SMALL CALIBER AMMUNITION

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

CARTRIDGE

SA 5.56 x 45 mm

M-855/SS-109

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

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

CARTRIDGE

SA 5.56 x 45 mm

M193

CARTRIDGE	Calibre	5.56mm
	Length	574 ±0.5mm
	Mass	12. 5 gm
	The shelf life of ammunition is 12 years	
CASE	Rimless, Brass 70:30, Bottle Necked	
BULLET	Guilding Metal envelope lead core	
PROPELLANT	Ball Powder	
PRIMER	Boxer	

PERFORMANCE CHARACTERISTIC	
Projectile Weight	3.62 gm (-0.12)
Muzzle Velocity	964 ± 10m/s (at 24m from muzzle)
Consistency	25 mm (at 100 m) and 51 mm at (182 m)
Chamber Pressure Avrg.(Max)	359 Mpa
Service Temp.	-52°C to 72°C

CARTRIDGE

SA 7.62 x 39 mm BALL

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

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

CARTRIDGE

SA 7.62 x 51 mm

NATO M-80 BALL

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

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.65 gm
Muzzle velocity	817±9 m/s (at 23.7 m from muzzle)
Consistency	190 mm (at 550m)
Penetration	Max 3.45mm mild steel plate at 550m
Chamber Pressure Avg (Max)	348 MPa
Service temperature	-52^{0} C to $+72^{0}$C

CARTRIDGE

SA 7.62 x 51 mm

NATO TRACER M-62

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

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.0 gm
Muzzle velocity	817±9m/s (23.8m from muzzle)
Consistency	Max 38 cm at 550 m
Tracer	777.2 m bright crimson red trace
Chamber Pressure Avg.(Max)	348 Mpa
Service temperature	-40^{0} C to $+52^{0}$C

CARTRIDGE

SA 7.62 x 51 mm

LINKED AMMUNITION

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

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

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

CARTRIDGE

SA 7.62 x 51 mm

MARKSMAN

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

PERFORMANCE CHARACTERISTIC	
Projectile weight	10.90±0.7gm
Muzzle velocity	740±15 m/s (at 23.8 m from muzzle)
Consistency	max 3cm (at 100m)
Chamber Pressure Avg.(Max)	360 Mpa (Avg. Chamber pressure)
Service temperature	-52^0 C to $+72^0$C

CARTRIDGE

SA 7.62 x 54 R mm

STEEL CORE

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

PERFORMANCE CHARACTERISTIC	
Projectile weight	9.06 gm
Muzzle velocity	820-835 m/s at a distance 25m from muzzle
Consistency	15 cm or less at 300 m (R-50)
Penetration	3.5 mm steel plate at 400 m
Chamber Pressure Avg.(Max).	284 Mpa
Service temperature	-52^0 C to $+72^0$C

CARTRIDGE

SA 9 x 19 mm BALL

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

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

CARTRIDGE

0.22" BALL (LONG RANGE)

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

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

CARTRIDGE

SA 12.7 x 108 mm

API

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

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

CARTRIDGE

14.5 mm ATA

FOR ARTILLERY TRAINING AMMN

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

Chamber Pressure

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

Function

- Point Detonation

CARTRIDGE

20 mm AMR

TP

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

PERFORMANCE	
Muzzle velocity	720 ± 10 m/s
Pressure	275 MPa
Range	1500 meters

Weapon
Anti Material Rifle system.

Salient Features
Use for Training & Practice Purpose

CARTRIDGE

20 mm AMR

TPT

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

PERFORMANCE	
Muzzle velocity	720 ± 10 m/s
Pressure	275 MPa
Range	1500 meters
Tracer timing	>2 sec

Weapon
Anti Material Rifle system.

Salient Features
The Accommodation of tracer gives visibility of trajectory.

CARTRIDGE

20 mm AMR

HEI

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

PERFORMANCE	
Muzzle velocity	720 ± 20 m/s at 21° ± 2°C
Penetration	15mm plate at 90 meters

Weapon
Anti Material Rifle system.

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

CARTRIDGE

20 mm AMR

SAPHEI

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

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

Weapon
Anti Material Rifle system.

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

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