caliber 14.5 mm

Type	Use	Bullet weight (g)	Rim diameter (mm)	Round length (mm)	Muzzle velocity at 25m (m/s)
BALL	For use in all 14.5x114 mm machine guns, such as: KPV, KPVT, ZU2 and MR4	64	16.55	156	V_{25}=980m/s÷995m/s
ARMOUR PIERCING (AP)		64	16.55	156	V_{25}=980m/s÷995m/s
ARMOUR PIERCING TRACER (APT)		59	16.55	156	V_{25}=995m/s÷1015m/s
TRACER (T)		59	16.55	156	V_{25}=995m/s÷1015m/s
ARMOUR PIERCING INCENDIARY (API)		64	16.55	156	V_{25}=980m/s÷995m/s
ARMOUR PIERCING INCENDIARY TRACER (APIT)		59	16.63	156	V_{25}=995m/s÷1015m/s
BLANK CARTRIDGE	Perparing for trainig	-	16.63	118	-

14.5 x 114 mm ROMARM MACHINE GUN

Effective range	3000 m	**Medium velocity at 25 m**	995 m/s
Maximum range	8000 m	**Weight of weapon**	50.2 kg
Armour piercing capacity	20 mm armor plate at 20 oblicity at 300 m	**PACKING**	
Sights	mechanical	**Wooden box dimensions**	1860 x 750 x 670 mm
Cartridge	14.5 x 114 mm	**Net/Gross weight**	210/240 kg
Operation	short recoil operation	**Firing mode**	automatic fire
Feed system	belt feed (right, left)	**Belt capacity**	10 rounds
Barrel length	1342 mm	**Weapon length**	1980 mm
		Rate of fire	450÷600 rds/min

CALIBER 20 mm

20 mm Projectiles

20 x 102 mm FAP Projectile

The total length of the round	max.168,2 mm
Weight of the complete round	approx. 260 ±2 g
FAP Projectile weight	102 ±3 g
Penetrator weight	60 g
Penetrator material	tungsten alloy
Diameter of the projectile	max. 19.96 mm;
Diameter of the projectile ring	21.03-0.10 mm;
Powder	spherical
Muzzle velocity of the projectile	1050 ±20 m/s
The mean pressure, max	≤ 4 550 kgp/cm^2
Range of the temperatures of use	– 54^o ÷ +71^{o}C
Optimum range (the distance of straight fire)	3 000 m
Packing	metal boxes

20 x 102 mm HEI Projectile

The total length of the round	168.02 mm.
Weight of the complete round	approx. 258 g
HEI Projectile weight	101.4±3 g;
Diameter of the projectile	19.96 mm;
Diameter of the ring	21.03-0.10 mm
Powder	spherical
Muzzle velocity of the projectile	1030 ±15 m/s
The maximum pressure	4 254.57 kg/cm²
Range of the temperatures of use	- 30° ÷ +51°C
Optimum range (the distance of straight fire)	3 000 m
Packing	metal boxes

20 x 102 mm TP-T Projectile

The total length of the round	max. 168.02 mm
Weight of the complete round	approx. 254 g
TP-T Projectile weight	95 ±3 g
Diameter of the projectile	max. 19.96 mm
Powder	spherical
Muzzle velocity of the projectile	1030 ±15 m/s
The maximum pressure	4254 kgp/cm²
Range of the temperatures of use	- 54° ÷ +60°C
Optimum range (the distance of straight fire)	3 000 m
Tracer performance	min. 1.9 sec
Packing	metal boxes

CALIBER 23 mm

23 mm Ammunition and arms

[redacted]

Caliber 23 mm

Gun type:		Aircraft Gun GSh-23 and GSh-23L		
Type of projectile	Measuring Unit	EXPLOSIVE INCENDIARY OFZ HEI	ARMOUR PIERCING INCENDIARY BZA AP-I	TRACER FOR TRAINING TP - T
Muzzle velocity	m/s	720	720	720
Average maximum pressure	kgf/ cm²	3000	3000	3000

Total length		200.53	200.66	200.53
Cartridge case	mm	115	115	115
Projectile		102.5	98.5	105.8
Total weight				
Cartridge case with propelling carge				
Projectile (without fuze)				
		0.329	0.331	0.329
	kg	0.155	0.157	0.155
		0.174	0.174	0.174
Fuze type	-	B-23A	-	DUMMY
Blasting charge	-	A-IX-2	DU-5	-
Propelling	-	4/7Tgr 0.037	4/7Tgr 0.037	4/7Tgr 0.037
Propelling charge				
Tracer burning time	s	-	-	Min. 4

AIR TO AIR CANNON

Caliber	23 mm	Barrel inner diameter	
Rate of fire (normal conditions)	3000÷3400 rds/min	On gaps	23.7+0.1 mm
Muzzle velocity	715 ±15 m/s	On full	23+0.1 mm
Mass - cal. 23 x 115mm Cannon	49.2 kg	Triggering	electric
Mass - cal. 23 x 115 mm Cannon with localizers	50 kg	Cocking	manual pyro-cartridge
Length cal. 23 x 115mm Cannon	1387 mm	Guaranteed number of rounds to be fire (with the use of the pertaining set of spare parts)	minimum 4000 rounds/ min (to this number there are allowed max. 200 pyrotechnic cockings from which 80 without ammunition)
Length cal. 23 x 115 mm Cannon with localizers	1537 mm	Packing	1 wooden box with 1 piece
Breadth	165 mm	Wooden box dimensions (Llxhx)	1673 x 345 x 319 mm
Height	168 mm	Net/Gross weight:	58.5 / 81.5 kg
- barrel length	1000 mm	- threads pitch	575 mm

The two-barrel cal. 23 x 115 mm air to air cannon is designed to be mounted on an aircraft fighter.
It is intended for air defense and against ground targets.

- number of threads	10	- threads breadth	4.8 mm

CALIBER 25 mm

25 mm Ammunition

APFSDS-T 25 x 137 mm

FAPDS-T 25 x 137 mm

Target Practice Discarding Sabot Shell with Tracer		MAIN FEATURES	
Total length round	223 mm	**Safety**	Intensitive munition (no HE)
Mass of round	425 g	**Performance**	Warshot trajectory match to tactical range
Mass of projectile	121 g	**Firing mode**	Single shot and automatic mode
Muzzle velocity	1445 m/s	**Environment**	No toxic elements
Cartridge case	Steel	**Transport/Storage**	UN Classification 1.4C
Temperature range (functional)	-30°C to +50°C	**Gun/System**	Incl. KBA, M242, GAU12, M811

MAIN	**Time of flight**	1000 m - 0.82 s	**Packing**	Sealed metal boxes
	Time of flight	2000 m - 2.03 s	**Tracer time**	1.8 s

Armour Piercing Fin Stabilised Discarding Sabot with Tracer	
Total length round	223 mm
Mass of round	437 g
Mass of projectile	130 g
Propellant	NC single base
Muzzle velocity	1445 m/s
Cartridge case	Steel
Temperature range (functional)	-30°C to +50°C
Time of flight	1000 m - 0.75 s
Time of flight	2000 m - 1.57 s
MAIN FEATURES	
Performance	Short time of flight. Defeats armour at low impact angles at extended ranges.
Firing mode	Single shot and automatic mode
Safety	Intensitive munition (no HE)
Environment	No toxic elements (no DU)
Transport/Storage	UN Classification 1.4C
Gun/System	Incl. KBA, M242, M811
Packing	sealed metal boxes.

FEATURES

Performance	Excellent against soft and semiarmored targets
Firing mode	Single shot and automatic mode
Safety	No ricochet, no duds (no HE)
Environment	No pyrochemical substances
Transport/Storage	UN Classification analogous TP-T
Packing	sealed metal boxes.

Frangible Armour-Piercing Discarding Sabot Shell with Tracer	
Total length round	223 mm
Mass of round	440 g
Mass of projectile	150 g
Propellant	NC single base
Muzzle velocity	1310 m/s
Cartridge case	Steel
Temperature range (functional)	-30°C to +50°C
Time of flight	1000 m - 0.82 s
Time of flight	2000 m - 1.78 s
Tracer distance	< 2500 m

TPDS-T 25 x 137 mm

CALIBER 30 mm

Ammunition

Caliber 30 x 165 mm

Gun type	Unit	NAVAL GUN NN-30 AND AK-230			NAVAL GUN AK-306 AND AK-630				TOWED GUN AA 2X30 Md. 80	
Type of projectile		(OF-83) HE	(F-83) HE	(BR-83) T	(OF-84) HE	(OR-84) HE-T	TP	TP - T	(OR-83R) HE-T	(BZR-83R) API-T
Maximum range	m	3500	3500	3500	3500	3500	3500	3500	3500	3500
Muzzle velocity	m/s	1050	1050	1050	890	890	890	890	1050	1050
Average max pressure	kgf/ cm2	3100	3100	3100	3200	3200	3200	3200	3100	3100
Total length Cartridge case Projectile	mm	304 210 129	304 210 131	305 210 120	292 165 127	292 165 127	292 165 127	292 165 127	305 210 135	304 210 119
Total weight Cartridge case with propelling charge Projectile	kg	1.061 0.705 0.356	1.066 0.706 0.360	1.061 0.704 0.357	0.837 0.447 0.390	0.833 0.446 0.387	0.837 0.447 0.390	0.833 0.446 0.387	1.076 0.716 0.360	1.073 0.713 0.360
Fuze type	-	MG-30	MD-30	-	FC-30	FC-30	DUMMY	DUMMY	MG-30	-
Blasting charge	-	A-IX-2	A-IX-2	-	A-IX-2	A-IX-2	-	-	A-IX-2	DU-5
Propelling charge	-	6/7 BPgr	6/7 BPgr	6/7 BPgr	6/7 FL-M	6/7 FL-M	6/7 FL-M	6/7 FL-M	6/7 BPgr	6/7 BPgr
Self-destruction time	s	12-17	12-18	-	11÷19	11÷19	-	-	12-17	-
Tracer burning time	s	-	-	min. 8	-	min. 10	-	min. 10	min. 9	min. 4

Caliber 30 x 173 mm

Type	Target practice tracer (TP-P)	High explosive incendiary HEI	High explosive incendiary tracer HEI-T
MAIN CHARACTERISTICS			
Round total weight	835 g	835 g	835 g
Projectile weight	362 g	378 g	379 g
Muzzle velocity	1100 m/s	1100 m/s	1100 m/s
Range	3000 m	3000 m	3000 m
Trace burn time	3 s		3 s

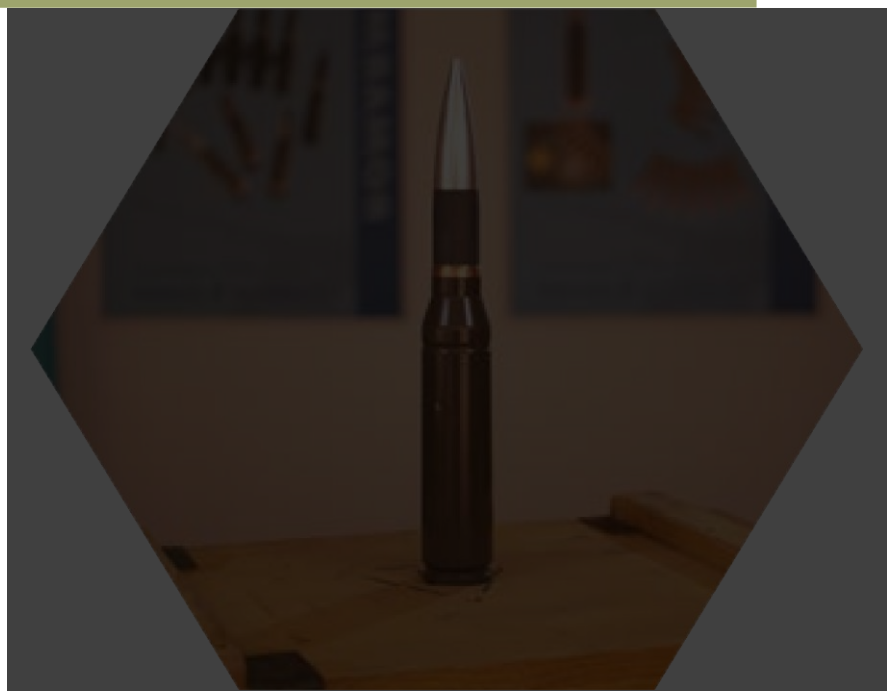
CALIBER 35 mm

Ammunition

Caliber 35 mm

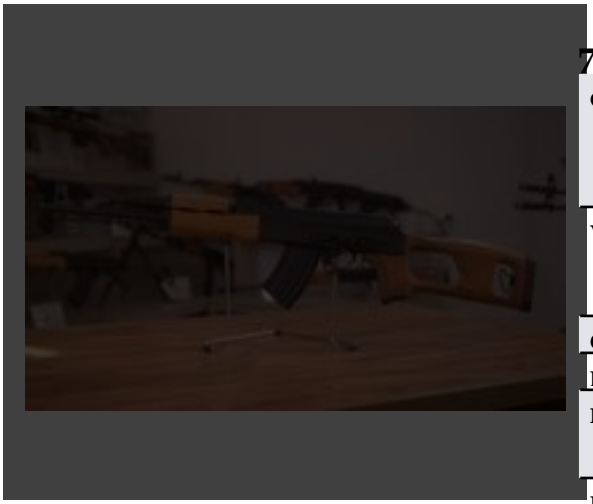
MAIN CHARACTERISTICS		
	HEI High explosive incediary	**TP-T Target practice with tracer**
Round total weight	1572 g	1572 g
Projectile weight	550 g	550 g
Muzzle velocity	1174 m/s	1174 m/s

Small arms and ammunition



CALIBER 7.62 mm

RIFLES

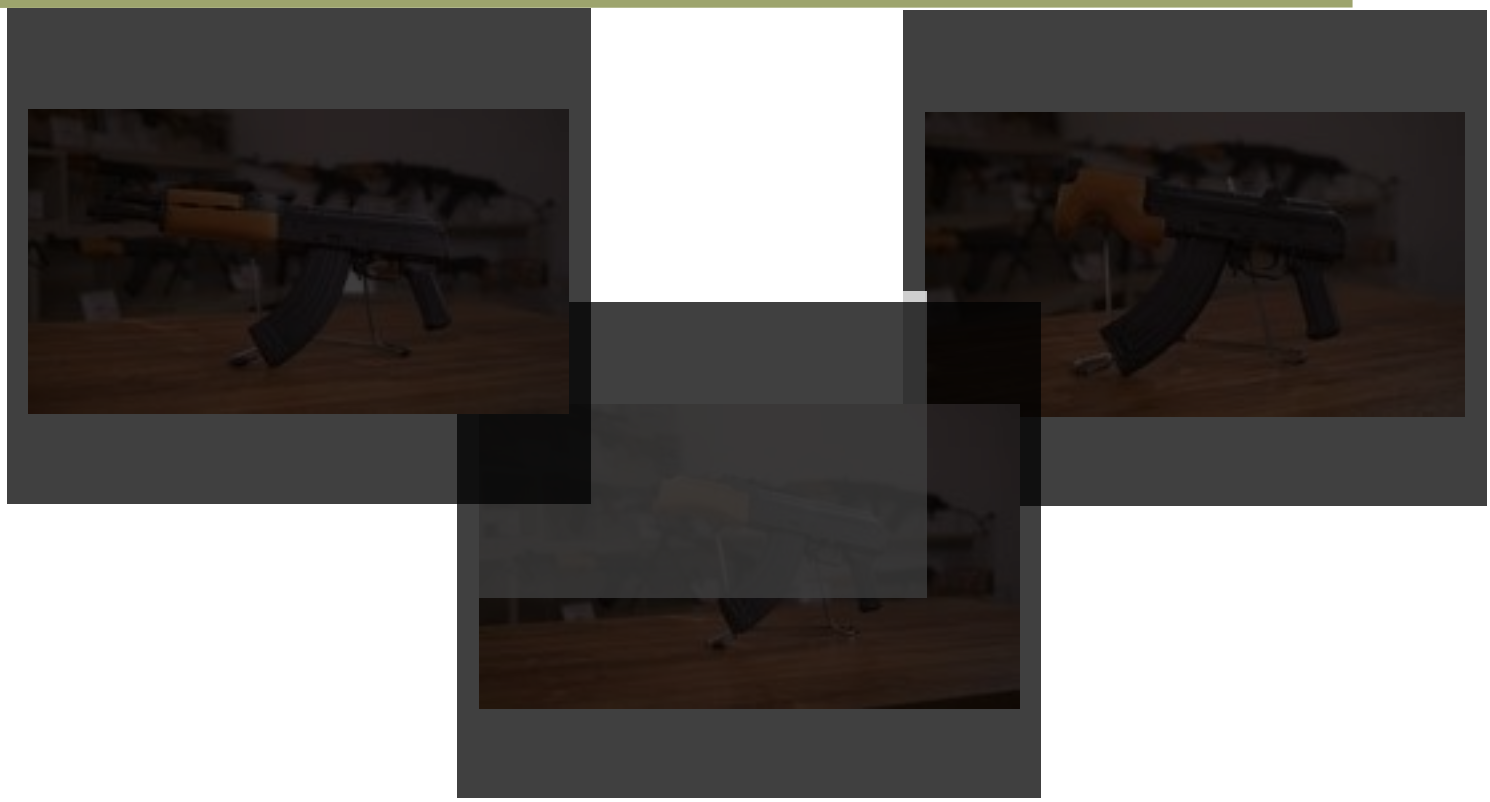


7.62 mm / 5.45mm SEMI-AUTOMATIC RIFLE

Cartridge	7.62 x 39 mm / 5.45x39 mm	**Sight**	mechanical: fore, pillar; rear, U-notch, rail for mounting optical sighting devices
Variants	• DS - box magazine with cartridges on two rows; • SS - box magazine with cartridges on a row	**Weapon length**	870 mm
Operation	gas, semiautomatic	**Sight radius**	384 mm
Locking	rotating bold	**Barrel length**	415 mm
Feed	detachable box magazine	**Weight of empty magazine**	0.350 Kg
Magazine capacity	• optional: 5 or 10 rounds box magazine • 7.62 mm DB model is available with AK 30-rds box magazine	**Weight without magazine**	3.300 Kg

7.62 mm SEMI-AUTOMATIC PISTOL

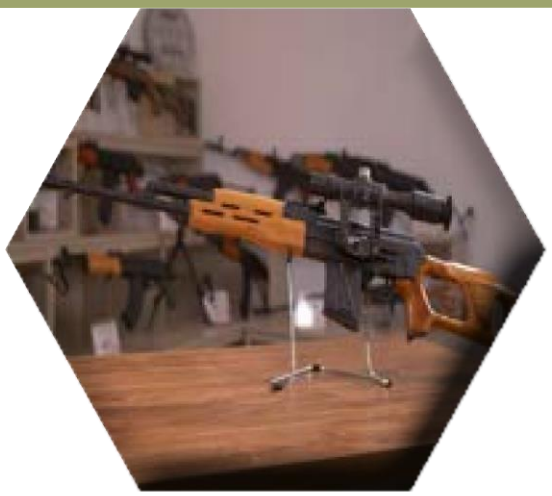
Cartridge	7.62 x 39 mm	**Models**	S / X-S / XX-S
Operation	gas, semiautomatic	**Weapon length**	520 mm / 415 mm / 370 mm
Locking	rotating bold	**Barrel length**	295 mm / 194 mm / 150 mm
Feed	detachable box magazine	**Sight radius**	260 mm / 160 mm / 255 mm
Magazine capacity	30-rounds magazine; optional: 5 or 10 rounds, box magazine	**Weight without magazine**	3.100 Kg / 2.300 Kg / 2.150 Kg
Sight	mechanical; fore, pillar; rear, U-notch	**Weight of empty magazine**	0.350 Kg



Hunting and Sporting firearms

CALIBER 7.62 mm

RIFLES



7.62 mm SEMI-AUTOMATIC SNIPER RIFLE

Cartridge	7.62x54R mm	**Weapon length**	1150 mm
Operation	gas, semiautomatic	**Barrel length**	620 mm
Locking	rotating bolt	**Line of sight**	590 mm
Feed	detachable box magazine	**Weight without magazine**	4.100 Kg
Magazine capacity	10 rds.	**Weight of empty magazine**	0.210 Kg
Sight	mechanical: fore, pillar; rear, U-notch. optional: 4x6° telescope	**Weight of telescope**	0.600 Kg

7.62 mm PUMP ACTION RIFLE

Cartridge	7.62 x 39 mm	**Rail for mounting optical sighting devices**	
Operation	hand operated	**Weweapon length**	910 mm
Locking	rotating bold	**Barrel length**	415 mm
Feed	detachable box magazine	**Sight radius**	425 mm
Magazine capacity	optional: 5 or 10 rounds box magazine	**Weight without magazine**	3.300 Kg
Sight	mechanical; fore, pillar; rear, U-notch	**Weight of empty magazine**	0.200 Kg

7.62 mm SEMI-AUTOMATIC RIFLE

Cartridge	7.62 x 39 mm	**Rail for mounting optical sighting devices**	
Operation	gas, semiautomatic	**Weapon length**	870 mm
Locking	rotating bold	**Barrel length**	415 mm
Feed	detachable box magazine with cartridges on a row	**Sight radius**	260 mm
Magazine capacity	10 rounds box magazine	**Weight without magazine**	3.300 Kg
Sight	mechanical; fore, pillar; rear, U-notch	**Weight of empty magazine**	0.200 Kg

7.62 mm SEMI-AUTOMATIC RIFLE FOLDING BUTT

Cartridge	7.62 x 39 mm
Operation	gas, semiautomatic
Locking	rotating bold
Feed	detachable box magazine
Magazine capacity	optional: 5 or 10 rounds box magazine
Sight	mechanical; fore, pillar; rear, U-notch

Grenades for under-barrel launchers

GRENADES

40 x 46 mm HE GRENADE

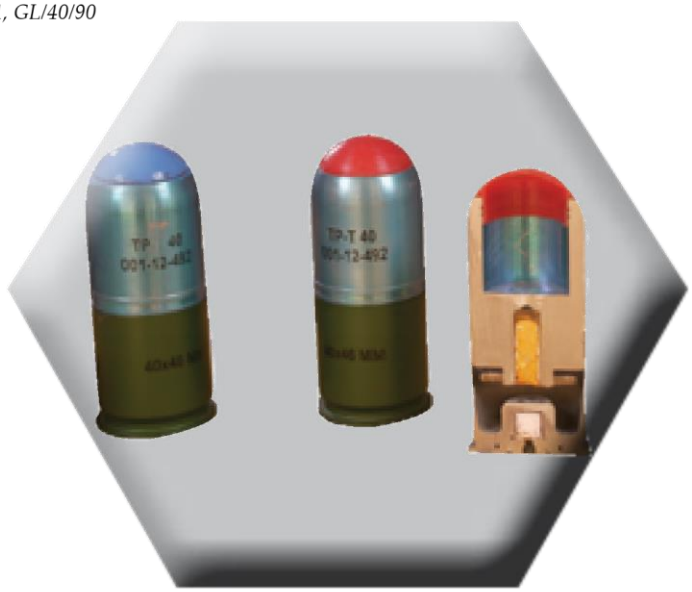
Type	HE
Lenght	94.5 mm
Weight	235 ± 10 g
Filler and weight	Comp. B, 21 g
Fuze	AR 706
Maximum range	400 m
Number of balls	144 pcs
Number of splinters having mass over 0,2 gram	min. 200 pcs
Muzzle velocity	80 ± 2 m/s
Temperature range for firing	-50 °C to +50 °C
Temperature range for storage	-50 °C to +50 °C
Shelf live	10 years
Packing	Metal box, T46 - 72 pcs or wooden box - 72 pcs
IMDG code	1.1F
U.N. Number	0321

40 x 46 mm TP-T GRENADE

Type	TP-T
Lenght	101.5 mm
Weight	230 ± 10 g
Maximum range	400 m
Muzzle velocity	80 ± 2 m/s
Time burning tracer	min. 15 s
Temperature range for firing	-50 °C to +50 °C
Temperature range for storage	-50 °C to +50 °C
Packing	Metal box, T46 - 72 pcs or wooden box - 72 pcs
IMDG code	1.2C
U.N. Number	0328

** Launcher use: M203, M79, L123A2 UGL UK, GLG40, MZP-1, HK79, HK79A1, GL/40/90*

** Launcher use: M203, M79, L123A2 UGL UK, GLG40, MZP-1, HK79, HK79A1, GL/40/90*



40 mm round for grenade launcher attached to submachine gun (AG - 40)

Type of projectile	High explosive (HE-AP)
Total length	108 mm
Grenades	81 mm
Total weight	0.275 Kg
Grenades	0.200 Kg
Maximum range	400 m
Muzzle velocity	80 m/s
Grenade body	STEEL
Splinters spreadind radius	5 m
Selfdestruction time	13 ÷ 18 sec

Grenades for under-barrel launchers

GRENADES

40 x 47 mm EXPLOSIVE GRENADE

Type	Explosive
Operational abbreviation	GETZ 40 mm
Length	105 mm

Cartridge length	47 mm
Total weight	260 ± 10 g
Weight of explosive grenade	200 ± 10 g
Mass of propelling charge	0.6 g
Mass of explosive charge	35 g
Fuze	PD SD-40-1TH
Average speed	77 ± 2 m/s
Operating temperature	-40 °C to +52 °C
Storage temperature	-40 °C to +52 °C
Method of initiation	Percussion
Ballistic data	Lethal effects on living within a radius of 5m
Hazard class and compatibility group	1.1F

For Romanian grenade launcher caliber 40 mm model 1977 adapted to submachine **40 x 47 mm**

INERT GRENADE *gun caliber 7,62 mm model 1963.*

Type	Target practice tracer
Operational abbreviation	GITZ 40 mm
Length	105 mm
Cartridge length	47 mm
Total weight	260 ± 10 g
Weight of inert grenade	200 ± 10 g
Mass of propelling charge	0,5 g
Operating temperature	-40 °C to +52 °C
Storage temperature	-40 °C to +52 °C
Method of initiation	Percussion
Ballistic data	Lethal effects on living only at their impact with the grenade
Hazard class and compatibility groupe	1.2C

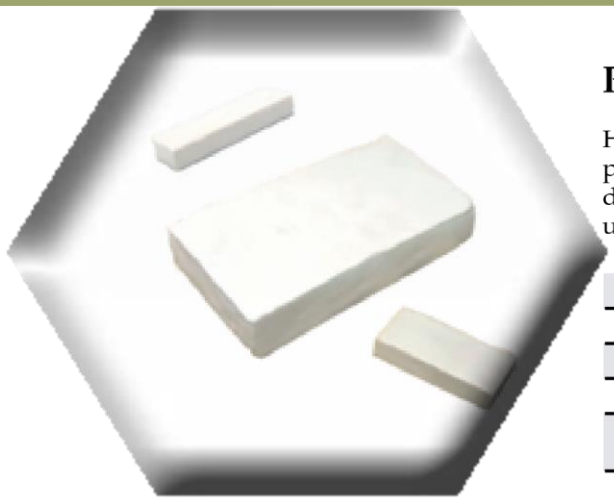
Smoke grenade for visible & infrared masking

Caliber	76 mm	**Extension distance of the smoke curtain**	15 ÷ 40 m
imum length	170 mm	**Time for fumigation**	Min. 60 s
veight	~1.2 kg	**Smoke duration**	≥20s (IR) / ≥30s(VIS)
of the t load	~ 800 g multispectral fumigation composition RP/IR	**Size of screen**	• for one grenade - Width ≥ 12m: Height ≥ 6 m • salvo of eight grenades: Width 60 ÷ 70m; Height ≥ 6 ÷ 10m

ıncher	WEGMANN 76 mm or TOHAN launcher SGL-1TH	**Wave band covered**	• VIS 0.4 ÷ 0.7 µm • IR 0.7 ÷ 14 µm
iation mod	Electric	**Recoil force**	< 10,5 kN
cking	18 grenades are paked in a wooden box: 670 x 370 x 290mm	**Operating current**	2.4 A
azard s and bility group	1.4 G	**The threshold for non-initiation**	1.2 A
Key feature	non carcinogenic and low toxic; use for combat and training	**Electrical circuit resistance**	0.3 ÷ 2.5 Ω

Powders & Explosives

POWDERS AND EXPLOSIVES



Plastic Explosive HITEX-M

HITEX-M is an explosive composition based on RDX, with inert plastic binder, designed for producing the explosive charges for demolition or for processing or for nonconventional technologies using explosives. The product is marked with marker p-MNT.

Shape	Parallelepiped block
Malleability	Plasticized body, easy malleable;
Weight of block	1000±5g (500g)
Dimension of block	~ 182x61x59 mm;
Content	85-90%RDX, 10-15% inert plastic binder, 0,5-0,6% marking agent
Operating and storage temp.	-20° to +50°C;
Detonating velocity	min. 7000 m/sec;
Hess shattering	min. 20 mm;
Volume of excavation Trauz	~ min. 330 cm^3;
Explosive heat	1100-1500 kcal/kg;
Specific volume	900-950l/kg;
Chemical stability at vacuum	≤1cm^3/g;
Temperature sensitivity	Self-ignition >200°C;
Impact sensitivity KAST (5kg)	H50>0,25m;
Initiating capacity	Electrical caps, non electrical caps, pyrotechnical caps, detonator cord
Shelf live	5 years
Risk class:	1.1D
Transport number:	0457
Packing:	Each block of 1kg is packed into transparent plastic bag, vacuumed, and into labeled cardboard box. Every identified wooden box contains 20 cardboard boxes (20kg).

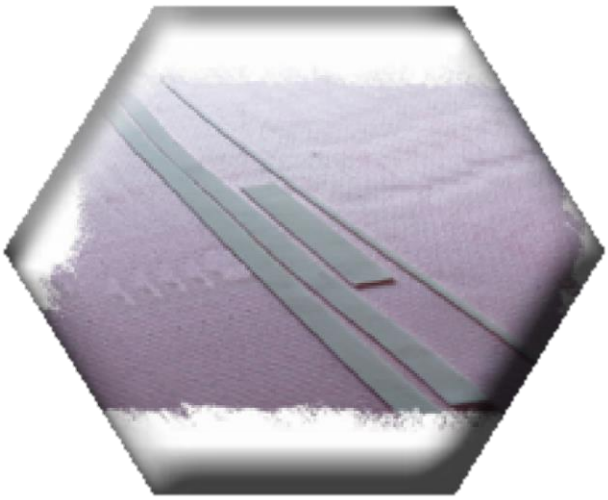
Plastic Explosive PHF-89

PHF-89 is a plastic explosive for producing the explosive charges for civil and military destination.

Appearance	homogenous plastic substance of white or yellowish color, slightly adherent
RDX content	89 ±1.5%
Moisture	max. 0.25%
Density	min. 1.5 g/cm^3
Insoluble particles on	0.425 mm sieve 0 / 0.25 mm sieve 5
Acidity (H2SO4)	max. 0.05%
Detonation velocity	min. 7400 m/s
Packing	The blocks of 200 g, 250 g, 500 g, 1000 g, etc., are wrapped in polyethylene sheets and/or waxed paper sheets. The blocks are then packed in cardboard or wooden cases according to customer's request.
Guarantee	1 year from the date of manufacturing.

Powders & Explosives

POWDERS AND EXPLOSIVES



Plastic Explosive BEP-88T

BEP-88T has a wide range of destination: explosives charge BEP - 88T, component anti-hail rocket, assuring destroy of her at the end of flight, after the activation of the delayer included in self destroy mechanism.

Chemical compositions of product	Hexogen: 88 ± 1.5 % / Polyisobutylene rubber: 12 ± 1.5 %
Density	≥ 1.4 g/cm^2
Velocity of detonation	≥ 6000 m/s
High explosives (Hess method)	≥ 19
Sensitiveness to friction	≥ 80 N
Sensitiveness to impact	> 2 J
Thermal stability	stable 48 h at 75°C ± 2°C
Packing	Explosives charge BEP - 88 T is covered by a layer of hermtiyed rubber and then packed in wooden cases according to customer's request
Size	dimensions ranging from 4 to 22 mm, lengths up to 1300 mm and thickness over 2.4 mm
Guarantee	3 years from the date of manufacturing

RDX

Hexogen is used to fill the fuse caps and for the manufacturing of detonating cords, detonators and mines. Civil and military destination.

Appearance	fine white crystals
Melting point	min. 200° C
Ash	max. 0.05%
Acidity (as HNO3)	max. 0.05%

Granulation Thru US STD Sieve,%0	Class 1		Class 3		Class 4		Class 5	
	min.	max.	min.	max.	min.	max.	min.	max.
8								
12								
20	96	100						
35					0	40		
50	80	100	30	50				
100	30	90	10	30				
200	5	45	0	20				
325							97	-

Desensitized RDX

Desensitized RDX is used for various types of ammunition with military destination.

Appearance	orange grains or crystals	**Granulation**	
Desensitizer	5 ÷ 6.5%	**over 1,0 mm**	max. 1.0%

Humidity and volatile substances	max. 0.1%	**0,75 ÷ 1,0 mm**	max. 5.0%
Acetone insoluble substances	max. 0.25%	**0,50 ÷ 0,75 mm**	10 ÷ 35%
Ash	max. 0.15%	**0,30 ÷ 0,50 mm**	40 ÷ 60%
Silicone dioxide	max. 0.04%	**0,10 ÷ 0,30 mm**	15 ÷ 30%
Acidity (as H_2SO_4)	max. 0.05%	**less than 0,10 mm**	max. 2.0%
Melting point	min. 201.5° C	**Packing**	polyethylene bags containing 20 kg of 100% product stabilized with 15% water and overpacked in cardboard boxes of 450x310x290 mm. Gross weight of packed product is about 25 kg.

INFANTRY ARMS AND AMMUNITION

Infantry arms and ammunition

40 mm Weapon & Ammunition systems

AG 7

AG 7 DS

The 40 mm antitank grenades and explosive bombs launcher is a means of fire landing force and submachine gunners squads in special missions. The launcher is designed for destroying the tanks, truck-borne cannons, any type of car and other armored mean of fire of the enemy, for neutralizing the living force and the fire means of enemy, existing in wooden and earth buildings, of light type or brick buildings.

Maximum range	with hollow round - 500 m with 40 mm explosive bomb - 1000 m with 60mm explosive bomb - 1500 m
Weight	without sight mechanism 6.5 kg with PGO7V sight mechanism 7.1 kg
Rate of fire	4÷6 rounds / min
Length	for firing 908 mm for transportation 610 mm
Dangerous area behind the launcher	70° x 30 m
Packing	40 mm grenade launcher, together with the individual kit of spare parts, tools, and accessories is delivered in its wooden packing case. Kits for medium and capital repairs can be delivered on customer's order. 5 pieces of 40 mm launchers with individual kits are packed in wooden case
Dimensions of case	1240 x 640 x 440 mm
Gross weight	~ 100 kg
Net weight	~ 60 kg

AG 7 S

Maximum range	with hollow round - 500 m with explosive bomb 40 mm - 1000 m with explosive bomb 60 mm - 1500 m

Weight	without sight mechanism 6 kg with IOAG7S sight mechanism 7.1 kg • magnification x2.7 • field of view 13° • range of elevation 0° ÷ 36°
Rate of fire	4÷6 rounds/min
Length of the launcher	908 mm
Dangerous area	70° x 30 m
Packing	40 mm grenade launcher, together with the individual kit of spare parts, tools, and accessories is delivered in its wooden packing case. Kits for medium and capital repairs can be delivered upon customer's order. 5 pieces of 40 mm launchers with individual kits are packed in wooden case
Dimensions of case	1240 x 640 x 440 mm
Gross weight	~100 kg
Net weight	~ 60 kg

The 40mm antitank grenades and explosive bombs launcher is a means of fire of infantry subunits and landing force. The launcher is designed for destroying tanks, truck-borne cannons, any type of car and other armored mean of fire. The launcher can also be used for neutralizing the personnel and the firing means of the enemy.

40 mm Weapon & Ammunition systems

OG 7

G - 7 - 40 mm
igh explosive steel round with M6-R
ıze

s used with the AG 7 Portable Antitank Grenade Launcher.

aliber	40 mm
et weight (round fully quipped)	1.725 kg
ıze	M6-R
opelling charge	PG-7PM
laximum medium ressure	900 kgf/cm²
laximum range	1000 m
ecision	A pr/X: ≤1/50 / A pd/X: ≤1/200 PACK-ING
Packing	Wooden case containing 12 fully equipped rounds

Ammunition systems

Full case weight	34 kg
Case overall dimensions	705×490×275 mm

OG - 7 - with 60 mm
High explosive steel bomb

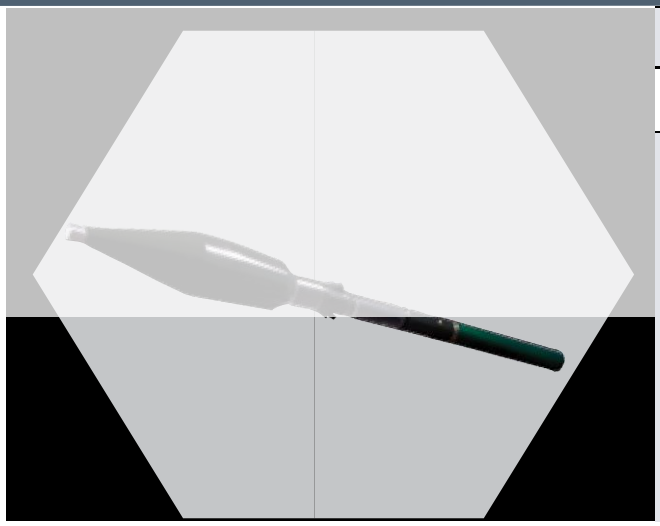
This active-reactive round is used with the AG 7 Portable Antitank Grenade Launcher.

Caliber	60 mm
Net weight (round fully equipped)	2.300 kg
Fuze	V5K-MD
Propelling charge	PG-7PM
Maximum medium pressure	≤ 900 kgf/cm^2
Maximum range	1500 m
Precision	Apr/X: ≤1/40 ApdX: ≤1/280
Packing	Wooden case 12 fully equiped rounds
Full case weight	40 kg
Case dimensions	895 × 490 × 280 mm

artillery units and other mechanized and armored means of the enemy.

[redacted]

Caliber of grenade	on the guiding part in launcher - 40 mm on the grenade body - 93 mm
Round length	mm
Round weight	2.75 kg
Fuse type	VP-7M
Direct firing range	m
Maximum range	m
Muzzle velocity	m/s
Shooting rate	4-6 rounds/min
Penetration capacity	mm
Accuracy	• orizontal PE 0.6 m • vertical PE 0.5 m



Exploitation temperature	-40°C to +50°C
Packing	rounds in a wooden box/ 6 grenades and 6 expelling charges packed separately. Size of the box - 905x503x298 mm. Weight - 40 kg
Class of explosion hazard	1.1F, UN 0180

Ammunition systems

PG 7

PG-7V 85 mm Cumulative Antitank Grenade

The round is designed to be used with the 40 mm Portable Antitank Grenade Launcher. Also, it is used against all the modern types of the enemy's armored means.

Caliber of grenade	on the guiding part in launcher - 40 mm on the grenade body - 85 mm
Length	grenade 640 mm
	round 925 mm
Speed of grenade	initial 120 m/s
	maximum 300 m/s
Shooting distance	• 300 m for direct round when the height of the objective is 2 m • 500 m maximum from support
Shooting rate	4-6 rounds/min
Penetration capacity	260 mm armoured plate
Precision at 300 m	• in height < 0.6 m • in direction < 0.8 m
Exploitation temperature	-40°C to +50°C

PG-7VM 70 mm Cumulative Antitank Grenade

The round is designed to be used with the 40 mm Portable Antitank Grenade Launcher. Also, it is used against all the modern types of the enemy's armored means.

Caliber of grenade	on the guiding part in launcher - 40 mm on the grenade body - 70,5 mm
Length	grenade 669 - 680 mm
	round 941 - 951 mm
Speed of grenade	initial 140 ± 3 m/s
	maximum 350 m/s
Shooting distance	• 330 m for direct round when the height of the objective is 2 m • 500 m maximum from support
Shooting rate	4-6 rounds/min
Penetratio capacity	300 mm armoured plate
Precision at 300 m	• in height < 0.5 m • in direction < 0.6 m
Exploitation temperature	-40°C to +50°C

PG-7VLR HEAT for RPG-7 Launcher

The round is designed for destroying all the modern types of tanks, self-propelled

Ammunition systems

ROUNDS

TBG - 7CRF1 Thermobaric round

Ammunition with explosive and thermobaric effect responds to the demands of modern asymmetric warfare. The explosive and thermobaric ammunition combines the explosive effect with the dispersion of metallic particles, with a strong exothermic reaction and large overpressure and decompression.

Warhead Caliber	mm
Net weight (round fully equipped)	≈1.725 kg
Fuze	impact SQ fuze for RPG-7
Maximum medium pressure	≤ 900 kgf/cm²
Maximum range	≈ 1000 m
Temperature range	-40° C÷ +60° C
Precision	A $_{P^r}$/X: ≤ 1/50 A $_{P^d}$/X: ≤ 1/200

TBG - 7CRF2 HE & Thermobaric round

Warhead Caliber	mm
Total length	mm
Net weight (round fully equipped)	≈3.600 kg
Fuze	impact SQ fuze for RPG-7
Maximum medium pressure	≤ 900 kgf/cm²
Maximum range	≈ 1200 m
Temperature range	-40° C÷ +60° C
Precision	A $_{P^r}$/X: ≤ 1/40 A $_{P^d}$/X: ≤ 1/280

TBG - 7CRF3 HE & Thermobaric round

Ammunition with explosive and thermobaric effect responds is particularly effective in confined spaces, such as tunnels, buildings and different types of fortifications. The delayed electronic fuze ensures the penetration of the walls of different thickness producing the effects behind it.

Warhead Caliber	mm
Total length	mm
Net weight (round fully equipped)	≈4 kg
Fuze	electronic time with delay fuze (fuze for RPG-7)
	≤ 900 kgf/cm²
	≈ 1200 m
Temperature range	-40° C÷ +60° C
Precision	A $_{P^r}$/X: ≤ 1/40 A $_{P^d}$/X: ≤ 1/280

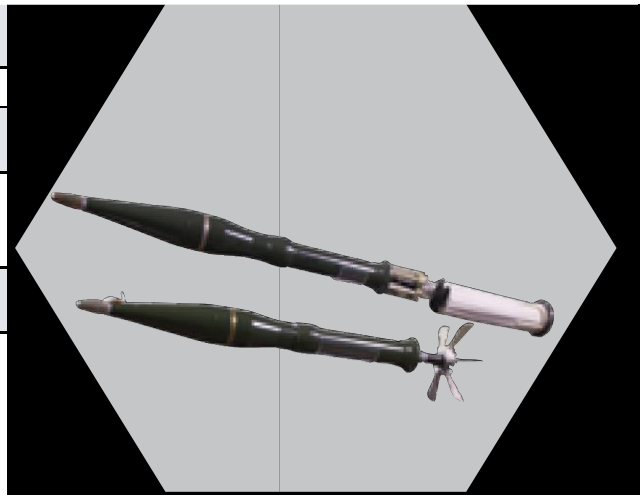
Ammunition systems

ROUNDS

PG-9V 73 mm Hollow-charge round

PG-9 hollow-charge round with the PG-9V antitank round rocket projectile is designed for destroying tanks, self-propelled guns and other armored vehicles. Additional, the round is used for neutralising and destroying the living forces of the enemy in field shelters and/or brick-wall fortifications.

Calibre of the rocket projectile	73 mm
Firing range	800 m
For direct round when the height of the target is of 2 m maximum according to the sight	
Weight	• Rocket projectile 2.6 kg • Round 4.4 kg • Muzzle velocity 435 m/s
Precision for 800 m distance	• on height < 0.5 m • on direction < 0.5 m
Piercing capacity	armoured plate of 300 mm tickness

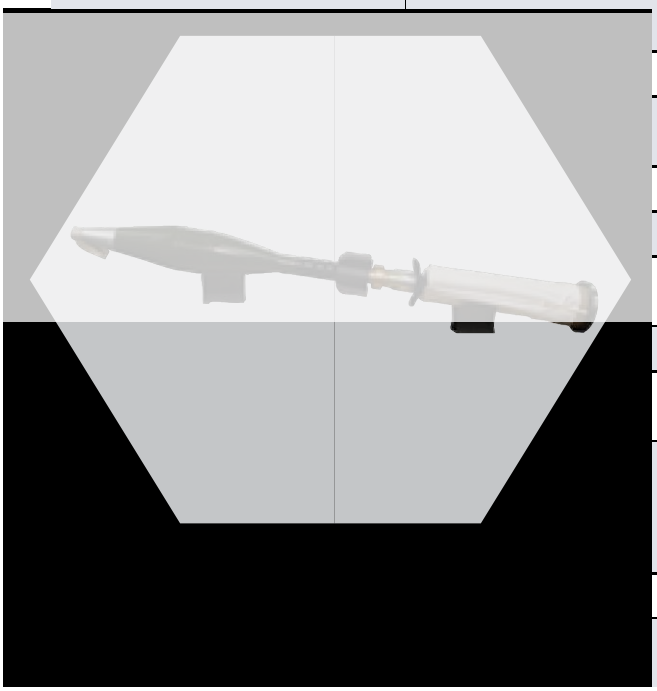


Warhead caliber	73 mm.
Weight	≈ 4.5 Kg
Length	1200 mm
Fuze	impact SQ fuze
Pressure	≤ 600 Kg.f/cm²
Max. range	≈ 1500 m
Temperature range	-40° C÷ +60° C

OG-9 73 mm

High explosive steel bomb - 2 types

Precision	Apr = ± 0.2 m / Apd = ± 0.3 m
Firing rate	3 shots/min.

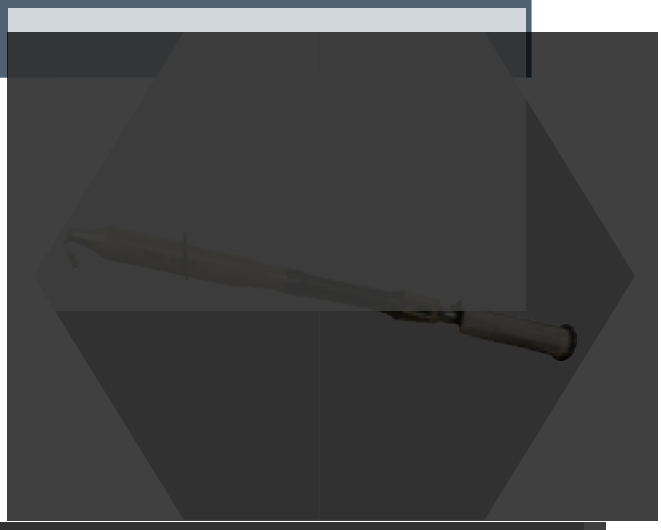


Caliber:	73 mm	73 mm
Total lenght	**930.3 mm**	**806.37 mm**
Net weight (round fully equipped)	5.300 kg	4,950 kg
Fuze:	UB-2M	UB-2M
Propelling charge:	PG-9P	PG-9P
Maximum medium pressure	≤ 660 kgf/cm²	≤ 600 kgf/cm²
Maximum range:	5400 m	4500 m
Precision:	A $_{p^r}$/X: ≤1/140 A $_{p^d}$/X: ≤1/500	A $_{p^r}$/X: ≤1/140 A $_{p^d}$/X: ≤1/500
Packing	Wooden case containing 12 fully equipped rounds	Wooden case containing 6 fully equipped rounds with fuze on 6 propelling charges fully equipped
Full case weight	78 kg	55 kg
Case overall dimensions	1105×450×305 mm	800×420×302 mm

Ammunition systems

TBG9 - CRF Thermobaric active-reactive round

Intended for destroying the unarmed personnel and uncovered armored technique, light shelters and/or burning of fuel and ammunition deposits.



60 mm Mortars & mortar bombs MORTARS

standard mortar launcher

long range mortar launcher

Caliber	60 mm
Length of barrel	735 mm
Firing range: with explosive bomb	1900 m
Vertical firing field	45°÷85°
Rate of fire in the first minute without re-aiming	12 rds/min

It

Weight of mortar ready for battle	max. 8 kg

has a smooth barrel and it is designed for firing with curved trajectory. It is also designed for fire support of infantry subunits, parachute landing forces and other subunits. Main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the commando observation posts, to set on fire the warehouses, to make passages through the mine fields, to destroy the defense works of enemies.

Caliber	60 mm	60 mm
Length of barrel	1080 mm	1300 mm
Firing range	• maximum 3000 m • minimum 100 m	• maximum 4500 m • minimum 100 m
Vertical firing field	45°÷85°	45°÷85°
Horizontal firing field	• without moving the bipod ±3° • moving the bipod ±360°	• without moving the bipod ±3° • moving the bipod ±360°
Rate of fire in the first minute without reaiming	20 rounds/min	20 rounds/min
Weight of mortar ready for battle	max. 20 kg	max. 30 kg
Weight of component parts	• barrel with breechblock ~7.5 kg • base plate ~4.7 kg • optical sight 0.8 kg	• barrel with breechblock ~11 kg • bipod ~10 kg • base plate ~9 kg • optical sight 0.8 kg

Ammunition systems

commando mortar launcher

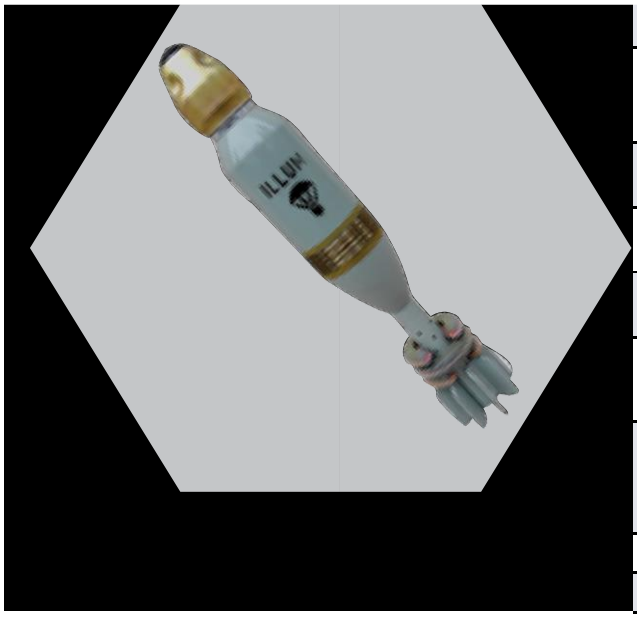
Best product assets: it is an individual means of fire, with smooth barrel, for firing with curved trajectory.
Purpose of use: subunits of navy, air force, as well as for intervention units.
Main missions: to destroy the personnel and the sheltered or unsheltered means of fire, the command observation posts, warehouses of weapon and ammunition, fuel and lubricants.

60 mm Mortars & mortar bombs

illuminating mortar bombs

Illuminating mortar bomb with fuze T-1

The 60 mm illuminating bomb is intended for artificial illumination of the target area for the purposes of reconnaissance.



Caliber	60 mm	PYROTECHNIC TIME FUZE T-1	
Length with fuze T-1 (without cuff protection)	359.66...365.2 mm	Fuze length with cuff protection	77.43÷81.25 mm
Length without fuze	293.76…298 mm	Length of part mounted in ogive	11.57÷12.6 mm
Weight (with fuze, w/out increments)	1.83 kg	Thread that is screwed into ogive	Sp 36,14x10 turns/inch
Propulsion system	1 prime charge + 3 increments	Weight (without cuff protection)	0.160 kg
Muzzle velocity	220 ± 3 m/s (max.)	Operating mode and time adjusting	10÷125 divisions =time 3.5÷46.45 s UD - at impact
Fuze	time fuze T-1	Packing	Metal box sealed, containg 32 pieces and 4 boxes in a wooden case
Maximum range	2800 m	Case dimension	520 x 490 x 257 mm
Illum, intensity	min. 200 000 cd.		

Caliber	60 mm	ELECTRONIC TIME FUZE ETF-1MT	
Length with fuze ETF-1MT	379.36…384.25mm	Fuze length	98…100 mm
Length without fuze	293.76…295.8 mm	Length of part mounted in ogive	11.57...12.6 mm
Weight (with fuze, w/out increments)	~2.07 kg	Thread of part buried in ogive	Sp 36.14x10 turns/inch
Propulsion system	1 prime charge + 3 increments	Weight	0.285 kg
Muzzle velocity	200 m/s (max.)	Power supply	Air driven turbine
Fuze	electronic time fuze ETF-1MT	Adjustable setting time	3.1 s ÷ 99.9 s, with thread 0.1 s, precision 0.05s
Maximum range	2800 m	Operation mode	time or impact
Illum, intensity	min. 200 000 cd.	Time setting	electronic wire programmer that ensure setting, resetting and set time confirmation
Illum, burn time	min. 25 s	Operating temperature	-32° C to 49° C
Stabilized descent speed	max. 4.5 m/s	Packing	24 pieces / metal box sealed; 4 boxes in a wooden case
Temp. limits, firing and storage	-32° C to 49° C	Case dimension	520 x 490 x 257 mm

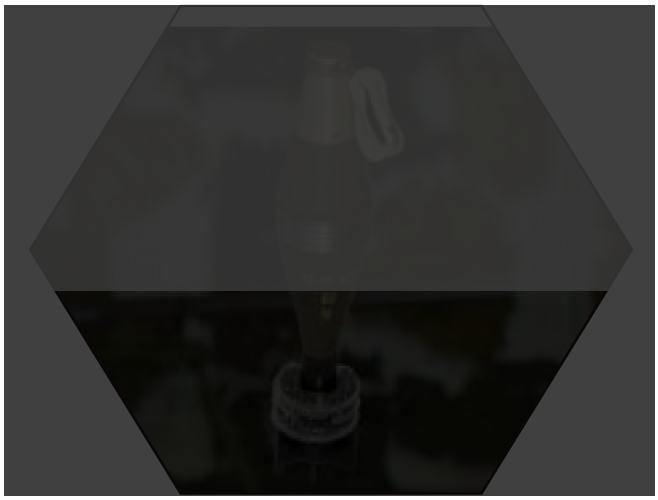
60 mm Mortars & mortar bombs

Illum, burn time	min 25 s
Stabilized descent speed	max. 4.5 m/s

Illuminating mortar bomb with fuze ETF-1MT

The 60 mm illuminating bomb is intend for artificial illumination of the target area for the purposes of reconnaissance and for the performance of other tactical actions on the battlefield.

MORTARS



Smoke mortar steel bomb

High explosive mortar steel bomb

Type	**Smoke**	**High explosive**
Caliber	**60 mm**	**60 mm**
Total length	340 mm	~298 mm
Net weight (round fully equipped)	1,900 kg	1,500 kg
Fuze	M6-R	M6R-M
Propelling charge	1 cartrige + 3 extra charges	• "Standard" mortar - 1 cartrige and + 3 extra charges • "Commando" mortar - 1 cartrige and + 2 extra charges
Maximum medium pressure	≤ 360 kgf/cm2	≤ 360 kgf/cm2
Maximum range	≈ 2200 m* (*Standard type launcher)	3000 m
Precision	A_{p^r}/X: ≤1/80 A_{p^d}/X: ≤1/175	A_{p^r}/X: ≤1/90 A_{p^d}/X: ≤1/190
Packing	Wooden case containing 12 cardboard cases, each case containing one round fully equipped. Full case weight: 40 kg. Case overall dimensions: 475×330×300 mm	

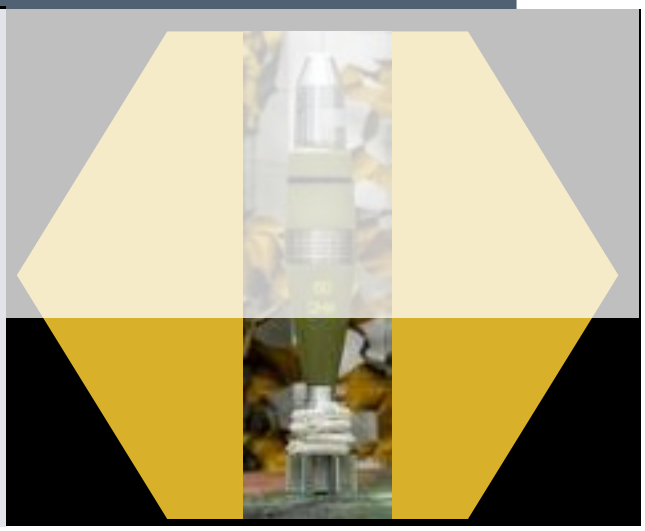
60 mm Mortars & mortar bombs

ıoke steel bomb with electronic SQ impact fuze

Caliber	mm
Lenght	mm
Weight	~2.05 kg
Fuze	electronic SQ impact fuze
Propelling charge	cartridge +3 extra charges
Maximum medium pressure	≤360 kgf/cm²
Maximum range	~2200 m
Temperature range	-40° C ÷ +60° C

60 mm Mortars & mortar bombs

Precision $A_{P_d}^{r}/X$	≤1/80
Precision A_P/X	≤1/175



high explosive and smoke steel bombs

HE steel bomb round with Junghans fuze

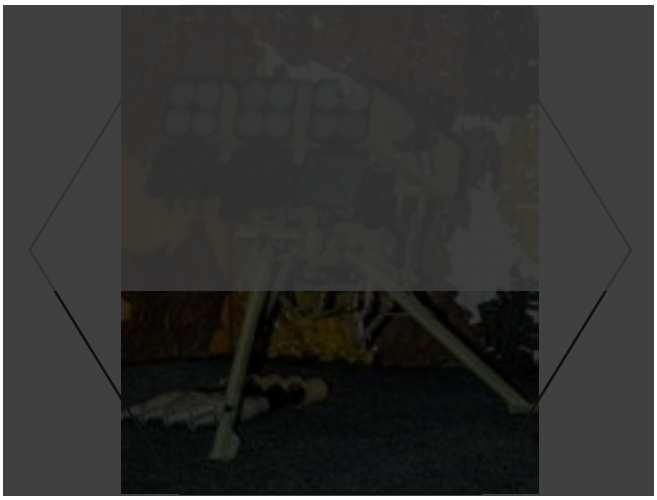
HE steel bomb round with enhanced range and electronic impact SQ fuze

Type	High explosive steel bomb round with Junghans fuze	High explosive steel bomb round with enhanced range and electronic impact SQ fuze
Caliber	60 mm	60 mm
Length	~298 mm	~355 mm
Weight	~1.50 kg	~2.20 kg
Fuze	M6R-M or other impact fuze	electronic impact SQ fuze
Propelling charge	-	1 cartridge +3 extra charges
Maximum medium pressure	≤360 kgf/cm²	≤500 kgf/cm²
Maximum range	~3000 m	~4500 m
Temperature range	-40° C ÷ +60° C	-40° C ÷ +60° C

60 mm Mortars & mortar bombs

Precision A_{P}^{r}/X	≤1/90	≤1/80
Precision A_{P}^{d}/X	≤1/190	≤1/180

mm HYDRA system & Thermobaric round launchers and thermobaric rounds



MLRS - FCS System - 70 mm - HYDRA Multiple lanchers round system

The characteristics of the new types of conflicts require the development of flexible weapons systems, which can be installed on different types of platforms.
The systems must be able to offer troops the opportunity to act against targets in the urban environment, sheltered or not sheltered targets, shelters or lightly armored carrier or vehicles.

The range and accuracy must correspond to these new types of conflicts.

Launching various ammunition: HE, EFP / THB, THB, SMOKE

Caliber	70 mm
Type	70 mm MLRS - RCS platform - HYDRA is flexible system

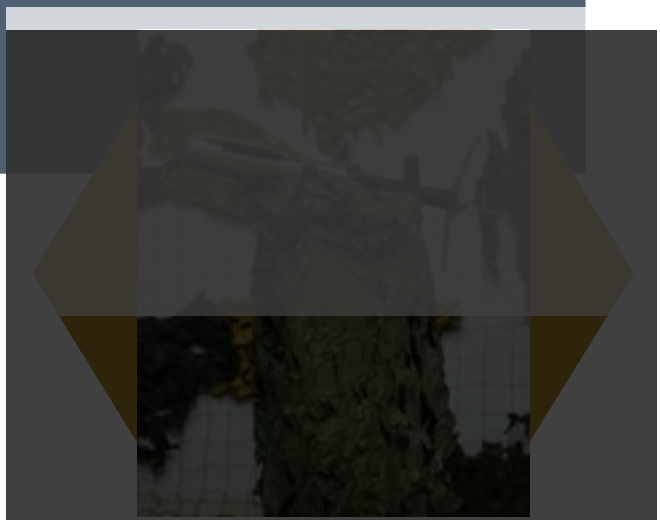
Advantages

The system is offered in various configurations:
- remote controlled platform with FCS, who can be placed on various types of platforms: armored carrier: 4x4; 6x6; 8x8, lightly armored vehicles, etc .; - launcher assembly fixed to the tripod.

It is designed so that it can be upgraded according to the requirements of the **with fire control system** beneficiary

The technical characteristics differ depending on the type of system requested by the beneficiary

Caliber	mm
Length	~940 mm
Weight	~4.00 kg
Fuze	electronic PDSQ with chemical battery
Maximum medium pressure	≤900 kgf/cm²
Maximum accuracy range	~1000 m
Maximum fire range	~2500 m
Temperature range	-40° C ÷ +60° C
Maximum moment of explosive expansion	0.15 s
The final moment of the explosive expansion	0.10 s
Total time duration	0.11 s
Maximum pressure at 1 m	~4 bar
Overpressure ratio at 2 m	0.95
Overpressure ratio at 3 m	1.94
The surface area action	~4 times larger then HE grenade



High explosive formed penetrator (EFP) Thermobaric Round

EFP / THB ammunition, which perfectly meets the requirements of asymmetric warfare, is used to penetrate armor, concrete or brick walls and produce a thermobaric explosion behind them.

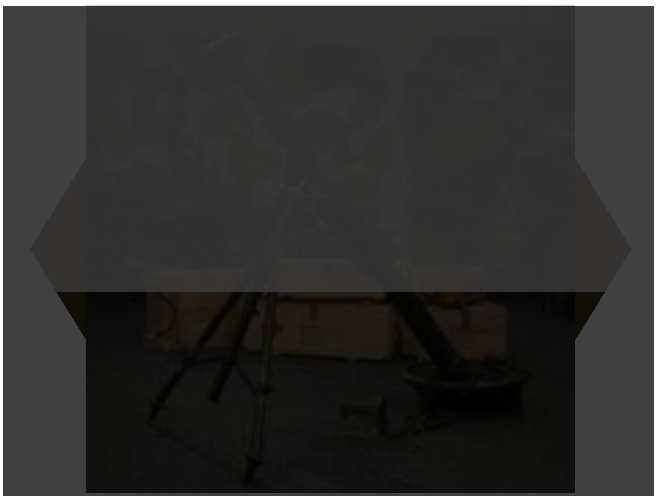
EFP / THB round are fired from a considerable distance from the target, being aerodynamically stabilized by hitting the target at a small angle.

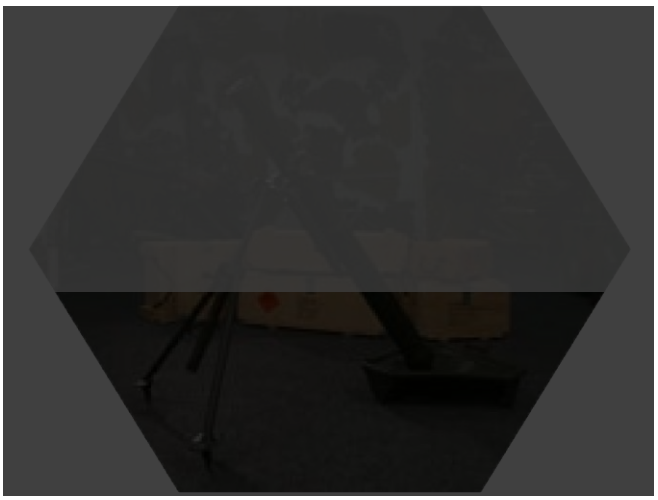
The own characteristic of the EFP / THB ammunition produced by us is the optimization of the warhead component and the initiation process ensured by a PSDQ electronic fuze with thermochemical battery energy source.

Another particularity of this ammunition is the combination between the penetrating effect and the insensitive thermobaric composition that explodes after the armor / wall is penetrated.

81 / 82 mm Mortars & mortar bombs

mortars

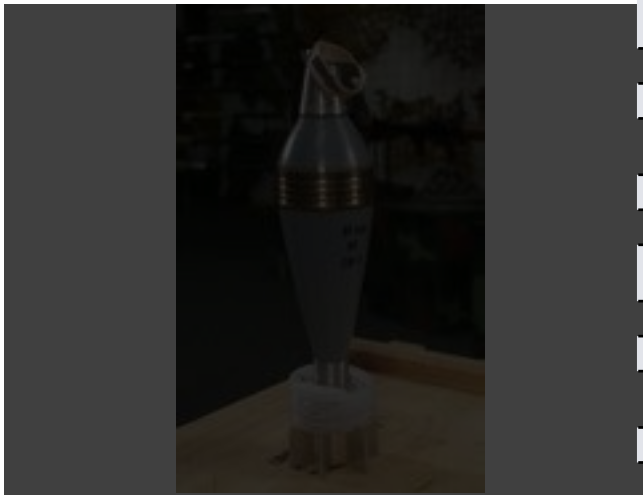




81 mm / 82 mm mortar launcher

mortar launcher has a smooth barrel, for firing with curved trajectory. It is designed for fire support of infantry units and/or other subunits. Recommended for the following missions: to destroy the sheltered or unsheltered means of fire, the command-observation posts, to make passages through the mine fields and barbed-wire net, to separate infantry from tanks, to destroy the defense works, to destroy or damage the communication ways, for illuminating and to camouflage by smoke-screen the objectives (ground).

Caliber	• 81 mm • 82 mm
Length of barrel	1220 mm
Firing range	• maximum range with explosive bomb ~4460 m • minimum range 100 m
Vertical firing field	45°÷85°
Horizontal firing field	• without moving the bipod, with barrel at 45°: ±3° • moving the bipod, without moving the base plate: ±360°
Rate of fire in the first minute	without re-aiming 20 rds/min
Weight of mortar ready for battle of witch	43.5 kg:
Barrel with breechblock	16.5 kg
- Bipod	11 kg
- Base plate	15 kg
- Optical sight	0.8 kg



HE mortar steel bomb

	High Explosive Mortar Steel Bomb	High Explosive Steel Bomb with electronic fuze
Caliber	81 mm	81 / 82 mm
Total length	361 mm	361 mm
Net weight (round fully equipped)	3.10 kg	3.10 kg
Fuze	M6R	MEF-1
Propelling charge	1 cartrige / + 5 extra charges	1 cartrige / + 5 extra charges
Maximum medium pressure	≤ 650 kgf/cm2	≤ 650 kgf/cm2
Maximum range	~4500 m	~4500 m
Precision	A r/X: ≤1/100 / A d/X: ≤1/200	A r/X: ≤1/100 / A d/X: ≤1/200
Packing	Wooden case containing 10 cardboard cases, each case containing one fully equipped round.	
Full case weight	50 kg	
Case overall dimensions	550×450×285 mm	

81 / 82 mm Mortar bombs

illuminating, HE and smoke mortar bombs

Illuminating mortar bomb with fuze ETF-1MT

Caliber	81 / 82 mm	**Electronic time fuze ETF-1MT**	
Length with fuze ETF-1MT	377.8…382.4 mm	**Fuze length**	98...100 mm
Length without fuze	291.8…295 mm	**Length of part mounted in ogive**	11.57÷12.6 mm
Weight (with fuze, w/out increments)	3.61 kg	**Thread of part buried in ogive**	Sp 36,14x10 turns/inch
Propulsion system	1 prime charge + 3 increments	**Weight**	0.280 kg
Muzzle velocity	199 m/s (max.)	**Power supply**	Air driven turbine
Fuze	electronic time fuze ETF-1MT	**Adjustable setting time**	3.1 s ÷ 99.9 s, with thread 0.1 s, precision 0.05 s
Maximum range / Minimum range	2670 m / 220 m	**Operation mode**	time or impact
Illum, intensity	min. 500 000 cd.	**Time setting**	electronic wire programmer that ensure setting, resetting and set time confirmation
Illum, burn time	min 30 s	**Operating temperature**	-32° C to 49° C
Stabilized descent speed	max. 4.5 m/s	**Packing**	24 pieces / metal box sealed; 4 boxes in a wooden case
Temp. limits, firing & storage	-32 / +49°C	**Case dimension**	520 x 490 x 257 mm

Caliber	81 / 82 mm	**PYROTECHNIC TIME FUZE T-1**	
Length with fuze T-1 (with cuff protection)	357.7...363.6 mm	**Fuze length with cuff protection**	77.43 ÷ 81.25 mm
Length without fuze	291.8...295 mm	**Length of part mounted in ogive**	11.57 ÷ 12.6 mm
Weight (with fuze, w/out increments)	3.49 kg	**Thread that is screwed into ogive**	Sp 36.14x10 turns/inch
Propulsion system	1 prime charge + 3 increments	**Weight (without cuff protection)**	0.160 kg
Muzzle velocity	199 m/s (max.)	**Operating mode and time adjusting**	10÷125 divisions - time 3.5 ÷ 46.45 s UD - at impact
Fuze	time fuze T-1	**Packing**	Metal box sealed, containg 32 pieces and 4 boxes in a wooden case
Maximum range	2670 m	**Case dimension**	520 x 490 x 257 mm
Minimum range	220 m		
Weight (w/out cuff protection)	0.160 kg		
Illum. intensity	min. 500 000 cd		
Illum. burn time	min. 30 sec.		
Stabilized descent speed	max.4.5 m/sec.		
Temp. limits, firing & storage	- 40°C to + 50 ° C		

Illuminating mortar bomb with fuze T-1

High explosive mortar steel bomb		Smoke mortar steel bomb
Caliber:	82 mm	82 mm
Total length	≈ 361 mm	≈ 360 mm
Net weight (round fully equipped)	~3,1 kg	~3,3 kg
Fuze	M6R	M6R
Propelling charge	1 cartrige + 5 extra charges	1 cartrige + 5 extra charges
Maximum medium pressure	≤ 650 kgf/cm^2	≤ 650 kgf/cm^2
Maximum range	~4500 m	~4300 m
Precision	A_P^r/X: ≤ 1/100 A_P^d/X: ≤ 1/200	A_P^r/X: ≤ 1/100 A_P^d/X: ≤1 /200

81/82 mm Mortars & mortar bombs

high explosive and smoke steel bombs

High explosive steel bomb with enhanced range and effect

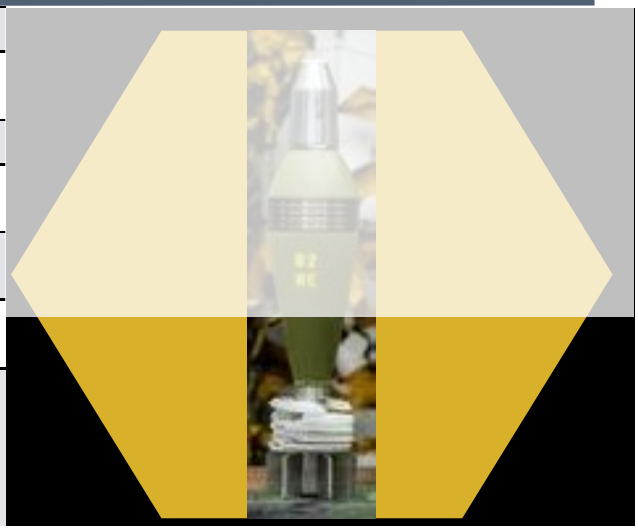
Smoke steel bomb round with enhanced range and electronic SQ impact fuze

Type	High explosive steel bomb with enhanced range and effect	Smoke steel bomb round with enhanced range and electronic SQ impact fuze
Caliber	81 mm	81 mm
Length	~517 mm	~490 mm
Weight	~4.50 kg	~4.50 kg
Payload		774 g
Fuze	electronic SQ impact fuze	electronic SQ impact fuze
Propelling charge	1 cartridge +6 extra charges	1 cartridge +6 extra charges
Maximum medium pressure	≤880 kgf/cm²	≤880 kgf/cm²
Maximum range	~6500 m	~6500 m
Temperature range	-40° C ÷ +60° C	-40° C ÷ +60° C
Precision A_{P^r}/X Precision A_{P^d}/X	≤1/100 ≤1/200	≤1/100 ≤1/200

High explosive steel bomb round with electronic fuze

Caliber	82 mm
Lenght	~361 mm

Weight	~3.10 kg
Fuze	electronic impact SQ with turbogenerator
Propelling charge	1 cartridge +5 extra charges
Maximum medium pressure	≤650 kgf/cm²
Maximum range	~4500 m
Temperature range	-40° C ÷ +60° C
Precision $A_{P_d}^r/X$	≤1/100
Precision A_P/X	≤1/200



120 mm High explosive rocket - assisted bomb CRF-5 (HERA-C5)

rockets

High explosive rocket - assisted bomb CRF-5 (HERA-C5)

120 mm High Explosive Rocket Assisted - Carfil (HERA-C) mortar bomb provide increased range and lethality. HERA-C mortar bomb loaded with TNT or B composition, consist of loaded high fragmentation steel warhead, rocket motor, hight powerfull propellant charges and PDSQ fuze. The 120 mm HERA-C mortar bomb is one of the most up–to–date high explosive bombs of 120 mm caliber. Its performance–especially range, and effect–is the best possible for any tactical purpose.

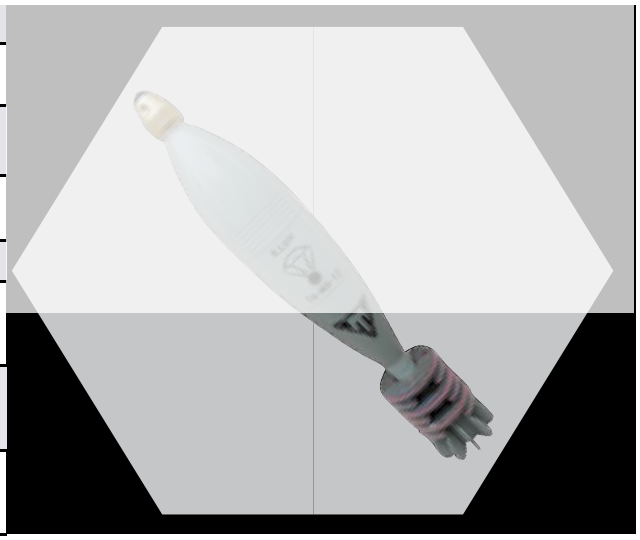
This mortar bomb is destined for fighting uncovered living targets, as well as unarmored means of transportation and lightly armoured military vehicles.The highly explosive force, together with the best possible splinter formation,

makes it a bomb of utmost efficiency. The 120 mm HERA-C was especially developed for long range mortars and offers a distinctly enhanced fragmentation effect; the excellent flight stability results in an improvement of range and dispersion. HERA-C was specially designed, both as a new bomb and for upgrading ammunition from stocks. HERA-C has the largest range with long range mortars, but can be used, also, with different 120 mm mortars.

Caliber	120 mm
Total weight	~ 19 kg
Total length	970 mm
Type of fuze	electronic PDSQ
Rocket motor	
Propellant	double base
Length	285 mm
Weight	18 kg
Propellant weight	1 kg
Avarage force	144 dan
Specific impulse	188 s
Burning time	1.34 s
Propelling charge	1 cartridge + 6 suplementary charges
Type	EI (Nitrochemie- Rheinmetall)
Maximum range	~ 14 000 m

120 mm Mortar bombs

Caliber	mm	Pyrotechnic time fuze T-1	
Length without fuze	661.6…667 mm	**Fuze length with protection case**	43...81.25 mm
Weight (with fuze, w/out increments)	16.66 kg	**Length of part mounted in ogive**	11.57÷12.6 mm
Propulsion system	prime charge + 6 increments	**Thread that is screwed into ogive**	Sp 36.14x10 turns/inch
Muzzle velocity	m/s ±3	**Weight (w/out cutt protection)**	0.160 kg
Fuze	time fuze T-1	**Way of performance for adjustment**	10...125 divisions - time 3,5...46.45 s UD - at impact
Maximum range **Minimum range**	m at impact m	evacuation charges and variable propellant charges formed by 2 prime charges and 12 propellant charges introduced in the same wooden case.	
Illum, intensity	min. 1 000 000 cd.	The evacuation charges and variable propellant charges are introduced in cardboard boxes and then sealed in polyethylene foil.	



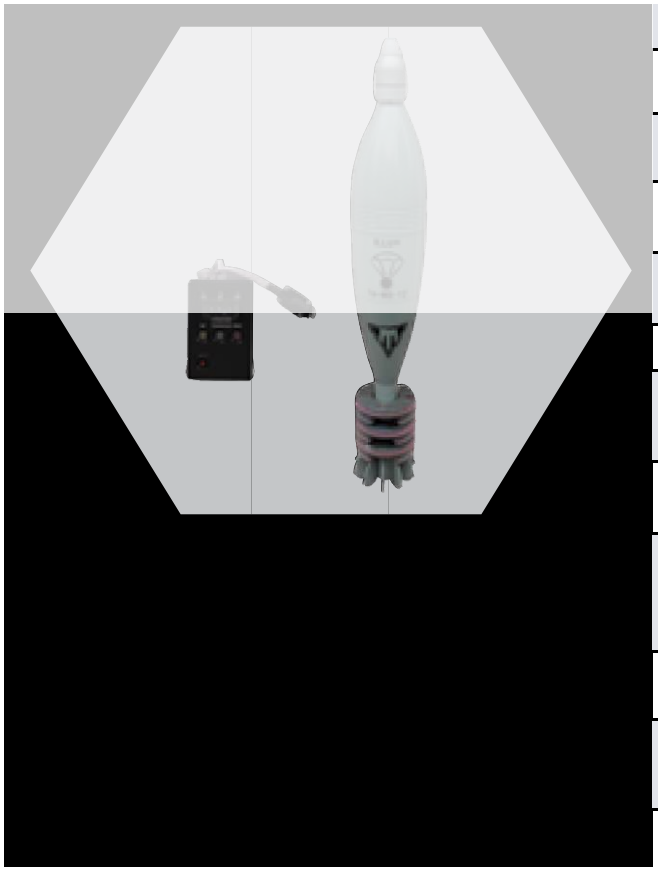
120 mm Mortar bombs

Illum, burn time	min 60 s	**Packing**	Metal box sealed, containg 32 pieces and 4 boxes in a wooden case
Stabilized descent speed	max. 8 m/s	**Case dimension**	x 490 x 257 mm
Temp. limits, firing and storage	~40 / +50°C		

illuminating mortar bombs

Illuminating mortar bomb with fuze ETF-1MT

The TH-MB-13 illuminating mortar bomb is designed to illuminate the target at night or under low visibility conditions.



Caliber	120 mm	**Electronic time fuze ETF-1MT**	
Length with fuze ETF-1MT	673.3…755 mm	**Fuze length**	98...100 mm
Length without fuze	661.6…667 mm	**Length of part mounted in ogive**	11.57÷12.6 mm
Weight (with fuze, with charge)	16.7...17.62 kg	**Thread of part buried in ogive**	Sp 36.14x10 turns/inch
Propulsion system	1 prime charge + 6 increments	**Weight**	0.285 kg
Muzzle velocity	275 m/s ±3	**Power supply**	air driven turbine
Fuze	ETF-1MT electronic time fuze	**Adjustable setting time**	3.1 s ÷ 99.9 s, with thread 0.1 s, precision 0.05 s
Maximum range Minimum range	5500 m at impact 1060 m	**Operation mode**	time or impact
Stabilized descent speed	max. 8 m/s	**Time setting**	electronic wire programmer that ensure setting, resetting and set time confirmation
Temp. limits, firing & storage	~32 / +49°C	**Operating temperature**	-32° to +49°
Illum, intensity	min. 1 000 000 cd.	**Packing**	24 pieces / metal box sealed; 4 boxes in a wooden case
Illum, burn time	min 60 s	**Case dimension**	520 x 490 x 257 mm

Illuminating mortar bomb with fuze T-1

The TH-MB-12 illuminating bomb is intend for artificial illumination of the target area for the purposes of reconnaissance and for the performance of other tactical actions on the battlefield.

120 mm Mortar bombs
high explosive mortar bombs

High explosive long range bomb with proximity fuze

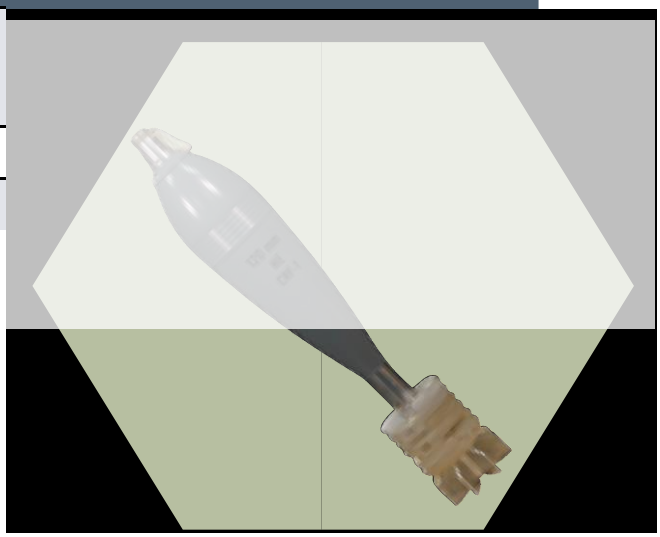
Caliber	120 mm
Total length	~ 725 mm
Net weight (round fully equipped)	~ 16 kg
Fuze	Proximity
Propelling charge	1 cartrige / + 8 extra charges
Maximum medium pressure	≤ 1200 kgf/cm²
Maximum range	~ 7000 m
Height of bursting	1 ÷ 5 m
Action	Works over any type of terrain: dry or wet soil, sand, snow, swamp, water surface, mountain rock
Packing	Wooden case containing 2 rounds fully equipped in cardboard cases.
Full case weight	50 kg
Case overall dimensions	950×360×240 mm

High explosive mortar steel bomb

Caliber	120 mm
Total length	~ 680 mm
Net weight (round fully equipped)	16 kg
Fuze	M6R
Propelling charge	1 cartrige + 6 extra charges
Maximum medium pressure	≤ 1030 kgf/cm²
Maximum range	~ 6500 m
Precision	A $_{p^r}$/X: ≤ 1/125 A $_{p^d}$/X: ≤ 1/250

120 mm Mortar bombs

Packin	Wooden case containing 2 rounds fully equipped.in cardboard cases
Full case weight	50 kg
Case overall dimensions	950×360×240 mm



High explosive steel bomb round with enhanced range and sealing ring with SQ electronic impact fuze

Caliber	mm
Lenght	~730 mm
Weight	~15 kg
Fuze	- electronic impact SQ fuze with chemical battery - safety distance: min 40m
Propelling charge	cartridge + 6 extra charges
Maximum medium pressure	≤1200 kgf/cm^2
Maximum range	~7000 m

120 mm Mortar bombs

Temperature range	-40° C ÷ +60° C
Precision A^{r}/X	≤1/
Precision A^{p_d}/X	≤1/

high explosive mortar bombs

High explosive steel mortar bomb round with proximity fuze

High explosive steel mortar bomb round with electronic impact fuze

Type	High explosive steel mortar bomb round with proximity feze	High explosive steel mortar bomb round with electronic impact fuze
Caliber	120 mm	120 mm
Length	~725 mm	~725 mm
Weight	~15 kg	~15 kg
Fuze	- proximity and electronic fuze with chemical battery - arming distance - electronic jamming protection: cancellation operation of proximity and activation impact - height of bursting: 1 ÷ 5m - works over any type of terrain: dry or wet soil, sand, snow, swamp, water surface, mountain rock	- electronic impact fuze with chemical baterry - arming distance: min 40 m
Propelling charge	1 cartridge + 7 extra charges	1 cartridge + 6 extra charges

120 mm Mortar bombs

Maximum medium pressure	≤1200 kgf/cm²	≤1200 kgf/cm²
Maximum range	~7000 m	~7000 m
Temperature range	-40° C ÷ +60° C	-40° C ÷ +60° C
Precision A_p^r/X	≤1/	≤1/125
Precision A^d/X	≤1/	≤1/250

Hand grenades with various effects

hand grenades

F-1 Defensive hand grenade

The defensive hand grenade is designed to destroy the enemy in uncovered areas and light camp works. The grenade is an explosive type design, and the effect is due to the breakage of the cast iron body as a result of the explosive charge.

Grenade type	defensive
Function	fragmentation
Number of fragments	no less than 800 pcs
Diameter of the grenade	max. 56 mm
Weight of the grenade with fuse	max. 0.566 kg
Weight of the fuse	max. 0.055 kg
Weight of explosive charge	max. 0.060 Kg TNT
Length of the grenade with fuse	max. 100 mm
Delay time of the fuse with FGM-1 fuse	3 - 4.5 s

M 592 Offensive hand grenade

Delay time of the fuse with FGM fuse	4 - 4.5 s
Throwing distance	35 - 45 m

The offensive hand grenade is designed to confuse the unsheltered living force of the enemy by noise, blast and light chips. The grenade is of explosive type and the effect is due to the body break and the breaking up of a steel sheet spiral cover as a result of charge explosion.

Diametre of the grenade	max. 61 mm
Weight of the grenade with fuse	max. 0.255 kg
Weight of the fuse	max. 0.055 kg
Length of the grenade	max. 86 mm
Length of the grenade with fuse	max. 122 mm
Delay time of the fuse with FGM-1 fuse	3 - 4.5 s
Delay time of the fuse with FGM fuse	4 - 5.5 s
Hand-launching distance	35 - 45 m

Hand grenades with various effects

hand grenades

GMM Multifunctional hand grenade

The multifunctional hand-grenade is designed to eliminate the personnel from the fight, to punch the light armours and to destroy the light constructions.

The action of the grenade is produced by blast, splinters and destroying of light constructions and armours.

Type	Defensive hand-grenade	Offensive hand-grenade	Cumulative explosive grenade
Number of splinters	1500 pieces	200 pieces	
Operation radius of the splinters	max. 30 m	5 m	Cumulative effect - it punches steel-armours with a tickness of 40 mm
Weight with fuse	515 ± 40 g	150 g	
Fuse type	FGM-1	FMG-1	FGP-1
Delay-time	3 - 4.5 sec.	3 - 4.5 sec	9.5 - 12.5 sec
Explosive effect			distroing light metallic profile constructions and splinters

Multiple consternation grenade

GAL Explosive grenade with light-acoustic effect

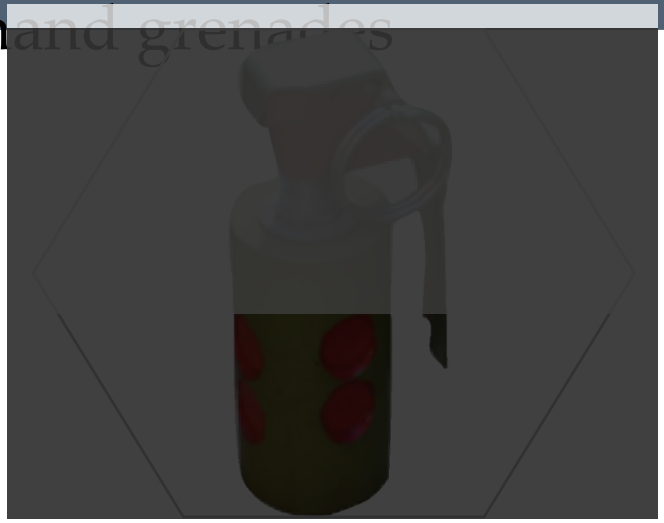
Hand grenades with various effects

and grenades

Total weight of grenade	0.232 kg
Weight of detachable fuse	0.057 kg
Weight of grenade with FD 2 fuse	0.214 kg ± 0.007 Kg
Weight of grenade with FD fuse	0.21 kg ± 0.007 Kg
Weight of charge	0.09 Kg 105 ± 0.001 Kg
Grenade diameter	72 mm ± 0,2 mm
Shape	Spherical
Grenade material	Rubber

Hand grenades with various effects

hand grenades



The multiple consternation grenade allows surprising the opposition by Explosive grenades with light-acoustic effect are used by creating multiple effects of consternation in the tactical field . It can be used training and re-establishing public order. in urban areas.

Total delay time	3 ÷ 4 sec
Time after which the fuse is detached	0.7 ÷ 1.1 sec
Sound level	120 ÷ 140 dB
Hand-launching distance	25 ÷ 30 m

Total weight of the grenade (with fuse)	0.300 ± 0.010
Weight of a load of consternation	0.0015 kg
Diameter of grenade	40 mm
Height of grenade (without fuse)	122 ± 2 mm
Delay time of the fuse	1±0,2 sec.
Number of loads of consternation	9
Delay time until the first load of consternation	2 sec.
Delay time between the other 8 loads of consternation	1.5÷2 sec.
Effect	consternatio
Minimum throw distance (recommended)	3 m
Exploitation temperature	-25°C ÷ +50°C
Delay time	between the consternatio of consternat 3 seconds.

Total weight of grenade	0.200 kg
Weight of detachable fuse	0.063 kg
Weight of pyrotechnic load	0.09 kg
Grenade diameter	45 mm
Shape	cylindrical
Total delay time	0.9 - 1.6 sec
Time after which the fuse is detached	0.7 - 1.1 sec
Acoustic pressure at 1m distance	~0.34 bar
Sound level at 1m distance	130 dB
Light effect at 1m distance	2.000.000 cd
Operation temperature	-25°C .. + 50°C
Optional temperature range	-40°C ÷ +50°C

Hand grenades with various effects

and grenades

GFLM-79 Smoke tear hand grenade

Smoke hand grenades are used for hiding of elements placed on the action field or for signalling, and the smoke – tear effect is used by the authorities to stop aggressive actions of the persons or groups, according to the law.

GMAC - Hand grenade with acoustic effect

Hand grenades with acoustic effect are used by officers against groups of people causing public disorder which may lead to uncertainty and a state of public fear. When using it does not cause body lesions.

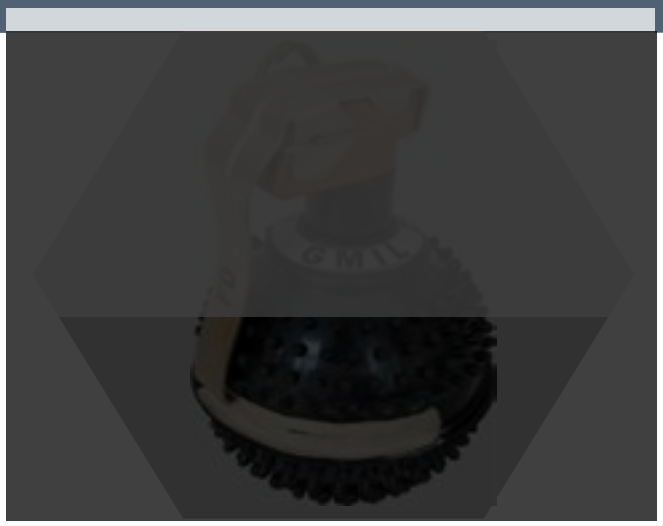
GMIL Hand grenade with tear-irritant effect

Tear gas hand grenades are used by police officers against groups of people causing public disorder, which can lead to uncertainty and a state of fear among the population, causing suffocation and a tear gas effect. The use of the product does not cause bodily injuries and the ef-

Form of grenade	cylinder
Diameter of grenade	55 mm
Length of grenade with protection lied	87 ± 5 mm
Weight of grenade	0.200 Kg
Effect	column of smoke

Hand grenades with various effects

hand grenades



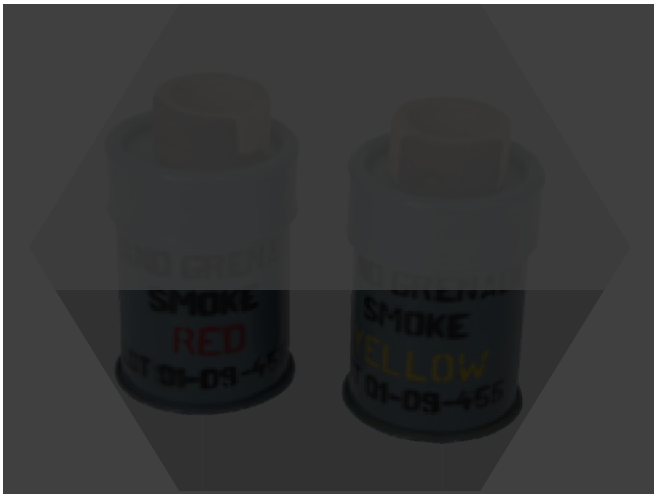
fect wears off after 15-20 min.

Emission of different colors	red, yellow, green, white, orange, blue
Emission time	min. 40 seconds where the smoke disperse and form a consistency curtain
Temperature	-32°C ÷ +49°C

Total weight of grenade	0.42 ± 0.0
Weight of fuse FGM-F	0.055 ± 0.0
Grenade diameter	55 ± 1mm
Height of grenade (without fuse)	127 ± 1mr
Total delay time of fuse	1.2 ÷ 2,2 s
Smoking time	min 30 se
Delay time	max 3 sec
Effect	smoke / r
Safety distance	min 10 m
Exploitation temperature	-20°C ÷ +5

Total weight of grenade	0.159 kg ± 0.007 kg
Weight of detachable fuse	0.057 kg
Weight of tear charge	0.03 ± 0.001 kg
Charged with (irritant gas)	CS ortho-chloro-benzal-malonitrile
Smoke version	white
Grenade diameter	72 mm
Shape	Spherical
Grenade material	Rubber
Total delay time	3 - 4 sec (or 2-3 sec)
Time after which the fuse is detached	0.7 - 1.1 sec
Hand-launching distance	25 - 30 m
Dissemination area	6 m²

Hand grenades with various effects and grenades

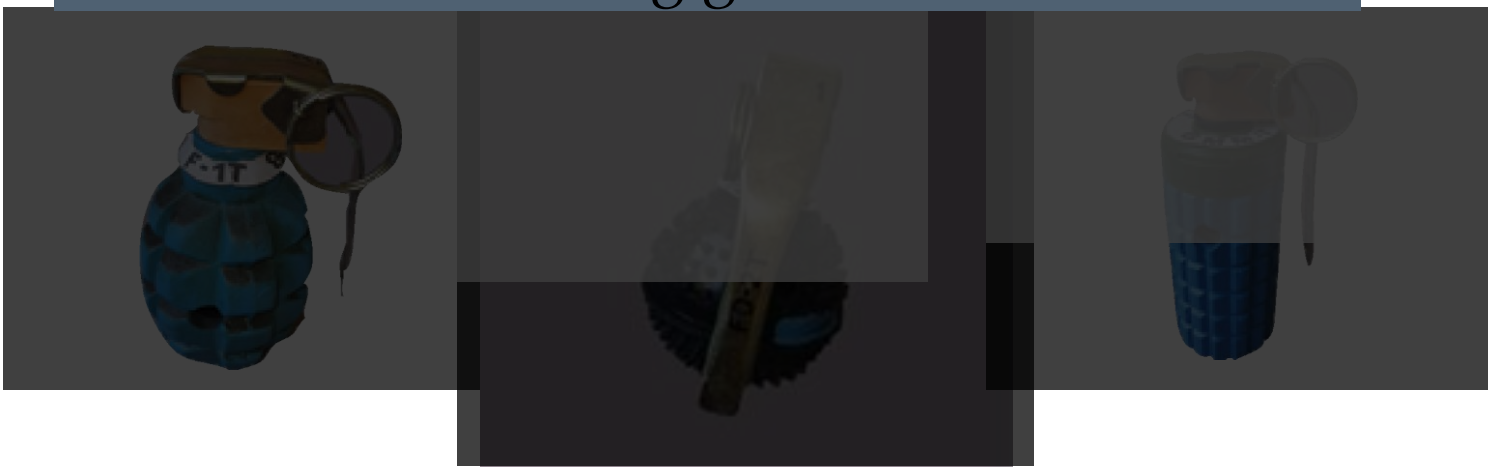


GFFC - Smoke grenades with colored smoke

Hand grenades with colored smoke are pyrotechnical objects designed for execution of the signalization markings in the tactical field or special effects in the festive demonstrations.

Training hand grenades

Training grenades



	Training grenade F-1 T	Training grenade GMIL-T	Training grenade GMM-T
Usability	Training grenade used to familiarize and practice throwing the defensive hand grenades (F-1, respectively RG-42).	Training grenade GMIL-T for Law Forces is used to familiarize and practice throwing irritating tear gas grenades that cause disruption to public order and peace.	Training grenade GMM-T is best choise for practice throwing the multifunctional grenades (GMM).
Diameter	56 mm	72 mm	
Detachable fuse weight		0.058 kg	
Lenght of grenade with fuse	100 mm		130 mm
Weight of grenade with fuse	0.588 kg	0.123	0.463 kg
Fuse type	FGMR-T	detachable	FGM-1T
Fuse weight	0.056 kg		0.058 kg
Grenade shape	sferical	sferical	tubular
Grenade diameter			max. Ø 50
Grenade type	training	training	training
Grenade body material		rubber	
Effect	curtain of smoke and noise	curtain of smoke and noise	curtain of smoke and noise
Delay time	3 ÷ 4.5 sec	3 ÷ 4 sec	3 ÷ 4.5 sec
Time after the fuse is detached		0.7 - 1.1 sec	
Throwing distance	15 ÷ 45 m	15 ÷ 30 m	
Operating temperature	-40° ÷ +50°C	-30° ÷ +50°C	-40° ÷ +50°C

Artillery ammunition

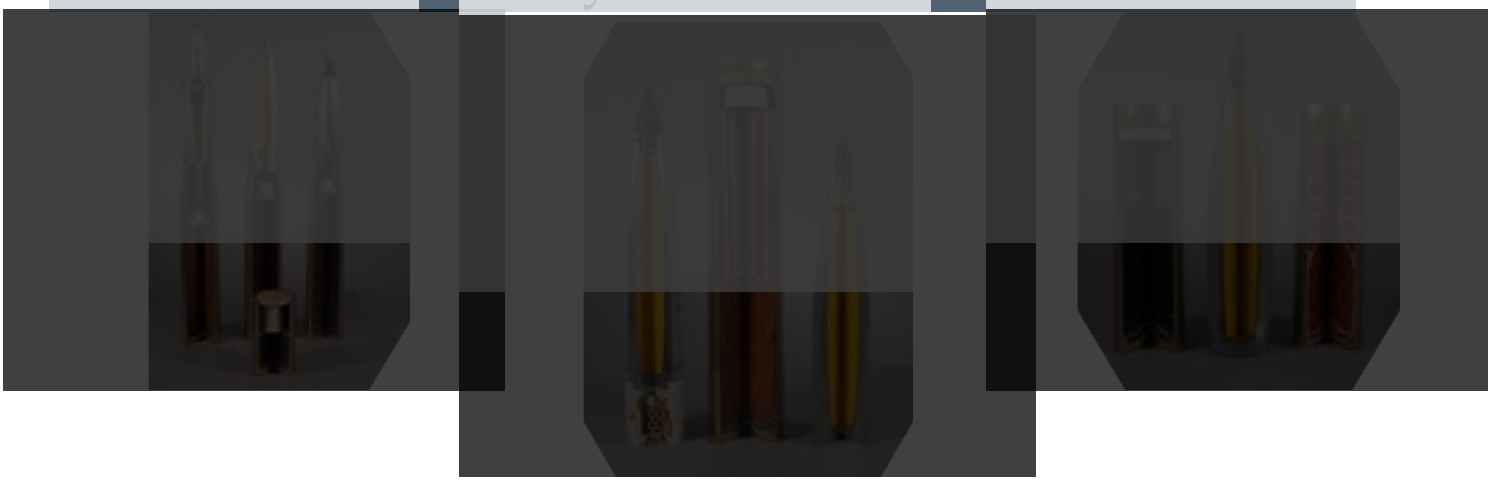
KIT-K9
Explosive kit for dog trainin

The kit is intended for the traning and certification of explosive detection dogs (EDD) or explosive detection canine teams (EDDT). The explosive kit (TRUSA-K9) is used to train dogs because is a system of odor storage and delivery devices (DPLM) from real explosive materials.

Kit package	TRUSA-K9 - 10 types of explowwsive materials for military & civilian use
Code of explosive materials	TNT, RDX, PETN, C-4, SEMTEX, DINAMITE, AN, BP, SGP, DBP
Total kit mass	8300±50 g
Transport bag mass	2800±25 g
Total mass of explosives	2400 ± 10 g
Mass of DPLM V1 loaded	1050 ± 50 g
Mass of DPLM V2 loaded	405 ± 50 g
Mass of DPLM V3 loaded 1	250 ± 50 g
Mass of DPLM V3 loaded 2	225 ± 50 g
Mass of DPLM V4 loaded	200 ± 50 g
Outer length of the kit	413 mm
The outer width of the kit	327 mm
The outer heigth of the kit	171 mm

AMMUNITION

artillery ammunitio n



	100 mm Artilerry ammunition			130 mm Artilerry ammunition		152 mm Artilerry ammunition	
GUN TYPE	D-10 SERIES TANK GUNS; FIELD GUN BS-3 (MD 44, MD 53); AA KS-19; TOWED ANTI-TANK GUN M77; COAST GUN (YUGOSLAVIA); T59 (CHINA); SELFGUN			FIELD GUN M-46 ; TOWED GUN Md. 82		HOWITZER GUN Md. 37 AND HOWITZER Md. 81	
TYPE OF PROJECTILE	HIGH EXPLOSIVE OF-412 HE	100 mm APFSDS-T	ARMOUR PIERCING TRACER BR-412B AP-T	HIGH EXPLOSIVE HE (OF-482M)	HIGH EXPLOSIVE HE (OF-482M)	FULL-VARIABLE CHARGE	HIGH EXPLOSIVE (OF-540) HE
Propelling charge	Full	Specially		Full-variable	Reduced-variable	Full-variable charge	Reduced-variable charge

Artillery ammunition

Maximum range	19800 m	5000 m	4000 m	26800	22000	17000	13000
Muzzle velocity	900 m/s	1400 m/s	887 m/s	930 / 810	705 / 525	655 / 462	425 / 282
Average maximum pressure	3000 kgf/cm²	3700 kgf/cm²	3000 kgf/cm²	3150	2700 / 1100	2350 / 900	1800 / 750
Total length	1095 mm	1060 mm	992 mm	Non-coupled	Non-coupled	Non-coupled	NON-COUPLED
Cartridge case	695 mm	695 mm		846	846	547	547
Projectile	429 mm	584 mm		676	676	706	706
Total weight	30.32 kg	21.3 kg	30.6 kg	59	52	59.28	54.26
Cartridge case with propelling charge	14.72 kg	15.5 kg		25.6	18.6	15.72	10.70
Projectile	15.6 kg	5.8 kg		33.4	33.4	43.56	43.56
Fuze type	V-429	-		V-429	V-429	RGM-2	RGM-2
Blasting charge	TNT	-	A-IX-2	TNT	TNT	TNT	TNT
Propelling charge	NDT 3 18 / 1	M-30	NDT3 18/1	NDT 3 23 / 1	9 / 7 + 12 / 1 TR	NDT 3 16 / 1	4 / 1 V / A + 7 / 7
Power of piercing	-	425 mm at 1000 m 90 °					
Self-destruction time	-	-					
Self-destruction range	-	-					
Packing	Wooden case	Fiber container in wooden case					
No. of rounds per case	2 pcs	2 pcs					
Case dimensions	1200 x 445 x 265 mm	1200 x 405 x 215 mm					
Gross weight	85 kg	70 kg					

Artillery ammunition
ROMARM artillery ammunition

100 mm BR-412 (AP-T)

Type of projectile	Perforant trasor BR- 412B (AP-T)
Fuze type	MD - 8M1 or DBR-2
Muzzle velocity	887 m/s
Average maximum pressure	3000 kgf/cm²
Propelling charge	NDT3 18/1
Blasting charge	A-IX-2
Power of piercing	150 mm at 1.000 m-90°
Maximum range	4 000 m
Total lenght	992mm
Cartridge case	695 mm
Projectile	360 mm
Total weight	30.60 kg
Cartridge case with propelling charge	14.72 kg
Projectile	15.88 kg

105 mm artillery ammunition

Gun type	ALL 105 mm; L7; Rh 105, M 68, GT 7
Type of projectile	High explosive
Muzzle velocity	Max. 683
Maximum range	11 000 m
Lenght of projectile	418 mm
Weight of projectile	14.3 kg
Blasting charge	TNT

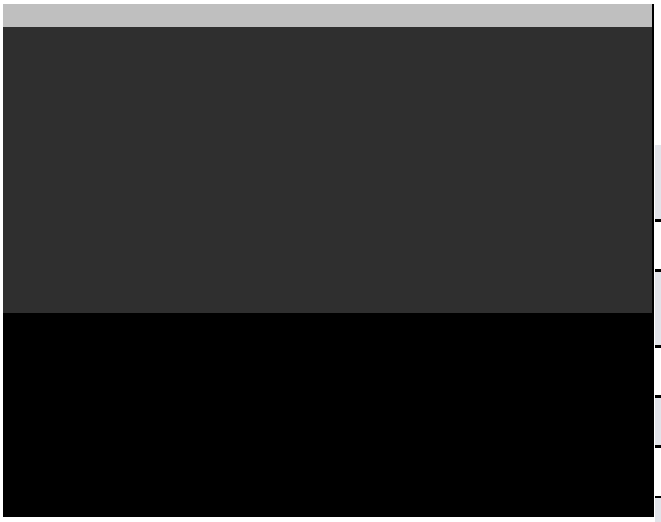
122 mm Ammunition

122 mm Ammunition calibre with explosive projectile and complete charge with RGM-2 or V-429 fuze, and wih explosive projectile and variable reduced charge.

Type	Complete charge	Variable reduced charge
Howitzer type	D-30	D-30
Calibre	122 mm	122 mm
Ammunition type	non - coupled	non - coupled
Maximum range	15 290 m	12 840 m
Type projectile	HE	HE
Weight of explosion charge (TNT)	3.5 kg	3.5 kg
Projectile weight with fuze	21.76 kg	21.76 kg
Projectile lengh, with fuze max.	564.6 mm	564.6 mm
Type propellling charge	complete	reduced
Propellling charge lengh	~3.8 kg	~2.43 kg
Muzzle velocity	690 m/s	565 m/s
Average maximum pressure	2500 Kgf/cm2	1950 Kgf/cm2
Cartridge tube height	447 mm	447 mm

Artillery ammunition

artillery ammunition



155 mm artillery ammunition

Gun typ	All 39 cal. Barrel such as the FH 70, M 109, M 198, Howitzer
Type of projectile	High explosive M 107
Components made in plant	Reduced –Variable Charge
Muzzle velocity	Max. 830
Maximum range	24 000 m
Lenght of projectile	605 mm
Weight of projectile	43.88 kg
Blasting charge	TNT or Comp. B

76 mm artillery ammunition

GUN TYPE	MOUNTAIN GUN MD 48 B1 A5 AND MD.82			76 mm ALL GUNS	DIVISIONAL GUN Md.42 And selfgun Md.t 76	
TYPE OF PROJECTILE	EXPLOZIVE OF-350 (HE)	CUMULATIVE WITH MLRBK-354 M HOLLOW CHARGE HEAT-T	FUMIGEN D-350 SMOKE	FESTIVITY (without projectile) BLANK	EXPLOZIVE OF-350 (OF350)	ARMOUR PIERCING TRACER BR-350B (APT)
FUZE TYPE	UP-3 or	RGM-2	GPV-2R	RGM-2	KTM-1-U	MD-8
MUZZLE VELOCITY	398 / 222 m/s	410 m/s	398 / 222 m/s	-	680 m/s	680 m/s
AVERAGE MAXIMUM PRESSURE	1950/490 Kgf/ cm²	1900 kgf/cm²	1950/490 Kgf/cm²	-	2380 kgf/cm²	2380 kgf/cm²

PROPELLING CHARGE	5/7	5/7	5/7	P -55	9/7	9/7
BLASTING CHARGE	TNT	A-IX-2	TNT	-	TNT	A-IX-2
POWER OF PIERCING	-	80 mm at 100 mm -60°	-	-	-	60 mm at 100 m--90°
MAXIMUM RANGE	8 600 m	1 000 m	8 600 m	-	13 300 m	4000 m
SMOKE PERSISTANCE	-	-	Min. 20 s	-	-	-
TOTAL LENGTH **CARTRIDGE CASE** **PROJECTILE**	Non coupled 386 mm 357 mm	725 mm 386 mm 495 mm	Non coupled 386 mm 357 mm	- 165 mm -	165 mm 386 mm 343 mm	642 mm 386 mm 309 mm
TOTAL WEIGHT **CARTRIDGE case with propelling charge** **PROJECTILE**	8.564 kg 2.294 kg 6.270 kg	8.175 kg 2.110 kg 6.065kg	8.564 kg 2.294 kg 6.270 kg	1.420 kg - -	9.000 kg 2.800 kg 6.200 kg	9.300 kg 2.800 kg 6.500 kg

Artillery ammunition

artillery ammunition

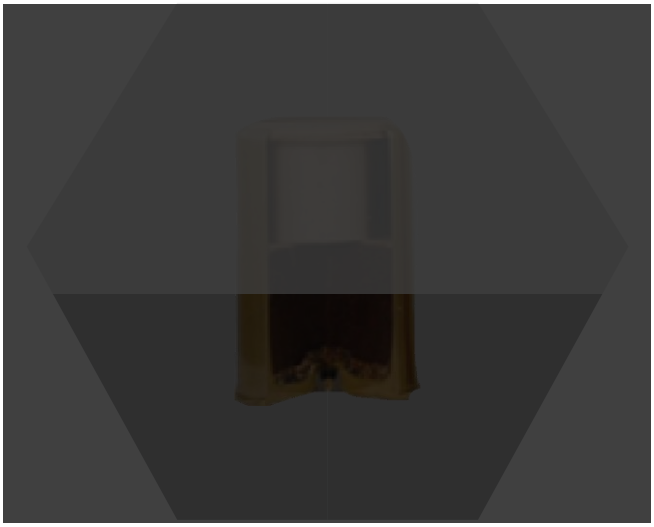
20 mm artillery ammunition components

Gun Type	M 621, M 61A, M39, M50, M61A1, M168, M197, MK22, US GAU-4, MK 29 GUNS	
Type of projectile	Training with tracer TP-T	Training without tracer TP
Components made in plant	Projectiles, tracer, cartridge cases	Projectiles, cartridge cases
Muzzle velocity	1030 m/s	1030 m/s
Tracer burning time	Min.2	-
Total length	168 mm	168 mm
Cartridge case	102 mm	102 mm
Projectile	86.8 mm	86.8 mm
Total weight	0.262 kg	0.260 kg
Cartridge case with propeling	0.103 kg	0.101 kg
Projectile	0.159 kg	0.159 kg

Type of projectile	Festivity (Blank)
Fuse type	-

Muzzle velocity	-
Average maximum pressure	-
Propelling charge	P 55
Blasting charge	-
Maximum range	-
Cartridge case	mm
Cartridge case with propelling charge	kg

mm blank / festivity artillery ammunition



130 mm artillery ammunition

Type of projectile	Explosive with BB (HE)
Fuse type	ZETA
Muzzle velocity	930 / 810 m/s
Average maximum pressure	3150 kgf /cm²
Propelling charge	NDT 3-23-1
Blasting charge	TNT
Maximum range	35 000 m
Total lenght	Noncoupled
Cartridge case	846 mm
Projectile	676 mm
Total weight	59 kg
Cartridge case with propelling charge	25.6 kg
Projectile	33.4 kg

Caliber	mm
Length	mm
Weight	13.5 kg
Warhead weight	kg HEBF
Range	÷ 6000 m
Accuracy	1.5 m CEP
Period of maintaince in service	The launcher - 20 years / the missiles 10 years.

Rockets and missiles

rockets

Primary platforms	- Attack and support helicopters / - Light APC's and unarmoured tactical vehicles / - Man-portable (detachable) firing post (optional)

PRN-80 Air-to-ground rocket

PRN-80 rocket is used on aircrafts and helicopters against ground targets: self-proppeled artillery, infantry combat vehicles, armored personnel carriers, missile systems, radars, grounded aircrafts and

Platform	MIG-29, MI-8/17, MI-28

Infrared flare IRF-TH

Infrared flares are designed to achieve a drawn bright emission in the near infrared spectrum (N.I.R).

Outer case	Steel
Max. gross weight	210 g
Mass composition	~ 119 g
Charged flare diameter	max. 25.4 mm
Flare length	max. 200.8 mm
Operational speed	Up to 400 Kts
Fuze head circuit resistance	1.25 ÷ 2.25 ohms
Circuit test current	max. 30 mA/10 sec
Min. firing current	1A/10 msec
Burning time	min. 60 sec
Output	min. 400W/sr in the 2.9 ÷ 5.5 microns bandwidth
Storage conditions	- stable temperature between -32° C ÷ +40° C / - relative umidity less than 70%

helicopters, fuel warehouses, trains an personnel. The PRN-80 rocket is fully compatible with the aircrafts and helicopters using 20-tubes launchers.

Launching altitudes	300 - 1000 m
Optimal slant range	2000 m
Rocket weight	12 kg
Warhead weight	3.2 kg
Warhead type	Hollow charge - HE
Armour penetration	380 ÷ 400 mm RHA
Fragmentation	+500 pre-fragmented
Fuze type	impact
Caliber	80 mm
Length (before launch)	1566 mm
Fins span	374 m

Smart tactical advanced rocket star- 80L

The weapon is designed to combat small fixed and mobile ground targets as APC's, tactical wehicles, command points, shelters, other unarmoured and armoured means, resistence points and river boats. The missile can be delivered by grounded or heliborne weapon systems and guided until the target from launching platform or from an advanced designation team. Accuracy and controlled blast effects allows this weapon to be widely used in urban warefare and especially in anti-terror operations.

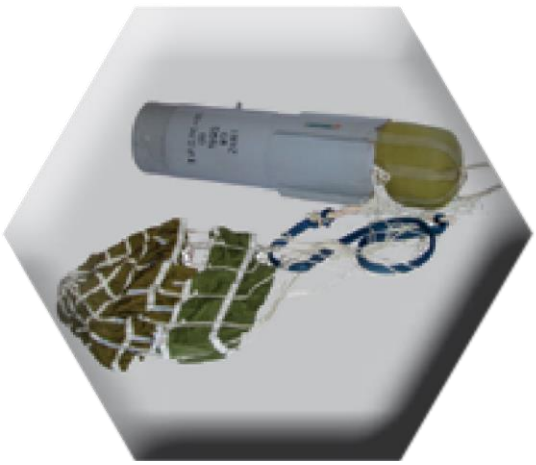
Rockets and missiles

Rockets and missiles

rockets

122 mm Reactive ammunition

Ammunition	ER with MFF-2T fuze	ER with MRV-UBM fuze	with MRV-U fuze	with HE-TB warhead and MRV-U fuze	with MRV-U fuze and preformed elements
- caliber	122 mm	122 mm	122 mm	122 mm	122 mm
- max. range	42 km	42 km	20.4 km	20.4 kg	20.4 km
- length (incl. fuze)	2860 mm	2810 mm	2875 mm	2875 mm	2875 mm
- weight (incl. fuze)	64.5 kg	65 kg	66 kg	62.5 kg	66.5 kg
- max. velocity	1230 m/s	1230 m/s	690 m/s	690 m/s	690 mm
- operating temperature	-40° C ÷ +50° C	-40° C ÷ +50° C	-32° C ÷ +50° C	-32° C ÷ +50° C	-40° C ÷ +50° C
Warhead					
- type	HE	HE	HE	HE-TB	HE with performed elements
- weight	18.4 kg	18.4 kg	18.4 kg	18.4 kg	18.4 kg
- explosive charge weight	6.35 kg	6.35 kg	6.35 kg	3.25 kg	4.8 kg
Reactive motor					
- type	Composite powder	Composite powder	Double base	Double base	Double base
- weight	41.7 kg	41.7 kg	47.1 kg	47.1 kg	47.1 kg
- powder weight	24.8 kg	24.8 kg	20.65 kg	20.65 kg	20.65 kg
- burning time	3 sec. (at 20° C)	3 sec. (at 20° C)	2.2 sec. (at 20° C)	2.2 sec. (at 20° C)	2.2 sec. (at 20° C)
- initiation current	0.45 A	4 A	0.45 A	0.45 A	0.45 A
- stabilization	aerodynamic by rotation (4 folding wings)	aerodynamic by rotation (4 folding wings)	aerodynamic by rotation (4 folding wings)	aerodynamic by rotation (4 folding wings)	aerodynamic by rotation (4 folding wings)
Fuze					
- type	MFF-2T	MRV-UBM	MRV-U	MRV-U	MRV-U
- weight	1050 ± 30 g	750 g	710 g	710 g	710 g
- lenght	max. 245 mm	191,42÷195,04 mm	-	-	-
- safety distance from the muzzle	150 ÷ 400 m	150 ÷ 400 m	150 ÷ 400 m	150 ÷ 400 m	150 ÷ 400 m



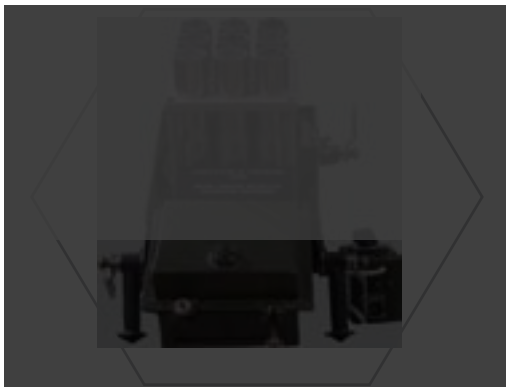
TPDM-01 Parachute target

The TPDM-01M parachute target has been conceived to simulate a real aerial target radiating in IR and reflecting waves like a fighter-bomber aircraft. It is used for training and practice firing with IR and radar guided missiles air to air as well as surface to air. It can be also used for training proposes by the surveillance radar operators.

External diameter	280 mm
Total weight	4 kg
Maximum dropping altitude	10.000 m
Torch burning time	- at ground level 3 min. - at 10.000 ÷ 8.000 m 5 min.
Torch light intensity at ground level min.	900.000 Cd
Descending speed with burning torch and deployed reflector	- at 10 000 ÷ 8 000 m 12 m/s - at H<4 000 m 4 m/s

Miscellaneous products

dedicated products

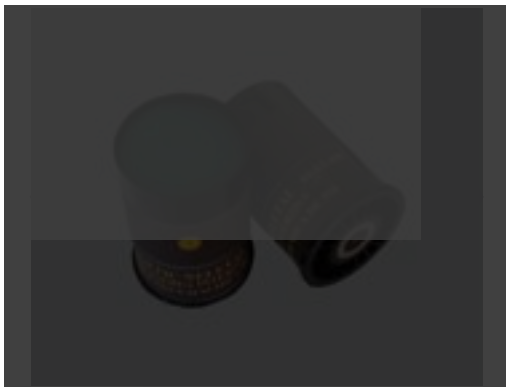


Launch system of pyrotechnic loads

A great launch system designed to launch multiple shells **with different effects:**

- shell with consternation effect-symbol LEC, that produce flash of light intensity at 1m distance ~1.800.000Cd; noise intensity: max 120dB at 1m distance; a pressure wave: max 0.25 bar at 1m distance.
- shell with termitic effect-symbol LET, that produce outbreaks with temperatures around 2000° C;
- shell with smoke-tear effect-symbol LEFL, that produce curtains of tearsmoke for a period of at least 20 sec.

Launcher systems are used to combat terrorism, at tactical actions.



56 mm Cartridge with nonlethal CC 56 kinetic projectile

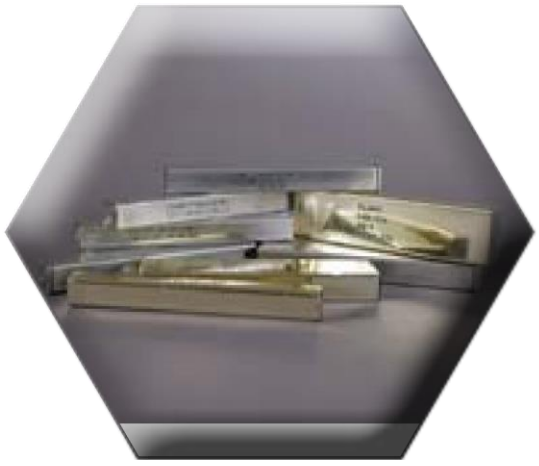
The cartridge caliber 56 with nonlethal kinetic projectile is designed to prevent and neutralize the aggressive actions of individuals or groups of individuals who seriously disturb the public order.

Compatible launcher: Individual launcher cal. 56 Cougar or Chouka model.

Vertical angle of shooting, from the ground	min.40° ÷ max.80°
Weight of the launcher (without module with the 9 pipes)	16.5 kg
Weight module with the 9 pipes	10.8 kg
Shooting distance by firing angle	70 ÷ 140 m
Accuracy of the target	± 10 m
Initiating of shells	Electric
Power supply	autonomous from its own battery or lighter car
Battery type	BB BATTERY BP7-12 (12V, 7AH/20HR)
Voltage time to initiation	12 ± 2Vcc
LET & LEC after launch	6 ÷ 8 seconds
LEFL after launch	3 ÷ 4 seconds
Launcher system	module with 9 pipes
Launch opportunities	one by one; series of 3 shells; series of 9 shells
Launch system	double - with electronic programmer or sequential switch
Temperature range that launcher can operate	-25° C ÷ +50° C

Cartridge diameter	Ø 56 mm
Cartridge length	85 ± 0.5mm
Round weight	0.160 ± 0.003 kg
Kinetic projectile weight	0.082 kg
Propelling charge weight (TO-34)	0,045 kg
Ignition cap by percussion	E96
Initial velocity average	60 ± 3 m/sec
Kinetic energy 5m	157 J
Maximum effective range	25 m
Cartridges dispersion at 25 m	Rmed ≤ 30 cm
Rate of fire	3 ÷ 5 shots/min
Operating temperature	-30°C ÷ +50°C

Electronic Countermeasure Muniton for MIG - 21 Lancer, IAR - 99 SOIM, IAR - 330 H aircraft type



	Munition with		
	Thermal decoy (IR)		Electromagnetic decoy (RL)
Type munition	1"x1"x8"	1"x2"x8"	1"x1"x8"
Dimensions	206.5 mm 24.4 mm 24.4 mm	206.5 mm 24.4 mm 52 mm	206.5 mm 24.4 mm 24.4 mm
Total weight	0.21 kg	0.45 kg	0.18 kg
Working temperature	-40 ÷ +60°C	-40 ÷ +60°C	-40 ÷ +60°C
Storage temperature	-40 ÷ +60°C	-40 ÷ +60°C	-40 ÷ +60°C
Number strokes on the dispersion device	30 pcs	15 pcs	30 pcs
Charge convering band IR or LR	3 ÷ 5 µm	3 ÷ 5 µm 8 ÷ 16 µm	
Priming Mode	Electric	Electric	Electric
Type of electric primer CAP	CE - 1	CE - 1	CE - 1
Charging voltage	27 ± 10% Vcc	27 ± 10% Vcc	27 ± 10% Vcc

Miscellaneous

Miscellaneous products

dedicated products

Tears gas shell CC38-FL (IRRITANT CS)

The tear gas shells 38 mm caliber is used by the police and is designed to prevent and neutralize the aggresive actions of groups who seriously disrupting public order accordin to the law.

Shell diameter	38 ÷ 0,3 mm
Height of shell	138.5 ± 1 mm
Weight of shell	0.218 ± 0.007 kg
Weight of pyrotechnic charge	0.0026 kg
Weight of tear smoke charge	0.084 ± 0.003 kg
Irritant gas CS (ortho-chloro-benzal malonitril)	CIC6H4CH = C (CN) 2
Smoking time	min 20 sec
Delay time	4 sec
Range (short / long)	85 ± 140 m
Operational temperature range	-30°C ÷ +50°C

structure are mainly biodegradable.

Anti hail system

The anti-hailstone system is designed to fight against the hailstone falls. To ensure a fast and efficient intervention, the system is structured in several units of combating the hailstone falls, each unit covering an area of about 100,000 ha.

The structural elements of each unit are as follows:

- command posts for conducting the anti-hailstone operations
- launching posts for the anti-hailstone rockets, with launching installations and rockets storage
- meteorological radars for discovering the hailstone clouds
- rockets for spreading the cloud condensation agents and launching instalation
- communications means

Through the actions conducted using the anti-hailstone equipment, it is ensured a protection level of at least 75%. The elements of the rocket

Caliber	82,5 mm	**LARMA-1**	Launcher
Length	1.4 m / 1.1 m	**Weight**	600 kg
Weight	8,8 kg / 6,6 kg	**No of rails**	8
Workload weight	0.66 kg	**Op Mode**	manual/remote
Number of active cores	3 x1 0^{15}	**Ignition mode**	electric 24Vcc
Maximum trajectory height	9300 m	**Selfdistruct time**	~ 45 sec
Maximum range	12000 m / 7000 m		

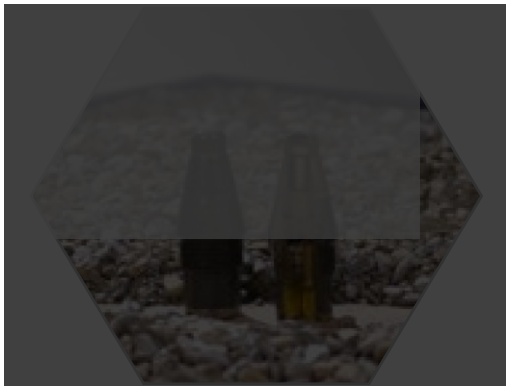
Caliber	7.62 x 51 / 54 mm 12.7 x 99 / 108 mm	**Feature multifunctional display**	
Weapon assembly, actuating sustem (WA + AS)		**Provides stadia scale for estimated distance-to-target befor firing**	
Azimut range	nx360°	**Display the elevation angle according to the aproximated stadia scale, made by Fire Control Systems**	
Elevation range (Up)	+60° ± 2°	**Provides brightness and contrast adjustments**	
Elevation range (Down)	+20° ± 2°	**Size**	10.4"
Azimut speed - high **Azimut speed - low**	min 1 rad / s max 0.27 mrad / s	**Imput**	VGA/PAL - composite video
Elevetion speed - hight **Elevetion speed - low**	min 0.4 rad / s max 0.27 mrad / s	**Supply voltage**	- 30 Vcc
Weight without gun and ammunition	max 165 kg	**Enviromental conditions according to military standards**	
Overall dimensions - length **Overall dimensions - width** **Overall dimensions - heigth**	mm mm mm	**Electrical power usage - Nominal usage**	max 160 w
Protection (N.I.J. 0108.01)	Level 3	**Electrical power usage - Peak demand < 1second**	max 600 w

Remote control weapon station turret RCWS - RO

COMPONENTS AND PARTS

Components for ammunition

Components and parts
fuze parts



V-429 Point detonanting fuze

Outfitting of 76 mm, 85 mm, 100 mm, 122 mm, 130 mm si 152 round. mm HE round.

Fuze type	Nose fuze, with impact functioning.
Adapter theard	Sp 36.18x10/inch
Outer diameter	max. 40 mm
Total length	max. 105.7 mm
Length of screwed area into the projectile	45.2 ÷ 46.8 mm
Mass	0.43 kg
Safety distance from muzzle	min. 5 ÷ 7 m
The fuze operates at impact	- D -instantaneus - I - with delay (27÷56) ms

RGM-2 Point detonating fuze

Outfitting of 76 mm, 122 mm and 152 mm HE round.

Fuze type	Nose fuze, with impact functioning.
Adapter thread	Sp 36.18x 10/inch
Outer diameter	max. 40 mm
Total length	max. 105.7 mm
Length of screwed area into the projectile	45,2 ÷ 46,8 mm
Mass	0.43 kg
Safety distance from muzzle	min. 5 ÷7 m
The fuze operates at impact	D- instantaneous I - with delay (27÷56) ms

MRV-U Fuze

Fuze type	Nose fuze with impact functioning	**Detonator**	RDX-tipA IX-1
Adapter thread	Sp.44,96 x 2 turns/inch	**Functioning temperature range**	-40ºC÷+50ºC
Outer diameter	max.: Ø 64 mm	**Safety distance from muzzle**	50 ÷400 m
Length	191.42 ÷ 195.04 mm	**Length of screwed area into the projectile**	53.01 ÷ 54.39 mm

Components and parts
fuze parts

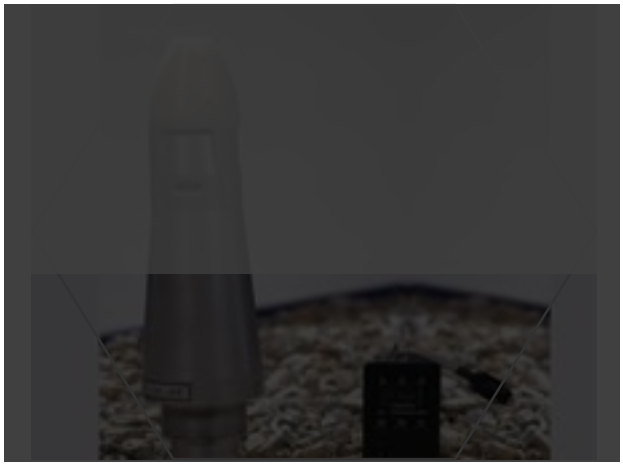
Mass	0.75 kg	**The fuze operates at impact. Ways of functioning:**	• "00"(0) instantaneus - adjustment performed by manufacturer • "+" with long delay - 0.007÷0.013 s • "0" with short delay - 0.001÷0.005 s
SHELF LIFE	Min. 15 years-if kept in original packing and observing the Storage Directions sent by manufacturer	**Adjustments**	for "+" or "0" functioning are to be performed prior to firing by rotating the adjusting device with a special key.

Outfitting of 122 mm HE Rocket Rounds, type M21 OF.

Destination	MFF-2T is designed for 122 mm reactive ammunition.	**Length (max)**	245 mm
Fuze type	Fuze with air drive generator and proximity, time and impact performance.	**Weight (max)**	1050 ± 30 g
Operation selection mode	cable programmer	**Thread**	Sp 44.96x2 mm
Proximity action	average burst height 4 ÷ 30 m	**Exterior diameter (max.)**	Ø $63.8_{-0,4}$ mm
Time function	5 to 199.9 sec (with 0,1 sec. increment)	**Screwed length of the fuze in the projectile**	53.01 ÷ 54.39 mm
Point detonation		**Performance temperature**	-40° C ÷ +50° C
Safety	mechanical - min. 150 m electronic 5 seconds	**Storage temperature**	-40° C ÷ +50° C
Programmer	supplied in a protective box no of programmers which will be delivered	**Power supply**	Air drive generator

Components and parts
fuze parts

	at a batch is determined by the customer		

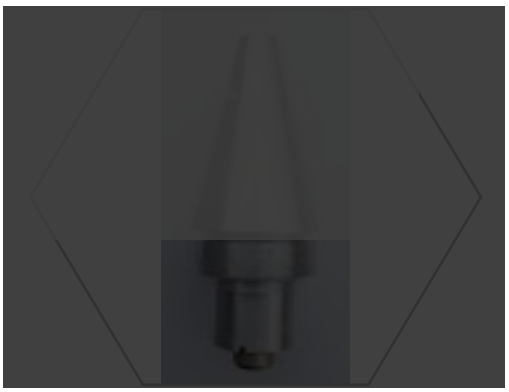


MFF-2T Multiple function fuze

Components and parts
fuze parts

ETF-1MT Fuze

Destination	Equip illuminating mortal bombs caliber 60mm, 81mm, 82mm and 120 mm.
Fuze type	Head fuze, with time and impact operation.
Fuze weight	285 ± 5 g
Fuze lenght	98 +2 mm
Ogive buried part length	11.55 …12.4 mm
Thread for ogive montage	Sp.M 36.14 x 10 turns/inch
Maximum diameter	47.3 mm
Power supply	Air driven turbine
Adjustable setting time	3.1 s…99.9 s, with thread o.1 s, precision 0.05s
Safety distance to the manhole	Minimum 40 m
Operation mode	Time/ Impact (if time set higher than trajectory time).
Safe arming conditions	Mehanical arming / Electrical arming.
Time seting	It is possible through electronic wire programmer that ensures setting, resetting and set time confirmation.
Functional doubling	If the product does not operate at the set time, it operates at impact.
Operating temperature	-32º C÷ +49º C
Fuze safety	Safe on handling, store, transport, firing, and at external factors action like vibrations, electrostatic discharges, saline fog, extreme temperatures, thermal shock, water, dust.



Components and parts
fuze parts

Compatible	mm Illuminating mortar bomb with enhanced range and sealing ring
Operation mode	time
Setting time	÷ 60 sec in step of 0.1 sec
Temperature range	-32° C ÷ +49° C
Backup	point detonation
Weight	gr
Lenght	mm
Arming distance	min. 40 m

Components and parts
fuze parts

Powered by	thermal battery
Thread size	M56 x 1.5
Intrusion size	mm
Life time	years

Compatible	mm HE mortar bomb
Height of bursting	to 5 m
Temperature range	-32° C ÷ +49° C
Weight	gr
Lenght	mm
Arming distance	min. 40 m
Usability	any type of terrain (dry or wet soil, sand, snow, swamp, water, mountain rock)

Components and parts
fuze parts

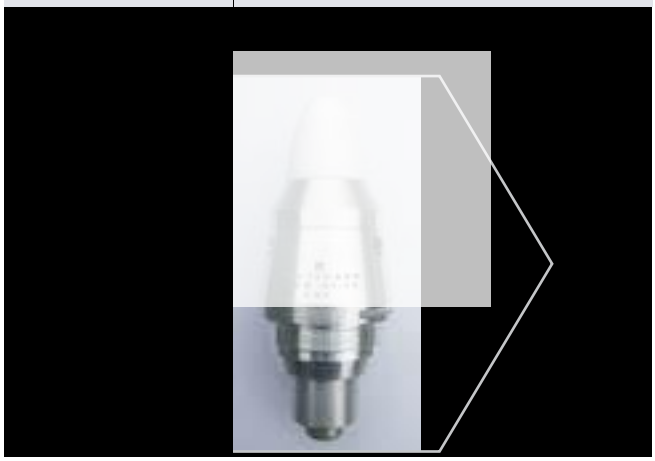
EIF-2 CRF Electronic impact fuze EIF-3 CRF Electronic impact fuze

Powered by	thermal battery
Thread size	M52 x 1.5 or as requested
Intrusion size	mm
Life time	years

Compatible	120 mm HE and SMOKE mortar bomb
Operation mode	quick
Temperature range	-32° C ÷ +49° C
Weight	570 gr
Lenght	152 mm
Arming distance	min. 40 m
Powered by	thermal battery
Thread size	M56 x 1.5
Intrusion size	64 mm
Life time	10 years

EIF-6 CRF Electronic time fuze

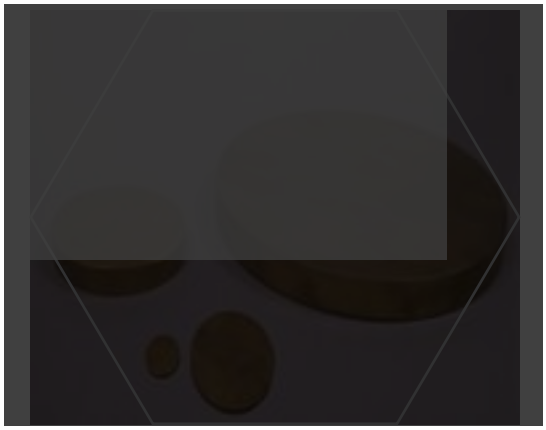
Compatible	120 mm HE and SMOKE mortar bomb with enhanced range and sealing ring
Operation mode	quick
Temperature range	-32° C ÷ +49° C
Weight	500 gr
Lenght	152 mm
Arming distance	min. 40 m
Powered by	thermal battery
Thread size	M52 x 1.5
Intrusion size	64 mm



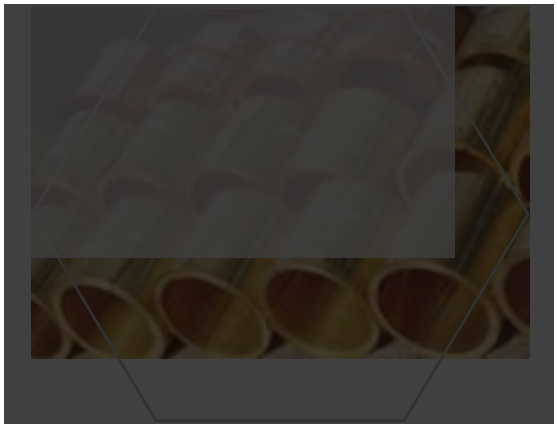
FPv-120 CRF Proximity and impact fuze

Components and parts

parts for ammunition



Brass plates for artillery rounds



Case and components for 122 mm rockets

Components and parts

Product name	Caliber/ dimension (mm)	Weight/ pcs (kg)	Material
Brass plate	Ø 84.25 x 16.15 caliber 37 mm	0.5	OL
Brass plate	Ø 85 x 13 caliber 37 mm	0.63	Brass LK 75 GOST 16520
Brass plate	Ø 141 x 21.2 caliber 57 mm	2.9	Brass C26000 ASTM B19
Brass plate	Ø 141 x 24.7 caliber 57 mm	2.9	Brass C26000 ASTM B19
Brass plate	Ø 155 x 12.7 caliber 76 mm	1.98	Brass C26000 ASTM B19
Brass plate	Ø 204.22 x 19 caliber 85 mm	5.5	Brass C26000 ASTM B19
Brass plate	Ø 208 x 15 caliber 122 mm	4.74	Brass C26000 ASTM B19
Brass plate	Ø 212 x 15 caliber 85 mm	4.6	Brass C26000 ASTM B19
Brass plate	Ø 245 x 18.7 caliber 105 mm	7.5	Brass C26000 ASTM B19
Brass plate	Ø 261.32 x 21,6 caliber 100 mm	9.87	Brass C26000 ASTM B19
Brass plate	Ø 281.4 x 18.7 caliber 152 mm	9.92	Brass C26000 ASTM B19
Brass plate	Ø 296 x 23.5 caliber 130 mm	13.8	Brass C26000 ASTM B19
Brass plate	Ø 308 x 23.5 caliber 130 mm	14.9	Brass C26000 ASTM B19
Brass plate	Ø 31 x 6.5 mm	0.042	Brass C26000 ASTM B19

Steel Fragmente Casing	2.1 kg
Steel Fragmente Casing	2.2 kg
Steel Semi-Finished Carcas	1.7 kg / 205- 235 mm
Steel Projectile Body	7.7 kg
Steel Frn Case	9.35 kg / 980 mm

Product name	Caliber/ dimension (mm)	Weight/ pcs (g)	Material
Cartridge case	5.56 x 45 mm	8	Brass C26000 ASTM B19
Bullet jacket	5.56 x 45 mm	6	Brass C26000 ASTM B36
Cartridge case	5.45 x 39 mm	8	Brass C26000 ASTM B19
Cartridge case	7.62 x 51 mm	13	Brass C26000 ASTM B19
Bullet jacket	7.62 x 51 mm	3,26	Brass C26000 ASTM B36
Cartridge case	7.62 x 39 mm	9,40	Brass C26000 ASTM B19
Cartridge case	7.65 mm	3,2	Brass C26000 ASTM B19
Bullet jacket	7.65 mm	1,18	Brass C26000 ASTM B36
Cartridge case	9 mm	4,8	Brass C26000 ASTM B19
Cartridge case	12.7 mm	66,5	Brass C26000 ASTM B19
Bullet jacket	12.7 mm	18	Brass C26000 ASTM B36
Cartridge case	23 mm	133	Brass C26000 ASTM B19

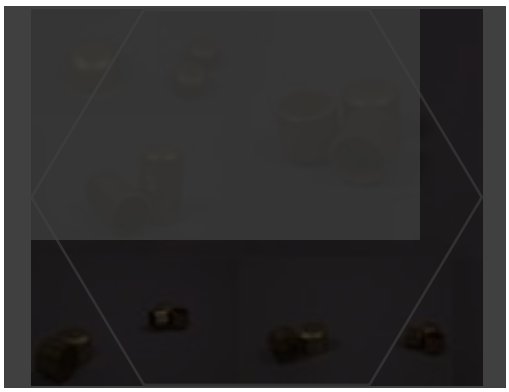
Components and parts

These parts are used as components for manufacture of 122mm rockets M-21 OF and M-21 OF S.

Cartridge case	20 mm	141	Brass C26000 ASTM B19

Brass case cups

parts for ammunition



20 - 40 mm Cartridge case for artillery ammunition

Caliber	20 mm	23 mm		25 mm		30 mm			37 mm		40 mm	
Material	Brass	Brass	Steel	Brass	Steel	Brass	Steel		Brass	Steel	Aluminium	Aluminium
Diameter	Ø 29.59	Ø 27	Ø 33.4	Ø 40	Ø 40	Ø 46	Ø 40	Ø 46	Ø 52	Ø 48.6	Ø 42	Ø 44
Lenght	102 mm	115 mm	151.5 mm	219 mm	219 mm	210 mm	165 mm	210 mm	252 mm	265 mm	74.5 mm	47 mm
Diameter	Ø 19.38	Ø 22.25	Ø 22.21	Ø 25.4	Ø 25.6	Ø 29.2	Ø 29.2		Ø 36	Ø 36.6	Ø 39.6	Ø 39.1
Weight	0.71 g	0.8 g	0.75 g	0.7 g	0.7 g	1.3 g	1.3 g		1 g	0.85 g	0.6 g	0.6 g

Gun type	All 39 cal. Barrel such as FH 70, M 109, M 198, Howitzer	
Type of projectile	Extended range cargo projectile M 396	High explosive M 107
Components made in plant	Projectile bodies bleeder adapters bleeder bases	Projectile bodies
Muzzle velocity	Max. 825 m/s	Max. 830 m/s
Maximum range	m	m
Weight of projectile	42.3 kg	43.88 kg
Length of projectile	mm	mm

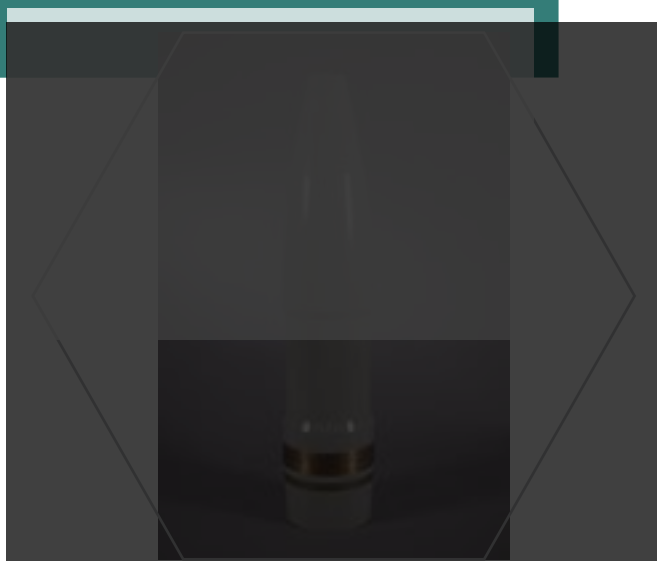
Components and parts

Blasting charge	bomblets M 85	TNT or COMP. B

155 mm Artillery ammunition components

Characteristics of designate shell

** NOTE: The projectiles can be fired as well from 45 mm and 52 mm caliber barrels with higher propelling charges, thus significantly increasing the effective firing range.*



Components and parts

accesories

Magazines

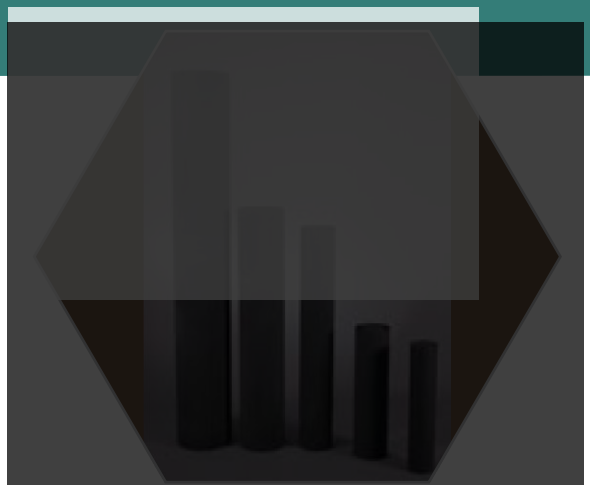
Type of Magazine		Loading capacity	Material	Weight (empty)	Magazine overall dimension (mm)		
		(no of rounds)	type	(g)	lenght	width	height
Cal. 5.45x39 mm for AK74		30	steel	310	210	74	30
		40	steel	350	260	74	30
Cal. 5.56 mm		5 rds. / 1 row	steel	155	90	74	30
		10 rds. / 1 row	steel	165	140	74	30
		5 rds. / 2 rows	steel	160	70	74	30
		10 rds. / 2 rows	steel	170	94	74	30
		30 rds. / 2 rows	steel	255	187	74	30
Cal. 7.62x39 mm	AKM47	30	steel	340	230	74	30
Cal. 7.62x39 mm	RPK	40	steel	380	280	74	30
Cal. 9 x19 mm for Pistols and Submachine guns	LP5.04	15	steel	93	130	43	26
Cal. 9 x19 mm for Pistols and Submachine guns	LP7.06	30	steel	217	232	37	26

Type	Use
7.62 x 54 link belt for 100, 200 and 250 rounds	7.62 x 54 mm cartridges in PKT and PKMS machine guns.Material: hardened steel.
Link belts for cartridges cal. 12.7 x 108 mm	12.7 x 108 mm cartridges in DShKM machine guns. Material: hardened steel.
Yakb desintegrating link belts for cartridges cal. 12.7 x 108 mm	12.7 X 108 mm cartridges in YAKB machine guns. Material: hardened steel.
Link belts for cartridges cal. 14.5 x 114 mm	14.5 x 114 mm cartridges in KPV and KPVT machine guns. Material: hardened steel.
GS 23 desintegrating link belts for cartridges cal. 14.5 x 114 mm	23 x 114 mm cartridges in GS23 and GS23L cannons. Material: hardened steel.

Link belts

Dimension	Caliber 60 mm	Caliber 82 mm	Caliber 120 mm
Length	362 mm	380 mm	720 mm
Diameter	72 mm	100 mm	136 mm

Components and parts



Cardboards packagings for mortar bombs

Accesories for weapons

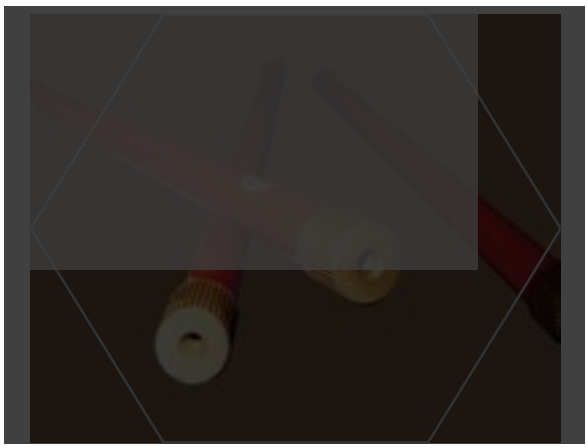
Material	Higly purified alloy steel
Maximum length	mm
Diameter of the rod	max 65 mm
Coupling part with diameter	max. 112 mm, special profiled according with customers request
Maximum moment	daNm

Construction	left pre-tension or right pre-tension
Operation	up to 200.000 loops of solicitation depending on constructive type.

accesories

Linking devices

Type	Use	Dimensions	W
Hand linking device for cal. 12.7x108 mm and for .50 ammunition	Loading and straightening the 12.7x108 mm cartridges in 12.7x108 mm link belts for DShKM, NSV and KORD machine guns	300x230x290 mm	3.5 k
Hand linking device for cal. 14.5x114 mm	Loading and straightening the 14.5x114 mm cartridges in the 14.5x114 mm link belts for KPV and KPVT Heavy machine guns	300x230x290 mm	3.5 k
Hand linking device for GS23 and GS23L	Loading and straightening the 23 mm cartridges in the 23 mm link belts for GS23 and GS23L air to air cannons	472x41x232 mm	1.7 k
Linking device for cal. 12.7x108 mm YAKB belt	Intended to manually link cartridges cal. 12.7x108 mm in the YAKB belt	300x220x395mm (handle in vertical position) 300x220x60mm (handle folded for transport)	4.7 k



Torsion bars

Torsion bars are best used for trucks, tanks, fighting vehicles suspensions, and shockabsorber are useful for special mechanism. Torsion bars can also be used as mechanical drives for industrial units.

SERVICES

Services

Services

Maintenance / Demilitarisation / Conversion Research &Development / Training & Consultancy

Having a long history in this field and employing specialists in every step of the defense equipment manufacturing process, we are able to offer our Customers the following services:

Maintenance

We provide maintenance, repair, overhaul for various types of products and systems: • armored vehicles on wheels and tracks

- rockets
- artillery systems
- arms
- ammunition caliber 5,45 – 155 mm (replacing the charge, reloading, etc.

Demilitarisation

We are closely working with Governments and organizations throughout the world in all aspects of demilitarization, disarmament, security of weapons and ammunition. We have special facilities for the disposal of conventional M.o.D. ammunitions (excluding biological or nuclear), various types of weapons of all calibers, combat armored vehicles on wheels and on tracks, anti-tank mines, projectiles and rockets of any caliber. We can also provide:

- waste incineration
- reverse engineering
- sorting and salvage
- disposal of ammunition, primarily propellant, primers and fuzes;
- open burning including cage burning
- open detonation of ammunition and explosives
  (used only in specific circumstances)

Conversion

Can perform conversion of military grade infantry weapons for hunting, target practice or sport. We can use weapons from our own production or from other sources.

Research & Development

Trough Research Centre new products are constantly being developed and homologated. The innovations and know-how of the Romanian Defence Industry in general and in particular we can play a pivotal role in promoting and fulfilling the ambitions of our partners at a time when the current global

context is marked by geopolitical uncertainty and financial constraints. A special attention is given to the requests/suggestions/ proposal made by various customers about the presentation, technical and tactical characteristics of the products.
The research and development activity aims to ensure the compliance with the NATO military standards.

Training & Consultancy

We offer education, preparation and training for the specialists or technicians for the ammunition and weapons manufacturing lines and operating systems. Our specialists adapt training courses for all categories of staff or personnel. We complete and edit the user manuals for systems.