PRODUCTS CATALOGUE

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

www.mke.gov.tr

MAKiNE VE KiMYA ENDÜSTRiSi INC.


MKE
MAKİNE VE KİMYA ENDÜSTRİSİ INC.

PRODUCTS CATALOGUE

CORE OF TECHNOLOGY AND EXPERIENCE

MAKiNE VE KiMYA ENDÜSTRiSi INC.

With its roots trailing back to the 15th century, MKE is the leading organization in the Turkish defence industry, prioritizing high tech and experience.

MKE's factories and facilities are standing out from other high tech plants through the commitment MKE has made to technology, customer satisfaction, and zero-error production performance. It still holds its strategic position in the global defence market.

As the leading supplier of the Turkish Armed Forces under various names since its foundation in 1950, MKE now keeps its current legal status as a state organization.

MKE, manufacturing an extensive range of products, not only provides services for the Turkish Armed Forces but also takes a significant share from the international defence market by exporting to more than 40 countries.

MKE, with more than a dozen of modern factories and facilities and over 5000 skilled employees and workers, offers a wide range of products in groups as follows:

- Ammunitions
- Rockets
- Weapons
- Explosives, powders and pyrotechnic products
- Modernization and facility establishment
- Gas masks

Service Capability

- Modernizing tanks and howitzers
- Overhauling and maintenance
- Building turnkey facilities
- Systems integration
- Training and support
- Mounting gun systems on vehicles

AQAP 2110

SaSaD

ISO 9001

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

SMALL ARMS

MPT-76 Infantry Rifle
MPT-76MH Infantry Rifle
MPT-55/55K Infantry Rifle
JMK BORA-12 Sniper Rifle
KN12 Sniper Rifle
MAM-15 (Anti Material) Sniper Rifle
KNT-76 Semi-Automatic Sniper Rifle
PMT-76/57A Paltform Machine Gun
PMT-76T/57A Paltform Machine Gun
MMT Modern Machine Gun
KAAN-717 Carbine Rifle
TLS-571 Semi-Automatic Precision Rifle
T-50 Semi-Automatic Precision Rifle
HK33 E A2-A3 Infantry Rifle
STS-500 T-40 HK33 E Grenade Launcher
G3 A3-A4 Infantry Rifle
ST2 T-40 G3 Grenade Launcher
MP5 MTS A2 Silenced Submachine Gun
MP5 MTS A3 Silenced Submachine Gun
MP5 K Submachine Gun
MOT-919 Infantry Submachine Gun
MP5 A2 Submachine Gun
MP5 A3 Submachine Gun

MKE SMALL ARMS WEAPON FACTORY
KIRIKKALE

MKE Small Arms Weapon Factory has long been in operation to produce long barrel small arms weapons for the Turkish Armed Forces and Security Forces and meet the small arms and spare parts demand of the domestic private security firms and foreign civil and military clients.

The products manufactured in this facility are gun, rifle and submachine gun types and also barrels and spare parts made through the cold forging method.

MKE Small Arms Weapon Factory meets the requirements of TS EN ISO 9001:2015 Quality Management System and AQAP 2110 Quality Assurance System in its manufactures and products.

The factory has many sections, some of which are CNC and cold forging workbenches, a heat treatment unit, a coating unit, a shooting range and a calibration centre.

MPT-76

7.62 mm x 51 NATO

INFANTRY RIFLE

Calibre	7.62 mm x 51 NATO
Working Principle	Gas Operated Rotary Bolt Action
Muzzle Velocity	800 m/s
Accuracy	4 MOA
Trigger Force	20-30 Newton
Magazine Capacity	20
Weight	4200 g
Length	900 / 1000 mm
Effective Range	600 m
Barrel Length	406 mm
Rate of Fire	700 rds/min
Type of Fire	Semi / Full Automatic
Buttstock	Telescobic, 100 mm, 12 stages
Groove	6

MPT-76

7.62 mm x 51 NATO

MPT-76MH

7.62 mm x 51 NATO

INFANTRY RIFLE

Calibre	7.62 mm x 51 NATO
Working Principle	Short Stroke, Gas Operated, Rotary Bolt Action
Muzzle Velocity	800 m/s
Accuracy	4 MOA
Sensitivity	20-30 Newton
Magazine Capacity	20
Weight	3750 g
Length	900 / 1000 mm
Effective Range	600 m
Barrel Length	406 mm
Rate of Fire	750 rds/min
Type of Fire	Semi-Full Automatic
Buttstock	Telescobic, 5 Stages, 100 mm
Groove	6

MPT-55 / 55K

5.56 mm x 45 NATO

INFANTRY RIFLE

	MPT-55	MPT-55K
Calibre	5.56 mm x 45 NATO	5.56 mm x 45 NATO
Working Principle	Short Stroke, Gas Operated, Rotary Bolt Action	Short Stroke, Gas Operated, Rotary Bolt Action
Muzzle Velocity	850 m/s	800 m/s
Accuracy	4 MOA	4 MOA
Trigger Force	20-30 Newton	20-30 Newton
Magazine Capacity	30	30
Weight	3300 gr	3000 gr
Length	800/884 mm	730/814 mm
Effective Range	400 m	400 m
Barrel Length	368.5 mm	279.4 mm
Rate of Fire	800±100 rds/min	800±100 rds/min
Type of Fire	Semi / Full Automatic	Semi / Full Automatic
Buttstock	Telescobic, 84 mm, 6 stages	Telescobic, 84 mm, 6 stages
Groove	6	6

JMK BORA-12

7.62 mm x 51 NATO

SNIPER RIFLE

Calibre	7.62 mm x 51 NATO	**Weight**	6400 g
Working Principle	Bolt Action	**Length**	1220 / 1265 mm
Muzzle Velocity	860 m/s (Lapua Hps 170 Grain)	**Effective Range**	1200 m
		Barrel Length	660 mm
Accuracy	0.3 MOA	**Buttstock**	Telescobic, 45 mm, 4 stages
Trigger Force	15-25 Newton	**Type of Fire**	Single
Magazine Capacity	10	**Groove**	4

KN12

8.59 mm x 69 / 7.62mm x 51

SNIPER RIFLE

Calibre	8,59 x 69 mm / 7,62 x 51 mm	**Length**	1280 / 1030 mm
Working Principle	Bolt Action	**Effective Range**	1500 m
Muzzle Velocity	885 m/s-860 m/s	**Barrel Length**	686 mm / 660 mm
Accuracy	1 MOA	**Buttstock**	Folding, Telescobic, 50 mm, 5 stages
Trigger Force	15-25 Newton		
Magazine Capacity	5 (8,59) / 10 (7,62)	**Type of Fire**	Single Shot
Weight	7200 g	**Groove**	6

MAM-15

12.7 mm x 99

ANTIMATERIAL SNIPER RIFLE

Calibre	12.7 mm x 99	**Length**	1210-1478 mm
Working Principle	Bolt Action	**Effective Range**	1800 m
Muzzle Velocity	885 m/s	**Barrel Length**	737 mm
Accuracy	1 MOA	**Sensitivity**	15-25 Newton
Magazine Capacity	5	**Type of Fire**	Single Shot
Weight	12.500 gr	**Buttstock**	Folding, Telescobic, 25 mm
Groove	8		

KNT-76

7.62 mm x 51 NATO

SEMI-AUTOMATIC SNIPER RIFLE

Calibre	7.62 mm x 51 NATO	**Weight**	5000 g
Working Principle	Gas Operated Rotary Bolt Action	**Length**	1030 / 1110 mm
		Effective Range	800 m
Muzzle Velocity	805 m/s (Lapua Hps 170 Grain)	**Barrel Length**	508 mm
		Type of Fire	Semi Automatic
Accuracy	1.5 MOA	**Buttstock**	Telescobic, 80 mm, 5 stages
Trigger Force	15-25 Newton	**Groove**	4
Magazine Capacity	20		

PMT-76/57A

7.62 mm x 51 NATO

PLATFORM MACHINE GUN

Calibre	7,62 x 51 mm NATO	**Length**	1250 mm
Working Principle	Open Bolt	**Effective Range**	850 m
Muzzle Velocity	840 m/s	**Rate of Fire**	650-950 rds/min
Accuracy	8 MOA	**Barrel Length**	547 mm
Weight	12.500 gr	**Sensitivity**	40-70 Newton
Groove	4	**Type of Fire**	Full Automatic
Ammunition Feed	Belt feed from left	**Buttstock**	Fixed

PMT-76T/57A

7.62 mm x 51 NATO

PLATFORM MACHINE GUN

Calibre	7,62 x 51 mm NATO	**Length**	1100 mm
Working Principle	Open Bolt	**Effective Range**	850 m
Muzzle Velocity	840 m/s	**Rate of Fire**	650-950 rds/min
Accuracy	8 MOA	**Barrel Length**	547 mm
Weight	12.000 gr	**Sensitivity**	40-70 Newton
Groove	4	**Type of Fire**	Full Automatic
Ammunition Feed	Belt feed from left	**Buttstock**	Without Buttstock

MMT

7.62 mm x 51 NATO

MODERN MACHINE GUN

Calibre	7,62 X 51 mm NATO	**Accuracy**	8 MOA
Working Principle	Open bolt, rotary bolt	**Rate of Fire**	750 rds/min
Barrel Length	604 mm	**Muzzle Velocity**	840 m/s
Length	1.120-1.200 mm	**Effective Range**	1.000 m
Weight	8.000 g	**Sensitivity**	15-30 Newton
Type of Fire	Full Automatic	**Buttstock**	Telescobic, 84 mm, 6 Stages
Ammunition Feed	Belt feed from right		

KAAN-717

7.62 mm x 51 NATO

CARBINE RIFLE

Calibre	7.62 mm x 51 NATO	**Length**	810 / 910 mm
Working Principle	Short Stroke, Gas Operated, Rotary Bolt Action	**Effective Range**	600 m
		Max Range	3800 m
Muzzle Velocity	780 m/s	**Barrel Length**	315 mm
Accuracy	4 MOA	**Sensitivity**	20-30 Newton
Magazine Capacity	20	**Rate of Fire**	700 rds/min
Weight	3600 g	**Type of Fire**	Semi / Full Automatic
Groove	6	**Buttstock**	Telescobic, 100 mm, 5 Stages

TLS-571

5.56 mm x 45 NATO

SEMI-AUTOMATIC PRECISION RIFLE

Calibre	5.56 mm x 45 NATO	**Length**	630 / 715 mm
Working Principle	Short Stroke, Gas Operated, Rotary Bolt Action	**Effective Range**	200 m
		Barrel Length	178 mm
		Rate of Fire	750 rds/min
Muzzle Velocity	700 m/s	**Sensitivity**	15-30 Newton
Accuracy	4 MOA	**Type of Fire**	Semi / Full Automatic
Magazine Capacity	30	**Buttstock**	Telescobic, 84 mm, 6 Stages
Weight	2750 g	**Groove**	6

T-50

5.56 mm x 45 NATO

SEMI-AUTOMATIC PRECISION RIFLE

Calibre	5.56 mm x 45 NATO	**Barrel Length**	400 mm
Muzzle Velocity	890 m/s	**Rate of Fire**	750 rds/min
Magazine Capacity	30	**Type of Fire**	Semi / Full Automatic
Weight	3900 g	**Buttstock**	Telescobic
Length	720 / 920 mm	**Groove**	6
Effective Range	400 m		

HK33 E A2/A3

5.56 mm x 45 NATO

INFANTRY RIFLE

	A2	A3
Calibre	5.56 mm x 45 NATO	5.56 mm x 45 NATO
Muzzle Velocity	890 m/s	890 m/s
Magazine Capacity	30	30
Length	920 mm	740 / 920 mm
Weight	3900 g	4000 g
Effective Range	400 m	400 m
Barrel Length	390 mm	390 mm
Rate of Fire	750 rds/min	750 rds/min
Type of Fire	Semi / Full Automatic / 3 Rounds Burst	Semi / Full Automatic / 3 Rounds Burst
Groove	6	6
Buttstock	Fixed	Retractable

ST5 500T-40 HK33 E

40 mm x 46

GRENADE LAUNCHER

Calibre	40 mm x 46	**Weight**	1630 g
Feed Mechanism	Manuel	**Barrel Length**	305 mm
Length	398 mm	**Type of Fire**	Safe, fire
Height	121 mm	**Groove**	6
Width	88 mm		

G3 A3/A4

7.62 mm x 51 NATO

INFANTRY RIFLE

	A3	A4
Calibre	7.62 mm x 51 NATO	7.62 mm x 51 NATO
Muzzle Velocity	800 m/s	800 m/s
Magazine Capacity	20	20
Length	1020 mm	835 / 1015 mm
Weight	4250 g	4700 g
Effective Range	400 m	400 m
Barrel Length	450 mm	450 mm
Rate of Fire	620 rds/min	620 rds/min
Type of Fire	Semi / Full Automatic	Semi / Full Automatic
Groove	4	4
Buttstock	Fixed	Retractable

ST2 T-40 G3

40 mm x 46

GRENADE LAUNCHER

Calibre	40 mm x 46	**Weight**	1750 g
Feed Mechanism	Manuel	**Barrel Length**	305 mm
Length	398 mm	**Type of Fire**	Safe, fire
Height	107 mm	**Groove**	6
Width	76 mm		

MP5 MTS A2

9 mm x 19

SILENCED SUBMACHINE GUN

Calibre	9 mm x 19 Parabellum	**Effective Range**	100 m
Muzzle Velocity	240 m/s	**Barrel Length**	146 mm
Magazine Capacity	30	**Rate of Fire**	800 rds/min
Length	780 mm	**Type of Fire**	Semi / Full Automatic
Weight	3250 g	**Buttstock**	Fixed
Groove	6		

MP5 MTS A3

9 mm x 19

SILENCED SUBMACHINE GUN

Calibre	9 mm x 19 Parabellum	**Effective Range**	100 m
Muzzle Velocity	240 m/s	**Barrel Length**	146 mm
Magazine Capacity	30	**Rate of Fire**	800 rds/min
Length	600 / 760 mm	**Type of Fire**	Semi / Full Automatic
Weight	3460 g	**Buttstock**	Retractable
Groove	6		

MP5 K

9 mm x 19

SUBMACHINE GUN

Calibre	9 mm x 19 Parabellum	**Effective Range**	100 m
Muzzle Velocity	325 m/s	**Barrel Length**	115.6 mm
Magazine Capacity	30	**Rate of Fire**	900 rds/min
Length	325 mm	**Type of Fire**	Semi / Full Automatic
Weight	2000 g	**Buttstock**	Backplate
Groove	6		

MOT-919

9 mm x 19

INFANTRY SUBMACHINE GUN

Calibre	9 x 19 mm	**Accuracy**	4 MOA
Working Principle	Short Stroke, Gas Operated, Rotary Bolt Action	**Rate of Fire**	900 rds/min
		Muzzle Velocity	350 m/s
Barrel Length	225 mm	**Effective Range**	100 m
Length	475 mm	**Sensitivity**	20-30 Newton
Weight	2,3 kg	**Magazine Capacity**	30
Type of Fire	Semi / Full Automatic	**Buttstock**	Telescobic, 84 mm, 6 stages

MP5 A2

9 mm x 19

SUBMACHINE GUN

Calibre	9 mm x 19 Parabellum	**Effective Range**	100 m
Muzzle Velocity	350 m/s	**Barrel Length**	225 mm
Magazine Capacity	30	**Rate of Fire**	800 rds/min
Length	710 mm	**Type of Fire**	Semi / Full Automatic
Weight	3025 g	**Buttstock**	Fixed
Groove	6		

MP5 A3

9 mm x 19

SUBMACHINE GUN

Calibre	9 mm x 19 Parabellum	**Effective Range**	100 m
Muzzle Velocity	350 m/s	**Barrel Length**	225.3 mm
Magazine Capacity	30	**Rate of Fire**	800 rds/min
Length	525 / 690 mm	**Type of Fire**	Semi / Full Automatic
Weight	3025 g	**Buttstock**	Retractable
Groove	6		

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

MEDIUM & HEAVY WEAPONS

12.7 mm Machine Gun (MT12-QCB)
20 mm Twin Barrel Anti-Aircraft & Infantry Support Gun
25 mm Automatic Cannon
35 mm Twin Barrel Anti-Aircraft Gun
35 mm Weapon Assembly and Recoil Mechanism
40 mm Multiple Grenade Launcher
40 mm Automatic Grenade Launcher
60 mm Saluting Gun
60 mm Commando Mortar
81 mm UT-1 Mortar
120 mm HY1-12 Mortar
120 mm Mortar System
130 mm National Chaff Launcher Systems
105 mm Air Transportable Light Towed Howitzer **BORAN**
105 mm M68 T1 Tank Gun Weapon System
120 mm 44 cal. M60 Weapon System
120 mm 55 cal. Altay Weapon System
155 mm 39 cal. L-39 Weapon System
155 mm 52 cal. Weapon System
155 mm 52 cal. For Self Propelled Howitzer **FIRTINA**
155 mm 52 cal. Truck Mounted Howitzer **YAVUZ**
Hybrid M113 Armored Combat Vehicle **E-ZMA**
Integration of the Hybrid Propulsion System Into the Strom Howitzer **E-FIRTINA**
76/62 mm National Naval Artillery Gun
Short Range Air Defence System **YHSS**
12.7 x 99 mm 3 Barrel Rotary Cannon
20 x 102 mm 6 Barrel Rotary Cannon
20 x 102 mm Nose Mounted 3 Barrel Rotary Cannon for Helicopters

MKE HEAVY WEAPONS FACTORY

KIRIKKALE

The Heavy Weapons Factory was established in 1937 as a cannon-manufacturing factory. In 1993, the Heavy Weapons Factory was merged with the Steel Factory that had been formed in 1932. They both operated as subsidiaries until the year of 2003. Since then, this facility has been operating with factory status.

On 1 January 2020, the factory was divided into Heavy Weapons Factory and Steel Factory. As of that date, it has been operating under this title.

MKE Heavy Weapons Factory has been manufacturing mortar systems such as:

- 60 mm Commando Mortar
- 81 mm UT1 (smoothbore) Mortar
- 120 mm HY12 (Rifled) Mortar

Also, the factory has been providing howitzer weapon systems such as:

- 105 mm BORAN Air Transportable Light Towed Howitzer
- 155 mm Howitzers,
    - 39 Caliber (L-39 Weapon System)
    - 52 Caliber Weapon Systems,
        - Panter (Towed)
        - Fırtına (For Self Porpelled)

Last but not least, this facility also offers tank weapon systems such as:

- 105 mm M68 T1 Tank Gun
- 120 mm Tank Gun Systems,
    - 44 Caliber (M60 A1)
    - 55 Caliber (ALTAY)

60mm saluting cannon is also among the productions offered by the facility. Awarded AQAP 2120 Quality Assurance Certificate - a NATO Quality Assurance Standard, MKE Heavy Weapons Factory also owns ISO 9001 Quality Assurance System. The factory operates with full capacity, covering a closed space of 32.922 m^2 and a total area of 390.895 m^2.

MKE MEDIUM CALIBER WEAPONS FACTORY

ÇANKIRI

MKE Medium Caliber Weapons Factory was established to primarily manufacture 20 mm and 35 mm Twin Barrel Anti-Aircraft Guns, 25 mm Automatic Cannon, 12.7 mm Machine Gun, 40 mm Multiple and Automatic Grenade Launcher, 105 mm Air Transportable Light Towed Howitzer (BORAN), 155 mm 52 caliber modern towed howitzer (PANTER) and 155 mm Self-Propelled Howitzer (with sub-assemblies like transfer arm assembly, traverse gearbox and bracket assembly, barrel travel lock, cradle assembly, track suspension hydrolic arm assembly, carriage assembly).

MKE Medium Caliber Weapons Factory provides:

- Turning, milling and honning machines (NC-CNC)
- NC deep- hole drilling and honning machines (yo 4000 mm)
- Rifling Machine
- CNC vertical and horizontal milling machines
- Gear Hobbing, Cutting, Grinding Machines.
- Universal cylindrical and polygon grinding machines (internal/external surface)
- Profile and surface grinding machine (NC-CNC)
- CNC electro-erosion machine
- Plane and Shaper Workbench
- Water jet bench
- Pressing machine
- Laser writing and marking machine
- Sheet metal and welding workshop
- Heat and surface treatment workshop
- Painting facility
- Material Test Laboratories
- CMM metrology and calibration room

With AQAP 2110 Quality Assurance, MKE Medium Caliber Weapons Factory is meeting the requirements of any domestic and international military or civil project.

MKE MAKSAM MACHINERY & GAS MASK FACTORY

ANKARA

Its history is based on the General Directorate of Military Factories established in 1921 and the Gas Mask Factory belonging to the Turkish Red Crescent Society established in 1935. It has been operating under the name of MAKSAM Machinery and Mask Factory Directorate since 2006, and the following products are produced

- Leopard A1/A4 Tank Kits and Spare Parts
- Launcher Systems
- 20 mm Bullet Cores
- Track Shoes and Pads of Tanks and Armored Vehicles
- T-155 PANTER Towed Howitzer and Spare Parts
- T-155 FIRTINA Howitzer Spare Parts
- T-155 MKE-YAVUZ Truck Mounted Howitzer (155mm 52 cal.)
- BORAN Air Transportable Light Towed Howitzer Parts
- HTHÇO Test Cabinet (for: Air Transportable Light Towed Howitzer)
- 130 mm National Chaff Launcher System (for Navy)
- 120 mm Vehicle Mounted Mortar System
- E-ZMA Hybrid M113 Armored Combat Vehicle
- E-FIRTINA Integration of the Hybrid Propulsion System in to the Howitzer
- 76/62 mm National Naval Artillery Gun
- YHSS Short Range Air Defence System
- 12.7 x 99 mm 3 Barrel Rotary Cannon
- 20 x 102 mm 3 Barrel Rotary Cannon
- 20 x 102 mm 6 Barrel Rotary Cannon
- 20 x 102 mm Nose Mounted 3 Barrel Rotary Cannon for Helicopters
- Tank and Armored Personnel Carrier Modernization and Spare Parts
- CBRN Gas Masks and Canisters
- Protective Equipment

The aim of the factory is to produce and supply Gas Masks/Canisters in accordance with NATO Standards, Weapons/Defense systems, equipment, spare parts for the Defense Industry, modernizations needed by the Turkish Armed Forces, and new model vehicles and equipment systems that will join the Defense Industry, and manufactures in accordance with International Standards. It has AQAP 2110 and TS-EN-ISO 9001:2015 Quality Management certifications.

12.7 mm
MACHINE GUN (MT12-QCB)

Diameter	12.7 mm
Weight	38 kg
Length (Complete Gun)	165 cm
Max. Range	6700 m
Max. Effective Range	1800 m
Rate of Fire	450-650 rounds/min
Muzzle Velocity	893 m/sec
Target Range	2600 yrds
Barrel, Number of Rifles	Forged, rifled (8)

20 mm

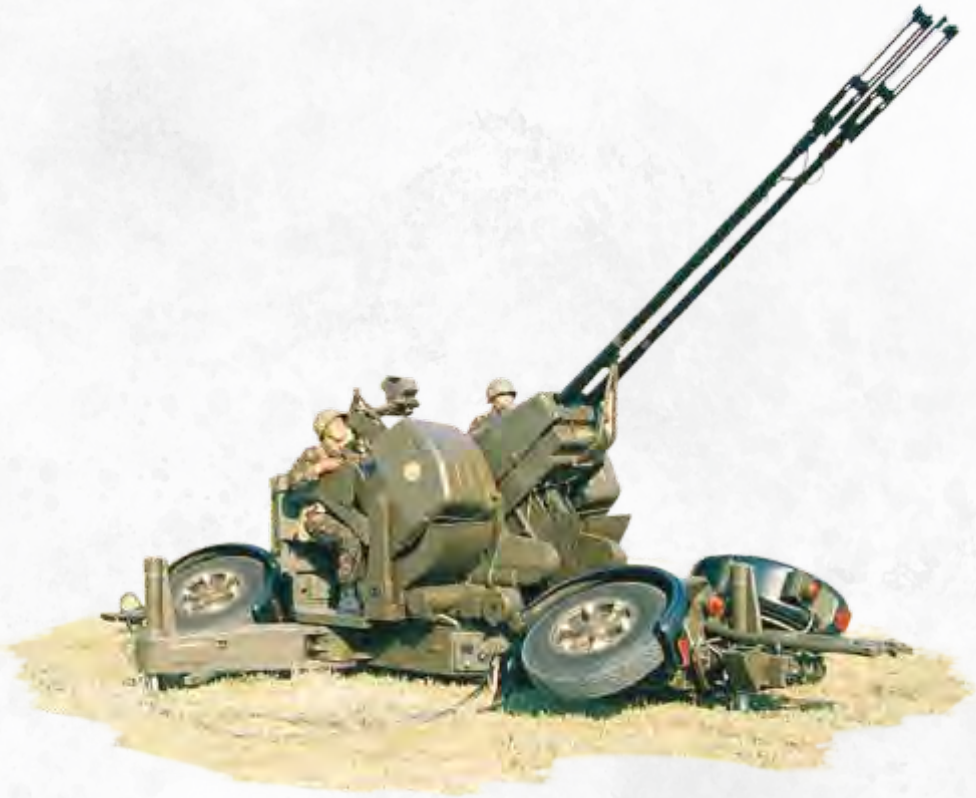
TWIN BARREL ANTI-AIRCRAFT & INFANTRY SUPPORT GUN

Diameter	20 mm
Equipment	Oerlikon 20 mm automatic cannon
Type	GAI D01
Weapon Weight	66 kg
Weight (Travelling Position With Ammunition)	1800 kg
Barrel Lenght	1840 mm
Bullet Weight	0,321 kg
Rate of Fire	2 x 1050 rounds/min
Trace	With optronic computerized
Motor Power	5,15 kW(7HP DIN)
Muzzle Velocity	HL 1150 m/sec
Rotation Radius	3.000 mm
Rotation	Unlimited
Traverse	-3° to +81°
Horizantal Traverse (Angular Speed)	Max (80°/sec)
Vertical Movement (Angular Speed)	Max (48°/sec)
Effective Range	1200 m (Air Targets), 2000 m (Ground Targets)

25 mm

AUTOMATIC CANNON

Diameter	25 mm
Type	25 M811 GIAT
Total Length	2630 mm
Total Weight	113+8 kg
Height	370 mm
Width	345 mm
Barrel Lenght	2130 mm
Rate of Fire	125-400 rounds/min
Ammunition Feeding	Double feeding
Feeding Time	3 min
Service Time	16000 rounds
Belt Feed	Continious 360° relative bearing aiming by turret rotation
Energy Used	4600 W 650 rpm 1200 W 400 rpm
Operation Principal	External power supply
Empty Case Round	Forward
Rotation to Target	-8° to +45°
Muzzle Velocity	1360 m/sec
Effective Range	1500 m



35 mm

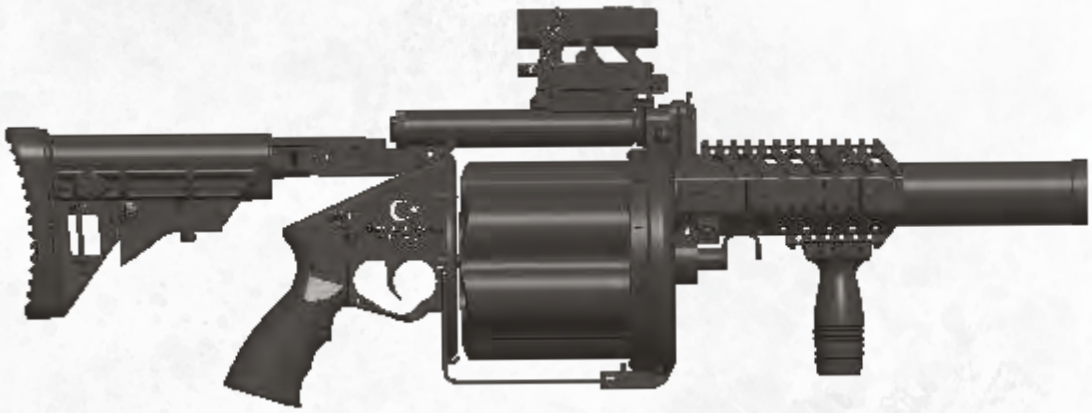
TWIN BARREL ANTI-AIRCRAFT GUN

Diameter	35 mm
Type	GDF-003B
Total Weight	6800 kg
Barrel Lenght	3150 mm
Rate of Fire	2x550 rounds/min
Armament	2 cannons+2 generators+Radar
Muzzle Velocity	175 m/sec
Rotation	Unlimited
Rotation to Target	5°/±95°
Max. Rotation Speed	2,095 rad/sec
Target Selection	Ferranti GSAMK 3
Target Seizure Range	50 km
Target locking Range	40 km
Effective Range	4000 m
Bullet Weight	1562 g

35 mm

WEAPON ASSEMBLY AND RECOIL MECHANISM

Ammunition Diameter	35 mm
Caliber	90 mm
Rate of Fire (2 Weapons)	2x550 round/min
Muzzle Velocity	~1.175 m/s
Number of Grooves	24
Rifling Angle	0° - 6° 30'
Barrel Weight	124 kg
Barrel Weight(With Muzzle)	132 kg
Barrel Length	3.150 mm
Weapon Assembly Weight	300 kg
Total Weight Net	432 kg
Total Length (With Barrel and Muzzle Brake)	4.424 mm
Total Height (With Barrel and Muzzle Brake)	473 mm
Total Width	280 mm
Effective Range	4 km
Storage Temperature	+70±2°C and -40±2°C
Operating Temperature	+44±2°C and -32±2°C



40 mm

MULTIPLE GRENADE LAUNCHER

Diameter	40 mm
Type	Multi Shot Revolver
Firing Method	Semi-Automatic
Weight, Unloaded	6.75 Kg (Max.) With Sight
Over All Length, Butt Extended	844±5 mm
Over All Length, Butt Retracted	760±5 mm
Barrel Length	300 mm
Rifling	6 grooves. Right hand, one of turn in 1200mm
Cylinder Lenght	140 mm
Rate of Fire	Max. 10 second/ 6 round
Muzzle Velocity	76m/s
Effective Range	375m

40 mm

AUTOMATIC GRENADE LAUNCHER

Barrel Bore Diameter	40 mm
Weight	
Gun	33 kg
Cradle	9,5 kg
Tripod	20 kg
Total	62,5 kg
Length	1097 mm
Width	340 mm
Height	225 mm
Rate of Fire	
Cyclic	325-375 rds/min
Rapid	60 rds/min
Sustained	40 rds/min

Muzzle Velocity	242 m/sec
Maximum Range	2500 m
Max. Effective Range	1500 m
Barrel Length	415 mm
Rifling	24 groves
Ammunition Feed	From left
Bullet Type	HE, HEDP, TP

60 mm

SALUTING GUN

Diameter	60 mm
Weighting of Blanks	561 g
Training Arc	360°
Elevating Arc	Fixed at 20°
Base Plate Weight	84 kg
Weight of the Removable Gun	51 kg
Total Weight, Including Pedestial	135 kg
Barrel Type	Monoblock, smoothbore
Firing Mechanism Type	Manual
Sound Level	110 dB (minimum)
Sound Range	5 km (diameter)

60 mm

COMMANDO MORTAR

Barrel Inner Diameter	60.7 + 0.05 mm
Barrel Outer Diameter	66 mm
Barrel Size (Length)	650 ± 1 mm
Total Weight	7730 gr
Maximum Fire Range	1500 m
Sight	Special
Ammunition Types Used	HE M49 A2 and TP M50 A2
Maximum Pressure	250 bar
Number of Fire	20 rounds/min
Crew	1

60 mm Commando Mortar is an easy hand carried light infantry weapon. It can be fired from a vehicle or on the ground. The mortar has a muzzle loading barrel made of special steel. It is a closed firing weapon.

81 mm

UT-1 MORTAR

Barrel Inner Diameter	81,4 mm
Barrel Outer Diameter	99 mm
Barrel Size (Length)	1453 mm
Total Weight	71.2 kg
Barrel Weight	28.1 kg
Cover Weight	19.6 kg
Bipod Weight	23.5 kg
Maximum Pressure	625 kg/cm^2
Traverse Range	620 – 1450 milyem
Horizantal Range	90 milyem (right and left)
Sight	T-3
Max. Range	5900 m
Base Plate Diameter	550 mm
Number of Fire	15 rounds/min
Crew	3

81 mm Mortar is a unique weapon system providing extremely high performance with its operational logistics economy. It is designed and produced by MKE. Exceptional Range, Accuracy, Rapid movement to battle positions, easy portability over severe conditions.

120 mm

HY1-12 MORTAR

Barrel Inner Diameter	119.90 mm
Barrel Outer Diameter	160 mm
Barrel Size (Length)	1900 mm
Length	3100 mm
Width	1900 mm
Height	1350 mm
Total Weight	620 kg
Barrel Weight	143 kg
Base Plate Weight	152 kg
Max. Range	8000 m
Maximum Pressure	1230 kg/cm^2
Groove	40
Number of Fire	7 rounds/min

120 mm HY1-12 Mortar is an infantry weapon designed and produced by MKE. Rifled barrel and easily hauled by a vehicle. Highest accuracy, long firing range, high mobility, loaded from mouth. Singular automatic firing is possible.

120 mm
MORTAR SYSTEM

Calibre	120mm
Weight	1350 kg
Operation Range	9500m
Rate of Fire	10 rds/min
Operation Elevation	45°-80°
Traverse	±180°
Ammunition Loading Type	Manual - Semi Automatic

130 mm

NATIONAL CHAFF LAUNCHER SYSTEMS

TYPE: MKE1302-SYS, MKE1304-SYS and MKE1304-MCAS

FEATURE: It is a system that protects the ship by creating false targets against enemy missiles.

SYSTEM COMPONENTS: Q130 mm C/F Launcher System, CMS Main Control Panel, Power Supply Panel, Bridge Launcher Control Panel, Ammunition Cabinet, Siren

OPERATING TEMPERATURE: -20 °C, 55 °C (According to MIL STD 810F)

BARREL ANGLES: 30°, 45°, 60°

105 mm

BORAN
AIR TRANSPORTABLE
LIGHT TOWED HOWITZER

Diameter	105 mm, 30 Caliber
Weight	1745 kg (Including Fire Control System)
Range	17 km (At Sea Level)
Angle of Elevation	-3°+70°
Angle of Traverse	8° right and 8° left
Deployment	Time to put in and out of action less than 1 minute
Operating Temperature	-32 °C + 44 °C
Rate of Fire	6 rds/min

105 mm Air Transportable Light Towed Howitzer, called BORAN is designed by MKEK to pressure on brigade target, to utilize for Turkish Armed Forces internal security operations, to fire support for commando brigade and airborne operations. BORAN has 105mm/30 Caliber barrel and it satisfies 6 rds/min rate of fire, exceeding 17 km range at sea level with long range ammunition. It is also operatable with 5 crews. As to deployment, it is less than 1 minute for in-out positioning. The weight is 1745 Kgs (including fire control system) and it can be carried by Sikorsky S-70 General Purpose Helicopter and can be towed by a wide range of light vehicles. BORAN has -3°,+70° degree for angle of elevation and 8 degree both side degree from centerline for angle of traverse. It could be operatable for all kind of firing missions in -32°C,+44°C degree celcius circumstances continuously 8 hours. BORAN has electronic devices like fire control computer, GPS, panoramic cannon binocular. It can deploy regardless of clasic deployment procedures. BORAN surpasses its alternatives with its advanced shot control system and the above mentioned technical features.

105 mm

M68 T1 TANK GUN WEAPON SYSTEM

Diameter	105 mm
Total Weight	1200 kg
Barrel Weight	760 kg
Breech Ring Weight	320 kg
Breech Weight	50 kg
Total Length	5550 mm
Barrel Size (Length)	5346 mm
Groove	28
Number of Fire	6 rounds/min
Bullet Muzzle Velocity	683 m/s (with MKE MOD 233) 1485 m/s (with APFSDS-T)

105 mm M68 T1 Tank Gun is mounted on M48 battle tanks. It is a quick firing accurate weapon. The weapon is a rifled gun with a vertical sliding breech. It uses fixed ammunition which is electrically fired. After firing a semi automatic system opens the breech and drops the empty case .
A full range of ammuntion gives weapon system exceptional performance against all types of targets.

120 mm 44 cal.

M60 WEAPON SYSTEM

Diameter	120 mm 44 Caliber
Barrel Type	Smooth Bore, Chrome Plated
Total Weight	3700 kg
Total Length	5812 mm
Width	640 mm
Rate of Fire	6 rounds/min
Effective Range	3000 m
Operating Temp	-45°C to +70°C

120 mm 55 cal.

WEAPON SYSTEM ALTAY

Diameter	120 mm 55 Caliber
Barrel Type	Smooth Bore Chrome Plated
Total Weight	3103 kg
Total Length	7118 mm
Barrel Weight	1324 kg
Barrel Size (Length)	6600 mm
Rate of Fire	6 rounds /min
Effective Range	3000 m
Operating Temp	-32°C to +52°C

155 mm 39 cal.

L-39 WEAPON SYSTEM

Diameter	155 mm
Barrel Weight	1460 kg
Breech Ring Weight	807 kg
Breech Weight	117 kg
Barrel Size (Length)	6037 mm (39 cal.)
Groove	48
Number of Fire	6 rounds/min
Range	24000 m

This gun system is produced by the modification of the standart M44 Howitzer. The major change involves, a new 39 cal. long barrel with large chamber, faster twist rifling and autofrettaged to provide maximum fatigue life. Therefore modifying the M44 with a new cannon assembly using a 39 cal. tube will increase its range capability and interoperability with modern ammunition.

155 mm 52 cal.
WEAPON SYSTEM

	PANTER	FIRTINA
Diameter	155 mm	155 mm
Total Weight	4176 kg	4339 kg
Barrel Weight	2240 kg	2259 kg
Barrel Length	8060 mm	8095 mm
Groove	48	48
Breech Ring Weight	200 kg	665 kg
Breech Weight	30 kg conical screw hydropneumatic	95 kg wedge type breech block
Ignition Type	-	Electro-Hydrolic servo system or manual
Number of Fire		
Normal	4 rds/min	6 rds/min
Max. Rate	3 rds/15 sec	3 rds/15 sec
Sustained Rate	2 rds/min	2 rds/min
Range	18 km (M107) 30 km (Modern Project) 40 km (ERFB/Base Bleed Projectile)	18 km (M107) 30 km (Modern Project) 40 km (ERFB/Base Bleed Projectile)
Barrel Type	Monoblock, forged tube with auto frettage	Monoblock, forged tube with auto frettage

155 mm 52 cal.

FIRTINA
FOR SELF PROPELLED HOWITZER

Diameter	155 mm, 52 Caliber
Combat Weight	47000 kg
Length	12 m
Width	3.4 m
Height	3.43 m
Crew	5
Firing Control	Automatic
Round Loading	Automatic
Night Vision	Available
NBC Protection	Available

FIRING SYSTEM	
Firing Range	
M107(HE)	18 km
M549A1/RAP(HE)	30 km
ERFB/BB(HE)	40 km+
Firing Domain	
Elevation	-2.5 / 70 degree
Traverse	360° degree
Rate of Fire	
Burst	3 rounds / 15 seconds
Maximum	6-7 rounds / minute
Sustained	2 rounds / minute

MOBILITY	
Speed	65 km / h
Ground Clearance	0.42 m
Forward Slope Capability	60 %
Vertical Obstacle Crossing	0.75 m
Trench Crossing	2.8 m
Wading Crossing	1.5 m
Operational Range	360 km

POWER UNIT	
Engine	1000 HP, MTU 881
Transmission	X1100-5A3 (Auto.)
Power/Weight Rate	21 HP / ton

155 mm 52 cal.

YAVUZ TRUCK MOUNTED HOWITZER

Barrel	155 mm
Diameter	52 Calibre
Crew	5
Weight	32 tons
Length	10.8 m
Height	4.1 m
Width	2.6 m
Max Speed (On-Road)	90 km/h
Operation Range	600 km
Rate of Fire	4-6 rds/min
Ammunition Capacity	18
Ammunition Loading Type	Manual - Semi Automatic
Max. Elevation	+1165±5 artillery mil
Min. Elevation	-53±5 artillery mil
Traverse	± 300
Ammunition/Range	18 km with M107 (HE) 30 km with M549A1 (HE) 40 km with MOD 274
Engine	Euro 5 Diesel
Fording	1m
Trench	0,45 m
Gradient (Climb)	45 %

E-ZMA

HYBRID M113 ARMORED COMBAT VEHICLE

Weight	15.000 kg
Power	320 hp
Battery Pack Capacity	150 kWh
Torque	1500 Nm
Max. Speed	50 km/h 0-30 km/h
Acceleration	6 sec
Range	650 km
Gradient / Side Slope	%60 / %30
Fording Depth	1.5 m
Vertical Obstacle	0.6 m
Trench Crossing	1.7 m
Main Armament	25 mm Remote Controlled Stabilized Weapon System
Coaxial Armament	7.62 mm PMT-76
Turret Movement Speed	60°/ sec
Turret Elevation	-8° / +45°
Turret Traverse	n x 360°
Sighting	Day/Night Sight, Laser Range Finder

E-FIRTINA

INTEGRATION OF THE HYBRID PROPULSION SYSTEM INTO THE HOWITZER

	DIESEL	HIBRIT
Engine Type	MT-881 Ka-500	Electric 2P2S
Power	1.000 HP (735 KW)	1.300 HP (1.000 kW)
Max Torque	3.030 Nm	10.000 Nm
Engine Displacement	18,2 Liter	2,8 Litre (generator)
Revolution	2.320 rpm	3.000 rpm
Transmission	Allison X1100-5 Otomatic	-
Gears	4 forward/2 reverse	1 forward/1 reverse
Weight	47 Tons	48.4 Ton
Max Speed	65 km/h	60 km/h (± 10 km/h)
Accelaration	0-30km/s in 7 sec.	0-30km/s in 6 sec.
Gradient (Climb)	60%	60%
Side Slope	40%	40 %
Fuel	Diesel	Diesel (generator)
Range (15 km/h)	450 km	500 km (± 50km)
Range (fully loaded)	226 km	300 km (± 30km)
Fuel Consumption (fully loaded)	161 lt/h	32 lt/100km 5,5 kW/km
Engine Weight	1.400 Kg	680 kg
Power/Weight	21 HP/ton	28 HP/ton
Battery Pack Capacity	-	357,12 kWh (595.2Vdc)
Charging Time	-	4 saat
Generator Capacity	-	2x38 kW

76/62 mm

NATIONAL NAVAL ARTILLERY GUN

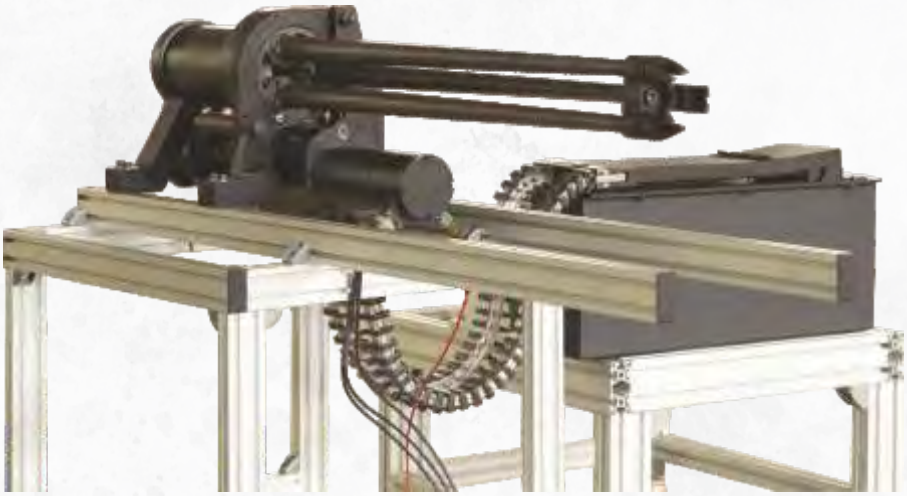
Operatio	Air Defence Anti Surface Shore Bombardment
Rate of Fire	80 rds/min (max)
Ready to fire rounds	80 rds
Weight (without ammunition)	7500 kg
Train Arc	±360° (with slip ring)
Elevation Arc	-15°/+85°
Elevation Speed/ Acceleration max.	35-40°/s / 72°/s²
Training Speed/ Acceleration max.	60-65°/s / 72°/s²
Range	16 km standart ammo 20 km with extended range ammunition
Shield	Reduced Radar Cross Section
Control Console	Digital
Cooling System	Sea water- fresh water for flushing
Electrical Power Supply	440V, 3 Phase, 60Hz 115V, 2 Phase, 60Hz

YHSS

SHORT RANGE AIR DEFENCE SYSTEM

Weight	3500 kg
Weapon System	20 mm 6-Barrel Rotary Cannon
Feed System (Drum)	1500 rds
Angular Velocity	100±10°/s
Elevation	-15°/+85°
Traverse	n x 360°
Electrical Power	400-440 VAC 50-60 Hz
Rate of Fire	3000-4000 rds/min

Electro-optical sensor units on the turret consist of thermal camera (cooled), day vision camera, laser distance meter system.



12.7 x 99 mm

3 BARREL ROTARY CANNON

Caliber	12.7 mm	**Barrel length**	910 mm
Weight	63 kg	**Nb. of Barrels**	3
Width x length x height	200 x 1316 x 370 mm	**Dispersion**	5 mrad
Effective Range	1700 m	**Feed System**	M9 linked
Rate of Fire	1200 rds/min	**Max. Recoil**	300 kg
Muzzle Velocity	875 m/sec		

20 x 102 mm

6 BARREL ROTARY CANNON

Caliber	20 mm	**Barrel length**	1521 mm
Weight	135 kg	**Nb. of Barrels**	6 QCB
Length	1827 mm	**Dispersion**	8 mrad
Effective Range	2000 m	**Feed System**	M14 A2 linked
Rate of Fire	4000-6000 rds/min	**Max. Recoil**	1420 kg
Muzzle Velocity	987 m/sec		

20 x 102 mm

NOSE MOUNTED 3 BARREL ROTARY CANNON FOR HELICOPTERS

Caliber	20 mm
Weight	64 kg
Width x length x height	400 x 1825 x 320 mm
Effective Range	2000 metre
Rate of Fire	750 ± 75 rds/min
Muzzle Velocity	987 m/sec
Barrel length	1521 mm
Nb. of Barrels	3 QCB
Dispersion	6 mrad
Feed System	M14 A2 type linked
Max. Recoil	250 kg

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

ROCKET SYSTEMS
PROPELLING SYSTEMS
EXPLOSIVES

2.75 inch Folding-Fin Aerial Rocket (FFAR)
66 mm Light Anti Tank Weapon System
66 mm Anti-Personnel Weapon System
21 mm Training System
TAMKAR Mine Clearing Line Charge System (For Vehicle)
TAMGEÇ Mine Clearing Line Charge System (For Infantry Troops)
107 mm Artillery Rocket
122 mm Artillery Rocket
Rocket Overhauling
Propelling Charges and Rocket Propellants
Blackpowder
TNT (Trinitrotoluene)
RDX (Hexogen)
HMX (Octogen)

MKE ROCKET & EXPLOSIVE FACTORY
ELMADAĞ

MKE Rocket and Explosive Factory has two separate facilities, one of which is the Rocket-Manufacturing Facility and the other is the Explosive-Producing Facility. The factory continues its operation in an open area of 7.530 km^2 and a closed area of 215 km^2.

The rocket manufacturing facility consists of a double-based solid rocket propellant production line and rocket assembly lines. These production lines provide 66 mm HAR/AP systems, 2.75'' rockets that can be launched from helicopters and military aircraft, TAMKAR mined field clearing systems (for vehicles), TAMGEÇ mined field clearing systems (for infantry troops), 122 mm and 107 mm artillery rockets, 21 mm training rockets and their propellants.

The explosive-producing facility offers Nitroglycerine, RDX, HMX, C4 plastic explosive, thermobaric explosives, TNT and DNT, mortar propellant charges, military aircraft bomb filling, as well as NGL-based dynamites, emulsion explosives, various acids, ANFO-type explosive intended for the civilian market. Blackpowder and safety fuses are also produced for the civilian market and the military.

MKE Rocket and Explosive Factory has laboratories for mechanical and chemical analysis, as well as non-destructive test facilities and ballistic test area.

MKE Rocket and Explosive Factory also gives a great contribution to the national economy by producing - apart from military explosives and rocket manufactures intended for country defence – civilian products that can be used in underworks like dams, motorways, tunnels, village and forest roads, petrol pipelines, mines and stone quarries, hydroelectric and thermal power stations.

2.75 inch

FOLDING-FIN AERIAL ROCKET FFAR

Operation	Unguided, air to ground MK4 (from high speed aircraft), MK40 (from helicopter)
Overall Length	1.4 m (Rocket Motor, M151 Warhead and M423 Fuze)
Diameter	70 mm
Warhead Weight	3.95 kg (M151)
Operation Temp.	-54°C to +65°C
Burn Out Time	1.42 sec
Range	Point: 1500 m, Area: 3000 m (from helicopter) Dispersion: 50 m Max. 7 km (ground to ground)
Propellant Type	Double base N5
Warhead	Various (HE M151, TP MK 61 MOD 0, Smoke/Signalling MKE MOD 248)
Complete Sys. Weight	9,3 kg (together with MK40 or MK4 Rocket Motor, M151 Warhead and M423 Fuze)
Burn-Out Velocity	730 m/sec (Launched by high speed aircraft)
Burn-Out Velocity	640 m /sec (Launched by helicopters)

66 mm

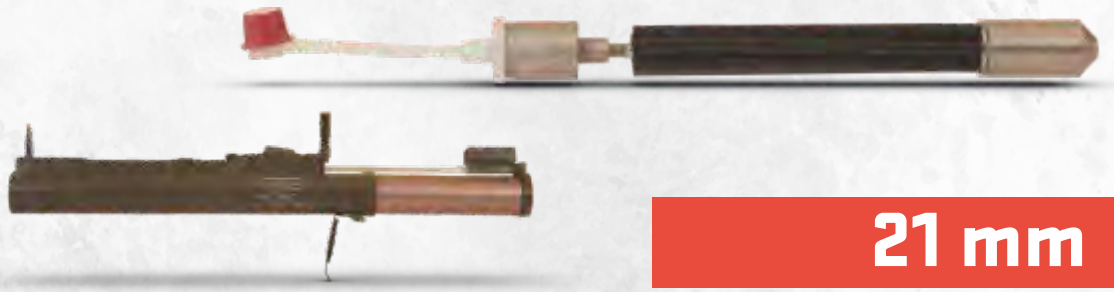
LIGHT ANTI-TANK WEAPON SYSTEM

Operation	Single shot disposable launcher	**Propellant Type**	M7
Diameter	66 mm	**Warhead Type**	Anti-tank (shaped charge)
Overall Length of Sys.		**Effective Range**	200 m
Closed	650 mm	**Flight Time (200m)**	1,6 sec
Extended	878 mm	**Fuze**	M412 A 1
Weight of Complete Sys.	2,4 kg	**Penetration**	300 mm
Operation and Storage Temperature	-40 °C to +60 °C		

66 mm

ANTI PERSONNEL WEAPON SYSTEM

Operation	Single shot disposable launcher
Diameter	66 mm
Overall Length of Sys.	
Closed	650 mm
Extended	878 mm
Weight of Complete System	2,4 kg
Operation and Storage Temperature	-40°C to +60°C
Propellant Type	M7
Warhead Type	Anti-Personnel (with Steel Ball)
Effective Range	200 m
Warhead Effective Radius	Min. 10 meters



21 mm

TRAINING SYSTEM

Operation	Training system of 66 mm Light Anti Tank Weapon System
Diameter	21 mm
Overall Length of System	
Closed	650 mm
Extended	878 mm
Weight of Training Rocket	200 g
Propellant Type	M7
Warhead Type	No warhead
Effective Range	200 m
Type	Tracer bullet

TAMKAR

MINE CLEARING LINE CHARGE SYSTEM (FOR VEHICLE)

Dimensions of the Cleaned Area:	
Length	100 m
Width	10 m
Depth	1 m

Dimensions of the cleaned area may change depending on the soil type.

Per. of Mine Destroyed	98% (may change according to soil type)
Types of Mines Cleared	Effective to pressure and single impulse types (TM-45, TM-57, TMKR-2, MK-56 and similar mines.)
Safety Distance	80 m from the border of minefield.
Total Weight of the Sys.	2800 kg (Included trailer, launcher, line charge and rocket group)
Ope. and Storage Temp.	-30°C to +52°C
Explosive Type	400 kg C-4
Rocket Type	2.75'' G1 Rocket
Flight Range	200 m
Shelf Life	10 years
Pers. Needed for Ope.	
For Loading	2 persons

TAMGEÇ

MINE CLEARING LINE CHARGE SYSTEM
(FOR INFANTRY TROOPS)

Dimensions of the Cleaned Area:	
Length	50±3 m
Width	0,4±0,1 m

Dimensions of the cleared area may change depending on the soil type of the minefield

Perc. of Mine Destroyed	95% (may change according to soil type)
Total Weight of the Sys.	73 kg max
Safety Distance	Minimum 30 m from the border of minefield
Ope. and Storage Temp.	-40°C to +50°C
Explosive Type	22 kg C-4
Rocket Type	2.75'' G2 Rocket
Flight Range	90 m
Shelf Life	10 years
Pers. Needed for Ope.	
For Transport	2 persons

107 mm

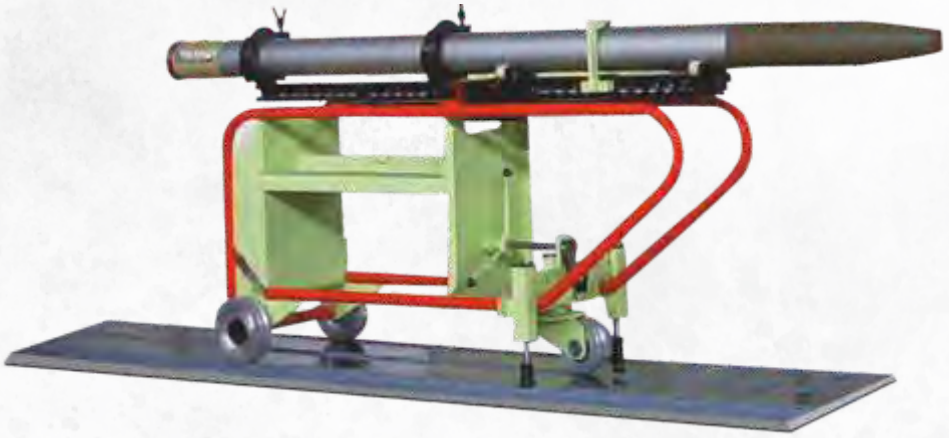
ARTILLERY ROCKET

Operation	Ground to ground
Diameter	107 mm
Overall Length	840 mm
Warhead Type	HE
Propellant Type	Double Base / 3,4 kg
Weight of Complete System	19,3 kg
Fuze	PD (point detonating) mechanical fuze
Max. Velocity	375 m/sec
Max. Range	8 km
CEP	2,9 % at max. range

122 mm

ARTILLERY ROCKET

Operation	Ground to ground
Rocket Weight	66 kg
Length	2920 mm (with fuze)
Weight of Warhead	18 kg
Type of Warhead	HE, Steel Ball
Fuze	MRV-U, Proximity
Propellant Type	Double Base
Weight of Propellant	20 kg
Max. Range	20 km
CEP	1%



ROCKET OVERHAULING

MKE Rocket and Explosive Factory has the capabilities of:

- Testing,
- Controlling,
- Maintenance,
- Life-Extension
- Overhauling for the rocket system besides its production activities.

PROPELLING CHARGES AND ROCKET PROPELLANTS

Various dimension and diameter
Sheet, flake or cylindirical rod, various internal configuration
Composition: Double base(NC/NGL)

Application:

- 60mm, 81mm, 120 mm, 4.2 inches Mortar Ammunitions
- Light Antitank Weapons
- Booster Motors for Guided Antitank Weapons
- Air to Ground Rockets
- Artillery Rockets
- Illumunating Cartridges

BLACKPOWDER

-Military Blackpowder in compliance with Military Standard MIL-P-223, Class1 to Class8
-Various Hunting Powder for civilian purposes

TNT (Trinitrotoluene)

Appearence	From light to dark yellow in color, flake
Water Content	% 0.1 max.
Acidity (H2SO4)	% 0.02 max.
Alkalinity	No
Insoluble Matter	% 0.05 max.
Sodium(Na) Compounds	% 0.001 max.
Flake size	Average thickness less than 0.63 mm, individual thickness less than 1.02 mm
Solidification Point	80,20 °C min.

RDX (Hexogen)

	Type I	Type II
Color and Appearence	White crystal	White crystal
Melting Point, °C, min.	200	200
Acetone Insoluble Matter, % (m/m), max.	0,05	0,05
Ash Content, % (m/m), max.	0,03	0,03
Acidity, %(m/m), max.	0,05	0,02
HMX Content , %(m/m)	0,0 – 5,0	4,0 – 17,0
Inorganic insoluble %(m/m)	0,03	0,03
Impact Sensitivity cm (min.) Holston impact method	33	33
Impact Sensitivity cm (min.) ERL,Type 12, 2.5 kg	15	15
Granulation	Large range	Large range

HMX (Octogen)

Color and Appearence	White crystal
HMX Content, % (m/m)	min. 98
RDX Content, % (m/m)	max. 2
Acetone Insoluble Matter , % (m/m)	max. 0.05
Melting Point, °C,	min. 277
Ash Content, % (m/m)	max. 0.03
Acidity, % (m/m)	max. 0.02
Inorganic Insoluble %(m/m)	max. 0,03
Impact Sensitivity cm (min.) Holston impact method	min. 26
Impact Sensitivity cm (min.) ERL,Type 12, 2.5 kg	min. 17
Granulation	Large range

MAKiNE VE KiMYA ENDÜSTRiSi INC.

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SMALL ARMS AMMUNITION

5.56 mmx45 Cartridges Ball, Tracer, M193, Blank, Polymer Type
5.70 mmx28 Cartridge
7.62 mmx51 Cartridges Ball, Armour Piercing, Tracer, M118, Blank, Subsonic
7.62 mmx54 Cartridges Ball, Tracer
7.62 mmx39 Cartridge With Steel Core
7.62 mmx63 Cartridge Blank
8.59 mmx70 Cartridge Ball, Solid
7.65 mmx17 Pistol Cartridge Ball
9 mmx17 Pistol Cartridge Short
9 mmx19 Pistol Cartridges Parabellum, Blank, 115gr
9 mmx20 Pistol Cartridge Long
9.65 mmx (.38 Cal.) Pistol Cartridges Ball, Special FMJ
12.7 mmx99 (.50 Cal.) Cartridges M8, M17, M33, Blank, Solid Sniper
12.7 mmx99 (.50 Cal.) Cartridges M2 AP, M8 API Special
20 mmx102 Cartridges HEI, HEI-T, TP, TP-T, MK149 GFI APDS, API
20 mmx110 Cartridges HEI, HEI-T, TP, TP-T
0.40 Cal. Cartridges SW
0.45 Cal. Cartridges Auto

MKE GAZI SMALL ARMS AMMUNITON FACTORY
ANKARA

MKE Gazi Small Arms Ammunition Factory, founded in 1955 to meet the small arms ammunition requirements of Turkish Armed Forces and Security Forces, started operating in 1957.

MKE Gazi Small Arms Ammunition Factory has the competence to produce all cartridge parts ranging from primers to complete rounds. The productions conforms to the NATO standards, military specifications as well as other international standards.

MKE Gazi Small Arms Ammunition Factory also produces cartridge production tools and gauges necessary for the range of cartridges. The Factory is certified with AQAP-2010 and TSE-ISO-EN 9000 Quality Assurance.

The factory production processes are audited and inspected by the factory's own quality control department, as well as the quality inspectors and quality assurance representatives of Turkish Ministry of National Defence.

5.56 mmx45

CARTRIDGE

Ball (SS109)

Cartridge Length	57.4 mm
Cartridge Weight	~ 12.2 g
Velocity (23.7 m)	914.4 ± 12.2 m/sec
Mean Port Pressure	min. 1030 bar (Port+3sd)
Mean Case Mouth Pressure	max. 4450 bar (Port+3sd)
Accuracy (100 m)	S_x and S_y max. 2.2 cm
Bullet Extraction Force	min. 20.4 kgf
Action Time	max. 3 ms
Case Model Number	5.56 mmx45 Case
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Gilding Metal, Steel Core and Lead Core (Lead-Antimony Alloyed)
Primer	5.56 mm Primer, Boxer
Link Type	M27 Link
Type of Propellant	Ball Powder
Weapon to be used	MPT-55, M 16A2, HK 33 E, MINIMI etc.
Bullet Weight	4 g
Ballistic Coefficient (BC)	0.35 (G1)
NATO Design Number	AC/225-141A
Packing	30 Cartridges in a Cardboard Box, 15 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 67500 Cartridges)
Penetration (RHA)	At least 80% of the bullets compeletly penetrate through 3.5 mm steel plate (SAE 1010 or 1020) at a range of 232 meters.

5.56 mmx45

CARTRIDGE

Tracer (L110)

Cartridge Length	57.4 mm
Cartridge Weight	~ 12.5 g
Velocity (23.7 m)	880 ± 12.2 m/sec
Mean Port Pressure	min. 1030 bar (Port+3sd)
Mean Case Mouth Pressure	max. 4450 bar (Port+3sd)
Accuracy	S_x and S_y max. 30 cm at 550 m
Bullet Extraction Force	min. 20.4 kgf
Action Time	max. 3 ms
Tracer	At least 80% of the bullets meet trace quality and trace distance acceptance requirements. (13 m, 140 m, 600 m)
Case Model Number	5.56 mmx45 Case
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Copper Plated Steel Jacket, Lead Core (Lead-Antimony Alloyed), Tracer Composition
Primer	5.56 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	MPT-55, MINIMI, M16A2, FNC, Beretta AR 70/90, G36, L85A2
Bullet Weight	4.134 g
Ballistic Coefficient (BC)	0.40 (G1)
Packing	30 Cartridges in a Cardboard Box, 15 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 67500 Cartridges)

5.56 mmx45

CARTRIDGE

NEW

M193

Cartridge Length	57.4 mm
Cartridge Weight	~11.5 g
Velocity (23.7 m)	964 ± 12 m/sec
Accuracy (100 m)	max. 2.7 cm
Case Model Number	5.56 mmx45 Case
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Lead Core (Lead-Antimony Alloyed)
Primer	5.56 mm Primer, Boxer
Link Type	M27 Link
Type of Propellant	Ball Powder
Weapon to be used	HK 33
Bullet Weight	3.55 ± 0.1 g

5.56 mmx45

CARTRIDGE

Blank

Cartridge Length	56 mm
Cartridge Weight	~ 7 g
Case Material	CuZn28 or CuZn30
Primer	5.56 mm Primer, Boxer
Type of Propellant	Double Base Ball Powder
Weapon to be used	MPT-55, HK33E, MINIMI

5.56 mmx45

CARTRIDGE

Polymer Tip

Cartridge Length	57.4 mm
Cartridge Weight	~ 11.49 g
Velocity (23.7 m)	1005 ± 15 m/sec
Mean Case Mouth Pressure	max. 4450 bar (P+3sd)
Accuracy (100 m)	S_x and S_y max. 3 cm
Bullet Extraction Force	min. 11 kgf
Action Time	max. 3 ms
Case Model Number	5.56 mmx45 Case
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Polymer Type and Lead Core (Lead-Antimony Alloyed)
Primer	5.56 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	MPT-55, M 16A2, HK 33 E, MINIMI etc.
Bullet Weight	3.20 g
Packing	30 Cartridges in a Cardboard Box, 15 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 67500 Cartridges)

5.70 mmx28

CARTRIDGE

NEW

Cartridge Length	40.25 mm
Cartridge Weight	6.81 g
Velocity (23.7m)	570 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3ss)
Bullet Weight	3.55 g
Bullet Material	Gilding Metal, Steel Core and Lead Core (Lead-Antimony Alloyed) Polymer Tip

7.62 mmx51

CARTRIDGE

Ball (M80)

Cartridge Length	71.12 mm
Cartridge Weight	~ 24 g
Velocity (23.7 m)	838 ± 9.1 m/sec
Mean Port Pressure	min. 550 bar
Mean Case Mouth Pressure	max. 3800 bar
Accuracy (100 m)	Mean Radius Max. 3.5 cm
Bullet Extraction Force	min. 27 kgf
Action Time	max. 4 ms
Case Model Number	7.62 mmx51 Case
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Gilding Metal, Lead Core (Lead-Antimony Alloyed)
Primer	7.62 mm Primer, Boxer
Link Type	M13 Link
Type of Propellant	Ball Powder
Weapon to be used	MPT-76, JMK BORA-12, G3, FAL, MG3, L7A2, M60
Bullet Weight	9.65 -0.20 g
Ballistic Coefficient (BC)	0.45 (G1)
NATO Design Number	AC/116-43A
Packing	20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)
Packing (alternative)	500 Cartridges M13 Linked in a M2A1 Metal Box, Two M2A1 Metal Boxes in a Wire Bounded Wooden Box and 45 Wire Bounded Wooden Boxes in a Pallet (Total 45000 Cartridges)

7.62 mmx51

CARTRIDGE

Armour Piercing (M61)

Cartridge Length	71.12 mm
Cartridge Weight	~ 24 g
Velocity (23.7 m)	838 ± 9.1 m/sec
Mean Port Pressure	min. 550 bar
Mean Case Mouth Pressure	max. 3800 bar
Accuracy (100 m)	Mean Radius Max. 3.1 cm
Bullet Extraction Force	min. 27 kgf
Action Time	max. 4 ms
Case Model Number	7.62 mmx51 Case
Case Length	51.18-0.30 mm
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Copper Plated Steel Jacket, Steel Core and Lead Core (Lead -Antimony Alloyed)
Primer	7.62 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	MPT-76, JMK BORA-12, G3, FAL, MG3, L7A2, M60
Bullet Weight	9.45 ± 0.15 g
Ballistic Coefficient (BC)	0.43 (G1)
Packing	20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)
Penetration (RHA)	At Least 80 % of The Bullets Completely Penetrate 10 mm Thickness Mild Steel Plate (SAE 1010 or 1020) at a Range of 91 meters

7.62 mmx51

CARTRIDGE

Tracer (M62)

Cartridge Length	71.12 mm
Cartridge Weight	~ 23.6 g
Velocity (23.7 m)	838 ± 9.1 m/sec
Mean Port Pressure	min. 560 bar
Mean Case Mouth Pressure	max. 3800 bar
Accuracy (100 m)	Mean Radius Max. 4 cm
Bullet Extraction Force	min. 27 kgf
Action Time	max. 4 ms
Tracer	At least 80% of the bullets meet trace quality and trace distance acceptance requirements. (13 m, 140 m, 775 m)
Case Model Number	7.62 mmx51 Case
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Copper Plated Steel Jacket, Lead Core (Lead - Antimony Alloyed), Tracer Composition
Primer	7.62 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	MPT-76, JMK BORA-12, G3, FAL, MG3, L7A2, M60
Bullet Weight	9.2 ± 0.3 g
Ballistic Coefficient (BC)	0.47 (G1)
Packing	20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)

7.62 mmx51

CARTRIDGE

NEW

M118

Cartridge Length	71.12 mm
Cartridge Weight	~ 26 g
Velocity (23.7 m)	784 ± 9 m/sec
Mean Pressure	max. 4450 bar (Port+3sd)
Accuracy (183 m)	Mean Radius Max. 2.7 cm
Bullet Extraction Force	min. 9 kgf
Action Time	max. 4 ms
Case Model Number	7.62 mmx51 Case
Case Length	51.18 -0.30 mm
Case Material	Brass (CuZn28 or CuZn30)
Bullet Material	Gilding Metal, Lead Core (Lead-Antimony Alloyed)
Primer	7.62 mm Primer, Boxer
Link	M13
Type of Propellant	Ball Powder
Weapon to be used	MPT-76, JMK BORA-12
Bullet Weight	~ 11.4 g
Packing	20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)

7.62 mmx51

CARTRIDGE

Blank

Cartridge Length	63.15 mm
Cartridge Weight	~ 13 g
Mean Pressure	max. 2550 kg/cm²
Case Material	CuZn30
Primer	7.62 mm Primer, Boxer
Type of Propellant	Single Base Flake Powder
Link Type	M13 Link
Weapon to be used	MPT-76, G3, MG3
Packing	Carton Box: 20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)
Packing (alternative)	500 Cartridges M13 Linked in a M2A1 Metal Box, Two M2A1 Metal Boxes in A Wire Bounded Wooden Box And 45 Wire Bounded Wooden Boxes in a Pallet (Total 45000 Cartridges)

7.62 mmx51

CARTRIDGE

NEW

Subsonic

Cartridge Length	66.9 mm
Cartridge Weight	~25.2g
Velocity (23.7 m)	305 m/sec
Accuracy (100 m)	Mean Radius Max. 6cm
Bullet Weight	13 g
Bullet Metarial	Gilding Metal, Lead Core(Lead-Antimony Alloyed)

7.62 mmx54

CARTRIDGE

NEW

Ball

Cartridge Length	77.16 mm
Cartridge Weight	~21.8 g
Velocity (23.7 m)	828 m/sec
Accuracy (100 m)	Mean Radius Max. 3.5 cm
Bullet Weight	9.6 g
Bullet Metarial	Gilding Metal, Steel and Lead Core(Lead-Antimony Alloyed)

7.62 mmx54

CARTRIDGE

NEW

Tracer

Cartridge Length	77.16 mm
Cartridge Weight	~21.8 g
Velocity (23.7 m)	808 m/sec
Accuracy (100 m)	Mean Radius Max. 6 cm
Bullet Weight	9.1 g
Bullet Metarial	Gilding Metal,Steel and Lead Core(Lead-Antimony Alloyed)

7.62 mmx39

CARTRIDGE

With Steel Core Cartridge

Cartridge Length	55.60 mm
Cartridge Weight	~ 17.8 g
Velocity (23.7 m)	710 ± 15 m/s
Pressure	max. 2855 kg/cm^2
Accuracy (100 m)	Mean Radius Max. 4.5 cm
Bullet Extraction Force	min. 30.6 kgf
Action Time	max. 4 ms
Case Model Number	7.62 mmx39 Case
Case Material	Brass (CuZn30)
Bullet Material	Tombac, Steel Core
Primer	7.62 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	AK-47 Infantry Rifle
Bullet Weight	7.95 ± 0.1 g
Packing	20 Cartridge in one Carton Box, 36 Carton Box in one M2A1 Metal Box, 56 M2A1 Metal Box on one Pallet, (Total 40320 Cartridges)

7.62 mmx63

CARTRIDGE

Blank

Cartridge Length	62.7 mm
Cartridge Weight	~ 24 g
Case Material	Brass (CuZn30)
Primer	7.62 mm Primer, Boxer
Link Type	M1 Link
Type of Propellant	Single Base Flake Powder
Weapon to be used	0.30 Caliber Infantry Rifle, 0.30 Caliber A4 Machine Gun
Packing	20 Cartridges in a Cardboard Box, 10 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 30000 Cartridges)

8.59 mmx70

CARTRIDGE

NEW

Ball

Cartridge Length	91.86 mm
Cartridge Weight	~21.8 g
Muzzle Velocity	890 ± 10 m/sec
Accuracy (100 m)	Mean Radius Max. 1.5 cm
Bullet Extraction Force	min 30.59 kgf
Case Model Number	8.59 mmx70 Case
Case Material	Brass (CuZn30)
Bullet Weight	16.4 g
Bullet Metarial	Gilding Metal, Lead Core(Lead-Antimony Alloyed)
Primer	Boxer

8.59 mmx70

CARTRIDGE

NEW

Solid

Cartridge Length	92.25 mm
Cartridge Weight	~21.8 g
Muzzle Velocity	890 ± 10 m/sec
Accuracy (100 m)	Mean Radius Max. 1.5 cm
Bullet Extraction Force	min 30.59 kgf
Case Model Number	8.59 mmx70 Case
Case Material	Brass (CuZn30)
Bullet Weight	15.60 g
Bullet Metarial	Brass
Primer	Boxer

7.65 mmx17

PISTOL CARTRIDGE

Ball

Cartridge Length	25 mm
Cartridge Weight	~ 8.33 g
Velocity (10 m)	270 ± 10 m/sec
Mean Pressure	max. 1836 kg/cm^2
Accuracy	max. 9 cm (at 25 m)
Bullet Extraction Force	min. 20 kgf
Case Model Number	7.65 mmx17 Case
Case Length	17.2-0.2 mm
Bullet Type	FMJ, Brass and Lead–Antimony Alloyed
Case Material	Brass (CuZn30)
Primer	7.65 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	7.65 mm Italian Beretta, 7.65 mm Belgium Browning, 7.65 mm MKE Pistols
Bullet Weight	4.55 ± 0.15 g
Packing	25 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 24 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)

9 mmx17

PISTOL CARTRIDGE

Short

Cartridge Length	24.5 mm
Cartridge Weight	~ 9 g
Velocity (10 m)	270 ± 10 m/sec
Mean Pressure	max. 1500 kg/cm^2
Accuracy	max. 9 cm (at 20 m)
Bullet Extraction Force	min. 15 kgf
Case Model Number	9 mmx17 Case
Case Length	17+0.30 mm
Bullet Type	FMJ, Brass and Lead–Antimony Alloyed
Case Material	Brass (CuZn30)
Primer	9 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	9 mmx17 Pistols
Bullet Weight	6 ± 0.1 g
Packing	25 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 24 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)

9 mmx19

PISTOL CARTRIDGE

Parabellum

Cartridge Length	29.69 mm
Cartridge Weight	~ 12.15 g
Velocity	370 ± 10 m/sec (at 16 m)
Velocity Standard Deviation	max. 9 m/sec
Mean Case Mouth Pressure	max. 2850 bar
Accuracy	Mean radius max. 7.6 cm (at 46 m)
Bullet Extraction Force	min. 20.4 kgf
Case Model Number	9 mmx19 Parabellum Case
Bullet Type	FMJ, Bullet Cup Brass (CuZn30), Bullet Core Lead-Antimony Alloyed
Case Material	Brass (CuZn30)
Primer	9 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	9 mm Belgium Browning, 9 mm P1 German Walther, 9 mm PM 12S Italian Beretta (Light Machine Gun), 9 mm 92F Italian Beretta 9 mm CZ 75, 9 mm Ruger, 9 mm Astra, 9 mm MP-5 Submachine Gun
Bullet Weight	8 ± 0.075 g
Packing	50 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 12 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)
Packing (alternative)	50 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 12 Cardboard Boxes in a Pvc Bag, 3 Pvc Bags in a Wooden Box, 50 Wooden Boxes in a Pallet (Total 90000 Cartridges)

9 mmx19

PISTOL CARTRIDGE

Blank

Cartridge Length	29.3 mm
Cartridge Weight	~ 4.7 g
Case Material	CuZn30
Primer	9 mm Primer, Boxer
Type of Propellant	Double Base Flake Powder
Weapon to be used	9 mm MP-5 Submachine Gun
Packing	50 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 12 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)

9 mmx19

PISTOL CARTRIDGE (115 gr)

NEW

Cartridge Length	29.69 mm
Cartridge Weight	~12.15g
Velocity	370 ± 10 m/sec
Accuracy (46 m)	Mean Radius Max. 7.6 cm
Mean Case Mouth Pressure	max. 2850 bar
Case Model Number	9mm x 19 Case
Bullet Metarial	FMJ, Brass (CuZn30), Lead Core(Lead-Antimony Alloyed)

9 mmx20

PISTOL CARTRIDGE

Long

Cartridge Length	27.5 mm
Cartridge Weight	~ 11.35 g
Velocity (10 m)	340 ± 10 m/sec
Mean Pressure	max. 2000 kg/cm^2
Accuracy	max. 9 cm (at 30 m)
Bullet Extraction Force	min. 15 kgf
Case Type	9 mmx20 Case
Case Length	19.9 + 0.30 mm
Case Material	Brass (CuZn30)
Primer	9 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	9 mmx20 Pistols
Bullet Type	FMJ, Brass and Lead–Antimony Alloyed
Bullet Weight	7.14±0.1 g
Packing	50 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 12 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)

9.65 mm (.38 cal)

PISTOL CARTRIDGE

	Ball	Special (FMJ)
Cartridge Length	30.6 mm	38.86 mm
Cartridge Weight	~ 15.7 g	~ 15 g
Velocity (10 m)	180 ± 10 m/sec	260 ± 10 m/sec
Mean Pressure	max. 1500 kg/cm^2	max. 950 kg/cm^2
Accuracy	max. 9 cm (at 30 m)	max. 4 cm (at 25 m)
Bullet Extraction Force	min. 15 kgf	min. 20 kgf
Case Model Number	9.65 mm Normal Case	9.65 mm Special Case
Case Length	19.23+0.25 mm	29.75-0.25 mm
Bullet Type	FMJ, Brass and Lead - Antimony Alloyed	FMJ, Gilding Metal and Lead - Antimony Alloyed
Case Material	Brass (CuZn30)	Brass (CuZn30)
Primer	9 mm Primer, Boxer	9 mm Primer, Boxer
Type of Propellant	Ball Powder	Ball Powder
Weapon to be used	9.65 mm Colt and 9.65 mm Smith Wesson Revolver Pistols	9.65 mm Colt and 9.65 mm Smith Wesson Special Pistols
Bullet Weight	11.5±0.1 g	~10.2 g
Packing	25 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 24 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)	50 Cartridges in a Pvc Separator, a Pvc Seperator in a Cardboard Box, 12 Cardboard Boxes in a Pvc Bag, 5 Pvc Bags in a Wooden Box, 30 Wooden Boxes in a Pallet (Total 90000 Cartridges)

12.7 mmx99 (.50 cal)

CARTRIDGE

M8

Cartridge Length	138.43 mm
Cartridge Weight	~ 114 g
Velocity (23.7 m)	887 ± 9.2 m/sec
Velocity Standard Deviation	11 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3sd)
Accuracy (232.4 m)	Mean Radius Max. 12.93 cm
Bullet Extraction Force	min. 90 kgf
Case Model Number	12.7 mmx99 Case
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Steel Core, Chemicals
Primer	12.7 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	M2, M3, M82A1
Packing	Each Single Cartridge in a Carton Tube, 20 Cartridges in a Pvc Bag, 4 Pvc Bags in a M2A1 Metal Box, 2 M2A1 Metal Boxes in a Wire Bounded Wooden Box, 45 Wooden Boxes on a Pallet (Total 7200 Cartridges)
Penetration (RHA)	At least 80 % of the bullets completely perforate DIN 40CrMoV4-6 steel plate 22.2 mm in thickness with Rockwell C30-C45 hardness at 91 m distance from barrel.
Bullet Weight	43.60 ±0.2 g

12.7 mmx99 (.50 cal)

CARTRIDGE

M17

Cartridge Length	138.43 mm
Cartridge Weight	~ 114 g
Velocity (23.7 m)	872 ± 12 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3sd)
Accuracy (232.4 m)	Mean Radius Max. 21.54 cm
Bullet Extraction Force	min. 90 kgf
Tracer	At least 90 % of tracer bullets exhibit a continuous trace of satisfactory quality for at least 2.5 seconds.
Case Model Number	12.7 mmx99 Case
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Lead, Tracer Composition
Primer	12.7 mm Primer, Boxer
Link Type	M9 Link
Type of Propellant	Cylindrical Powder
Weapon to be used	M2, M3
Bullet Weight	41.7 g
Packing	120 Cartridges in a M2A1 Metal Box, Two M2A1 Metal Boxes in a Wire Bounded Wooden Box and 45 Wire Bounded Wooden Boxes in a Pallet. (Total 10800 Bulk Cartridges)
Packing (alternative)	100 M9 Linked Cartridges in a M2A1 Metal Box, Two M2A1 Metal Boxes in a Wire Bounded Wooden Box, 45 Wire Bounded Wooden Boxes in a Pallet. (Total 9000 M9 Linked Cartridges)

12.7 mmx99 (.50 cal)

CARTRIDGE

M33

Cartridge Length	138.43 mm
Cartridge Weight	~ 115 g
Velocity (23.7 m)	887 ± 9.2 m/sec
Velocity Standard Deviation	max. 11 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3sd)
Accuracy (232.4 m)	Mean Radius Max. 12.93 cm
Bullet Extraction Force	min. 90 kgf
Case Model Number	12.7 mmx99 Case
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Steel Core, Borax
Primer	12.7 mm Primer, Boxer
Link Type	M9 Link
Type of Propellant	Ball Powder
Weapon to be used	M2 - M3
Bullet Weight	42.87-1.61 g
Packing	120 Cartridges in a M2A1 Metal Box, Two M2A1 Boxes in a Wire Bounded Wooden Box and 45 Wire Bounded Wooden Boxes in a Pallet. (Total 10800 Bulk Cartridges)
Packing (alternative)	100 M9 Linked Cartridges in a M2A1 Box, Two M2A1 Metal Boxes in a Wire Bounded Wooden Box, 45 Wire Bounded Wooden Boxes in a Pallet. (Total 9000 M9 Linked Cartridges)

12.7 mmx99 (.50 cal)

CARTRIDGE

Blank

Cartridge Length	99.7 mm
Cartridge Weight	~ 55.1 g
Case Material	Brass (CuZn30)
Primer	12.7 mm Primer, Boxer
Link Type	M9, M15A2
Type of Propellant	Single base flake powder
Weapon to be used	M2, M3, M85
Packing	100 M9 Linked Cartridges in a M2A1 Metal Box, 2 M2A1 Metal Boxes in a Wire Bounded Wooden Box, 80 M15A2 Linked Cartridges in a M2A1 Metal Box, 2 M2A1 Metal Boxes in a Wire Bounded Wooden Box

Solid Sniper

Cartridge Length	138.43 mm
Cartridge Weight	~ 122 g
Velocity (24 m)	845 ± 9.2 m/sec
Mean Pressure	max. 4500 bar (P+3ss)
Accuracy (232.4 m)	Mean Radius Max. 1 MoA
Bullet Extraction Force	min. 90 kgf
Case Model Number	12.7 mmx99 Case
Case Material	Brass (CuZn30)
Bullet Material	Brass
Primer	12.7 mm Primer, Boxer
Type of Propellant	Ball Powder
Weapon to be used	.50 cal. Sniper Rifles
Bullet Weight	51.76 +0.6 g
Packing	10 Cartridges in a Cardboard Box

12.7 mmx99

CARTRIDGE

M2 AP

NEW

Cartridge Length	138.43 mm
Cartridge Weight	~114 g
Velocity (23.7 m)	887 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3ss)
Accuracy (100 m)	Sx and Sy Max. 5.45 cm
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Steel Core
Weapon to be used	M2, M3, M82A1
Bullet Weight	42.87 g
Penetration	The Bullets Will Completely Penetrate 22.2 mm Thickness Steel Plate (DIN 40CrMoV4-6, Rockwell C30-C45) at a Range of 91 meters

12.7 mmx99

CARTRIDGE

M8 API Special

NEW

Cartridge Length	138.43 – 1.27 mm
Cartridge Weight	~114g
Velocity (23.7 m)	887 ± 9.2 m/sec
Mean Case Mouth Pressure	max. 4500 bar (P+3sd)
Accuracy (100 m)	Mean Radius Max. 1 MOA
Bullet Extraction Force	min. 90 kgf
Case Material	Brass (CuZn30)
Bullet Material	Gilding Metal, Steel Core, Incendiary Composition
Bullet Weight	43.6 ± 0.2 g
Weapon to be used	M2, M3, M82A1
Primer	12.7 mm Primer, Boxer
Penetration	At Least 80 % of The Bullets Completely Penetrate 10 mm Thickness Mild Steel Plate (DIN 40CrMoV4-6, Rockwell C30-C45) at a Range of 91 meters

20 mmx102

CARTRIDGE

	HEI (M56 A3)	HEI-T (M56 A3)
Cartridge Length	max. 168.02 mm	max. 168.02 mm
Cartridge Weight	~ 258 g	~ 263 g
Velocity (23.7 m)	1030±15 m/sec	1030±15 m/sec
Velocity Standard Deviation	max. 12.19 m/sec	max. 12.19 m/sec
Mean Pressure	max. 4254 kg/cm^2	max. 4254 kg/cm^2
Accuracy (232.4 m)	max. 16.15 cm	max. 26.92 cm
Bullet Extraction Force	499 -1179 kgf	499 -1179 kgf
Action Time	max. 4 ms	max. 4 ms
Case Model Number	M103	M103
Case Material	Brass (CuZn30)	Brass (CuZn30)
Bullet Shell Material	Steel (MKE - Ç 1040)	Steel (MKE - Ç 1040)
Fuze	M505 A3	M505 A3
Primer	M52 A3 B1 Electrical Primer	M52 A3 B1 Electrical Primer
Link Type	M12 or M14 Link	M12 or M14 Link
Type of Propellant	Ball Powder	Ball Powder
Weapon to be used	M39, M61, M197	M39, M61, M197
Bullet Weight	101 g	103 g

20 mmx102

CARTRIDGE

	TP (M55 A2)	TP-T (M55 A2)
Cartridge Length	max. 168.02 mm	max. 168.02 mm
Cartridge Weight	~255 g	~ 254 g
Velocity (23.7 m)	1030±15 m/sec	1030±15 m/sec
Standard Deviation	max. 12.19 m/sec	max. 12.19 m/sec
Mean Pressure	max. 4254 kg/cm^2	max. 4254 kg/cm^2
Accuracy (232.4 m)	max. 16.15 cm	max. 26.92 cm
Bullet Extraction Force	499 -1179 kgf	499 -1179 kgf
Action Time	max. 4 ms	max. 4 ms
Case Model Number	M103	M103
Case Material	Brass (CuZn30)	Brass (CuZn30)
Bullet Shell Material	Steel (MKE - Ç 1025)	Steel (MKE - Ç 1025)
Bullet Fuze Type	Aluminium Fuze	Aluminium Fuze
Primer	M52 A3 B1 Electrical Primer	M52 A3 B1 Electrical Primer
Type of Propellant	Ball Powder	Ball Powder
Weapon to be used	M39, M61, M197	M39, M61, M197
Bullet Weight	100 g	95 g

20 mmx102

CARTRIDGE

NEW

MK149 GFI APDS

Cartridge Length	168 mm
Velocity (23.7 m)	1036 m/sec
Accuracy	Average diameter, 10.3 cm at 100 m
Weapon to be used	M61, M197 ve MK15 PHALANX Weapon Systems
Bullet Weight	93 ±3 g
Primer	M52 A3 B1 Electrical Primer

20 mmx102

CARTRIDGE

NEW

API

Cartridge Length	168 mm
Velocity (23.7 m)	1030 m/sec
Bullet Weight	100 g
Accuracy (232m)	Mean radius max 16.15 cm
Weapon to be used	M39, M61
Primer	M52 A3 B1 Electrical Primer

20 mmx110

CARTRIDGE

	HEI (MKE MOD 1102)	HEI-T (MKE MOD 1109)
Cartridge Length	max. 178 mm	max. 178 mm
Cartridge Weight	~ 220 g	~ 223 g
Velocity (23.7 m)	945 ± 15.24 m/sec	945 ± 15.24 m/sec
Velocity Standard Deviation	max. 12.19 m /sec	max. 12.19 m /sec
Mean Pressure	max. 4254 kg/cm^2	max. 4254 kg/cm^2
Accuracy (232.4 m)	max. 16.15 cm	max. 26.92 cm
Bullet Extraction Force	min. 250 kgf	min. 250 kgf
Case Model Number	MKE MOD 1001 Case	MKE MOD 1001 Case
Case Length	110.31 - 0.51 mm	110.31 -0.51 mm
Case Material	Brass (CuZn30)	Brass (CuZn30)
Bullet Shell Material	Steel (MKE - Ç 1040)	Steel (MKE - Ç 1040)
Bullet Fuze Type	M505 A3 Fuze	M505 A3 Fuze
Primer	12.7 mm (.50 cal) Primer	12.7 mm (.50 cal) Primer, Boxer
Type of Propellant	20 mm Ball Powder	20 mm Ball Powder
Weapon to be used	20 mm MK 4 Weapon	20 mm MK 4 Weapon

20 mmx110

CARTRIDGE

	TP (MKE MOD 1101)	TP-T (MKE MOD 1107)
Cartridge Length	max. 178 mm	max. 178 mm
Cartridge Weight	215 ±10 g	~ 220 g
Velocity (23.7 m)	945 ±15.24 m/sec	945 ±15.24 m/sec
Velocity Standard Deviation	max. 12.19 m/sec	max. 12.19 m/sec
Mean Pressure	max. 4254 kg/cm^2	max. 4254 kg/cm^2
Accuracy (232,4 m)	max 16.15 cm	max. 26.92 cm
Bullet Extraction Force	min. 250 kgf	min. 250 kgf
Case Model Number	MKE MOD 1001 Case	MKE MOD 1001 Case
Case Length	110.31 -0.51 mm	110.31 -0.51 mm
Case Material	Brass (CuZn30)	Brass (CuZn30)
Bullet Shell Material	Steel (MKE - Ç 1025)	Steel (MKE - Ç 1025)
Bullet Fuze Type	Aluminium Fuze	Aluminium Fuze
Primer	12.7 mm (.50 cal) Primer	12.7 mm (.50 cal) Primer, Boxer
Type of Propellant	20 mm Ball Powder	20 mm Ball Powder
Weapon to be used	20 mm MK 4 Weapon	20 mm MK 4 Weapon

0.40 Cal.

CARTRIDGE

SW

Cartridge Length	28.8 mm
Cartridge Weight	16.7 g
Velocity	295 m/s
Accuracy (46 m)	Mean Radius 21 cm
Bullet Weight	11.6 g
Bullet Material	Gilding Metal, Lead

0.45 Cal.

CARTRIDGE

AUTO

Cartridge Length	32 mm
Cartridge Weight	21 g
Velocity	260 m/s
Accuracy (46m)	Mean Radius 19 cm
Bullet Weight	14.95 g
Bullet Material	Gilding Metal, Lead

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

AMMUNITION

25 mm Ammunition
35 mm Anti-Aircraft Ammunition
40 mm x 46 Low Velocity Grenade Launcher Cartridges
40 mm x 53 High Velocity Automatic Grenade Launcher Cartridges
60 mm Mortar Ammunition
81 mm Mortar Ammunition
120 mm Mortar Ammunition
105 mm Tank Guns **&** Howitzer Ammunition
120 mm Tank Ammunition
155 mm & 8" Gun **&** Howitzer Ammunition
155 mm Extended Range Howitzer Ammunition
Fuzes for Ammunition
250 lb. MK 81 GP Aircraft Bomb
1000 lb. MK 83 GP Aircraft Bomb
500 lb. MK 82 GP Aircraft Bombs
2000 lb. MK 84 GP Aircraft Bombs
500 lb. MK 82-T Thermobaric Aircraft Bombs
500 lb. MK 82 Low-Collateral Aircraft Bombs
NEB / NEB-T Penetrator Bomb
4.5 lb. & 25 lb. Aircraft Training **&** Practice Bombs
UAV Ammunition
Shaped Demolition Charges
Ignition Charges and Primers
Block Demolition Charges
Saluting Charges
Hand Grenades
2.75" Rocket Warheads
Self-Defense Munition (MKE MOD 38)
MKE MOD 51 (M82) Primer
Propelling Charges for Howitzer Ammunition

MKE AMMUNITION FACTORY
KIRIKKALE

MKE Ammunition Factory is the oldest factory to have been founded in the history of the Turkish Republic. It is one of the main suppliers of Turkish Armed Forces, producing different types of ammunitions. It continues its operations within three major production divisions i.e. the projectile, fuze and LAP departments.

MKE Ammunition Factory heavily produces 25 mm and above grenade launcher cartridges, mortar ammunitions, gun ammunitions, howitzer ammunitions, rocket warheads, aircraft bombs, hand grenades, ammunition fuzes and demolition blocks.

25 mm
Ammunition

	M793 TP-T	M792 HEI-T	M791 APDS-T
Length	Max. 219.2 mm	Max. 219.2 mm	Max. 223 mm
Weight	~500 g	~500 g	~500 g
Projectile	Steel	Steel	Pusher (Al), Penetrating assbly. (Tungsten), Sabot (Plastic)
Filler	-	AXM-001	-
Detonator	M115 Percussion	M115 Percussion	M115 Percussion
Propellant Type	Double base	Double base	Single base
Propellant Weight	~0.089 kg (It is readjusted again for each propellant lot by shooting)	~0.089 kg (It is readjusted again for each propellant lot by shooting)	~0.096 kg (It is readjusted again for each propellant lot by shooting)
Net Explosive	0.095 kg/shot	0.127 kg/shot	0.102 kg/shot
Fuze	-	M758 self-destruct (If it doesn't crush any target, it will burst after 6.2 s)	-
Cartridge Case	10B30 steel	10B30 steel	10B30 steel
Range	~6000 m (at 650 milyem elevation)	If it doesn't crush any target, it will burst between 3800 - 4500 m	~17500 m (at 746 milyem elevation)
Muzzle Velocity	1100±25 m/s	1100±25 m/s	1345±20 m/s
Packing	55 rounds / hermetic box		
Weapon to be Used	M242, KBA, M811, GAV-12		

35 mm
Anti-Aircraft Ammunition

	MSD 020 HE-I	ULD 034 TP-T	WK MAD 356 Practice
Complete Round Weight	1570 g	1570 g	1490 g
Complete Round Length	387 mm	387 mm	387 mm
Cartridge Case	672 g	672 g	228 g
Projectile Weight	550 g	550 g	372 g
Fuze	KZD 242	Dummy fuze	Dummy fuze
Self-destruction	11+2 seconds	-	-
Filler	Hexal	-	-
Filler Weight	112 g	-	-
Primer	WK ZSD 263	WK ZSD 263	-
Propellant	NC.01.T.35. OE.M.SMS	NC.01.T.35. OE.M.SMS	-
Propellant Weight	335 g	335 g	-
Muzzle Velocity	1175 m/s	1175 m/s	-
Maximum Range	11000 m	11000 m	-
Effective Range	6000 m	6000 m	-
Weapon to be Used	KDP (353 MK) gun	KDP (353 MK) gun	KDP (353 MK) gun
Packing	1 round / fiber container	25 fiber containers / wooden box	

40 mm x 46
Low Velocity Grenade Launcher Cartridges

	MKE MOD 60 HE	TP-T Target Practice W/Tracer	TP	MKE MOD 63 GE Tear Gas
Complete Round Length	~100 mm	~101 mm	~101 mm	~106 mm
Complete Round Weight	~210 g	~222 g	~215 g	~230 g
Projectile Body	Steel	Aluminum	Aluminum	Aluminum
Tracer	-	Visible for min. 1.5 s at flight	-	-
Cartridge Case	Aluminum	Aluminum	Aluminum	Aluminum
Cartridge Case Length	46.15 mm	-	-	46.15 mm
Fuze	M551, FM551, K502	-	-	-
Set Up Distance	14-27 m	-	-	-
Safety Distance From Muzzle	13.4±0.3 m	-	-	-
Filler	TNT or Comp B	-	-	CS (Lachrymatory agent)
Filler Weight	~35 g	-	-	~55 g
Muzzle Velocity	76±3 m/s	75±5 m/s	75±5 m/s	75±5 m/s
Propellant	M9	-	-	M9
Primer	M42	9 mm pistol cartridge primer, Boxer	9 mm pistol cartridge primer, Boxer	-
Maximum Range	~400 m	~400 m	~400 m	~400 m
Impact Radius	Kills @5m, hurts @10m	-	-	-
Packing	72 cartridges and 12 bandoliers / wooden box	72 cartridges / hermetic box		
Weapon to be Used	M79 Grenade Launcher, M203 Launchers or T40			
Smoke Release	-	-	-	min 15 s

40 mm x 53

High Velocity Automatic Grenade Launcher Cartridges

	MKE MOD 77 TP	MKE MOD 78 HE	MKE MOD 100 PPHE
Complete Round Weight	~380 g	~380 g	~388 g
Complete Round Length	max 112 mm	max 112 mm	max 112 mm
Muzzle Velocity	~250 m/s	~250 m/s	~245 m/s
Maximum Range	~2000 m	~2000 m	~2000 m
Accuracy	max 1x1 mils	max 1x1 mils	max 1x1 mils
Filler	-	Comp A5	Comp A5
Body Type	Aluminum (blue anodized coating)	Pre-shaped pre-fragmented + fragmented disc	Pre-shaped and pre-fragmented
Fragment Amount	-	min 500	min 500
Linkage	M16A2, MKE MOD 94 or equivalent	M16A2, MKE MOD94 or equivalent	M16A2, MKE MOD94 or equivalent
Propellant	M2	M2	M2
Purpose of Use	Target practice	Anti-personnel and soft targets	Air-burst Anti-personnel
Impact Radius	-	5 m	5 m
Fuze	-	MKE MOD 79 PD Fuze	ASELSAN Programmable Electronic Fuze
Safety Distance From Muzzle	-	18 m	18 m
Weapon to be Used	MK-19 or equivalent Automatic Grenade Launcher		MK-19 or equivalent AGL with Air Bursting Weapon Upgrade Kit
Packing	48 cartridges / hermetic box		

60 mm Mortar Ammunition

	M49 A2 HE	MKE MOD 257 TP	MKE MOD 260 Pre-Fragmented	MKE MOD 256 Training
Complete Round Weight	~1421 g	~1421 g	~1355 g	~1365 g
Complete Round Length	~243 mm	~243 mm	~244 mm	~243 mm
Fuze	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 or MKE MOD 502 (dummy)
Filler	TNT	Sorel cement	Comp. B	Sand+wood chips
Filler Weight	~170 g	~170 g	~145 g	-
Ignition Cartridge	M5A1	M5A1	M5A1	M5A1 (inert)
Primer	M32	M32	M32	M32 (inert)
Muzzle Velocity	~158 m/s	~158 m/s	~158 m/s	-
Maximum Range	~1814 m	~1814 m	~1712 m	-
Impact Diameter	~13 m	-	~20 m	-
Propellant	M3A1, max 4 propellant increments	M3A1, max 4 propellant increments	M3A1, max 4 propellant increments	-
Packing	One round / fiber container 10 containers / wooden box			
Weapon to be Used	60 mm Commando Mortar			-

81 mm Mortar Ammunition

	MKE MOD 214 HE-Long Range	MKE MOD 238 Target Practice Long Range	MKE MOD 239 Training Long Range	M301 A2 Illuminating
Complete Round Weight	~4820 g	~4820 g	~ 4580 g	~4863 g
Complete Round Length	~500 mm	~500 mm	~ 500 mm	~571 mm
Fuze	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 (Dummy)	DM 93 or M9813 A1
Filler	TNT	Sorel Cement	Sand + wood chips	Illuminating material
Filler Weight	~800 g	-	-	-
Primer	M34	M34	M34 (Inert)	M34
Propellant	M8 Leaf propellant block, max 6 increments	M8 Leaf propellant block, max 6 increments	-	M8 Leaf propellant block, max 4 increments
Fin	MKE MOD 19	MKE MOD 19	MKE MOD 19	MKE MOD 19
Ignition Cartridge	MKE MOD 30	MKE MOD 30	MKE MOD 30 (Inert)	MKE MOD 30
Muzzle Velocity	~330 m/s	~330 m/s	-	~173 m/s
Maximum Range	~5800 m	~5800 m	-	~2100 m
Impact Diameter	~30 m	-	-	-
Packing	One round / fiber container 4 containers / wooden box			One round / fiber container 3 containers / wooden box
Weapon to be Used	TOSAM UT-1 and 81 mm UT-1 Mortar		-	TOSAM UT-1 and 81 mm UT-1 Mortar

	M43 A1 B1 HE	MKE MOD 273 Target Practice	MKE MOD 216 Training
Complete Round Weight	~3253 g	~3253 g	~3140 g
Complete Round Length	~338 mm	~338 mm	~338 mm
Fuze	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 or MKE MOD 502	AZDM 111 A2 (Dummy)
Filler	TNT	Sorel cement	Sand + wood chips
Filler Weight	~ 548 g	~550 g	-
Primer	M34	M34	M34 (Inert)
Propellant	M1A1, max 6 increments	M1A1, max 6 increments	-
Propellant Weight	45 g	45 g	-
Fin	M3	M3	M3
Ignition Cartridge	MKE MOD 29	MKE MOD 29	MKE MOD 29 (Inert)
Muzzle Velocity	~213 m/s	~213 m/s	-
Maximum Range	~3000 m	~3000 m	-
Impact Diameter	~20 m	-	-
Packing	One round / fiber container 4 containers / wooden box		
Weapon to be Used	M1 and M29 Mortars	M1 and M29 Mortars	-

120 mm
Mortar Ammunition

	MKE MOD 209 RIFLED HE	MKE MOD 228 RIFLED TP	MKE MOD 250 RIFLED SMOKE HC	MKE MOD 236 A1 RIFLED ILLUM.	MKE MOD 227 RIFLED PRACTICE	MKE MOD 308 SMOOTHE BORE HE
Complete Round Weight	~18000 g	~18000 g	~18000 g	~17000 g	~17000 g	~15900 g
Complete Round Length	~827 mm	~827 mm	~827 mm	~824 mm	~827 mm	~817 mm
Fuze	M557 MKE MOD 124 MKE MOD 134 MKE MOD 92	M557 MKE MOD 124 MKE MOD 134 MKE MOD 92	MKE MOD 125 MKE MOD 145	MKE MOD 124 or DM93	M73 (Dummy)	MKE MOD 502 or AZDM 111 A2
Filler	TNT	Sorel cement	HC	Illuminating material	Sand+wood chips	TNT
Filler Weight	~4.24 kg	-	-	-	-	~2.85 kg
Illumination/Smoke	-	-	Min 60 s	Min 60 s	-	-
Muzzle Velocity	~365 m/s	~365 m/s	~365 m/s	~365 m/s	-	~440 m/s
Maximum Range	~8180 m	~8180 m	~8180 m	~8180 m	-	~10000 m
Impact Diameter	~60 m	-	-	-	-	-
Ignition Cartridge	MKE MOD 37	MKE MOD 37	MKE MOD 37	MKE MOD 37	MKE MOD 37 (inert)	-
Propellant	Leaf Propellant, max 10 propellant inc.					Horseshoe prop.
Packing	1 round fiber container 2 fiber containers / wooden box					
Weapon to be Used	TOSAM HY-12 and 120 mm HY1-12 Rifled Mortars				-	120 mm Smoothe Bore Mortar

105 mm
Tank Guns & Howitzer Ammunition

	TANK GUN HE MKE MOD 233	TANK GUN TP MKE MOD 234	HOWITZER HE M1	105/35 MM MOD 270 SUBCALIBER AMMUNITION
Complete Round Weight	~ 24505 g	~ 24125 g	~ 19000 g	~ 1570 g
Complete Round Length	~ 1028 mm	~ 1028 mm	~ 790 mm	~ 387 mm
Cartridge Case	MKE MOD 26	MKE MOD 26	M14	-
Projectile Weight	-	-	-	550 g
Filler	TNT	Sorel cement	TNT	-
Filler Weight	~1.99 kg	-	~1.98 kg	-
Fuze	M557 MKE MOD 92 MKE MOD 134 MKE MOD 135	M73 (dummy fuze)	M557 MKE MOD 92 MKE MOD 134 MKE MOD 135	Dummy fuze
Primer	-	-	-	MKE MOD 67
Propellant	M1	M1	M67 Dualgrain	NC.01.T.35. OE.M.SMS
Propellant Weight	~3 kg	~3 kg	~1,24 kg	335 g
Muzzle Velocity	~683 m/s	~683 m/s	~465 m/s	1175 m/s
Maximum Range	~11000 m	~11000 m	~11000 m	11000 m
Packing	1 round / fiber container, 2 fiber containers / wooden box			1 round / fiber container, 25 fiber containers / wooden box
Weapon to be Used	Leopard 1/M48T5 tanks with L7A3 cannon, M48A5 tank with M68 cannon	Leopard 1/M48T5 tanks with L7A3 cannon, M48A5 tank with M68 cannon	M101/M101A1 howitzers with M2A1/M2 A2 cannons, M52/M52A1 howitzers with M49 cannon	35 mm Barrel placed in 105 mm Tank Gun

120 mm Tank Ammunition

	MKE MOD 300 HE-T	MKE MOD 301 TP-T	MKE MOD 310 HEAT-MP-T	MKE MOD 290 APFSDS-T	MKE MOD 291 TPCSDS-T	MKE MOD 292 HIGH PRESSURE
Complete Round Weight	~27500 g	~27500 g	~25000 g	~ 20000 g	~ 18300 g	~ 22000 g for L-44 ~ 22200 g for L-55
Complete Round Length	~984 mm	~984 mm	~984 mm	~ 984 mm	~ 925 mm	~ 933.5 mm
Pressure	max 3200 bar	max 3200 bar	max 3200 bar	-	-	6410-6900 bar for L-44 7030-7430 bar for L-55
Cartridge Case	Combustible case	Combustible case	Combustible case	Combustible case	Combustible case	Combustible case
Filler	TNT	Sorel cement	RDX	-	-	-
Filler Weight	4240 g	4200 g	1760 g	-	-	-
Fuze	MKE MOD 305	MKE MOD 305	-	-	-	-
Propellant	CEP-2 Doublebase	CEP-2 Doublebase	CEP-2 Doublebase	NC-NG Doublebase	NC-NG Doublebase	NC-NG Doublebase
Muzzle Velocity	870 m/s	870 m/s	925 m/s	1705±15 m/s	1730 m/s	-
Effective Range	~ 2000 m	-	~ 2000 m	~ 2000 m	~ 2000 m	-
Accuracy	max 1x1 artillery mils (@1000 m)	-	max 0.3x0.3 artillery mils (@1000 m)	-	-	-
Penetration	-	-	400 mm (On 225 mm thick plate placed at 200 m with 34° inclination)	658 mm (on NATO 70° steel shell)	-	-
Packing	1 round /hermetic box 20 hermetic boxes/pallet					
Weapon to be Used	44 caliber M60T and Leopard 2A4		NATO 120mm smooth-bore cannons, L-44 and L-55 (M60 A1 Tank, L-44 (Leopard 2), L-55 (Leopard 2 A6, Altay))			

155 mm & 8"
Gun & Howitzer Ammunition

	155 mm GUN M101 HE	155 mm HOWITZER M107 HE	155 mm HOWITZER TP MKE MOD 272	8" HOWITZER M106 HE
Weight w/Lifting Plug	~43125 g	~42927 g	~42927 g	~91106 g
Length w/ Lifting Plug	~681 mm	~681 mm	~681 mm	~872 mm
Fuze	MKE MOD 92, MKE MOD 134, MKE MOD 135, M557	MKE MOD 92, MKE MOD 134, MKE MOD 135, M557, M572, M739	MKE MOD 92, MKE MOD 134, MKE MOD 135, M557, M572, M739	MKE MOD 92, MKE MOD 134, MKE MOD 135, M557
Filler	TNT	TNT	Sorel Cement	TNT
Filler Weight	~6.6 kg	~6.6 kg	~6.6 kg	~16.5 kg
Propellant Charge	M19	M4A2	M4A2	-
Propellant	M6	M1	M1	M1
Muzzle Velocity	~640 m/s	~564-684 m/s (w/different howitzers)	~564-684 m/s (w/different howitzers)	~594 m/s
Maximum Range	23500 m	~14600-18100 m (w/different howitzers)	~14600-18100 m (w/different howitzers)	16800 m
Supp. Charge	TNT	TNT	-	TNT
Weapon to be Used	M2 howitzer w/M2 cannon	M109A1, M109A1B1, M109A2, M109A3, M198, PANTER and FIRTINA Howitzer	M109A1, M109A1B1, M109A2, M109A3, M198, PANTER and FIRTINA Howitzer	M2, M2A1 M2A1E1, M47

155 mm
Extended Range Howitzer Ammunition

	MKE MOD 274 HEER	MKE MOD 276 TRAINING	MKE MOD 277 PRACTICE	MKE MOD 281 TP-ER
Weight w/Lifting Plug	~45350 g	~44290 g	~45500 g	~45459 g
Length w/ Lifting Plug	~950 mm	~950 mm	~950 mm	~950 mm
Fuze	MKE MOD 92, MKE MOD 134, MKE MOD 135, M582A1, M564, M557, M739, M739A1, AS7250	M73 Dummy	M73 Dummy	MKE MOD 92, MKE MOD 134, MKE MOD 135, M564, M557, M582A1, M739 M739A1, AS7250
Filler	TNT	Sand and Wood Chips	Sorel Cement	Sorel Cement
Filler Weight	~10.5 kg	~10.5 kg	~10.5 kg	~10 kg
Propellant Charge	Modular Charge (3 to 6 modules)	-	Modular Charge (3 to 6 modules)	Modular Charge (3 to 6 modules)
Muzzle Velocity	~945 m/s	-	-	~945 m/s
Maximum Range	~39000 m	-	~31554 m	~39000 m
Base Bleed	Active	Inert	Inert	Active
Supp. Charge	TNT	-	-	TNT
Dispersion [at 29250 m (%75 of max. range)]	Fırtına : %0.64 Panter : %0.74	-	-	-
Weapon to be Used	FIRTINA and PANTER Howitzers or equal 52 cal. weapon systems	-	FIRTINA and PANTER Howitzers or equal 52 cal. weapon systems	FIRTINA and PANTER Howitzers or equal 52 cal. weapon systems

Mechanical Fuzes

	MKE MOD 45 HAND GRENADE FUZE	MKE MOD 47 HAND GRENADE FUZE	MKE MOD 49 HAND GRENADE FUZE
Fuze Function	Pyrotechnic delayed detonation	Pyrotechnic delayed detonation	Pyrotechnic delayed detonation
Body Material	Die Casting Zinc Alloy	Polycarbonate Plastic	Die Casting Zinc Alloy
Weight	~ 85 g	~85 g	~85 g
Length	95 mm	94.6 mm	94.6 mm
Delay Time	3,90-5,20 s	3,90-5,20 s	3,90-5,20 s
Primer	M42 Percussion primer	M42 Percussion primer	M42 Percussion primer
Thread	W18x1''/12 or 0,5625''-12UNC-1A	W18x1''/12 or 0,5625''-12UNC-1A	W18x1''/12 or 0,5625''-12UNC-1A
Ammunition Used	MK2 Defence Hand Grenade	MK2 MOD 46 Practice Hand Grenade	MKE MOD 48 Offensive Hand Grenade

	MKE MOD 92 MECHANICAL ARTILLERY FUZE	M557 MECHANICAL ARTILLERY FUZE
Fuze Function	Mechanical, PD-Delay (0.05 s)	Mechanical, PD-Delay (0.05 s)
Total Weight	~730 g	~975 g
Total Height	151.6 mm (max)	151.6 mm (max)
Max rpms	≤ 30.000 rpm	-
Max G force	≤ 30.000 G	-
SAD non-setting/setting rpms	1000/ 4000 RPM	1000/ 2500 RPM
SAD non-setting/setting G force	25 / 250 G	-
Safety Distance From Muzzle	≥ 35 m	≥ 50 m
Thread	2''-12 UNS-2A	2''-12 UNS-2A
Safety	Independent Double Safety System; Automatic Loading (Flick Ramming) Safety	-
Booster Explosive	~22 g RDX/Tetryl	~22 g RDX/Tetryl
Weapon Used	105-120-155-203 mm Rifled Mortar, Howitzer and Tank	105-120-155-203 mm Rifled Mortar, Howitzer and Tank
Ammunition Used	105 mm M1, 105 mm MKE MOD 233, 155 mm M107, 155 mm MKE MOD 274, 120 mm MKE MOD 209	Howitzer, Tank Ammunitions between 105-203 mm

MKE MOD 502 MORTAR FUZE

AZDM 111 A2 MORTAR FUZE

Fuze Function	Mechanical PD-Delay (0,06 s)	Mechanical PD-Delay (0,06 s)
SAD non-setting	400 G / 650 G	400 G / 650 G
Top body setting G force	1000 G	-
Safety distance from muzzle	min 40 m (≥ 0,8 s)	min 40 m (≥ 0,8 s)
Weight	~200 g	~201 g
Ammunition used	60 mm, 81 mm and 120 mm Mortar Ammunition	60 mm, 81 mm and 120 mm Mortar Ammunition
Booster explosive	Tetryl (13 g)	Tetryl (13 g)
Applied standarts	STANAG 2916; MIL-STD-1316; MIL-STD-331; AOP-4157	-

MKE MOD 305 SMOOTHE-BORE TANK AMMUNITION FUZE

Fuze Function	PD - Delay (0,06 s)
Exact Function Range	≥200 m
Setting Time	150 ± 50 ms
Booster Explosive	Tetryl (13 g)
Sad Setting G Force	400 G
Sad Non-setting G Force	650 G
Weight	1340 g
Safety Distance From Muzzle	50 m (min)
Complete Height	85 mm (max)
Thread	2''-12 UNS-1A
Safety System	Double Safety System (Conform to MIL-STD-1316)
Ammunition Used	120 mm MKE MOD 300 HE-T Tank Ammunition, 120 mm MKE MOD 301 TP Ammunition
Applied Standarts	MIL-STD-1316; MIL-STD-331; AOP-4157

MKE MOD 53 ROCKET FUZE

Fuze Function	PD/Delay (0,05 s)
Sad Non-setting/setting rpms	10.000 / 15.000 RPM
Top Body Setting rpms	10.000 RPM
Safety Distance From Muzzle	10 m (min)
Weight	~637 g
Ammunition Used	107 mm Multi-Barrel Rocket Launcher Ammunition (Artillery Rocket)
Total Length	123,7 mm
Thread	1 7/16''-12UN-2A
Applied Standards	MIL-STD-1316; MIL-STD-331; AOP-4157

M505 A3 (20 MM AMMUNITION) FUZE

Fuze Function	PD
Sad Non-setting/setting rpms	40200 /49800 RPM
Safety Distance From Muzzle	3 m (min)
Weight	~21,45 g
Ammunition Used	20 mmx102 M56A3 HEI ve HEI-T Ammunition 20 mmx110 HEI ve HEI-T Ammunition (MKE MOD 1102-1109)
Total Height	31,2 mm
Thread	0,5625''-32NS-2A
Applied Standards	MIL-STD-1316; MIL-STD-331; AOP-4157

KZD 242 (35 MM AMMUNITION) FUZE

Fuze Function	Mechanical, PD, Self-Destruction
Sad non-setting/setting Rpms	70000 RPM
Safety Distance From Muzzle	≥ 40 m
Weight	~46 g
Ammunition Used	35 mm
Total Height	~80 mm
Self-destruction	11 + 2 s (< 35.000 rpm)

MKE MOD 79 (40 MM GRENADE LAUNCHER CARTRIDGE) FUZE

Fuze Function	PD Mode
Complete Height	~ 44.5 mm
Complete Weight	~ 90 g
Thread	1 15/32''- 24NS-2A
Sad Non-setting Rpm	~1000 rpm
Sad Setting Rpm	~3000 (+/- 100) rpm
Sad Setting G Force	~2500
Ammunition Used	40 mm High Velocity Grenade Launcher Cartridges
Purpose of Use	Anti-personnel and soft targets
Safety Distance From Muzzle	>18 m

MKE MOD 122 (76/62 mm NAVAL AMMUNITION) FUZE

Fuze Function	PD / Sell-destruct (0,05 s)
Max Rpms & G Force	≤ 30.000 RPM & ≤ 30.000 G
Weight	895 g
Booster Explosive	Tetryl (46,5 g)
Safety Distance From Muzzle	35 m (min)
Ammunition Used	76/62 mm Naval Ammunition
Total Length	203 mm (min)
Thread	M58 X 1,5 6H
Applied Standards	STANAG 2916; MIL-STD-1316; MIL-STD-331
Usage Safety	Suitable for automatic loading weapon systems

Electronic Fuze

TIME FUZES

MKE MOD 124

MKE MOD 134

Fuze Function	Electronic time, PD Mode	
Weight	700 g	685 g
Electronic Time Setting	2-199,9 s (0.1 s intervals)	
Electronic Setting Type	Inductive Fuze Setting Device (Conforms to STANAG 4369 and AOP-22)	
Booster Explosive	~ 5 g Black Powder	~22 g RDX/Tetryl
Max Rpm	≤ 30.000 rpm & ≤ 30.000 G	
Safety Distance From Muzzle	35 m (min)	
Weapon Used	Spin-Stabilized HE Ammunition between 105-203 mm	Spin-Stabilized Smoke/Illumination Ammunition between 105-203 mm
Thread	2''-12 UNS-2A	
Usage Safety	Suitable for automatic loading weapon systems	

PROXIMITY FUZES

MKE MOD 135

MKE MOD 145

Fuze Function	Proximity, PD Mode	
Weight	700 g	710 g
Proximity Height	6-12 m	
Electronic Setting Type	Inductive Fuze Setting Device (Conforms to STANAG 4369 and AOP-22)	
Booster Explosive	22 g RDX/Tetryl	-
Maximum Rpm & G force	≤ 30.000 rpm & ≤ 30.000 G	
Safety Distance From Muzzle	35 m (min)	
Weapon Used	Spin-Stabilized HE Ammunition between 105-203 mm	Spin-Stabilized Smoke Ammunition between 105-203 mm
Usage Safety	Suitable for automatic loading weapon systems	

MKE MOD 127 INDUCTIVE FUZE SETTING DEVICE

Fuze Used	MKE MOD 124/134 Electronic Time Fuzes and MKE MOD 135/145 Electronic Proximity Fuzes
Battery	3 pcs of 1.5V Alkaline batteries and rechargeable embedded batary with 5V adapter
Packing	Protective Carrying Bag / Case
Special Properties	Status check of the bulb battery in the fuze Status indicator of batteries and embedded battery in the setting device Serial programming via the key on the programming interface The LED on the programming interface that indicates whether the programming is success fulor not
Applied Standards	STANAG 4369/AOP-22

250 lb.

MK 81 GP Aircraft Bomb

Weight w/o Tail Assembly	115 (±5) kg (w/nose plug – w/shipping cap)
Length w/o Tail Assembly	1180±10 mm (w/nose plug – w/shipping cap)
Maximum Diameter	~228 mm
Filler	TNT
Filler Weight	~ 40 kg
Center of Gravity	650±10 mm (w/nose plug – w/shipping cap)
Fuze	M904, M905, Onur 1 MOD 3 series, Onur 2 series, FMU-139 series and FMU-152 series fuzes
Packing	6 pcs in a metal pallet

1000 lb.

MK 83 GP Aircraft Bomb

Weight w/o Tail Assembly	410 (±20) kg (w/nose plug – w/shipping cap)
Length w/o Tail Assembly	1933±10 mm (w/nose plug – w/shipping cap)
Maximum Diameter	~355 mm
Filler	TNT
Filler Weight	~ 190 kg
Center of Gravity	1095±10 mm (w/nose plug – w/shipping cap)
Fuze	M904, M905, Onur 1 MOD 3 series, Onur 2 series, FMU-139 series and FMU-152 series fuzes
Packing	2 pcs in a metal pallet

500 lb.

MK 82 GP Aircraft Bomb

	MK82 MOD1 HE	MK82 MOD1 PRE-FRAGMENTED	MK82 MOD1 PRACTICE
Weight	239 kg	245 kg	234 kg
Length	2268±11 mm	2280 mm	2268±11 mm
Fuze	M904 (Nose Fuze) M905 (Tail Fuze)	AB 104 LAPT980	Dummy
Filler	TNT	TNT	Sorel Cement
Filler Weight	~87 kg	~46 kg	-
Ball Amount	-	~37000	-
Crater Diameter	8 m	-	-
Hazards Fragmentation Distance Range (HFDR)	220 m	-	-
Maximum Fragmentation Distance Range (MFDR)	1810 m	-	-
Packing	6 pcs in a metal pallet		

2000 lb.

MK 84 GP Aircraft Bomb

	MK84 HE	MK84 PRACTICE
Weight	~884 kg	~884 kg
Length	3797 mm	3797 mm
Filler	TNT	Sorel Cement
Filler Weight	~428 kg	-
Crater Diameter	14 m	-
Hazards Fragmentation Distance Range (HFDR)	380 m	- -
Maximum Fragmentation Distance Range (MFDR)	2100m	
Packing	2 pcs in a metal pallet	

500 lb.

MK 82-T Thermobaric Aircraft Bomb

Weight w/o Tail Assembly	228 (+12/-20) kg (w/nose plug – w/shipping cap)
Length w/o Tail Assembly	1632±10 mm (w/nose plug – w/shipping cap)
Maximum Diameter	~273 mm
Filler	PBP-003 Thermobaric explosive (PBXN-113 equivalent)
Explosive Filler Weight	~ 87 kg
Center of Gravity	875±10 mm (w/nose plug – w/shipping cap)
Fuze	Onur 1 MOD 3 series, Onur 2 series, FMU-139 series and FMU-152 series fuzes
Packing	6 pcs in a metal pallet

500 lb.

MK 82 Low-Collateral Aircraft Bomb

Weight w/o Tail Assembly	233±20 kg (w/nose plug – w/shipping cap)
Length w/o Tail Assembly	1632±10 mm (w/nose plug – w/shipping cap)
Maximum Diameter	~273 mm
Filler	TNT and Sorel Cement
Explosive Filler Weight	~11.5 kg
Center of Gravity	875±10 mm (w/nose plug – w/shipping cap)
Impact Radius	max 183 m
Fuze	Tail Fuze (Onur 1 MOD 3 series, Onur 2 series, FMU-139 series and FMU-152 series fuzes)
Packing	6 pcs in a metal pallet

NEB / NEB-T

Penetrator Bomb

	NEB	NEB-T (Thermobaric)
Platforms	F-4E/2020, F-16	F-4E/2020, F-16
Weight	~870 kg	~870 kg
Length	~2600 mm	~2600 mm
Diameter	~457 mm	~457 mm
Explosive		
Augmenting Charge	PBXN-110	PBXN-110
Follow Through Bomb	PBXN-109	Thermobaric Explosive PBP-003 or PBP-003-02 (equivalent of PBXN-113)
Explosive Weight		
Augmenting Charge	~24 kg	~24 kg
Follow Through Bomb	~35 kg	~35 kg
Guidance	HGK, GBU-10 E/B	HGK, GBU-10 E/B
Penetration	Min 2.1 m, 35 MPa (5000 psi) reinforced concrete	Min 2.1 m, 35 MPa (5000 psi) reinforced concrete
Fuze	Augmenting charge: ONUR-1 MOD4 Follow through bomb FMU-152 A/B 3'' hard target fuzes	Augmenting charge: ONUR-1 MOD4 Follow through bomb FMU-152 A/B 3'' hard target fuzes
Storage Life	10 years	10 years

Targets

Buried Hard Targets

- Munition depots
- Underground petrochemical depots
- Bunkers
- Aircraft Shelters
- Command / Control Centers

Surface Targets

- Aircraft runways
- Dams
- Bridges
- Critical Buildings

Area Targets

- Radar antennas
- Stationary Air Defense Missile Sites
- Industrial Facilities
- Parked aircrafts

TÜBİTAK SAGE

4.5 lb. & 25 lb.
Aircraft Training and Practice Bombs

	4.5 Lb MK 106 MOD 1	25 Lb MK 76 MOD 2	25 Lb BDU 33 D/B
Weight	2041 g	11339 g	11339 g
Length	495 mm	575±2.5 mm	575±2.5 mm

MKE

UAV Ammunition

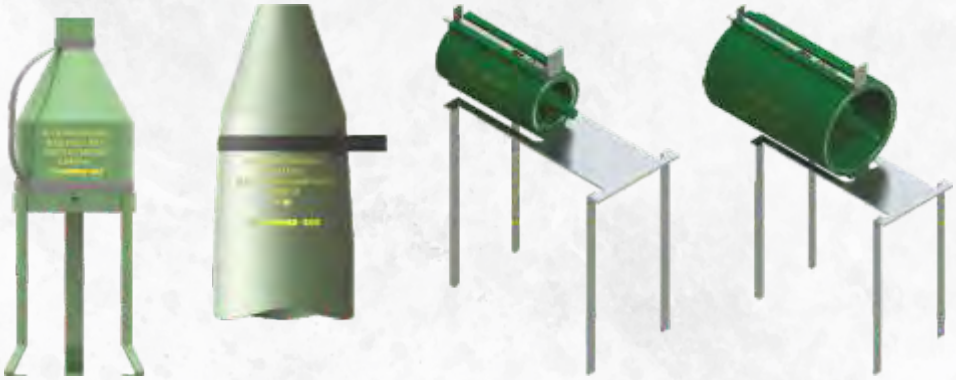
	81 mm MKE MOD 132	60 mm MKE MOD 129	MKE MOD 130	MKE MOD 131
Complete Round Weight	~ 1900 g	~ 835 g	~ 700 g	~ 300 g
Complete Round Length	337 mm	245 mm	-	-
Filler	Comp B	Comp B	C4	C4
Filler Weight	~ 550 g	~ 160 g	~ 450 g	~ 95 g
Body Material	Composite	Composite	Plastic	Plastic
Cap Material	-	-	-	Steel
Fragment Amount	1296 pcs	480 pcs	820 pcs	688 pcs
Fuze	MKE MOD 128 UAV Mortar Ammunition Fuze	MKE MOD 128 UAV Mortar Ammunition Fuze	Electronic Fuze (STM)	-
Impact Diameter	-	-	~ 10 m	-
Weapon Used	Kargu UAV	Kargu UAV	Kamikaze UAV	Fixed Wing UAV

Shaped Demolition Charges

	40 lb. MKE MOD 83 (M3A1)	15 lb. MKE MOD 84 (M2A4)	MKE MOD 85 (EXROD) (MK23 MOD 0)	MKE MOD 86 (EXROD) (MK24 MOD 0)
Cone Material	Steel	Indicated Below	Copper	Copper
Body Material	Composite	Composite	Plastic (ABS)	Plastic (ABS)
Diameter	~245 mm	~182 mm	~45 mm	~80 mm
Total Height				
(w/stand)	~750 mm	~408 mm	-	-
(w/o Stand)	~395 mm	~310 mm	~50 mm	~86 mm
Total Length	-	-	~110 mm	~150 mm
Complete Round Weight				
(w/stand)	~18,6 kg	Indicated Below	~210 g	~700 g
(w/o Stand)	~16,7 kg		~170 g	~660 g
Main Charge	Comp B	Comp B	Comp C4	Comp C4
Main Charge Weight	~12500 g	~5800 g	~65 g	~415 g
Booster	Comp C4	Comp C4	-	-
Booster Weight	~75 g	~75 g	-	-
Performance	On reinforced concrete	Indicated Below	On steel plate	On steel plate
Hole Depth	~1500 mm		min 7 mm	~15 mm
Hole Diameter	~89 mm		min 10,9 mm	~14,3 mm
Packing	1 pc of demolition charge and stand / wooden box	2 pcs of demolition charge and stands / wooden box	2 pcs of Demolition Charge / plastic container, 42 plastic containers and stands+sighting devices / wooden box	2 pcs of Demolition Charge / plastic container, 16 plastic containers and stands+sighting devices / wooden box

15 lb. MKE MOD 84 (M2A4)

	TYPE 1	TYPE 2
Cone Material	Aluminum	Copper
Complete Round Weight	~7660 g	~9060 g
Performance on the Plain Ground		
Hole Depth	~1300 mm	~1600 mm
Hole Diameter	~450 mm	~300 mm



Ignition Charges and Primers

	M5A1 Ignition Charge and M32 Primer	MKE MOD 29 Ignition Charge and M34 Primer	MKE MOD 30 Ignition Charge and M34 Primer	MKE MOD 37 Ignition Charge
Ignition Charge Weight	~ 5 g	~12 g	~ 14 g	~ 206 g
Ignition Charge Height	~ 36 mm	~ 49 mm	~ 54 mm	~ 145 mm
Ignition Charge Body Material	Craft Paper	Craft Paper	Craft Paper	Craft Paper
Ignition Charge Propellant	M9 Propellant	M9 Propellant	M9 Propellant	M8 Propellant
Ignition Charge Propellant Weight	~ 3.2 g	~ 6.5 g	~ 6.5 g	~ 30 g
Primer	M32 Primer	M34 Primer	M34 Primer	Percussion Primer
Primer Weight	~ 22 g	~ 48 g	~ 48 g	-
Primer Material	Brass	Brass	Brass	Brass
Primer Propellant	Black Powder	Black Powder	Black Powder	Black Powder
Ammunition Used	60 mm M49A2 and MKE MOD 257 Mortar Ammunition	81 mm M43A1B1, MKE MOD 273 Mortar Ammunition	81 mm MKE MOD 214, MKE MOD 238, M301 A2 Mortar Ammunition	120 mm MKE MOD 209, MKE MOD 228, MKE MOD 236 A1, MKE MOD 250 Mortar Ammunition

Block Demolition Charges

	1/2 lb.	1 lb.	2.5 lb.
Weight	~250 g	~500 g	~1150 g
Dimensions	49x93x49mm	49x176x49mm	59x300x59 mm
Filler	TNT	TNT	Comp C4
Packing	100 pcs/wooden box	50 pcs/wooden box	20 pcs/wooden box

Saluting Charges

	60 MM MKE MOD 82 SALUTING CHARGE	105 MM HOWITZER SALUTING CHARGE	105 MM TANK GUN SALUTING CHARGE
Complete Round Height	~160 mm	~ 184 mm	~ 214 mm
Cartridge Case	MKE MOD 82	Shortened M14	Shortened MKE MOD 26
Propellant Weight	~ 133 g	Type 1: 175 g Type: 425 g	~ 805 g
Primer	MKE MOD 73 Primer Assembly with M35 Primer	MKE MOD 89 Primer Assembly with M35 Primer	MKE MOD 27 Electrical Percussion Primer
Weapon Used	60 mm Saluting Gun	105 mm Howitzers	Tanks with 105 mm Gun
Packing	1 round / plastic container 30 plastic containers / wooden box	1 round / fiber container 10 fiber containers / wooden box	1 round / fiber container 10 fiber containers / wooden box

Hand Grenades

	MKE MOD 50 PRE-FRAGMENTED DEFENCE	MKE MOD 119 OZOK	MKE MOD 125 THERMOBARIC
Complete Round Length	103 mm	138 mm	140 mm
Complete Round Weight	385 g	325 g	800 g
Body Diameter	61 mm	27 mm	57,5 mm
Body Length	~ 73 mm	~ 111 mm	113 mm
Body Material	Plastic	1020, 1030 Steel	Plastic
Fragments	Steel (1600 pcs)	Steel (162 pcs)	Steel (620 pcs)
Filler	Comp-B	C4 or TNT	Thermobaric Explosive PBP-003 (equivalent of PBXN-113)
Filler Weight	~ 32 g	~ 34 g	210 g
Fuze	MKE MOD 117	MKE MOD 49	MKE MOD 49
Fuze Delay Time	3.9 - 5.2 s	3,9 - 5,2 s	3,9 - 5,2 s
Impact Radius	~10 m	-	min 11 m
Sound Intensity	-	128 decibel (@10 m)	-
Packing	10 fuzes / plastic box 4 plastic boxes and 40 hand grenades / wooden box		

	MK2 DEFENCE	MK2 MOD 44 DEFENCE	MK2 MOD 46 PRACTICE	MK2 PRACTICE
Weight	640 g	640 g	565 g	565 g
Length	120 mm	120 mm	120 mm	120 mm
Body Material	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Filler	TNT or Comp B	TNT or Comp B	Sorel Cement	Sorel Cement
Filler Weight	~35 g	~35 g	-	-
Fuze	MKE MOD 45 or MKE MOD 45 B1	M204A2 or M204A2T1	MKE MOD47 or MKE MOD47B1	M205A2 or M205A2T1
Delay Time	3,90 - 5,20 s	3,90 - 5,20 s	3,90 - 5,20 s	3,90 - 5,20 s
Packing	10 fuzes / plastic box 4 plastic boxes and 40 hand grenades / wooden box			

	MKE MOD 56 A1 B1 RIOT CONTROL	MKE MOD 48 OFFENSIVE	MK3 A2 OFFENSIVE
Weight	264 g	335 g	335 g
Length	175 mm	145 mm	145 mm
Body Length	-	111 mm	111 mm
Body Material	Plastic	Craft Paper	Craft Paper
Filler	OC	TNT	TNT
Filler Weight	~12 g	~250 g	~250 g
Fuze	MKE MOD 57	MKE MOD49 or MKE MOD49 B1	M206 A2 or M206 A2 T1
Packing	10 fuzes / plastic box 4 plastic boxes and 40 hand grenades / wooden box		

2.75 inch
Rocket Warheads

	M151 (HE) DEMOLITION	MK61 MODO PRACTICE	MKE MOD 248 SMOKE/SIGNALING
Length	~328 mm (w/o fuze)	~278 mm (w/o fuze)	~408 mm (w/fuze)
Weight (w/o fuze)	~4040 g	~2800 g	~3500 g
Filler	Comp B	-	Smoke / Signaling flare
Filler Weight	~1043 g	-	-
Fuze	M423, M427	-	M427 (no booster)
Packing	1 round /fiber container 4 fiber containers /wooden box		

Self-defense Munition (MKE MOD 38)

Weight	1330 g	**Filler Weight**	~400 g
Complete Length	218 mm	**Steel Ball Amount**	~850 mm
Complete Width	232 mm	**Packing**	30 pcs / wooden box
Filler	Comp C4		

MKE MOD 51 (M82) Primer

Type	Percussion
Total Weight	63,5 g
Total Length	4,93 cm
Filler	1,43 g black powder
Weapon Used	155 mm: M109A1, M109 175 mm: M107 8 in: M55, M110, M110E2
Packing	20 pcs/fiber container 25 pcs fiber container /wooden box

Propelling Charges for Howitzer Ammunition

	M3A1	M4A2	M119 A2
Description	The M3A1 propelling charge is a green bag type designed for use in 155mm howitzers for firing in Zones 1 through 5.	The M4A2 propelling charge is a white bag type designed for use in 155mm howitzers for firing in Zones 3 through 7.	The M119A2 propelling charge is a Zone 7 red bag charge for firing in 155mm Howitzers containing M185 and M199 cannon tubes
Cannon Used With	M1, M1A1, M45, M126, M126A1, M185, M199, Panter and Fırtına (from 3rd green bag)		M185 (M109A1/A2/A3; M199 (MI98), Panter, Fırtına
Diameter	max. 127 mm	max. 127 mm	max. 158 mm
Complete Length	max. 406, min. 355	max. 534, min. 483	max. 725
Complete Round Weight	~ 2,8 kg	~ 6,35 kg	~ 10,7 kg
Type	Green bag, separate loading	White bag, separate loading	Red bag, separate loading
Ignition Charge	CBI propellant; 100 g	CBI propellant; 100 g	CBI propellant; 113 g
Propellant	Single perf. M1 propellant (~2,5 kg)	Multi perf. M1 propellant (~ 6,1 kg)	M6 propellant (9.5 kg)
Flash Reducer	Potassium Sulphate	Potassium Sulphate	Potassium Sulphate
Primer Type	Separate primer, MKE MOD 51, M82, MK2A4 or equivalents	Separate primer, MKE MOD 51, M82, MK2A4 or equivalents	Separate primer, MKE MOD 51, M82 or equivalents

	M1	M2
Use	Green bag propelling charge is used for zone firing with Charges 1 to 5 in 8" howitzer cannons	White bag propelling charge is used for zone firing with Charges 5 through 7 in 8" howitzer cannons
Description	The charge consists of a base section (Charge 1) and four unequal increments (2 through 5) of propellant M1 in green cloth bags	The charge consists of a base section (Charge 5) and two unequal increments (6 and 7) for zone firing
Cannons Used With	M2, M2A1 (M115), M47 (M55), M2A2 (M110)	M2, M2A1 (M115), M47 (M55), M2A2 (M110)
Diameter	Max 165.1 mm	Max 196.8 mm
Complete Length	Max 533.4 mm	Max 609.6 mm
Type	Green bag, separate loading	White bag, separate loading
Ignition Charge	Red Igniter pad containing black powder (~142 g)	Red Igniter pad containing black powder (~142 g)
Propellant	Single perf. M1 propellant	Multiperf. cylinder M1 propellant
Propellant Weight	~ 6 kg	~13 kg
Flash Reducer	-	M3

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

DETONATORS & PYROTECHNIC PRODUCTS

Cartridge Products
Pyrotechnic Products
Countermeasure Ammunition
Blasting Detonators
Rocket-Fuze Igniters & Busters & Detonators

MKE PYROTECHNICS FACTORY
ANKARA

MKE Pyrotechnics Factory is capable of producing various types of detonator, single cartridge and rocket igniter.

MKE Pyrotechnics Factory focuses on:

- Producing different types of detonators, smoke ammunitions, illuminination ammunitions, sound ammunitions, rocket igniters, communication and signal ammunitions, countermeasure ammunitions and pyrotechnic ammunitions demanded by the Turkish Armed Forces.
- Producing various pyrotechnic ammunitions for the General Command of Gendarmerie and General Directorate of Public Security.
- Producing detonators and pyrotechnic products intended for the civil sector.
- Producing and developing pyrotechnic products in line with customer demands.

The factory is awarded AQAP-2120 and TS-ISO-EN 9000:2015 Quality Assurance Certificates.

Cartridge & Squib

AVF 1 MOD 1 Impulse Cartridge

Weight	34 g
Case Material	Aluminium
Electrical Resistance	0,4 - 1,25 Ω
Firing Current	Min 4A
No-fire Sensitivity	180 mA Dc, 60 sec.
Maximum Pressure	Min. 140 bar
Water Tightness	10 psi, 5 sec.

It is used for releasing load and bombs from the plane.

MKE CG 17 Squib

Weight	~ 5 g
Case Material	Aluminium
Electrical Resistance	1.0 ± 0.15 Ω
Firing Current	4.25 A
No-fire Sensitivity	1 A. DC, 300 ± 5 sec.
Delay Time	Max. 17 msec.
Pressure	20-47 bar

It is used for dispensing 1x1x8" Chaff countermeasure decoy.

MKE FG-3 Squib

Weight	~ 5 g
Case Material	Aluminium
Electrical Resistance	1.0 ± 0.15 Ω
Firing Current	4.25 A
No-fire Sensitivity	1 A. DC, 300 ± 5 sec.
Delay Time	Max. 17 msec.
Pressure	20-47 bar

It is used for dispensing 1x1x8" Flare countermeasure decoy.

MKE FG-6 Squib

Weight	~ 10 g
Case Material	Alüminyum
Electrical Resistance	1.0 ± 0.15 Ω
Firing Current	4.25 A
No-fire Sensitivity	1 A. DC, 300 ± 5 sec.
Delay Time	Max. 17 msec.
Pressure	60-100 bar

It is used for dispensing 2x1x8" Flare countermeasure decoy.

Aker Propelling Cartridge

Weight	~ 36 g
Case Material	Alüminyum
Electrical Resistance	0.5-2.0 Ω
Firing Current	1 A

It is used by bomb disposal experts to destroy the suspicious packages.

MKE 18 Detonator

Length	27 mm
Diameter	17 mm
Case Material	Aluminium
Weight	~ 7,8 g
Explosive Amount	~ 1200 mg
Blasting Power	It creates a hole with a diameter of 5 mm on the steel plate which has a thickness of 3 mm.

It activates the parachute systems of sea mines thrown from the plane.

12.7 mm Electric Flame Cartridge DLT

Weight	~ 81 g
Case Material	Brass
Electrical Resistance	1.55-1.80 Ω
Firing Current	1.5 A
No-fire Sensitivity	180 mA DC, 60 sec.

It is used to open rocket fuse and bomb disposal apparatus.

ARD 446 Impulse Cartridge

Weight	~ 32 g
Case Material	Aluminium
Electrical Resistance	0.5-2.0 Ω
Firing Current	4 A
No-Fire Sensitivity	180 mA 60 sec.
Maximum Pressure	350±50 bar
Sealing	5 Psi, 5 sec.

It is used for releasing of loads and heavy bombs from the aircrafts.

ARD 863 Impulse Cartridge

Weight	~ 36 g
Case Material	Aluminium
Electrical Resistance	0.5-2.0 Ω
Firing Current	Min 1.5 A
No-Fire Sensitivity	180 mA 60 sec.
Maximum Pressure	Min. 140 bar
Sealing	5 Psi, 5 sec.

It is used for releasing of loads and heavy bombs from the aircrafts.

N2 Training Cartridge

Length	~25 mm
Diameter	~30 mm
Weight	36 g
Case Material	Aluminum
Electrical Resistance	0.5-2.0 Ω
Firing Current	2.0±0.1 A
No-Fire Sensitivity	180 mA
Maximum Pressure	130±30 bar

It is used in the destruction training of the submarine mines.

N12 War Cartridge

Length	~55 mm
Diameter	~30 mm
Weight	40 g
Case Material	Aluminum
Electrical Resistance	0.5-2.0 Ω
Firing Current	2.0±0.1 A
No-Fire Sensitivity	180 mA

It is used in the destruction procedure of the submarine mines.

Pyrotechnic Products

Anti-Riot Grenade

Weight	51 g
Delay Time	6 sec.
Body Material	Styrofoam
Operation Type	Friction wire ignition

It is used for military training and dispersing crowds. When exploded, it gives high sound. Its sound can be heard from 1 km. distance.

Tank Smoke Mortar Ammunition

Weight	1200 g
Diameter	93 mm
Electrical Resistance	1,0-3,5 ohm
Firing Current	Min 1,5A
Range	50 m
Smoke Burning Time	min. 100 sec.
Smoke Material	HC
Smoke Color	Grey

It is used to camouflage the military vehicle with smoke. It is ignited electrically.

2 Kg Smoke Can

Weight	1800 g
Diameter	97 mm
Burning Time	Min 4 min
Smoke Material	HC
Smoke Color	Grey

It is used for camouflage. Ignition mechanism is friction type.

Assault Boat Type Colored Smoke Can

Diameter	77 mm
Weight	560 g
Burning Time	Min 60 sec.
Smoke Color	Green, Violet, Yellow, Red

It is used for signalling and communication. It gives colored smoke.

Colored Smoke Can

Diameter	53 mm
Weight	170 g
Burning Time	Min 60 sec.
Smoke Color	Yellow, Red, Green, Violet

It is the can which gives colored smoke and is used for communication, signalling and demonstration. When drawing the pulling ring, colored smoke mixture is ignited by impact capsule.

1" Signal Cartirdge

Weight	60 g
Illumination Color	Red, green, white
Deployment Height	Min 50 m
Illumination Time	Min 3 sec.
Case	Aluminium

It is used for communication. It gives light with different colors. It is launched by a special pistol.

1.5" Signal Cartridge

Weight	145 g
Illumination Color	Red, green, white
Deployment Height	Min 50 m
Illumination Time	Min 4 sec.
Case	Aluminium

It is used for communication. It gives light with different colors. It is launched by a special pistol.

7/8" Signal Cartridge

Weight	30 g
Illumination Color	Red, green, white
Deployment Height	Min 50 m
Illumination Time	Min 4 sec.
Case	Aluminium

It is used for communication. It gives light with different colors. It is launched by a special pistol.

MK4 MOD3 Smoke Cartridge

Weight	48 g
Diameter	24 mm
Smoke Color	White
Active Substance	Stabilized Red Phosphorus
Case	Aluminium

It is used by mounting to the training bomb which is activated by hitting the target result in dense white smoke.

Flare Surface Trap

Weight	~ 490 g
Illuminating Color	White
Illumination Height	~ 1 m
Illuminating Time	Min 45 sec.
Illumination Intensity	Min 150.000 Candelas

It is used as a trap in the fields which need to be secured. When the flare is activated by the trap wire, the pyrotechnic illuminant mixture is ignited immediately and it provides an intense illumination.

M80 Firecracker

Weight	~ 10 g
Case Material	Chromo Paper
Delay Time	Min 3 sec.
Effective Range	50 ± 5 m

It is used for training and gives high sound like a hand bomb.

Flashbang MOD1 Grenade

Length	151 mm
Diameter	58 mm
Case	Steel
Light Intensity	Min. 5000000 Cd
Sound Intensity	Min. 165 dB
Delay Time	2 ± 1 sec.
Weight	~ 450 g

It makes a loud noise and emits a bright flash of light when it explodes. It temporarily blinds and deafens people nearby.

Electrical Smoke

Length	85 mm
Diameter	50 mm
Weight	60 g
Case	Aluminium
Colour of Smoke	Orange
Burning Time	45 sec.
Electrical Resistance	1.2-1.6 Ω
Firing Current	1.0 A

It is used in radar training.

Firecracker (Railway)

Weight	~ 45 g
Diameter of Case	55 mm
Height	10 mm
Case	Zinc
Effective Distance	1 km

It is used to make a loud sound as a warning signal to train drivers.

Smoke Hand-Grenade

Weight	~ 485 g
Case	Aluminium
Delay Time	6±2 sec.
Base Charge	HC
Burning Time	Min. 60 sec.

It is used in smoke operations.

1" Illumination Cartridge With Parachute

Weight	~ 60 g
Illumination Color	White
Flight Distance (45°-60°)	150-350 m
Illumination Time	Min. 14 sec.
Illumimation Intensity	Min. 50.000 Candelas
Case	Aluminium

It is used for communication. It is launched by 1" signal pistol and gives white light.

HME-1
(Hand Made Explosive For Training Type-1)

Weight	~23 g
Case	Chromo Paper
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min 1.0 A
No-Fire Sensitivity	180 mA DC
Cable Length	2000±100 mm
Effective Distance	20±5 m

It is used in mine and hand made explosive trainings.
It is ignited electrically and it gives sound, light and smoke.

HME-2
(Hand Made Explosive For Training Type-2)

Weight	~24 g
Case	Chromo Paper
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min 1.0 A
No-Fire Sensitivity	180 mA DC
Cable Length	2000±100 mm
Effective Distance	20±5 m

It is used in mine and hand made explosive trainings.
It is ignited electrically and it gives light and smoke.

HME-3
(Hand Made Explosive For Training Type-3)

Weight	~43 g
Case	Chromo Paper
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min 1.0 A
No-Fire Sensitivity	180 mA DC
Cable Length	2000±100 mm
Effective Distance	75±10 m

It is used in mine and hand made explosive trainings.
It is ignited electrically and it gives sound, light and smoke.

Sound Detonator for Training
(SESK-1, SESK-2)

Weight	~ 3,5 g / ~ 12,5 g
Case Material	Chromo Paper
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min 1.0 A
No-fire Sensitivity	180 mA DC, 60 sec.
Cable Length	300 mm / 1500 mm
Effective Range	~ 2 m / ~ 10 m

It is used in booby trap training. It is ignited electrically and gives a high sound that simulates the bomb bomb.

Submarine Signal With Parachute (Smoke)

Weight	1850 g
Smoke Color	Yellow, Red, Green
Burning Time	Min. 25 sec.
Shooting Depth	Max. 300 m
Height From Sea Level	Min. 70 m
Ignition Type	Water activation battery

It is ejected from submarines and is used for communication in daytime. It gives colored smoke while landing parachute.

Submarine Signal With Parachute (Illumination)

Weight	1850 g
Illumination Color	Yellow, Red, Green
Illumination Time	Min. 25 sn
Green Light Intensity	Min. 15000 candelas
Yellow and Red Light Intensity	Min. 50000 candelas
Shooting Depth	Max. 300 m
Height From Sea Level	Min. 70 m
Ignition Type	Water activation battery

It is ejected from submarines and is used for communication in night. It gives colored light while landing parachute.

Hand Fired Parachute Illuminating Rocket

Diameter	45±2 mm
Length	275±5 mm
Weight	480±30 g
Case	Plastic
Light Color	Yellow - White
Average Min. Light Intensity	min. 100.000 candela
Illumination Time	min. 25 s
Medium Range (45° Firing Angle)	500±100 m

It is used in any situation where illumination and communication are required. Because of product property, it can be used for military and civilian purpose.

Countermeasure Ammunition

Chaff Decoy (1" x 1" x 8")

Dimensions	1" x 1" x 8" (25 x 25 x 205 mm)
Pellet	2-20 Ghz (E-J Band)
Launched Dispenser	ÖZIŞIK, AN/ALE-40-47 or equivalent
Squib	Bbu-35/B, Heko 3650 and MKE Squibs
Service Life	5 years
Storage Life	10 years
Operation Temp.	-55 °C / +85 °C

It is used for countermeasure. It acts as a decoy for radar guided missiles. When ejected from an aircraft, chaff forms a metal coated chaff cloud that hides the aircraft from radar.

Flare Decoy (1" x 1" x 8")

Dimensions	1" x 1" x 8" (25 x 25 x 207 mm)
Pellet	Magnesium/Teflon/Viton
Launched Dispenser	ÖZIŞIK, AN/ALE-40/47 or equivalent
Squib	M 796, BBU-35, MKE Squib
Similar Ammunition	M 206
Service Life	6 Months
Storage Life	5 Years
Operation Temp.	-55 °C / +85 °C

It is used as a countermeasure against IR heat guided missiles.

Flare Decoy (1" x 2" x 8")

Dimensions	1" x 2" x 8" (25 x 51 x 207 mm)
Pellet	Magnesium/Teflon/Viton
Launched Dispenser	ÖZIŞIK, AN/ALE-40/47 or equivalent
Squib	BBU-35, MKE Squib, Heko 3670
Similar Ammunition	Mju-7
Service Life	6 Months
Storage Life	9 Years
Operation Temp.	-55 °C / +85 °C

It is used as a countermeasure against IR heat guided missiles.

Tracking and Target Flare

Weight	~ 250 g
Dimensions	Ø2,5 x 23 cm
Case	Steel
Burning Time	Min. 45 sec.
Illumination Color	Red
Illumination Intensity	Min 10.000 Candelas
No-Fire Sensitivity	180 mA.DC
Electrical Resistance	1.2-1.8 Ohm
Firing Current	1.0 A

It is used for air-to-air or ground-to-air IR heat guided missiles training. When Flare is initiated, it generates red light.

Blasting Detonators

Nonelectrical Detonators (Plain Detonators)

Shell	Aluminium
Detonation Velocity	Approximately 7500 m / sec.
Delay Time	Instantaneous
Grizu Safe	Unsafe
Blasting Power	It makes a hole with a diameter of min. 5 mm. on the lead plate which has a thickness of 5 mm.
Strength	No.8

This type of detonator is used as an igniter to initiate the dynamite and similar explosives in dams, roads and mining constructions. It is ignited with a safety fuse which is crimped by a special pens. It explodes with delay depending on the fuse length being used.

It is a detonator which has electrically ignitable fusehead by the action of dynamo type or condenser type exploder. Shell material of this detonator is chosen as aluminium to explode dynamite and similar explosives in the open mines. It can be manufactured at the desired cable length.

Aluminium Electrical Detonator (Class 1 and Class 2)

Shell	Aluminium
Cable	Electrolytic copper wire coated with PVC
Length of Cable	1.5 and 2.5 m
Detonation Velocity	Approximately 7500 m/sec.
Blasting Power	It makes a hole with a diameter of min 5 mm on lead plate which has a thickness of 5 mm
Fusehead Resistance	(Class 1: 1.2-1.8 Ω), (Class 2: 0.4-0.8 Ω)
Firing Impulse	(Class 1: 3 mWs/ Ω), (Class 2: 16 mWs/ Ω)
No-Firing Impulse	(Class 1: 0.8 mWs/ Ω), (Class 2: 8 mWs/ Ω)
Safety Current	(Class 1: 0.18 A DC, 300 sec.), (Class 2: 0.45 A DC, 300 sec.)
Recommended Firing Current	(Class 1: 1.0 A), (Class 2: 1.5 A)
Delay Time	Instantaneous
Grizu Safe	Unsafe
Strength	No.8

It is a detonator which has electrically ignitable fusehead by the action of dynamo type or con-denser type exploder. It is used to explode the permitted explo-sives in the gassy and dusty mines (coal mines etc.) Tube material is copper and the deto-nator is firedamp safe. It can be manufactured at the desired cable length.

Copper Electrical Detonator (Class 1 and Class 2)

Shell	Copper
Cable	Electrolytic copper wire coated with PVC
Length of Cable	1.5 and 2.5 m
Detonation Velocity	Approximately 7500 m/sec.
Blasting Power	It makes a hole with a diameter of min 5 mm on lead plate which has a thickness of 5 mm
Fusehead Resistance	(Class 1:1.2-1.8 Ω), (Class 2:0.4-0.8 Ω)
Firing Impulse	(Class 1:3 mWs/Ω), (Class 2:16 mWs/Ω)
No-Firing Impulse	(Class 1:0.8 mWs/Ω), (Class 2:8 mWs/Ω)
Safety Current	(Class 1:0.18 A DC, 300 sec.), (Class 2:0.45 A DC, 300 sec.)
Recommended Firing Current	(Class 1:1.0 A), (Class 2:1.5 A)
Delay Time	Instantaneous
Grizu Safe	Safe
Strength	No. 8

It is a detonator which has electrically ignitable fusehead by the action of dynamo type or condenser type exploder with delay time. They are used to blast dynamite and similar explosives at desired intervals and sequence, to obtain a good and uniform fragmentation, the desired particule size, to decrease vibration and to increase the yield of the blasting in the great blasting operations. It can be manufactured at the desired cable length.

Aluminium Electrical Detonators With 30 ms Delay Interval (Class 1 and Class 2)

Shell	Aluminium
Delay Number	1 - 16
Marks on the Bottom of Cap	1 / K - 16 / K
Delay Time	30 - 480 msec.
Cable	Electrolytic copper wire coated with PVC
Length of Cable	1.5 and 2.5 m
Detonation Velocity	Approximately 7500 m/sec
Blasting Power	It makes a hole with a diameter of min. 5 mm on lead plate which has a thickness of 5 mm
Fusehead Resistance	(Class 1: 1.2-1.8 Ω), (Class 2: 0.4-0.8 Ω)
Firing Impulse	(Class 1: 3 mWs/ Ω), (Class 2: 16 mWs/ Ω)
No-Firing Impulse	(Class 1: 0.8 mWs/ Ω), (Class 2: 8 mWs/ Ω)
Safety Current	(Class 1: 0.18 A DC, 300 sec.), (Class 2: 0.45 A DC, 300 sec.)
Recommended Firing	(Class 1: 1.0 A), (Class 2: 1.5 A)
Delay Time	Instantaneous
Grizu Safe	Unsafe
Strength	No.8

Copper Electrical Detonator With 30ms Delay Interval
(Class 1 and Class 2)

It is a detonator which has electrically ignitable fusehead by the action of dynamo type or condenser type exploder with delay time. They are used to blast the dynamite and similar explosives at desired intervals and sequence, to obtain the desired particule size, to decrease the vibration and to increase the yield of the blasting in the gassy and dusty mines, especially. It can be manufactured at the desired cable lenght.

Shell	Copper
Delay Number	1 - 16
Marks on the Bottom of Cap	1/K-16/K
Delay Time	30 - 480 msec.
Cable	Electrolytic copper wire coated with PVC
Length of Cable	1.5 and 2.5 m
Detonation Velocity	Approximately 7500 m/sec.
Blasting Power	It makes a hole with a diameter of min 5 mm on lead plate which has a thickness of 5 mm
Fusehead Resistance	(Class 1: 1.2-1.8 Ω), (Class 2: 0.4-0.8 Ω)
Firing Impulse	(Class 1: 3 mWs/ Ω), (Class 2: 16 mWs/ Ω)
No-Firing Impulse	(Class 1: 0.8 mWs/ Ω), (Class 2: 8 mWs/ Ω)
Safety Current	(Class 1: 0.18 A DC, 300 sec.), (Class 2: 0.45 A DC, 300 sec.)
Recommended Firing	(Class 1: 1.0 A), (Class 2: 1.5 A)
Delay Time	Instantaneous
Grizu Safe	Safe
Strength	No.8

Aluminium Electrical Detonators With 500ms Delay Interval
(Class 1 and Class 2)

It is a detonator which has electrically ignitable fusehead by the action of dynamo type or condenser type exploder with delay time. They are used to blast dynamite and similar explosives at desired intervals and sequence, to obtain a good and uniform fragmentation, the desired particule size, to decrease vibration and to increase the yield of the blasting in the great blasting operations. It can be manufactured at the desired cable length.

Shell	Aluminium
Delay Number	1 - 10
Marks on the Bottom of Cap	K1 - K10
Delay Time	500 - 5000 msec.
Cable	Electrolytic copper wire coated with PVC
Length of Cable	1.5 and 2.5 m
Detonation Velocity	Approximately 7500 m/sec.
Blasting Power	It makes a hole with a diameter of min 5 mm on lead plate which has a thickness of 5 mm
Fusehead Resistance	(Class 1: 1.2-1.8 Ω), (Class 2: 0.4-0.8 Ω)
Firing Impulse	(Class 1: 3 mWs/ Ω), (Class 2: 16 mWs/ Ω)
No-Firing Impulse	(Class 1: 0.8 mWs/ Ω), (Class 2: 8 mWs/ Ω)
Safety Current	(Class 1: 0.18 A DC, 300 sec.), (Class 2: 0.45 A DC, 300 sec.)
Recommended Firing Current	(Class 1: 1.0 A), (Class 2: 1.5 A)
Delay Time	Instantaneous
Grizu Safe	Unsafe
Strength	No.8

MKE 61
Fuse Lighter

Length	85 mm
Diameter	18.9 mm
Weight	40 g
Case	Plastic

It is used for igniting the safety fuses.

MKE-LT
Fire Extinguishing Detonator

Weight	~ 8 g
Case Material	Aluminium
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min. 1.0 A
No-fire Sensitivity	180 mA DC
Reaction Time	5 A Max. 1 msec.

It is used in fire extinguishing systems.

MKE 6 Electrical Detonator

Weight	~ 15 g
Case	Aluminium
Electrical Resistance	1.2-1.6 Ω
Firing Current	Min 4.0 A
Fire Sensitivity	180 mA
Cable Length	2000±100 mm

It is used in MKE 33 Bomb-Cutter Set.

MKE 12 Bomb Cutter Detonator

Weight	~ 20 g
Case	Brass

It is used in MKE 12 Bomb Cutter Set.

MKE 19 MOD 1 Training Detonator

Weight	~ 255 g
Case	Stainless Steel
Electrical Resistance	1.2-1.6 Ω
Firing Current	4 A
No-Fire Sensitivity	170±10 mA
Cable Length	500±20 mm

It is used to release the hawser in submarine mines.

M-47 Electrical Fire-Extinguishing Detonator

Weight	~ 2 g
Case	Aluminium
Electrical Resistance	1.5-3.5 Ω
Firing Current	Min. 1.5 A
No-Fire Sensitivity	180 mA DC
Cable Length	180±20 mm
Ignition Delay Time	5 A Max. 2 msec.

It is used in fire-extinguishing systems.

S-68 Fire-Extinguishing Detonator

Weight	~ 90 g
Case	Stainless Steel
Electrical Resistance	1.2-1.6 Ω
Firing Current	5 A
No-Fire Sensitivity	180 mA
Cable Length	130±5 mm
Delay Time	5 A Max. 2 msec.

It is the fire extinguishing detonator used in armoured vehicles.

Rocket-Fuze Igniters Busters & Detonators

Lead Charge, 107 mm Anatolia Rocket

Weight ~ 1.6 g
Function It creates a hole with a diameter 5 mm on the lead plate which has a thickness of 5 mm.

It is used in the fuze of 107 mm Anadolu Rocket.

Booster, 122 mm Spear Rocket

Weight ~ 25 g
Base Charge Comp. A5
Explosive Density 1.5 g/cm^3

It is used in the fuze of 122 mm Rocket

Detonator, DM 1019

Weight ~ 0.3 g
Base Charge PETN
Sensitivity It explodes by dropping a ball which has 56 g weight from the height of 300 mm.
Function It creates a hole with a diameter of 4 mm on the aluminium plate which has a thickness of 2 mm.

It is used in AZDM 111 A2 fuze.

Detonator, DM 1020 A1

Weight ~ 0,7 g
Base Charge PETN
Delay Time 60 msec.
Sensitivity It explodes by droppinng a ball which has 56 g weight from the height of 300 mm.
Function It creates a hole with a diameter of 4 mm on the aluminium plate which has a thickness of 2 mm.

It is used in AZDM 111 A2 fuze.

2.75" Rocket Igniter

Weight ~ 25 g
Case Tin Plate
Electrical Resistance 0,7-1.3
Firing Current 1.5+/- 0.15A
No-Fire Sensitivity 180 mA DC, 60 sec.
Ignition Delay Time Max. 40 msec.

It is used to ignite 2.75" Rocket.

Delay Element, M2

Weight ~ 2,65 g
Base Charge Lead Azide
Delay Time 55 msec.
Sensitivity It explodes by dropping a ball which has 56 g weight from the height of 300 mm.
Function It creates a hole with a diameter of 4 mm on the aluminium plate which has a thickness of 2 mm.

It is used as delay element in M557 fuze.

122 mm Spear Rocket Igniter

Weight ~ 130 g
Case Aluminium
Electrical Resistance 1.45-2.40
Firing Current Min 1.5 A
No-Fire Sensitivity 180 mA DC, 60 sec.

It is primary igniter of 122 mm it is ignited electrically.

Primer, 107/122 mm Anatolia Rocket

Weight ~ 0.2 g
Function It ignites the lead charge in the fuze of 107 mm Anatolia Rocket.

It is used in the fuze of 107 mm Anatolia Rocket.

107/122 mm Anatolia Rocket Back Igniter

Weight	~ 13 g
Case	Copper
Electrical Resistance	0.5-2.0
Firing Current	Min 1.5 A
No-Fire Sensitivity	180 mA DC, 60 sec.

It is primary igniter of 107 mm Anatolia Rocket.
It is ignited electrically.

Front Igniter 107 mm Anatolia Rocket

Weight	~ 13 g
Base Charge	Black Powder

It is igniter of 107 mm Anadolu Rocket.
It gives heat and flame.

Detonator, Mod 36

Weight	~ 0.45 g
Base Charge	Tetryl
Function	It creates a hole with a diameter of 4 mm on the lead plate which has a thickness of 5 mm.

It is used for leading charge in AZDM 111 A2 fuze

UNL 10-X Primer

Weight	~ 1,8 g
Case	Aluminium
Electrical Resistance	1.1-1.6
Firing Current	Min. 1.0 A
No-Fire Sensitivity	180 mA DC, 300 sec.

It is used as the electrical initiator in the fuze of general purpose bombs: MK-81, MK-82, MK-83, MK-84.
It explodes SC-71X detonator.

Detonator, SKX 115

Weight	~ 0.28 g
Base Charge	Tetryl
Sensitivity	It explodes by dropping a ball which has 3.4 g weight from the height of 500 mm.
Function	It creates a hole with a diameter of 7 mm on the lead plate which has a thickness of 4 mm.

It is used in the fuze of 35 mm anti-aircraft ammunition.

Detonator, M 17

Weight	~ 0.62 g
Base Charge	Tetryl
Function	It creates a hole with a diameter of 4.7 mm on the lead plate which has a thickness of 3.5 mm.

It is used in M557 fuze.

Detonator, M 24

Weight	~ 0,63g
Base Charge	Lead Azide
Sensitivity	It explodes by dropping a ball which has 112 g weight from the height of 305 mm.
Function	It creates a hole with a diameter of 4,7 mm on the lead plate which has a thickness of 2 mm

It is used in M557 fuze.

M 125 Booster

Weight	~ 400 mg
Base Charge	Tetryl
Explosive Density	1.45-1.60 gr/cm^3

It is used in M557 fuze.

Detonator, M 204

Weight	~ 1900+/- 50 mg.
Base Charge	PETN
Function	It creates a hole with a diameter of 5 mm on the lead plate which has a thickness of 5 mm.

It is used in hand grenade fuze.

Detonator, M 1

Weight	~ 580 +/- 20 mg
Base Charge	Tetryl
Function	It creates a hole with a diameter of 5 mm on the lead plate which has a thickness of 3,5 mm.

It is used for the ignition of the fuze.

VKX 440 Booster

Weight	~ 2.7 g
Base Charge	RDX
Function	It creates a hole with a diameter of 6 mm. on the lead plate which has a thickness of 8 mm.

It is used in the fuze of 35 mm anti-aircraft ammunition.

Detonator, MKE 1049

Weight	~ 180 mg
Base Charge	RDX
Function	It creates an upset with a depth of 2,4 mm on the lead plate which has a thickness of 12 mm.

It is used for M 505 A3 fuze.

120 mm Tank Ammunition Tracer (Training)

Weight	~ 60 g
Case	Brass
Burning Time	Min. 10 sec.
Radiant Intensity	Min 30.000 candelas

It is used in 120 mm Tank Ammunition.

M505 Booster

Weight	~ 480 +/- 50 mg
Base Charge	RDX
Function	It creates a hole with a diameter of 9 mm. on the lead plate which has a thickness of 2 mm.

It is used for M 505 A3 fuze.

120 mm Tank Ammunition Tracer (Integral)

Weight	~ 32 g
Case	Brass
Burning Time	Min. 3,5 sec.
Radiant Intensity	Min 25.000 candelas

It is used in 120 mm Tank Ammunition.

Detonator, SC 71-X

Weight	~ 1.4 g
Base Charge	PETN
Function	It makes a hole with diameter of 5 mm on the lead plate which has a thickness of 3,4 mm.

It is used in the fuze of general purpose bombs: MK-81, MK-82, MK-83 and MK-84. It is exploded by UNL 10-X primer and explodes MA 71-X.

MKE Bellows Actuator

Body Length	26 mm
Length of Cable	100 mm
Diameter	7,8 mm
Case	Brass
Electric Resistance	1,2-1,8 Ω
No Fire Sensitivity	180 mA-10 s
All-Fire Current	1,5 A
Weight	~ 4,5 g

It is used in the safety mechanisms of fuzes.

35 mm Air Burst Ammunition Electrical Detonator

Length	10 mm
Diameter	7.2 mm
Case	Aluminium
Electrical Resistance	2.5-3.5 Ω
No Fire Sensitivity	450 mA DC-300 sec.
All-Fire Current	700 mA-50 msec.
Explosive Amount	~ 70 mg
Blasting Power	It creates a hole with a diameter of 5 mm on the lead plate which has a thickness of 3.5 mm.
Weight	~ 915 mg

It is used in the fuze of 35 mm Air Burst Ammunition.

35 mm Air Burst Ammunition Booster

Length	11.5 mm
Diameter	23 mm
Case	Aluminium
Weight	~ 5 g
Explosive Amount	~ 1 g
Base Charge	RDX
Blasting Power	It creates a hole with a diameter of 10 mm on the steel plate which has a thickness of 2 mm.

It is used in the fuze of 35 mm Air Burst Ammunition.

MKE 2019 Detonator

Length	9.5 mm
Diameter	9.8mm
Case	Aluminum
Blasting Power	It creates a hole with a diameter of 13 mm on the steel plate which has a thickness of 2 mm.
Weight	~ 1.3 g

It is used as an element of an ignition chain.
It ignites the booster of the fuze.

MOD 500 Electrical Detonator

Length	16 mm
Diameter	11 mm
Case	Brass
Explosive Amount	~ 110 mg
Weight	~ 7 g

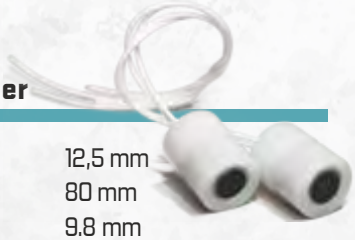
It is igniter of 120 mm Tank Ammunition.

35 mm Air Burst Ammunition Rotor

Length	5.9 mm
Diameter	7.1 mm
Case	Steel
Weight	~ 715 mg
Explosive Amount	~ 100 mg
Base Charge	RDX
Blasting Power	It creates a hole with a diameter of 5 mm on the lead plate which has a thickness of 5 mm.

It is used in the fuze of 35 mm Air Burst Ammunition.

MKE 06 Primer



Body Length	12,5 mm
Length of Cable	80 mm
Diameter	9.8 mm
Case	Delrin
Electrical Resistance	2.5-3.5 Ω
No Fire Sensitivity	450 mA DC-300 sec.
All-Fire Current	700 mA-50 msec.
Explosive Amount	~ 70 mg
Blasting Power	It creates a hole with a diameter of 5 mm on the lead plate which has a thickness of 3.5 mm.
Weight	~ 2 g

It is used as an element of an ignition chain.
It ignites the detonator. (such as MKE 2019 Detonator)

MK1 MOD0 Electrical Detonator

Length	15.5 mm
Cable Length	180 mm
Diameter	7.3 mm
Weight	2.5 g
Case	Steel
Electrical Resistance	0.9-1.1 Ω
Firing Current	1.5 A
No-Fire Sensitivity	250 mA-10 sec.
Delay Time	3 msec.
Explosive Amount	~ 70 mg

It is used in 2,75'' Rocket Igniter.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

PRECISION RIFLES

7.62 mm **KANS** Grooved Hunting Rifle
7.62 mm **MKE T-41** Semi Automatic Precision Rifle
5.56 mm **MKE T-43** Semi Automatic Precision Rifle
9 mm **MKE T-94 A2** Semi Automatic Precision Rifle
9 mm **MKE T-94 A3** Semi Automatic Precision Rifle
9 mm **MKE T-94 SD** Semi Automatic Precision Rifle
9 mm **MKE T-94 K** Semi Automatic Precision Rifle

KANS

7.62 mm x 51 NATO

GROOVED HUNTING RIFLE

Calibre	7.62 mm x 51 NATO	**Type of Fire**	Single
Magazine Capacity	3	**Body Material**	Steel
Length	1155 mm	**Barrel Length**	610 mm
Weight	3750 g	**Barrel Type**	Cold Forging
Effective Range	800 m	**Muzzle Velocity**	860 m/s
Maximum Range	3800 m	**Trigger Force**	20-30 Newton
Working Principle	Bolt Action	**Sensitivity**	Adjustable
Accuracy	1 MOA	**Buttstock**	Orthopedic, Fixed, Turkish Walnut Wood
		Groove	4

MKE T-41

7.62 mm x 51 NATO

SEMI AUTOMATIC PRECISION RIFLE

Calibre	7.62 mm x 51 NATO	**Type of Fire**	Semi Automatic
Magazine Capacity	5/10	**Barrel Length**	470 mm
Length	1020 mm	**Muzzle Velocity**	800 m/s
Weight	4700 g	**Buttstock**	Fixed
Effective Range	400 m	**Groove**	4

MKE T-43

5.56 mm x 45 NATO

SEMI AUTOMATIC PRECISION RIFLE

Calibre	5.56 mm x 45 NATO	**Type of Fire**	Semi Automatic
Magazine Capacity	10/30	**Barrel Length**	431 mm
Length	1020 mm	**Muzzle Velocity**	890 m/s
Weight	4500 g	**Buttstock**	Fixed
Effective Range	400 m	**Groove**	6

MKE T-94 A2

9 mm x 19

SEMI AUTOMATIC PRECISION RIFLE

Calibre	9 mm x 19 Parabellum
Magazine Capacity	15/30
Length	683 / 778 / 878 mm
Weight	3200 g
Type of Fire	Semi Automatic
Barrel Length (optional)	225 / 320 / 420 mm
Muzzle Velocity	400 m/s
Buttstock	Fixed
Groove	6

MKE T-94 A3

9 mm x 19

SEMI AUTOMATIC PRECISION RIFLE

Calibre	9 mm x 19 Parabellum
Magazine Capacity	15/30
Length	525/620/720 mm
Length (Open Butt)	660/755/855 mm
Weight	2800 g
Type of Fire	Semi Automatic
Barrel Length	225/320/420 mm
Buttstock	Retractable
Groove	6

MKE T-94 SD

9 mm x 19

SEMI AUTOMATIC PRECISION RIFLE

Calibre	9 mm x 19 Parabellum
Magazine Capacity	15/30
Length	780 mm
Weight	3100 g
Type of Fire	Semi Automatic
Barrel Length	146 mm
Buttstock	Fixed
Groove	6

MKE T-94 K

9 mm x 19

SEMI AUTOMATIC PRECISION RIFLE

Calibre	9 mm x 19 Parabellum
Magazine Capacity	15/30
Length	325 mm
Weight	2000 g
Type of Fire	Semi Automatic
Barrel Length	115,6 mm
Groove	6

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKİNE VE KİMYA ENDÜSTRİSİ INC.

PERSONAL PROTECTIVE EQUIPMENT, GAS MASKS & CANISTERS

MKE-NEFES New Generation Gas Mask
SR10 and SR10 ST Gas Masks
New Generation Panoramic Gas Mask
Gas Mask for Armor Personnel Carrier
MKE Escape Hood
CBRN and Industrial Type of Canisters
Surgical Mask
FFP3 Type Valved/Without Valved Mask
MKEK Half-Face Mask and Canister
Type A Safety Goggles
Type B Safety Goggles
Type C Face Shield
Protective Coverall
MKE Thermal Camera Systems
SAHRA Portable Ventilator

MKE MACHINERY & GAS MASK FACTORY

ANKARA

Besides manufacturing and modernizing weapon systems, the facility also carries out the productions given below:

- **MKE-NEFES New Generation Gas Mask**
- **SR10 and SR10 ST Gas Masks**
- **New Generation Panoramic Gas Mask**
- **Gas Mask for Armor Personnel Carrier**
- **MKE Escape Hood**
- **CBRN and Industrial Type of Canisters**
- **Surgical Mask**
- **FFP3 Type Valved/Without Valved Mask**
- **MKEK Half-Face Mask and Canister**
- **Type A Safety Goggles**
- **Type B Safety Goggles**
- **Type C Face Shield**
- **Protective Coverall**
- **MKE Thermal Camera Systems**
- **SAHRA Portable Ventilator**

MKE-NEFES
NEW GENERATION GAS MASK

TECHNICAL SPECIFICATIONS

Standard Number	Ar-Ge and Tekno. D.2017-1/NBC and ENC.1, TS 8861
Protection	Designed for use by military, civil defense, police and emegency personal in toxic enviroments, potentially contamined with Chemical, Biological, Radiological and Nucleer (CBRN) agents.
Material	Natural rubber / Butyl rubber
Weight	550-600 g
Canister Type	Can be plug right or left
Assembly	It is suitable to be used with any gas mask via a connection screw compliant with TS EN 148-1 standard, quality of their respiration resistance and other features are compliant with the NATO and European Standards.
Temperature Test (°C)	-30 ± 2 / +50 ± 2
Glass and Sound Features	Panoramic polycarbonat glass with antistratch, antifog and high impact strength features. Provides easy sound transmission.
Head Strap	Butyl / Natural, six point harness.
Shelf Life	10 years
Aerosol Tightness	0,003 % max.
Impermeability	CBRN Gas tests and flow resistance tests
Visual Field	Double ocular visual field angle: Min. %20 Vertical visual field angle: Min. %50 Horizontal visual field angle: Min. %80
Dimension	It's inserted to a box with dimensions of 25x20x15 cm.
Gas Mask and Canister Bag and Packing	It is designed to carry 1 gas mask and 2 canister with vacuum package and waterproof (Cordura®) bag.
Drinking Tube System	Available
Electronic Sound Amplifier	Optionally
Military Radio Connection Set	Optionally
Protective Visor	Optionally
Inner Glasses Equipment	Optionally

With CE Certification.

SR10 and SR 10 ST
GAS MASK

Standard Number	Ar-Ge and Tekno. D.2003-1/NBC and ENC.1 , TS 8861
Protection	Designed for use by military, civil defense, police and emegency personel in toxic enviroments, potentially contamined with Chemical, Biological, Radiological and Nucleer (CBRN) agents
Material	Natural rubber
Weight	680-800 g
Assembly	It is suitable to be used with any gas mask via a connection screw compliant with TS EN 148-1 standard, quality of their respiration resistance and other features are compliant with the NATO and European Standards.
Temperature Test (°C)	-30 ± 2 / +50 ± 2
Glass and Sound Features	Polycarbonat glass with antistratch, antifog and high impact strength features. Provides easy sound transmission.
Head Strap	Natural rubber and six point harness.
Shelf Life	10 years
Aerosol Tightness	0,003 % max.
Impermeability	CBRN Gas tests and flow resistance tests
Visual Field	Double ocular visual field angle: Min. %15 Vertical visual field angle: Min. %40 Horizontal visual field angle: Min. %70
Dimension	It's inserted to a box with dimensions of 25x20x15 cm.
Gas Mask and Canister Carrier / Bag	It is designed to carry 1 gas mask and 2 canister with vacuum package and waterproof bag.
Drinking Tube System	It's only available on the SR 10 ST type gas mask.
Other Related Products	1) Gas Mask With Microphone Connector Set 2) Long Type Pipe Drinking Tube System 3) Gas Mask For Armor Personel Carrier 4) Gas Mask With Double Screw Hole

With CE Certification.

NEW GENERATION PANORAMIC GAS MASK

Standard Number	TS 8861
Protection	Designed for use by military, civil defense, police and emegency personel in toxic enviroments, potentially contamined with CN/SC/OC agents.
Material	Natural rubber / Butyl rubber
Weight	530-560 g
Canister Type	Can be plug right or left
Assembly	It is suitable to be used with any gas mask via a connection screw compliant with TS EN 148-1 standard, quality of their respiration resistance and other features are compliant with the NATO and European Standards.
Temperature Test (°C)	-30±2 / 50 ±2
Glass and Sound Features	Panoramic polycarbonat glass with antistratch, antifog and high impact strength features. Provides easy sound transmission.
Head Strap	Textile
Shelf Life	10 years
Aerosol Tightness	0,003 % max.
Impermeability	Gas tests and flow resistance tests
Visual Field	Effective ocular visual field angle: Min. %70 Overlap visual field angle: Min. %80
Dimension	It's easily inserted to a box with dimensions of 25x20x15 cm.
Gas Mask and Canister Carrier / Bag	It is designed to carry 1 gas mask and 2 canister with vacuum package and waterproof bag.

With CE Certification.

GAS MASK FOR ARMOR PERSONNEL CARRIER

APC Vehicle Gas Mask Set consists; Gas Mask, CBRN Hose, Canister Holder with Connector, D12 Canister and Shoulder Carrying Bag. It provides complete protection in all chemical, biological, radiological and nuclear environments.

MKE
ESCAPE HOOD

PROTECTION FACTOR & HOOD PERFORMANCE

Breathing zone (Oronasal)	Greater than 2000
Hood zone (Ocular)	Greater than 150
Neck size range	330-500 mm
Donning time	Less than 30 s
Re-breathing CO_2	Less than 2.0%

BREATHING RESISTANCE

Inhalation at 85 Lpm	Less than 500 mm H_2O
Exhalation at 85 Lpm	Less than 10 mm H_2O

BARRIER PERFORMANCE (SWATCH SAMPLES)

Sarin/Soman (GB/GD)	More than 50 minutes
Mustard Agent (HD)	More than 50 minutes

FILTER PERFORMANCE

Particulate penetration	P3/P100

With CE Certification.

TYPICAL FILTER PERFORMANCE DATA

	Breakthrough Time (minutes)
Hydrogen Cyanide	90
Choloropicrin	150
Cyanogen Chloride	80
Phosgene	100
Sarin	340

PACKAGING

Pack size	150 x 100 x 90 mm
Packing type	4 layer foil barrier bay surrounded by reinforced nylon carrier
Weight (as carried)	600-650 gr
Packaged shellf life	5 years when stored between (-15 °C)-(+40 °C)
User instruction manual	English/Turkish

CBRN AND INDUSTRIAL TYPE OF CANISTERS

Standard Number	Ar-Ge & Tekno. D.2003-1/NBC and ENC1, TS 8861, MIL-C-0013724		
Weight	Apx. 250-300 g		
Dimension	It's inserted to a box with dimensions of 12x12x8 cm.		
Canister Type	**D-13 (Aluminium)**	**P-13 (Plastic)**	**D-12**
Active Material	Activated Carbon	Activated Carbon	Activated Carbon
Aerosol Filter	Available	Available	Available
Aerosol Tightness	% 0.003 Max.	% 0.003 Max.	% 0.003 Max.
Shelf Life	10 Years	10 Years	10 Years
Package	Special aluminium foil with vacuum package	Special aluminium foil with vacuum package	Special aluminium foil with vacuum package
Protection	**CN, CS, OC**		**War Gases (NATO)**
Other Industrial Type of Canisters	Against Industrial type; organic - inorganic - toxic - acidic gases and their vapour. Type A, Type B, Type E, E2-P3 Combine, Type K, ABE-P3 Combine, ABEK, P3 Dust.		

With CE Certification.

SURGICAL MASK

- Made from a special medical fabric, it can be used for a long time without disturbing the ears thanks to its flexible strap.
- Nonwoven fabric
- Anti-allergic and high air-permeability
- Ultrasonic stitches
- Disposable
- 3 layers
- It has UTS and CE certificate.

FFP3 TYPE VALVED/WITHOUT VALVED MASK

- The MKE FFP3-type Valved / Without Valved Mask provides the user with effective and comfortable respiration. Its 3 dimensional flexible frame is designed to fit all face types. These products meet the requirements laid down in the European Community Directive 89/686/EEC (Personal Protective Equipment Directive) and are thus CE-marked.
- Non-irritating
- Nanofiber nonwoven textile material with 3 layers
- Nose piece
- Nano-fiber coating technology
- Filtration Efficiency: at max 0.6 µm + 99%
- Outlet valve available

MKEK HALF-FACE MASK AND CANISTER

- Double air valves
- Adjustable head strap
- It provides superior protection compared to N99-and FFP3-type masks.
- Half-face mask that can be decontaminated.
- With CE Certification.

TYPE A SAFETY GOGGLES

- Designed to fit all face types.
- Reflex edges made of TPU material.
- Adjustable head strap available.
- 100% vision clarity
- With CE Certification.

TYPE B SAFETY GOGGLES

- Designed to fit all face types.
- Thanks to its anti-fog feature, it blocks moisture from sticking on the glasses during use.
- Reflex frame borders made of medical PVC material.
- Adjustable head strap available.
- 100% vision clarity
- With CE Certification.

TYPE C FACE SHIELD

- Replaceable plexiglass transparent sheet
- Flexible, adjustable head strap
- Polypropylene cap
- With CE Certification.

PROTECTIVE COVERALL

- Made from nonwoven fabric, it is particle-and liquid-resistant.
- The face part of the hood as well as the wrist and ankle parts, all elastic, do not disturb the user.
- The hood and collar as an entirety do not hinder neck movements.
- Zip front from chin to legs
- Disposable
- Low pressure and resistant to liquid splashes.
- Available in 3 sizes: M, L, XL

MKE THERMAL CAMERA SYSTEMS

Where to Use

MKE Thermal Camera System can be used in places where there is a continual movement of people, such as healthcare and education institutions, shopping malls, military and civil institutions, airports and customs gates.

MKE Thermal Camera System that will be installed at the entries and exits of mass transport stations will be able to sense the body temperature of all incoming and outgoing passengers. This system offers instant screening of passengers through a camera that focuses on turnstiles to detect the passengers with high body temperature.

Also, with this system installed in the passenger boarding bridges of the airports, the passengers with higher-than-normal body temperature will be spotted before they leave the boarding bridge.

Once a person with a risk of infection is pinpointed, the personnel on duty at the station/facility will immediately be alerted and provided with the facial image of the possible case. In this way, the possible case would be prevented from using any public transport or entering into the crowd.

- Airports
- Hospitals
- Public Transportation
- Shopping Malls
- Education Institutions
- Prisons
- Banks
- Stadiums
- Military Institutions
- Critical Facilities
- Workplaces

Specifications

Smart

TUBITAK-backed national artificial intelligence and Video Analysis Infrastructure IBEX

Reliable

Touch-free temperature metering

Accurate Result

Combines face images and temperature value by using artificial intelligence

Sensor Fusion

Combines data from colored camera and thermal camera

SAHRA
PORTABLE VENTILATOR

Main Features

- Up to 4 hours working time with internal battery unit
- Input Voltage DC 12 VDC
- Power consumption 24W
- It complies with IEC 60601 standards.

Modes

- CPAP (Continuous airway pressure) mode
- Assist Control (Patient triggered)
- SIMV (Synchronized intermittent mandatory ventilation) mode
- PSV(Pressure Support Ventilation) mode

Usage Areas

- Health and care units to be established related to the pandemic.
- Medical units of military base areas or barracks
- Field hospitals
- Building or facilities reserved for quarantine
- Hospitals, emergency intensive care units
- Ambulances
- Home treatment

Advantages

- It provides respiratory support for patients with breathing difficulties and low oxygen levels in blood stemming from diseases like COVID-19
- It is designed in an ergonomic concept that makes its transfer possible even with only one hand
- It has modes which can be integrated with technology
- Necessary information and graphics about the patient's condition can easily be seen on the screen

MAKiNE VE KiMYA ENDÜSTRiSi INC.

MAKiNE VE KiMYA ENDÜSTRiSi INC.

POWDERS
BRASS MATERIALS
STEEL MATERIALS

MKE POWDER FACTORY
KIRIKKALE

MKE Powder Factory has separate facilities focusing on nitrocellulose, powder (cylindrical and ball), combustible case and ether production. The main duty of the factory is to produce different kinds of powder for artillery ammunition, mortars, rifles and pistols required by the military defence industry. Besides these, MKE Powder Factory produces hunting propellants, different kinds of nitrocellulose and ether for the related market.

The powder produced as a single-, double- and triple-based is used in hunting ammunition, small arms, heavy weapons ammunition. The Ball Powder Production Facility, with a production capacity of 750 tonnes/year has been producing different types of ball powder since 2006.

Additionally, four types of nitrocellulose (powder, rocket, dynamite and lacquer) have been produced in the factory, meeting military and international standards.

MKE Powder Factory is the leading powder and nitrocellulose production factory in Turkey. Engineering and R&D activities are also highlighted here. The factory strongly abides by the military and international standards while producing its products. MKE Powder Factory has been awarded an ISO 9001:2000 certificate that confirms the highest level of quality management system applications.

Cylindrical Powders and Propellants

M9(0) Propellant

Charge Weight	5,8 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	-
Mean Velocity (m/sn)	-

CBI (Tip II) Propellant

Charge Weight	-
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	-
Mean Velocity (m/sn)	-

155 mm M1 Propellant

Charge Weight	2600 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	1969 bar
Mean Velocity (m/sn)	374,9

155 mm M1 Propellant with 7 Perforations

Charge Weight	6200 g
Shape	Cylindrical with 7 perforations
Type	Single Base
Pressure (kgf/cm²)	Max. 2250 bar
Mean Velocity (m/sn)	563,9

155 mm M6 Propellant

Charge Weight	9560 g
Shape	Cylindrical with 7 perforations
Type	Single Base
Pressure (kgf/cm²)	Min. 1828 bar Max. 2320 bar
Mean Velocity (m/sn)	Max. 686,1

120 mm CEP-2 Propellant

Charge Weight	-
Shape	Cylindrical with 7 perforations
Type	Double Base
Pressure (kgf/cm²)	686 bar
Mean Velocity (m/sn)	1705±15

106 mm M26 Propellant

Charge Weight	3650 g
Shape	Cylindrical with 7 perforations
Type	Double Base
Pressure (kgf/cm²)	Max. 781 bar
Mean Velocity (m/sn)	Max. 502.9

105 mm M1 Propellant (PANTER)

Charge Weight	2850 g
Shape	Cylindrical with 7 perforations
Type	Single Base
Pressure (kgf/cm²)	Max. 2230 bar
Mean Velocity (m/sn)	Max. 683

105 mm M30 Propellant

Charge Weight	5800 g
Shape	Cylindrical with 7 perforations
Type	Triple Base
Pressure (kgf/cm²)	Max. 4254 bar
Mean Velocity (m/sn)	Max. 1485

40 mm M9 Propellant

Charge Weight	0.45 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	3700 ± 200 bar
Mean Velocity (m/sn)	75 ± 5

35 mm Anti-Aircraft Propellant

Charge Weight	330 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	Max. 4900 bar
Mean Velocity (m/sn)	Min. 1165 Max. 1195

12.7 mm Cartridge Powder

Charge Weight	15,35 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	Max. 3726 bar
Mean Velocity (m/sn)	885±4,6

Cylindrical Powders and Propellants

Smokeless Shutgun (Flake)

Charge Weight	-
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	450-650 bar
Mean Velocity (m/sn)	Min. 350

120 mm NC-NG Propellant

Charge Weight	-
Shape	Cylindrical with 7 perforations
Type	Double Base
Pressure (kgf/cm²)	Min. 510 bar
Mean Velocity (m/sn)	Max. 570 bar
	1730±15

7.62 mm Nato Powder

Charge Weight	2,85 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	3375 bar
Mean Velocity (m/sn)	838±4,6

7.62 mm (M82) Blank Powder

Charge Weight	0,74 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	Max. 2550 bar
Mean Velocity (m/sn)	-

7.62 mm Nato High Pressure Powder

Charge Weight	2,5 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	Max. 4300 bar
Mean Velocity (m/sn)	-

35 mm Air Burst Ammunition

Charge Weight	310 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	Max. 4200 bar
Mean Velocity (m/sn)	1020±10

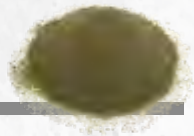
25 mm HEI-T/TP-T Propellant

Charge Weight	90 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	4020 bar
Mean Velocity (m/sn)	1100±15

25 mm APDS-T Propellant

Charge Weight	96 g
Shape	Cylindrical with 7 perforations
Type	Single Base
Pressure (kgf/cm²)	Max. 4540 bar
Mean Velocity (m/sn)	1345±15

40 mm M2 Propellant



Charge Weight	4,5 g
Shape	Cylindrical
Type	Double Base
Pressure (kgf/cm²)	105 bar
Mean Velocity (m/sn)	250±12,5

120 mm MOD300 Propellant

Charge Weight	5430 g
Shape	Cylindrical with 7 perforations
Type	Double Base
Pressure (kgf/cm²)	Max. 3200 bar
Mean Velocity (m/sn)	870±10

155 mm Moduler Charge System Propellant

Charge Weight	2350 g
Shape	Rosette shaped (hexogonal) with 19 hole
Type	Triple Base
Pressure (kgf/cm²)	4158 bar
Mean Velocity (m/sn)	Min 935

35mm Primer Powder

Charge Weight	1,2 g
Shape	Cylindrical
Type	Single Base
Pressure (kgf/cm²)	-
Mean Velocity (m/sn)	-

Ball Powder

Ball Powder (5.56 mm x 45)

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	Max. 3654 Bar
Mean Velocity (m/sn)	914.4 ± 6.1 m/s
Standard deviation	Max. 7.6 M/S

5.56 (M200 Blank) Ball Powder

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	-
Mean Velocity (m/sn)	-
Standard deviation	-

Ball Powder (7.62 mm x 51)

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	Max. 3516 bar
Mean Velocity (m/sn)	833±4,6 m/s
Standard deviation	Max. 6,1 m/s

7.62mm x 39 Kalashnikov Ball Powder

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	Max. 2850 bar
Mean Velocity (m/sn)	710±15 m/s
Standard deviation	-

Ball Powder (9 mm x 19)

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	Piezo 6203: Max. 2150 bar;
Mean Velocity (m/sn)	Piezo 6215: Max. 2350 bar
Standard deviation	375±7,6
	Max. 6,1 m/s

Ball Powder (12.7 mm x 99)

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	KIAG 6215: Max. 4344 bar
Mean Velocity (m/sn)	KIAG 6215: 885±4,6 m/s
Standard deviation	Max. 9,1 m/s

Ball Powder (20 mm x 102)

Shape	Spherical
Type	Double base
Pressure (kgf/cm²)	Max. 3868 bar
Mean Velocity (m/sn)	1030±7,6 m/s
Standard deviation	Max. 9,1 m/s

Combustible Case

120 mm Combustible Case and Adaptor

Components used in 120 mm APFSDS-T and 120 mm TPCSDS-T tank amunitions.

120 mm HE Combustible Adaptor HE-T/HEAT

Components used in 120 MM HE tank amunition

155 mm Combustible Cartridge Cases

Components of modular charge systems used in the firing of 155 mm MKE MOD 274 and 155 mm MKE MOD 281 artillery amunitions.

155 MM MODULAR CHARGE SYSTEMS (FOR AMMUNITIONS 155 mm MKE MOD 274 and 155 mm MKE MOD 281)

Mean Muzzle Velocity	Min 945 m/s
Velocity Variation	≤ 5 m/s
Gun	Fırtına and Panter Howitzer (52 Calibre)
Max Operating Pressure	4160 bar
Storage Temperature	Min. -46°C Max. +63°C
Operating Temperature	-40±2°C ile +50±2°C
Range	Max. 39 km
Number of Modules	6
Usability	with 3,4,5,6 modules
Shelf Life	Min. 10 years (20±5 °C ve 50±10 % humidity)
Faster and Easier Handling	Double direction loading Less wear and tear on gun tubes

MKE
BRASS FACTORY
KIRIKKALE

MKE Brass Factory is the first factory established for the non-ferrous metal sector of Turkey. MKE Brass Factory supplies the following products for artilleries and guns:

- Brass discs for artilleries
- Brass rods for fuses
- Case and bullet cups for cartridges
- Rotating bands
- Capsule tubes
- Lead blocks with antimony for guns

MKE Brass Factory also provides semi-finished products like copper and brass rods, tubes, strips, ingots, blocks etc. for the domestic industries. The factory also carries out ammunition disposal activities for the Turkish Armed Forces. All productions are produced conforming to the EN and ASTM standards. The factory has been awarded TS EN ISO 9001:2015 and AQAP 2110 quality assurance system certificates.

BRASS MATERIALS

<table>
<tr><th>Case Cups
(MIL C 10375 C)</th><th>Bullet Cups
(MIL C 3383 B)</th><th>Brass Discs
(ASTM B 19)</th><th>Rotating Bands
(ASTM B 135)</th><th>Lead Blocks
With Antimony
(MIL L 13283 C)</th><th>Brass Rods
(TS / EN / ASTM)</th></tr>
<tr><td>20 mm x 102</td><td>12,7 mm M33</td><td rowspan="2">105 mm
Panter / M1 Howitzer</td><td rowspan="2">8 Inch M106</td><td rowspan="2">% Pb: 97,5–98,0
% Sb: 2,00 – 2,50</td><td rowspan="4">Cold Drawn
(mm)
12-12,5-18-18,1-
26,5-36-38-51,5</td></tr>
<tr><td>12,7 mm x 99</td><td>12,7 mm M17</td></tr>
<tr><td>9 mm x 19</td><td>9 mm x 19</td><td rowspan="2">5/38 Inch</td><td rowspan="2">105 mm</td><td rowspan="2">Length (mm):
260 ± 5</td></tr>
<tr><td>9 mm x 17</td><td>9 mm x 17</td></tr>
<tr><td>7,65 mm x 99</td><td>7,65 mm x 99</td><td rowspan="2">40-76 mm
L70 / L62</td><td rowspan="2">155 mm</td><td rowspan="2">Outer Diameter
(mm):
110±2min/125±2 max</td><td rowspan="5">Extruded
(mm)
16-30 mm
32-65 mm
70-110 mm</td></tr>
<tr><td>7,62 mm x 51</td><td>7,62 mm M118</td></tr>
<tr><td>7,62 mm x 39</td><td>7,62 mm M80</td><td rowspan="2">60 mm</td><td rowspan="2">175 mm</td></tr>
<tr><td>7,62 mm Shrinked</td><td>7,62 mm M62</td><td rowspan="2">Ağırlık (kg):
30</td></tr>
<tr><td>5,56 mm x 45</td><td>7,62 mm M61</td><td rowspan="2">40 mm
L70</td><td rowspan="2">5/38 Inch</td></tr>
<tr><td>5,56 mm Shrinked</td><td>5,56 mm x 45</td></tr>
</table>

MKE
STEEL FACTORY
KIRIKKALE

STEEL GRADES

CARBON STEELS	LOW ALLOY STEELS	ALLOY STEELS	TOOL STEELS
Ç1010 – Ç1090	25CrMo4 – 42CrMo4	Ç3215 – Ç3230	56NiCrMoV7
CK15 – CK101	Ç4130 – Ç4150	Ç3315 – Ç3330	X40CrMoV5.1
S235 / S355 / S460	Ç8620 – Ç8650	Ç3415 – Ç3435	45NiCrMo16
Ç1330 – Ç1390	Ç3115 – Ç3150	Ç4320 – Ç4340	45NiCrMo16-6
ASTM A-105	16MnCr5 – 20MnCr5	21CrMoV5-7 / 21CrMoV5-11	90MnCrV8
16Mn5 – 20Mn5	Ç5115 – Ç5190	Ç35NiCrMoV 12.5	32CrMoV 12-28
17Mn4 – 24Mn4	100Cr6 – 115CrV3	32CrMoV 12.10	
	65MnCrMo4	15NiCr6 – 45NiCr6	
	TSTE 460	30CrNiMo8	

SIZE vs. METRIC WEIGHT TABLE OF 3000T PRESS

ø	KG/M	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
	150	294	353	412	471	530	589	648	707	765	824	883	942	1001	1060	1119	1178
	200	393	471	550	628	707	785	864	942	1021	1099	1178	1256	1335	1413	1492	1570
388	250	**491**	589	687	785	885	981	1079	1178	1276	1374	1472	1570	1668	1766	1864	1963
555	300	589	**707**	824	942	1060	1178	1295	1413	1531	1648	1766	1884	2002	2120	2237	2355
756	350	687	824	**962**	1099	1236	1374	1511	1649	1786	1923	2061	2198	2335	2473	2610	2748
987	400	785	942	1099	**1256**	1413	1570	1727	1884	2041	2198	2355	2512	2669	2826	2983	3140
1249	450	883	1060	1236	1413	**1590**	1766	1943	2120	2296	2473	2649	2826	3003	3179	3356	3533
1543	500	981	1178	1374	1570	1766	**1963**	2159	2355	2551	2748	2944	3140	3336	3533	3729	3925
1866	550	1079	1295	1511	1727	1943	2159	**2375**	2591	2808	3022	3238	3454	3670	3886	4102	4318
2221	600	1178	1413	1649	1884	2120	2355	2591	**2826**	3062	3297	3533	3768	4004	4239	4475	4710
2607	650	1276	1531	1786	2041	2296	2551	2806	3062	**3317**	3572	3827	4082	4337	4592		
3023	700	1374	1649	1923	2198	2473	2748	3022	3297	3572	**3847**	4121	4396	4671			
3471	750	1472	1766	2061	2355	2649	2944	3238	3533	3827	4121	**4416**	4710				
3949	800																
4458	850																
4998	900																
5568	950																
6170	1000																

PRODUCTION WITH USM GUARANTEE

PRODUCTION WITHOUT USM GUARANTEE

SIZE vs. METRIC WEIGHT TABLE OF GFM SX-40

ø	KG/M	80	100	120	140	160	180	200	220	240	260	280	300	320
	60		47	57	66	75	85	94	104	113	122	132	141	151
39	80	50	63	75	88	100	113	126	138	151	163	176	188	201
62	100	63	79	94	110	126	141	157	173	188	204	220	236	251
89	120	75	94	113	132	151	170	188	207	226	245	264	283	301
121	140	88	110	132	154	176	198	220	242	264	286	308	330	352
158	160	100	126	151	176	201	226	251	276	301	327	352	377	402
200	180	113	141	170	198	226	254	283	311	339	367	396	424	452
247	200	126	157	188	220	251	283	314	345	377	408	440		
299	220	138	173	207	242	276	311	345	380	414	449			
355	240	151	188	226	264	301	339	377	414	452				
417	260	163	204	245	286	327	367	408	449					
484	280	176	220	264	308	352	396	440						
555	300	188	236	283	330	377	424							

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