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COMMERCIAL CATALOGUE

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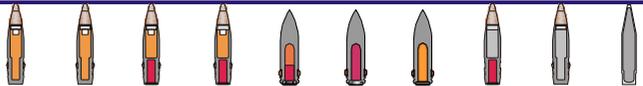
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Group of Companies

AMMUNITION
20, 23, 30, 37, 40 and 57 mm

AMMUNITION 20mm x 110 FOR ANTI-AIRCRAFT GUN 20mm M55, HS 404 AND HS 804 "HISPANO"

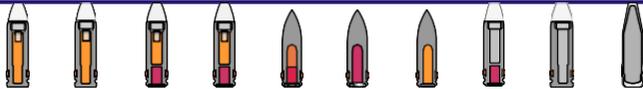


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	API-T	API	AP-T	TP-T	TP	BLANK
WEIGHT										
projectile (g)	122	122	122	122	142	142	142	122	122	min 70
propellant (g)	29	29	29	29	32	32	32	29	29	29
explosive (g)	12.1	12.1	6.1	6.1	none	none	none	none	none	none
complete round (g)	246	246	246	246	265	265	265	246	246	195
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none	none	none
LENGHT (mm) complete round	184	184	184	184	182	182	182	184	184	184
MUZZLE VELOCITY (m/s)	845	845	845	845	844	844	844	845	845	none
SELF-DESTRUCTION TIME (s)	4,5 - 8	4,5 - 8	4,5 - 8	4,5 - 8	none	none	none	none	none	none
TRACER BURNING TIME (s)	.	.	3.5	3.5	3.5	3.5	.	3.5	.	.

PACKING:

100 rounds in wooden case
Case gross mass: 34kg
W/C dimensions: 660mm x 232mm x 200mm
Case volume: 0.03m³

AMMUNITION 20mm x 110RB FOR ANTI-AIRCRAFT GUN 20mm MK-IV "OERLIKON"

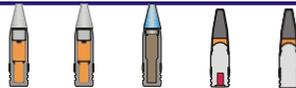


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	API-T	API	AP-T	TP-T	TP	BLANK
WEIGHT										
projectile (g)	119	119	122	122	142	142	142	122	119	min 70
propellant (g)	29	29	29	29	32	32	32	29	29	29
explosive (g)	12.1	12.1	6.1	6.1	none	none	none	none	none	none
complete round (g)	246	246	246	246	265	265	265	246	246	195
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none	none	none
LENGHT (mm) complete round	184	184	184	184	182	182	182	184	184	184
MUZZLE VELOCITY (m/s)	845	845	845	845	844	844	844	845	845	none
SELF-DESTRUCTION TIME (s)	4,5 - 9	4,5 - 9	4,5 - 9	4,5 - 9	none	none	none	none	none	none
TRACER BURNING TIME (s)	.	.	3.5	3.5	3.5	.	3.5	3.5	.	.

PACKING:

100 rounds in wooden case
Case gross mass: 34kg
W/C dimensions: 600mm x 232mm x 200mm
Case volume: 0,030m³

AMMUNITION 23mm x 115 FOR AIRCRAFT GUN GSh-23L AND GSh-23LU

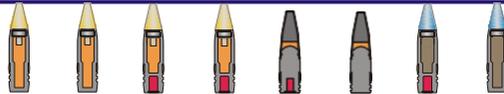


NATO DESIGNATION	HE	HEI	TP	API-T	API
WEIGHT					
projectile (g)	174	174	174	168	174
propellant (g)	37	37	37	37	37
explosive (g)	16.3	16.3	none	none	none
complete round (g)	329	329	331	321	331
EXPLOSIVE TYPE	RDX	RDX+AL	none	none	none
LENGTH (mm) complete round	197.9	197.9	197.9	197.8	197.8
MUZZLE VELOCITY (m/s)	720	720	720	720	720
TRACER BURNING TIME (s)	none	none	none	3,5	none

PACKING:

100 rounds in wooden case
Case gross mass: 42kg
W/C dimensions: 705mm x 250mm x 202mm
Case volume: 0,035m³

AMMUNITION 23mm x 152B FOR ANTI-AIRCRAFT GUN ZU-2 AND ZSU-4

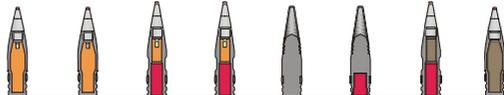


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	API-T	API	TP-T	TP
WEIGHT								
projectile (g)	182	182	190	190	190	190	190	182
propellant (g)	78	78	78	78	78	78	78	78
explosive (g)	19,6	19,6	16,3	16,3	5	5	none	none
complete round (g)	440	440	450	450	450	450	450	440
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none
LENGTH (mm) complete round	236	236	236	236	236	236	236	236
MUZZLE VELOCITY (m/s)	970	970	970	970	970	970	970	970
SELF-DESTRUCTION TIME (s)	5,6-11,2	5,6-11,2	5,6-11,2	5,6-11,2	none	none	none	none
TRACER BURNING TIME (s)	none	none	3.5	3.5	3.5	.	3.5	.

PACKING:

80 rounds in wooden case
Case gross mass: 44kg
W/C dimensions: 688mm x 286mm x 229mm
Case volume: 0,045m³

AMMUNITION 30mm x 165 FOR ANTI-AIRCRAFT GUN 30mm AO 18

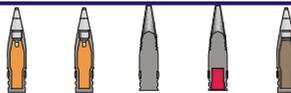


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	AP	AP-T	TP-T	TP
WEIGHT								
projectile (g)	389	389	385	385	400	400	385	389
propellant (g)	121	121	121	121	126	126	121	121
explosive (g)	49	49	11.5	11.5	none	none	none	none
complete round (g)	839	839	835	835	853	853	835	839
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none
LENGHT (mm) complete round	291	291	291	291	292	292	292	292
MUZZLE VELOCITY (m/s)	890	890	890	890	890	890	890	890
SELF-DESTRUCTION TIME (s)	13-19	13-19	13-19	13-19	none	none	none	none
TRACER BURNING TIME (s)	none	none	10	10	none	3.5	10	none

PACKING:

30 rounds in wooden case
Case gross mass: 37kg
W/C dimensions: 576mm x 338mm x 218mm
Case volume: 0,042m³

AMMUNITION 30mm x 165 FOR AIRCRAFT GUN 30mm GSh 301

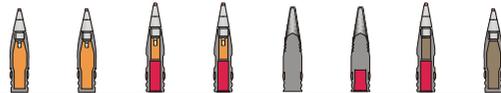


NATO DESIGNATION	HE	HEI	AP	AP-T	TP
WEIGHT					
projectile (g)	389	389	400	400	389
propellant (g)	121	121	126	126	121
explosive (g)	49	49	none	none	none
complete round (g)	840	840	850	850	840
EXPLOSIVE TYPE	RDX	RDX+AL	none	none	none
LENGHT (mm) complete round	290	290	292	292	290
MUZZLE VELOCITY (m/s)	860	860	860	860	860
TRACER BURNING TIME (s)	none	none	none	3.5	none

PACKING:

30 rounds in wooden case
Case gross mass: 37kg
W/C dimensions: 576mm x 338mm x 218mm
Case volume: 0,042m³

AMMUNITION 30mm x 165 FOR ANTI-AIRCRAFT GUN 30mm 2A72, 2A42 AND 2A38M



NATO DESIGNATION	HE	HEI	HE-T	HEI-T	AP	AP-T	TP-T	TP
WEIGHT								
projectile (g)	385	389	385	385	400	400	385	389
propellant (g)	121	121	121	121	126	126	121	121
explosive (g)	49	49	11.5	11.5	none	none	none	none
complete round (g)	833	833	835	835	853	853	835	833
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none
LENGHT (mm) complete round	292	292	291	291	292	292	291	291
MUZZLE VELOCITY (m/s)	960	960	960	960	970	970	960	960
SELF-DESTRUCTION TIME (s)	7.5-14.5	7.5-14.5	7.5-14.5	7.5-14.5	none	none	none	none
TRACER BURNING TIME (s)	none	none	10	10	none	3.5	10	none

PACKING:

30 rounds in wooden case
 Case gross mass: 37kg
 W/C dimensions: 576mm x 338mm x 218mm
 Case volume: 0,042m³

AMMUNITION 30mm x 210B FOR ANTI-AIRCRAFT GUN 30mmAK-230

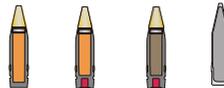


NATO DESIGNATION	HEI	AP-T	TP
WEIGHT			
projectile (g)	356	350	356
propellant (g)	190	190	190
explosive (g)	31.1	none	none
complete round (g)	1066	1050	1066
EXPLOSIVE TYPE	RDX+Al	none	none
LENGHT (mm) complete round	304	304	304
MUZZLE VELOCITY (m/s)	1060	1095	1060
SELF-DESTRUCTION TIME (s)	12-17	none	none
TRACER BURNING TIME (s)	none	min. 2	none

PACKING:

24 rounds in wooden case
Case gross mass: 37kg
W/C dimensions: 670mm x 355mm x 176mm
Case volume: 0,041m³

AMMUNITION 30mm x 220 FOR ANTI-AIRCRAFT GUN 30/2 M53, 53/59 (CS)

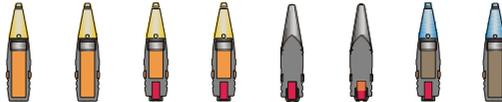


NATO DESIGNATION	HEI	HEI-T	TP-T	BLANK
WEIGHT				
projectile (g)	435	435	435	min 250
propellant (g)	195	195	195	195
explosive (g)	40,8	35,7	none	none
complete round (g)	1140	1140	1140	min. 960
EXPLOSIVE TYPE	RDX+AL	RDX+AL	none	none
LENGHT (mm) complete round	331	331	331	331
MUZZLE VELOCITY (m/s)	997	997	997	-
SELF-DESTRUCTION TIME (s)	9 - 13	9 - 13	none	none
TRACER BURNING TIME (s)	none	4	4	none

PACKING:

40 rounds in wooden case
Case gross mass: 61kg
W/C dimensions: 642mm x 384mm x 298mm
Case volume: 0,073m³

AMMUNITION 37mm x 252 FOR ANTI-AIRCRAFT GUN 37mm M39 (SU)

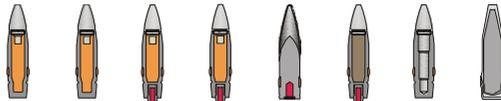


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	AP-T	API-T	TP-T	TP
WEIGHT								
projectile (g)	732	732	732	732	760	732	732	732
propellant (g)	200	200	200	200	200	200	200	200
explosive (g)	40	40	38	38	none	none	none	none
complete round (g)	1480	1480	1480	1480	1480	1480	1480	1480
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none
LENGHT (mm) complete round	385	385	385	385	385	385	385	385
MUZZLE VELOCITY (m/s)	850	850	850	850	850	850	850	850
SELF-DESTRUCTION TIME (s)	7-14	7-14	7-14	7-14	none	none	none	none
TRACER BURNING TIME (s)	none	none	6	6	6	6	6	none

PACKING:

30 rounds in wooden case
Case gross mass: 55kg
W/C dimensions: 680mm x 455mm x 258mm
Case volume: 0,079m³

AMMUNITION 40mm x 311 FOR ANTI-AIRCRAFT GUN 40mm L/60

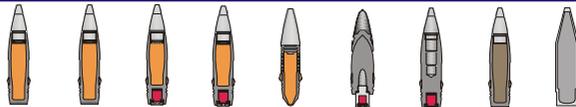


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	AP-T	TP-T	TP	BLANK
WEIGHT								
projectile (g)	910	910	910	910	900	910	910	800
propellant (g)	310	310	310	310	320	310	310	310
explosive (g)	78	78	78	78	none	78	none	none
complete round (g)	2100	2100	2100	2100	2120	2100	2100	1900
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	none	none	none	none
LENGHT (mm) complete round	447	447	447	447	447	447	447	447
MUZZLE VELOCITY (m/s)	880	880	880	880	880	880	880	none
SELF-DESTRUCTION TIME (s)	8-12	8-12	8-12	8-12	none	8-12	8-12	none
TRACER BURNING TIME (s)	none	none	5	5	3.5	5	none	none

PACKING:

16 rounds in wooden case
Case gross mass: 46kg
W/C dimensions: 564mm x 343mm x 318mm
Case volume: 0,061 m³

AMMUNITION 40mm x 365 FOR ANTI-AIRCRAFT GUN 40mm L/70 "BOFORS"

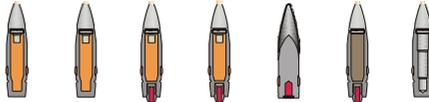


NATO DESIGNATION	HE	HEI	HE-T	HEI-T	PFHE	AP-T	TP-T	TP	BLANK
WEIGHT									
projectile (g)	964	964	964	964	880	930	964	964	920
propellant (g)	480	480	480	480	480	480	480	480	480
explosive (g)	95	95	83	83	83	none	none	none	none
complete round (g)	2500	2500	2500	2500	2420	2470	2500	2500	2450
EXPLOSIVE TYPE	RDX	RDX+AL	RDX	RDX+AL	RDX	none	none	none	none
LENGHT (mm) complete round	535	535	535	535	534.5	497	535	535	535
MUZZLE VELOCITY (m/s)	1005	1005	1005	1005	1025	1025	1005	1005	none
SELF-DESTRUCTION TIME (s)	8-13	8-13	8-13	8-13	3.5-10	none	none	none	none
TRACER BURNING TIME (s)	-	-	4	4	-	4	4	-	-

PACKING:

20 rounds in wooden case
Case gross mass: 65kg
W/C dimensions: 650mm x 393mm x 363mm
Case volume: 0,092m³

AMMUNITION 57mm x 348 FOR SELF-PROPELLED ANTI-AIRCRAFT GUN 57mm. S/68 AND S/60



NATO DESIGNATION	HE	HEI	HE-T	HEI-T	AP-T	TP-T	TP
WEIGHT							
projectile (g)	2850	2850	2850	2850	2850	2850	2850
propellant (g)	1180	1180	1180	1180	1180	1180	1180
explosive (g)	153	153	153	153	none	none	none
complete round (g)	6350	6350	6350	6350	6350	6350	6350
EXPLOSIVE TYPE	RDX	RDX+Al	RDX	RDX+Al	none	none	none
LENGHT (mm) complete round	max 536,61						
MUZZLE VELOCITY (m/s)	1000	1000	1000	1000	1000	1000	1000
SELF-DESTRUCTION TIME(s)	13 - 17	13 - 17	13 - 17	13 - 17	none	none	none
TRACER BURNING TIME (s)	none	none	10	10	10	10	none

PACKING:

5 rounds in wooden case
Case gross mass: 40kg
W/C dimensions: 694mm x 605mm x 204mm
Case volume: 0,085m³



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SMALL AMMUNITION CALIBER

ROUND 30mm HE, M93 P1



NATO DESIGNATION	HE
MASS OF ROUND (g)	360
MASS OF PROJECTILE (g)	273
LENGTH (mm)	132
MUZZLE VELOCITY (m/s)	185
MAXIMUM RANGE (m)	1700
FUZE	
type	UT - M99 SD
self destruction (s)	27
fuze safe action limit (m)	60
safety distance	10 m in front of barrel

PACKING:

48 grenades per sheet metal box
 1 metal box with 48 grenades in wooden case
 Case gross mass: 44kg
 W/C dimensions: 455mm x 375mm x 221 mm
 Case volume: 0,03m³

ROUND 30mm TP, M93



NATO DESIGNATION	TRAINING PRACTICE
MASS (g)	360
MASS OF PROJECTILE (g)	273
LENGTH (mm)	132
MUZZLE VELOCITY (m/s)	185
MAXIMUM RANGE (m)	1700

PACKING:

48 grenades per sheet metal box
1 metal box with 48 grenades in wooden case
Case gross mass: 44kg
W/C dimensions: 455mm x 375mm x 221mm
Case volume: 0,03m³

ROUND 30mm PM, M93 P1



NATO DESIGNATION	PM
MASS (g)	360
MASS OF PROJECTILE (g)	273
LENGTH (mm)	132
MUZZLE VELOCITY (m/s)	185
MAXIMUM RANGE (m)	1700
FUZE	
type	UT - M02, PM-SD
self destruction (s)	27
fuze safe action limit (m)	60
safety distance	10 m in front of barrel

PACKING:

48 grenades per sheet metal box
 2 metal box with 48 grenades in wooden case
 Case gross mass: 44kg
 W/C dimensions: 455mm x 375mm x 221mm
 Case volume: 0,03m³

GRENADE 40mm x 46 HEPD-SD M99



NATO DESIGNATION	HEPD-SD
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	104
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	82
MASS OF PROJECTILE (g)	200
MASS OF EXPLOSIVE (RDX) (g)	48
MUZZLE VELOCITY (m/s)	78
ARMING DISTANCE OF FUZE (m)	8 to 30
MAXIMUM RANGE (m)	400
SELF DESTRUCTION (s)	15 to 20

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 53kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46 HEDP-SD M99 (Dual Purpose)



NATO DESIGNATION	HEDP-SD
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	104mm
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	82
MASS OF PROJECTILE (g)	200
MASS OF EXPLOSIVE (RDX) (g)	35
MUZZLE VELOCITY (m/s)	78
ARMING DISTANCE OF FUZE (m)	8 to 30
MAXIMUM RANGE (m)	400
SELF DESTRUCTION (s)	15 to 20
PENETRATION (mm)	min 25 (armour steel plate)

PACKING:

3 grenades is packed in a polyethylene bag
 54 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 53kg
 W/C dimensions: 540 x 400 x 348mm
 Case volume: 0,066m³

GRENADE 40mm x 46 TPSFM M99



NATO DESIGNATION	TPSFM
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	104
MASS OF GRENADE (g)	233
PROJECTILE LENGTH (mm)	82
MASS OF PROJECTILE (g)	181
MUZZLE VELOCITY (m/s)	76
ARMING DISTANCE OF FUZE (m)	8 to 25
MAXIMUM RANGE (m)	max 400
SELF DESTRUCTION (s)	15 to 20

PACKING:

3 grenades is packed in a polyethylene bag
 54 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 53kg
 W/C dimensions: 540mm x 400mm x 348mm
 Case volume: 0,066m³

GRENADE 40mm x 46 RED STAR WITH PARACHUTE - M04



NATO DESIGNATION	RED STAR WITH PARACHUTE
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	114
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	82
MASS OF PROJECTILE (g)	200
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
BURNING TIME OF STAR (s)	min 15
LIGHT INTENSITY OF STAR (cd)	min 10000
THE HIGH OF PARACHUTE OPENING DURING FIRING AT THE ANGLE OF 45°(DEGREES) (m)	min 150
FLARE TYPE	green, blue, yellow, white

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 58kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADÉ 40mm x 46 ILLUMINATING WITH PARACHUTE - M04



NATO DESIGNATION	ILLUMINATING WITH PARACHUTE
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	114
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	82
MASS OF PROJECTILE (g)	200
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
BURNING TIME OF STAR (s)	min 15
LIGHT INTENSITY OF STAR (cd)	min 80000
THE HIGH OF PARACHUTE OPENING DURING FIRING AT THE ANGLE OF 45°(DEGREES) (m)	min 150

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 58kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46 SMOKE WHITE - M99



NATO DESIGNATION	SMOKE WHITE
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	230
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	180
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
SMOKE TIME (s)	min 20
FIRING RANGE (m)	50 to 400
FLARE TYPE	white, red, green, yellow

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 54kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46, M99



NATO DESIGNATION	
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	220
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	170
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
SMOKE TIME (s)	min 20
FIRING RANGE (m)	50 to 400

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 54kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46 STUN - M99



NATO DESIGNATION	
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	230
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	180
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
FIRING RANGE (m)	50 to 400
SOUND INTENSITY (db)	120

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or woodencase
Case gross mass: 54kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46 BUCKSHOT - M04



NATO DESIGNATION	
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	190
MUZZLE VELOCITY (m/s)	50
FIRING RANGE (m)	30
NUMBER OF PELLETS	min 24
PELLET DIAMETER (mm)	8

PACKING:

3 grenades is packed in a polyethylene bag
 54 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 56kg
 W/C dimensions: 540mm x 400mm x 348mm
 Case volume: 0,066m³

GRENADE 40mm x 46 FLASH - M99



NATO DESIGNATION	
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	230
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	180
MUZZLE VELOCITY (m/s)	78
DELAY TIME (s)	2 to 3
FIRING RANGE (m)	50 to 400
SOUND INTENSITY (db)	120
LIGHT INTENSITY (cd)	2000000

PACKING:

3 grenades is packed in a polyethylene bag
54 polyethylene bags into a cardboard box or wooden case
Case gross mass: 54kg
W/C dimensions: 540mm x 400mm x 348mm
Case volume: 0,066m³

GRENADE 40mm x 46 FLECHETTE - M05



NATO DESIGNATION	
CALIBER (mm)	40
COMPLETE GRENADE LENGTH (mm)	106
MASS OF GRENADE (g)	250
PROJECTILE LENGTH (mm)	76
MASS OF PROJECTILE (g)	200
MUZZLE VELOCITY (m/s)	50
FIRING RANGE (m)	50 to 100
NUMBER OF FLECHETTES (pcs.)	min 50
LENGTH OF FLECHETTES (mm)	50
FLECHETTE DIAMETER (mm)	2

PACKING:

3 grenades is packed in a polyethylene bag
 54 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 56kg
 W/C dimensions: 540mm x 400mm x 348mm
 Case volume: 0,066m³

ROUND 40mm HE M03



NATO DESIGNATION	HE
CALIBER (mm)	40
MASS (g)	225
LENGTH (mm)	106
MUZZLE VELOCITY (m/s)	76
MAXIMUM RANGE (m)	400
FUZE	
type	UT - M00 SD
self destruction (s)	15 - 20
fuze safe action limit (m)	50
safety distance (m)	15 m in front of barrel
GRENADE EFFECTS	Must have min 80 penetrations through a board 20mm thick, at pen test D=20m and 1,5m high
ACTION OF FRAGMENTS IN FIELD (mm)	100mm in dia.

PACKING:

3 grenades is packed in a polyethylene bag
 21 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 24kg
 W/C dimensions: 455mm x 375mm x 221mm
 Case volume: 0,03m³

ROUND 40mm ILL, M01



NATO DESIGNATION	ILLUMINATING
CALIBER (mm)	40
MASS (g)	265
LENGTH (mm)	130
MUZZLE VELOCITY (m/s)	76
STAR BURNING TIME (s)	min. 20
LIGHT INTENSITY (cd)	80000
RANGE OF PARACHUTE OPENING AT FIRING UNDER 45° (m)	250

PACKING:

3 grenades is packed in a polyethylene bag
 21 polyethylene bags into a cardboard box or wooden case
 Case gross mass: 24kg
 W/C dimensions: 455mm x 375mm x 221 mm
 Case volume: 0,03m³

ROUND 40mm S, M01



NATO DESIGNATION	SMOKE
CALIBER (mm)	40
MASS (g)	250
LENGTH (mm)	115
MUZZLE VELOCITY (m/s)	75
MAXIMUM RANGE (m)	400
SMOKE DURATION (s)	60

PACKING:

3 grenades is packed in a polyethylene bag
21 polyethylene bags into a cardboard box or wooden case
Case gross mass: 24kg
W/C dimensions: 455mm x 375mm x 221mm
Case volume: 0,03m³

RIFLE GRENADE HE - M91, P1 WITH BULLET TRAP



NATO DESIGNATION	HE
CALIBER (mm)	30
TYPE	fragmentation
LENGTH (mm)	315
MASS (g)	555
FUZE	Impact, superquick action (UT-M91, P1)
SAFETY DISTANCE (m)	Min. 20m in front of barrel
ARMING DISTANCE (m)	Grenade must act. upon cardboard 2mm thick, at the distance of 50m.
GRENADE EFFECT	Must have min. 180 penetrations through a board 20mm thick at pen test D=20m and 1,5m high.
ACTION ON FRAGMENTS IN FIELD (m)	100m in dia.
GRENADE EFFECT	Have 350 penetrations trough a board 20mm tick, at pen test D=10m and 1,5m high.

BALLISTIC DATA

	V _i (m/s)	Accuracy	Range (m)	
			Under 14°	max 45°
5,56 x 45 SS 109	58	When firing at angle 14° the shot pattern in field is	150	300
7,62 x 51	72	R _{max} · R _{min} = max 15m Span in travers max 3m.	250	450

PACKING:

40 grenades per sheet metal box
1 box with 40 grenades in wooden case
W/C dimension: 700mm x 420mm x 240mm
Case gross mass: 34kg
Case volume: 0,072m³

RIFLE GRENADE HE - M99 WITH BULLET TRAP



NATO DESIGNATION	HE
CALIBER (mm)	30
TYPE	fragmentation
LENGTH (mm)	315
MASS (g)	555
FUZE	Impact, superquick action (UT-M00, SD)
SAFETY DISTANCE (m)	Min. 15m in front of barrel
ARMING DISTANCE (m)	Grenade must act. upon cardboard 1mm thick, at the distance of 50m. Self destruction time 15-20s
GRENADE EFFECT	Must have min. 180 penetrations through a board 20mm thick at pen test D=20m and 1,5m high.
ACTION ON FRAGMENTS IN FIELD (m)	100m in dia.
GRENADE EFFECT	Have 350 penetrations trough a board 20mm tick, at pen test D=10m and 1,5m high.

BALLISTIC DATA

	V _s (m/s)	Accuracy	Range (m)	
			Under 14°	max 45°
5,56 x 45 SS 109 7,62 x 39	58	When firing at angle 14° the shot pattern in field is R _{max} · R _{min} = max 15m Span in travers max 3m.	150	300
7,62 x 51	72		250	450

PACKING:

40 grenades per sheet metal box
1 box with 40 grenades in wooden case
W/C dimension: 700mm x 420mm x 240mm
Case gross mass: 34kg
Case volume: 0,072m³

RIFLE GRENADE HE, BT - M03 WITH BULLET TRAP



NATO DESIGNATION	HE
CALIBER (mm)	40
TYPE	fragmentation
LENGTH (mm)	270
MASS (g)	450
FUZE	Impact, superquick action (UT-M00, SD)
SAFETY DISTANCE (m)	Min. 15m in front of barrel
ARMING DISTANCE (m)	Grenade must act. upon cardboard 1mm thick, at the distance of 50m. Self destruction time 15-20s
GRENADE EFFECT	Must have min. 100 penetrations through a board 20mm thick at pen test D=20m and 1,5m high.
ACTION ON FRAGMENTS IN FIELD (m)	100m in dia.
GRENADE EFFECT	Have 100 penetrations trough a board 20mm tick, at pen test D=10m and 1,5m high.

BALLISTIC DATA

	V _i (m/s)	Accuracy	Range (m)	
			Under 14°	max 45°
5,56 x 45 SS 109	58	When firing at angle 14° the shot pattern in field is R _{max} - R _{min} = max 15m Span in travers max 3m.	150	350
7,62 x 51	72		300	500

PACKING:

40 grenades per sheet metal box
1 box with 40 grenades in wooden case
W/C dimension: 650mm x 320mm x 250mm
Case gross mass: 30kg
Case volume: 0,052m³

RIFLE GRENADE, ANTITANK M60



NATO DESIGNATION	ANTITANK
CALIBER (mm)	60
TYPE	antitank
LENGTH (mm)	390
MASS (g)	610

BALLISTIC DATA

V _i (m/s)	Accuracy (cm) at 100 m H + L	Range (m)	
		Efficient	max 45°
61	175	150	330

PACKING:

20 grenades per sheet metal box
1 box with 20 grenades in wooden case
W/C dimension: 450mm x 450mm x 350mm
Case gross mass: 28kg
Case volume: 0,071 m³

Penetration at 100 m
Penetrating armour - plate, 200 mm in thickness

RIFLE GRENADE, SMOKE M62



NATO DESIGNATION	SMOKE
CALIBER (mm)	40
TYPE	smoke
LENGTH (mm)	330
MASS (g)	475

BALLISTIC DATA

V_0 (m/s)	Time of burring delay element	Range (m) max 45°	Time of smoke screening (s)
70	7,5	350	70-100

PACKING:

40 grenades per sheet metal box
1 box with 40 grenades in wooden case
W/C dimension: 650mm x 320mm x 250mm
Case gross mass: 32kg
Case volume: 0,065m³

RIFLE GRENADE, ILLUMINATING M62



NATO DESIGNATION	ILLUMINATING
CALIBER (mm)	40
TYPE	illuminating
LENGTH (mm)	330
MASS (g)	450

BALLISTIC DATA

V_0 mean (m/s)	Time of burning delay element	Time of flare burning (s)	Intensity of illuminating (Cd)	Range of parachute opening at firing under 45°
71	4,3 - 5,1	min 24	70-100	200 m

PACKING:

40 grenades per sheet metal box
 1 box with 40 grenades in wooden case
 W/C dimension: 650mm x 400mm x 250mm
 Case gross mass: 31kg
 Case volume: 0,065m³

RIFLE GRENADE, FRAGMENTATION



NATO DESIGNATION	FRAGMENTATION
CALIBER (mm)	30
TYPE	fragmentation
LENGTH (mm)	307
MASS (g)	520

BALLISTIC DATA

V. mean (m/s)	Accuracy	Range (m)	
		under 14°	max 45°
67	When firing at angle 14° the shot pattern in field is: H _{max} · H _{min} = max 15 m Span in traverse max 3 m	200	410

PACKING:

40 grenades per sheet metal box
1 box with 40 grenades in wooden case
W/C dimension: 640mm x 380mm x 230mm
Case gross mass: 36kg
Case volume: 0,057m³



Group of Companies

***ROCKET WEAPON
64, 90 and 120mm***

64mm HAND ANTITANK ROCKET RBR M80



NATO DESIGNATION	
CALIBER (mm)	64
TYPE	HEAT
LENGTH IN TRAVELING POSITION (mm)	800
LENGTH IN COMBAT POSITION (mm)	1200
MASS (g)	3200
FUZE	Impact, superquick, piezoelectric with self destruction, (UT PE M80 SP)
MUZZLE VELOCITY (m/s)	187
EFFECTIVE RANGE (m)	200
MAXIMUM RANGE (m)	1280
PENETRATION (mm)	> 300 (on homogeneous armour plate)

PACKING:

The unit is packed in travelling position, in a vacuumed polyethylene bag, 4 units thus packed being then put in a wooden case on holders used to fix the unit. Cases are adapted for any form of transportation and carrying and for parachuting. The mass of such packing is appr. 25 kg.

90mm ROCKET HEAT, M79A FOR HAND ROCKET LAUNCHER 90mm M79



NATO DESIGNATION	
CALIBER (mm)	90
TYPE	HEAT
LENGTH (mm)	672
MASS (g)	3630
FUZE	Impact, superquick, piezoelectric with self destruction, (UT PE M80 SP)
MUZZLE VELOCITY (m/s)	245
EFFECTIVE RANGE (m)	350
MAXIMUM RANGE (m)	1960
PENETRATION (mm)	> 450 (on homogeneous armour plate)

PACKING:

1 rocket in 1 container
 3 container in wooden case
 W/C dimension: 800mm x 460mm x 220mm
 Case gross mass: 25,3kg
 Case volume: 0,07976m³

RBR 120mm M90 LIGHT ANTITANK WEAPON



NATO DESIGNATION	
CALIBER (mm)	120
TYPE	HEAT
LENGTH (mm)	1350
MASS (kg)	13
FUZE	Impact, superquick, piezoelectric with self destruction, (UT PE M80 SP)
MUZZLE VELOCITY (m/s)	205
EFFECTIVE RANGE (m)	250
MAXIMUM RANGE (m)	1960
PENETRATION (mm)	> 800 (on homogeneous armour plate)

PACKING:

2rocket in wooden case
W/C dimension: 1450mm x 530mm x 300mm
Case gross mass: 56kg
Case volume: 0,30m³



Group of Companies

ARTILLERY AMMUNITION

ROUND 76mm, SEPARATE LOADED FOR GUN 76mm M48B1



NATO DESIGNATION	HE Shell M55	SMOKE Shell M60
WEIGHT		
projectile (kg)	6,2	5,9
explosive (kg)	0,43	0,45
propeling charge (kg)	0,32	0,32
cartridge case (kg)	1,55	1,55
EXPLOSIVE TYPE	TNT	WP
LENGTH (mm)		
projectile	max 347	max 347
cartridge case	385	385
MUZZLE VELOCITY (m/s)	398	398
MAXIMUM RANGE (m)	8750	8750
FUZE: impact, superquick and delay action	UTI, M68 UTIU, M02 UTIU, M03	UTI, M68

PACKING:

2rounds in wooden case
W/C dimension: 690mm x 455mm x 200mm
Case gross mass: 39kg
Case volume: 0,06m³

Round 100mm, Fixed for Gun 100mm ON TANK T55, SPG 100mm M44 and COAST GUN 100mm M87



NATO DESIGNATION	HE shell M63	HE shell M63P1	HE shell M63P2	HEAT-T shell M69
WEIGHT				
projectile (kg)	15,6	15,6	15,6	12,2
propellant (kg)	5,5	5,5	5,5	4,25
explosive (kg)	1,41	1,48	1,58	1,00
complete round (kg)	30	30	30	25,6
EXPLOSIVE TYPE	TNT	TNT	RDX+Al	RDX
LENGTH (mm)				
complete round	1095	1095	1095	1094
projectile	492	492	492	638
cartridge case	695	695	695	695
MUZZLE VELOCITY (m/s)	900	900	900	900
MAXIMUM RANGE (m)	20618	20618	20618	3000*
PENETRATION (mm)	-	-	-	300
TRACER BURNING TIME (s)	-	-	-	5
FUZE: impact, superquick and delay action	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1 UTIU, M02 UTIU, M03	UT - PE, M69

* combat range

PACKING:

2 rounds in wooden case
W/C dimension: 1260mm x 440mm x 260mm
Case gross mass: 21,8kg
Case volume: 0,144m³

ROUND 105mm, SEMI FIXED FOR HOWITZERS 105mm M56, M18/61, M2A1 AND M4



NATO DESIGNATION	HE Shell M1A1	SMOKE Shell M60
WEIGHT		
projectile (kg)	14,9	15,0
explosive (kg)	2,15	1,85
propeling charge (kg)	1,31	1,31
cartridge case (kg)	2,68	2,68
EXPLOSIVE TYPE	TNT	WP
LENGTH (mm)		
projectile	496	496
cartridge case	372	372
MUZZLE VELOCITY (m/s)	491	491
MAXIMUM RANGE (m)	11620	11620
FUZE: impact, superquick and delay action	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1

PACKING:

2 rounds in wooden case
W/C dimension: 950mm x 310mm x 200mm
Case gross mass: 16,8kg
Case volume: 0,05m³

ROUND 105mm, SEMI FIXED FOR HOWITZERS 105mm M56 HE ER M02



NATO DESIGNATION	HE ER
WEIGHT	
projectile (kg)	13
explosive (kg)	2,15
propeling charge (kg)	2
cartridge case (kg)	2,68
EXPLOSIVE TYPE	TNT
LENGTH (mm)	
projectile with fuze	565
cartridge case	372
MUZZLE VELOCITY (m/s)	675
MAXIMUM RANGE (m)	14000
FUZE: impact, superquick and delay action	UTIU, M02 UTIU, M03

PACKING:

2 rounds in wooden case
W/C dimension: 950mm x 310mm x 200mm
Case gross mass with two rounds: 50kg
Case volume: 0,057m³

ROUND 105mm, SEMI FIXED FOR HOWITZERS 105mm M56/33; M2A1 HE ER M02



NATO DESIGNATION	HE ER
WEIGHT	
projectile (kg)	13
explosive (kg)	2,3
propeling charge (kg)	2
cartridge case (kg)	2,68
EXPLOSIVE TYPE	TNT
LENGTH (mm)	
projectile with fuze	565
cartridge case	372
MUZZLE VELOCITY (m/s)	675
MAXIMUM RANGE (m)	15000
FUZE: impact, superquick and delay action	UTIU, M02 UTIU, M03

PACKING:

2 rounds in wooden case
W/C dimension: 966mm x 410mm x 210mm
Case gross mass with two rounds: 57kg
Case volume 0,06m³

ROUND 105mm, SEMI FIXED FOR HOWITZERS 105mm M56 HE ER-BB M02



NATO DESIGNATION	HE ER-BB
WEIGHT	
projectile (kg)	14,070
explosive (kg)	2,15
propeling charge (kg)	2,2
cartridge case (kg)	2,68
EXPLOSIVE TYPE	TNT
LENGTH (mm)	
projectile with fuze	565
cartridge case	372
MUZZLE VELOCITY (m/s)	670
MAXIMUM RANGE (m)	17000
FUZE: impact, superquick and delay action	UTIU, M02 UTIU, M03

PACKING:

2 rounds in wooden case
W/C dimension: 950mm x 310mm x 200mm
Case gross mass with two rounds: 50kg
Case volume: 0,057m³

ROUND 105mm, SEMI FIXED FOR HOWITZERS 105mm M56/33; M2A1 HE ER-BB M02



NATO DESIGNATION	HE ER-BB
WEIGHT	
projectile (kg)	14,070
explosive (kg)	2,3
propeling charge (kg)	2,2
cartridge case (kg)	2,68
EXPLOSIVE TYPE	TNT
LENGTH (mm)	
projectile with fuze	565
cartridge case	372
MUZZLE VELOCITY (m/s)	670
MAXIMUM RANGE (m)	18000
FUZE: impact, superquick and delay action	UTIU, M02 UTIU, M03

PACKING:

2 rounds in wooden case
W/C dimension: 966mm x 410mm x 210mm
Case gross mass with two rounds: 50kg
Case volume 0,06m³

ROUND 122mm, SEPARATED LOADED FOR HOWITZER D-30, D30J AND SP 2S1



NATO DESIGNATION	HE Shell TF-462A1	HE Shell TF-462A1	SMOKE M60	SMOKE M60
WEIGHT				
projectile (kg)	21,88	21,88	21,76	21,76
explosive (kg)	3,60	3,60	3,60	3,73
propelling charge (kg)	2,47 reduced charge	3,80 full charge	2,47 reduced charge	3,80 full charge
cartridge case (kg)	3,66	3,66	3,66	3,66
EXPLOSIVE TYPE	TNT	TNT	WP	WP
LENGTH (mm)				
projectile	561	561	561	561
cartridge case	447	447	447	447
MUZZLE VELOCITY (m/s)	565	690	565	690
MAXIMUM RANGE (m)	12840	15300	12840	15300
FUZE: impact, superquick and delay action	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1	UTIU, M72 B1

PACKING:

2 rounds in wooden case
W/C dimension: 980mm x 500mm x 230mm
Case gross mass: 18kg
Case volume 0,1m³

ROUND 122mm, SEPARATED LOADED FOR HOWITZER 122mm M38



NATO DESIGNATION	HE Shell TF-462A1	SMOKE M60
WEIGHT		
projectile (kg)	21,88	21,88
explosive (kg)	3,60	3,60
propeling charge (kg)	2,20	2,20
cartridge case (kg)	2,94	2,94
EXPLOSIVE TYPE	TNT	WP
LENGTH (mm)		
projectile	561	561
cartridge case	284	284
MUZZLE VELOCITY (m/s)	515	515
MAXIMUM RANGE (m)	11800	11800
FUZE: impact, superquick and delay action	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1

PACKING:

2 rounds in wooden case
Wooden case dimension 770mm x 50cm x 300mm
Case gross mass with two rounds 18kg
Case volume 0,1m³

ROUND 125mm, SEPARATE LOADED FOR TANK GUN D-81, TM (2A46)



NATO DESIGNATION	HE Shell M86P1
WEIGHT	
projectile (kg)	23
explosive (kg)	3,35
propelling charge (kg)	5
increment charge (kg)	-
EXPLOSIVE TYPE	TNT/RDX
LENGTH (mm)	
projectile	675
cartridge case	138
MUZZLE VELOCITY (m/s)	850
MAXIMUM RANGE (m)	12220
TRACER BURNING TIME (s)	-
FUZE: impact, superquick and delay action	UTIU, M85 P1

PACKING:

1 rounds in wooden case
W/C dimension: 810mm x 410mm x 210mm
Case gross mass: 22kg
Case volume: 0,07m³

ROUND 125mm, SEPARATE LOADED FOR TANK GUN D-81, TM (2A46)



NATO DESIGNATION	HEAT-T Shell M88
WEIGHT	
projectile (kg)	19
explosive (kg)	1,76
propelling charge (kg)	5
increment charge (kg)	.
EXPLOSIVE TYPE	HMX
LENGTH (mm)	
projectile	678
cartridge case	138
MUZZLE VELOCITY (m/s)	905
MAXIMUM RANGE (m)	1010*
TRACER BURNING TIME (s)	5
FUZE: impact, superquick and delay action	UT - PE, M87 P1

* combat range

PACKING:

1 rounds in wooden case
W/C dimension: 850mm x 430mm x 270mm
Case gross mass: 22kg
Case volume: 0,1m³

ROUND 125mm, SEPARATE LOADED FOR TANK GUN D-81, TM (2A46)



NATO DESIGNATION	APFSDS-T M88
WEIGHT	
projectile (kg)	3,61
explosive (kg)	.
propelling charge (kg)	5
increment charge (kg)	3,40
EXPLOSIVE TYPE	.
LENGTH (mm)	
projectile	591
cartridge case	138
MUZZLE VELOCITY (m/s)	1800
MAXIMUM RANGE (m)	2120*
TRACER BURNING TIME (s)	4,5

* combat range

PACKING:

1 rounds in wooden case
W/C dimension: 810mm x 410mm x 210mm
Case gross mass: 22kg
Case volume: 0,07m³

ROUND 130mm, SEPARATE LOADED FOR GUN 130mm M46



NATO DESIGNATION	HE Shell M79	HE Shell M79
WEIGHT		
projectile (kg)	33,40	33,40
explosive (kg)	3,64	3,64
propeling charge (kg)	13,50 full charge M46	6,75 reduced charge M46
cartridge case (kg)	11,35	11,35
EXPLOSIVE TYPE	TNT	TNT
LENGTH (mm)		
projectile	671	671
cartridge case	846	846
MUZZLE VELOCITY (m/s)	930	705
MAXIMUM RANGE (m)	27490	19310
FUZE	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1 UTIU, M02 UTIU, M03

PACKING:

2 rounds in wooden case
W/C dimension: 950mm x 310mm x 200mm
Case gross mass: 16,8kg
Case volume: 0,057m³

ROUND 152mm, SEPARATE LOADED FOR GUN-HOWITZER D-20



NATO DESIGNATION	HE Shell OF-540	HE Shell OF-540
WEIGHT		
projectile (kg)	43	43
explosive (kg)	5,86	5,86
propelling charge (kg)	8,80 full charge	4,20 reduced charge
cartridge case (kg)	7,50	7,50
EXPLOSIVE TYPE	TNT	TNT
LENGTH (mm)		
projectile	700	700
cartridge case	547,5	547,5
MUZZLE VELOCITY (m/s)	655	511
MAXIMUM RANGE (m)	17400	13400
FUZE	UTIU, M72 B1 UTIU, M02 UTIU, M03	UTIU, M72 B1 UTIU, M02 UTIU, M03

ROUND 155mm, FOR HOWITZERS M198, FH70, FH77, M109 A2 AND GUN 45



NATO DESIGNATION	ERFB/BB	ERFB	HE M88
WEIGHT			
projectile (kg)	47,6	45,54	42,6
explosive (kg)	8,71	8,71	8,0
EXPLOSIVE TYPE	TNT, RDX	TNT, RDX	TNT
LENGTH (mm)			
projectile	861	843	807
MUZZLE VELOCITY (m/s)	925 (52 cal.)	925 (52 cal.)	925 (52 cal.)
MAXIMUM RANGE (m)	41850 (52 cal.)	34000 (52 cal.)	32000 (52 cal.)
FUZE	UTIU, M02 UTIU, M03	UTIU, M02 UTIU, M03	UTIU, M02 UTIU, M03

Ballistical data depends on howitzers type and propelling charge type



Group of Companies

POLICE PROGRAM

SIGNAL AMMUNITION 26,5mm ABC/LP 57



DESIGNATION	ABC/LP 57
LENGTH (mm)	170
HEIGHT OF CLIMBING (m)	200±25
BURNING TIME (s)	6±1,5
PIPE DURATION (s)	6±1,5
LIGHT INTENSITY (Cd)	10000

PACKING:

10 cartridges is packed in a cardboard box
50 cardboard box is packed in a wooden case
W/C dimension: 1064mm x 380mm x 368mm
Case gross mass: 83kg
Case volume: 0,143m³

**SIGNAL AMMUNITION 26,5mm
YELLOW WITH PARACHUTE /LP 57**



DESIGNATION	YELLOW WITH PARACHUTE /LP 57
LENGTH (mm)	155
HEIGHT OF CLIMBING (m)	85 ±15
BURNING TIME (s)	> 12
LIGHT INTENSITY (Cd)	20000
COLOR SATURATION	> 78%
MIDDLE WAVE LENGTH	589 ±3

PACKING:

10 cartridges is packed in a cardboard box
 50 cardboard box is packed in a wooden case
 W/C dimension: 914mm x 380mm x 368mm
 Case gross mass: 52kg
 Case volume: 0,125m³

SIGNAL AMMUNITION 26,5mm WHITE, RED, GREEN/LP 57



DESIGNATION	WHITE/LP 57	RED/LP 57	GREEN/LP 57
LENGTH (mm)	80	80	80
HEIGHT OF CLIMBING (m)	120±20	120±20	120±20
BURNING TIME (s)	8±1,5	8±1,5	8±1,5
LIGHT INTENSITY (Cd)	20000	20000	10000
COLOR SATURATION	< 58%	> 70%	> 57%
MIDDLE WAVE LENGTH (nm)	580±3	609±3	554±3
FLARE TYPE	white	red	green

PACKING:

10 cartridges is packed in a cardboard box
 50 cardboard box is packed in a wooden case
 W/C dimension: 814mm x 380mm x 268mm
 Case gross mass: 46kg
 Case volume: 0,08m³

SIGNAL AMMUNITION 26,5mm SMOKE, VIOLET/LP 57



DESIGNATION	SMOKE VIOLET/LP 57
LENGTH (mm)	80
HEIGHT OF CLIMBING (m)	120± 20
FLARE TYPE	violet, white, red, green...

* The smoke composition starts burning directly before the smoke cartouch reaches the trajectory apex and emits smoke until cartouch fall to the ground.

PACKING:

10 cartridges is packed in a cardboard box
 50 cardboard box is packed in a wooden case
 W/C dimension: 814mm x 380mm x 268mm
 Case gross mass: 46kg
 Case volume: 0,08m³

CARTRIDGE 38mm, ILLUMINATION - ONE PART



DESIGNATION	ILLUMINATION - ONE PART
CALIBER (mm)	38
LENGTH (mm)	70
BURNING TIME (s)	5
LIGHT INTENSITY (Cd)	3 x 120000
MAXIMUM HEIGHT FIRED AT 45° (m)	70

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

CARTRIDGE 38mm, ILLUMINATION - THREE PART



DESIGNATION	ILLUMINATION - THREE PART
CALIBER (mm)	38
LENGTH (mm)	70
BURNING TIME (s)	5
LIGHT INTENSITY (Cd)	3 x 120000
MAXIMUM HEIGHT FIRED AT 45° (m)	70

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

CARTRIDGE 38mm, ILLUMINATION - SIGNAL



DESIGNATION	ILLUMINATION SIGNAL
CALIBER (mm)	38
LENGTH (mm)	70
BURNING TIME (s)	5
LIGHT INTENSITY (Cd)	3 x 120000
MAXIMUM HEIGHT (m)	80
LIGHT INTENSITY (Cd)	
red	40000
green	20000
white	100000

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

CARTRIDGE 38mm, RUBBER BALLS



DESIGNATION	RUBBER BALLS
CALIBER (mm)	38
LENGTH (mm)	123
MASS OF CARTRIDGE (g)	120
MAX RANGE (m)	150
NUMBER OF BALLS (pcs.)	28
START SPEED (m/s)	100

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

CARTRIDGE 38mm, SINGLE BATON RUBBER



DESIGNATION	SINGLE BATON RUBBER
CALIBER (mm)	38
LENGTH (mm)	123
MASS OF CARTRIDGE (g)	180
MAX RANGE (m)	100
HAGOMESS OF RUBBER	70 shore
SHELF LIFE	10 years

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

CARTRIDGE 38mm, STUN



DESIGNATION	STUN
CALIBER (mm)	38
LENGTH (mm)	137,5
DELAY TIME (s)	2
SOUND INTENSITY (dB)	120
MASS OF CARTRIDGE (g)	190

PACKING:

5 cartridges is packed in a polyethylene bag
20 polyethylene bags into a cardboard box or wooden case

GRENADE HAND SMOKE



DESIGNATION	SMOKE
CALIBER (mm)	45
LENGTH (mm)	130
DELAY TIME (s)	3
SMOKE TIME (s)	60
MASS OF GRENADE (g)	240

PACKING:

1 grenade is packed in a polyethylene bag
36 grenades in polyethylene bags are packed into a wooden case with metal sheet box
Case net mass: 8,5kg
Case gross mass: 19kg
Case volume: 0,044m³

GRENADE HAND STUN



DESIGNATION	STUN
CALIBER (mm)	45
LENGTH (mm)	130
DELAY TIME (s)	3
SOUND INTENSITY (dB)	120
MASS OF GRENADE (g)	180

PACKING:

1 grenade is packed in a polyethylene bag
36 grenades in polyethylene bags are packed into a wooden case with metal sheet box
Case net mass: 6,5kg
Case gross mass: 17kg
Case volume: 0,044m³

GRENADE HAND STUN AND FLASH



DESIGNATION	STUN AND FLASH
CALIBER (mm)	45
LENGTH (mm)	130
DELAY TIME (s)	3
SOUND INTENSITY (dB)	120
MASS OF GRENADE (g)	180
LIGHT INTENSITY (Cd)	200000

PACKING:

1 grenade is packed in a polyethylene bag
36 grenades in polyethylene bags are packed into a wooden case with metal sheet box
Case net mass: 6,5kg
Case gross mass: 17kg
Case volume: 0,044m³

SHOT CARTRIDGE, ILLUMINATING



DESIGNATION	ILLUMINATING
CALIBER (mm)	26,5
COMPLETE CARTRIDGE LENGTH (mm)	114
CARTRIDGE WEIGHT (g)	90
BURNING TIME OF ILLUMINATING SIGNAL (s)	min 15
LIGHT INTENSITY OF THE ILLUMINATING SIGNAL (Cd)	min 10000
SOUND SIGNAL FORCE (dB)	min 115
HIGHT OF THE RISING OF SOUND SIGNAL (m)	min 10

PACKING:

25 pieces of cartridges are packed into a small wooden box
 4 small wooden boxes are packed into a wooden case
 Case net mass: 24kg
 Case gross mass: 30kg
 Case volume: 0,046m³