

60mm MORTAR SHELLS FAMILY

Mortar Shells family is consisting of:

- **HE MORTAR SHELL M73P3**
- **HE MORTAR SHELL M91**
- **HE MORTAR SHELL M94**
- **SMOKE MORTAR SHELL M73P3**
- **SMOKE MORTAR SHELL M91**
- **HIGH-SMOKE MORTAR SHELL M93**
- **ILLUMINATING MORTAR SHELL M67P2**
- **ILLUMINATING MORTAR SHELL M91**
- **PRACTICE MORTAR SHELL M62**

Modern solutions have been applied in developing II generation shells. These include:

- optimised aero – dynamic shape securing improved external ballistic characteristics, accuracy and precision at all ranges;
- Advanced shell body casting technology, together with the TNT/RDX explosive charge provides optimum efficiency at target.
- Accuracy and precision at all ranges,
- Advanced shell casting technology resulting with great number of fragments, • Base propellant charge is filled with double-base NGB powder (ballistite) fitted into a cardboard bushing

Masking of friendly troops movement as well as blinding of enemy observers, fire support artillery and anti-tank weapon crews is achieved by use of modern, low-drag and highly efficient white phosphorus based smoke shells.

The shells are completed with fuzes which are also indigenously produced: point detonation, superquick/delay fuzes, time pyrotechnical fuzes.

The propellant charge consists of base and increment propellant charges.

The base propellant charge is filled with double-base NGB powder (ballistite) fitted into a cardboard bushing. The increment propellant charge is also filled with NGB powder fitted in 6 reinforced celluloid shells resulting in a good distribution of the projectile initial velocities and good range overlapping.





60 mm HE MORTAR SHELL M73P3

The main technical data	M73 P3
Lenght of shell with fuze	301 mm
Mass of mortar shell with fuze	1350 g
Explosive charge is	trotyl (TNT)
Mass of explosive charge	220 g
Shell is assembled with impact fuze	UTU M88P1
Muzzle safety at lovest initial speed is	70 m
Killing range (1 penetration / m ²) - radius	10 m
Shell is completed with ignition cartridge and four increment charges (0+4).	
Ignition cartridge M98	waterproof
Reliable function of shell is obtained at temperature range of	-30°C to 50°C.
High safety during transportation, handling and parachuting.	
BALISTIC DATA	
When using 60 mm Mortar M57, barrel length 650 mm:	
Maximum range (0+4)	2550 m
Minimum range (0)	94 m
Max. mean operating pressure in mortar	414 bars

PACKING

- 1 complete shell per carton
- Box dimensions 52 x 40 x 20 cm
- Total volume 0,042 m³
- 12 carton per wooden box
- Total mass 29 kg



60 mm HE MORTAR SHELL M91

The main technical data	M91
Lenght of shell with fuze	410 mm
Mass of mortar shell with fuze	2100 g
Explosive charge is hexolite	(RDX/ TNT) or trotyl (TNT)
Mass of explosive charge	400 g
Shell is assembled with impact fuze UTU M93 superquick - delay action fuze.	
Muzzle safety at lovest initial speed is	70 m
Killing range (1 penetration / m ²) - radius	14 m
Shell is completed with ignition cartridge and six increment charges (0+6).	
Ignition cartridge M94	waterproof
Reliable function of shell is obtained at temperature range of	-30°C to 50°C.
High safety during transportation, handling and parachuting.	
BALISTIC DATA	
When using 60 mm Mortar M95, barrel length 1200 mm:	
Maximum range (0+6)	5100 m
Minimum range (0)	90 m
Max. mean operating pressure in mortar	647 bars

PACKING

- 1 complete shell per carton
- Box dimensions 50 x 35 x 20 cm
- Total volume 0,035 m³
- 8 carton per wooden box
- Total mass 28 kg





60 mm HE MORTAR SHELL M94

The main technical data	M90
Length of shell with fuze	395 mm
Mass of mortar shell with fuze	2100 g
Explosive charge is hexolite (RDX/ TNT) OR trotyl (TNT)	
Mass of explosive charge	400 g
Shell is assembled with UTU M93 superquick - delay action fuze.	
Muzzle safety at lowest initial speed is	50 m
Shell is completed with ignition cartridge and for increment charges (0+6).	
Reliable function of shell is obtained at temperature range of -30°C to 50°C.	
High safety during transportation, handling and parachuting.	
BALISTIC DATA	
When using 60 mm mortar M90:	
Maximum range (0+6)	5200 m
Maximum range when using 60mm M70 Commando mortar	2550 m
Minimum range (0)	90 m
Killing range (1 penetration / m ²) - radius	16 m



PACKING

1 complete shell per carton	8 carton per wooden box
Box dimensions 49x35x20 cm	Total mass 30 kg
Total volume 0,034 m ³	

60 mm ILLUMINATING MORTAR SHELL M91, M67P2

The main technical data	M91	M67P2
Shell length, with screwed - on fuze	495 mm	330 mm
Shell mass, with screwed - on fuze	2100 g	1270 g
Mass of illuminating candle	300 g	200 g
Shell is completed with TP M67 pyrotechnic time fuze		
Illuminating power	350000 Cd for 30 s	180.000 Cd for 35 s
Speed of candle descent	3 m/s	2.5 m/s
Shell is completed with ignition cartridge and six increment charges (0+6).		
Ignition cartridge M94	waterproof	
Reliable function of shell is obtained at temperature range of -30°C to 50°C.		
High safety during transportation, handling and parachuting.		
BALISTIC DATA		
When using 60 mm Mortar M95, barrel length 1200 mm:		
Maximum range (0+6)	4000 m	2450 m
Minimum range (0+1))	400 m	400 m
Max mean operating pressure in mortar	647 bars	414 bars



PACKING M91

- 1 complete shell per carton
- 8 carton per wooden box
- Box dimensions 50 x 35 x 20 cm
- Total mass 27 kg
- Total volume 0,035 m³

PACKING M67P2

- 1 complete shell per carton
- 12 carton per wooden box
- Box dimensions 52 x 40 x 20 cm
- Total mass 27 kg
- Total volume 0,042 m³



60mm SMOKE MORTAR SHELL M73P3, SMOKE MORTAR SHELL M91, HIGH-SMOKE MORTAR SHELL M93

The main technical data	M73P3	M91	M93
Length of shell with fuze	286 mm	410 mm	330 mm
Mass of mortar shell with fuze	1350 g	2100 g	1,4 kg
Weight of smoke charge	190 g	300 g	0,45 kg
Fuze: Impact, superquick action	UT M88 P1	UT M88 P1	TP M67
Muzzle safety at lowest initial speed is	70 m		
Shell is completed with ignition cartridge and four increment charges (0+4).			
Ignition cartridge M98	waterproof		
Reliable function of shell is obtained at temperature range of -30°C to 50°C.			
High safety during transportation, handling and parachuting.			
BALISTIC DATA			
When using 60 mm Mortar M57, barrel length 650 mm:			
- Maximum range (0+4)	2550 m	5100 m	2400 m
- Minimum range (0)	94 m	90 m	300 m
- Max. mean operating pressure in mortar	414 bars	647 bars	414 bars



PACKING M73P3

- 1 complete shell per carton
- 12 carton per wooden box
- Box dimensions 52 x 40 x 20 cm
- Total mass 29 kg
- Total volume 0,042 m³

PACKING M91

- 1 complete shell per carton
- 12 carton per wooden box
- Box dimensions 52 x 40 x 20 cm
- Total mass 29 kg
- Total volume 0,042 m³

PACKING M93

- 1 complete shell per carton
- 12 carton per wooden box
- Box dimensions 52 x 40 x 20 cm
- Total mass 30 kg
- Total volume 0,042 m³

60 mm PRACTICE MORTAR SHELL M62

The main technical data	
Length of mortar shell - launcher	202 mm
Projectile length	193 mm
Mass of mortar shell - launcher	1080 g
Mass of projectile	235 g
BALISTIC DATA	
When using 60 mm Mortar M5, barrel length 650 mm and Commando M70, barrel length 650 mm:	
Maximum range	280 m
Minimum range	50 m

PACKING

- 1 complete shell per carton
- 12 carton per wooden box
- Box dimensions 52 x 33 x 19 cm
- Total mass 18 kg

