

AGENCY FOR TECHNICAL AND TECHNOLOGICAL RESEARCH AND DEVELOPMENT

40X46 MM LV AMMUNITION



**FIREPOWER, RIOT CONTROL, TRAINING
AIR DEFENCE TRAINING, ROCKET TESTING**

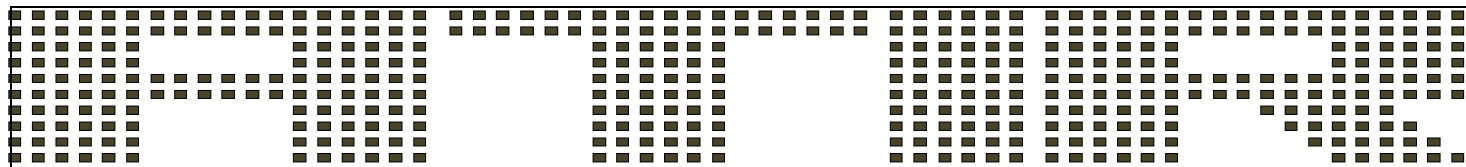


ROCKET TESTING

(INTERNAL – EXTERNAL BALISTIC)

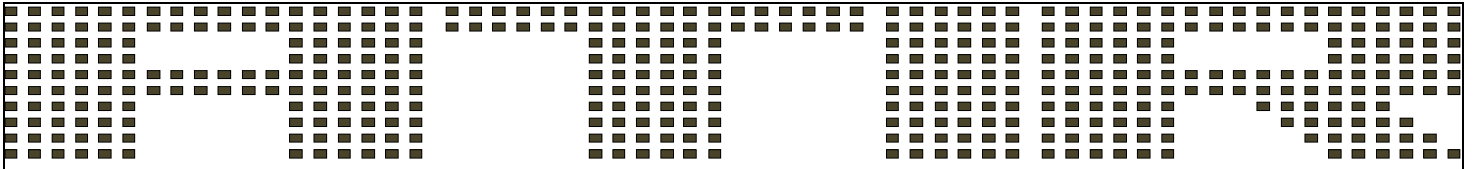
EXTENSION OF RESOURCE USE ROCKET (OUT OF WARRANTY PERIOD, DETERMINING
THE QUALITY OF PRODUCTION SERIES)





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HAND GRENADE

(OFFENSIVE -DEFENCE)



SMOKE HAND GRENADE

(RED, GREEN, YELLOW, WHITE)



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EXPLOSIVE DESTRUCTION OF AMMUNITIONS AND DUDS

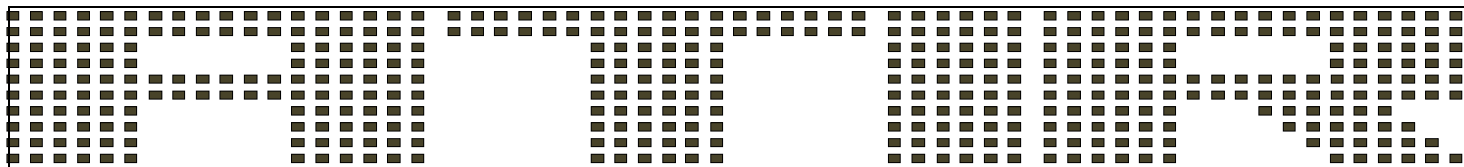
**NON-EXPOLODE, NON-USABLE, USABLE TIME OFF
LOW CONTACT OR CONTACT FREE SYSTEM FOR QUICK AND EFFICIENT DISPOSAL OF ALL
KINDS OF AMMUNITION AND EXPLOSIVE PRODUCTS, FOR CIVIL AND MILITARY SPECIALISTS, IN
MINE FIELDS, COMBAT AND TRAINING AREAS**



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ROCKET RIZC 107 mm FLYING TARGET





AGENCY FOR TECHNICAL AND TECHNOLOGICAL RESEARCH AND DEVELOPMENT

ATIR – PRIVATE COMPANY

ATIR Agency - established in 1991 during the war in Croatia exclusively for the production of the Croatian Army (rockets and special products)

PRODUCTION LOCATION AND WAREHOUSE - The Company bought in 1993

BIGGEST PARTNERS - TRADE - Ministry of Defense, Ministry of Interior, Alan Agency, HS Produkt

ATIR Agency has all necessary permits for exploration, production, testing, and sale of products and services

ATIR – CAPACITY

MAIN PRODUCTS

40X46 mm LV ammunition – 250.000 PIECES/YEAR

There is an ongoing investment in technology to increase the capacity to > 350,000 pieces per year

40X51 mm MV ammunition – development (for 2020)

Cooperation with the company M-Adler, which is developing a new MGL

40X53 mm HV ammunition – development (for 2020) new AGL - for the high speed and 2.200 m grenade range

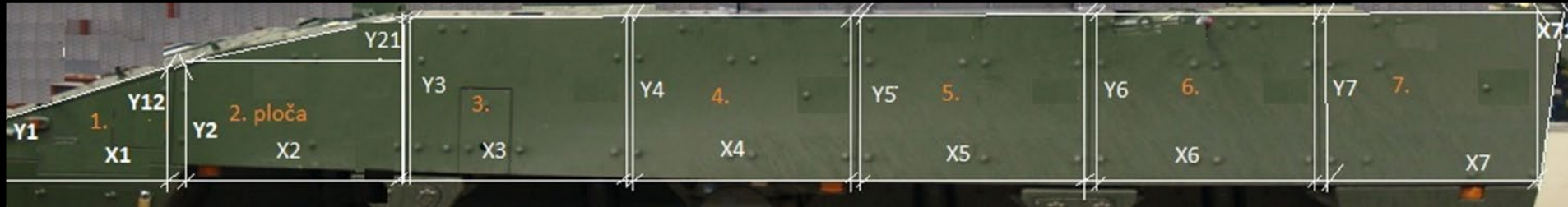
HAND GRENADE – 20.000 PIECES/YEAR

In case of need, the faster the Production of up to 60,000 pieces per year

ROCKET RIZC 107 mm FLYING TARGET - 1.000 PIECES/YEAR

Low cost and efficient system for training and operative tests of air defense system with infrared detection (Stinger, Strela 2, Igla, Strela 10 and similar).

New side sandwich armor for Armored Military Vehicles - AMV level of ballistic protection 4 and 5 according to NATO STANAG 4569



New Armor Sandwich for AMV level ballistic protection level 4 or 5 according to STANAG 4569

Presentation of a new armor sandwich for AMV level ballistic protection 4 or 5 according to STANAG 4569

Existing level of ballistic protection of side and upper sides AMV is commonly level 3+ According to STANAG 4569, which means that it is only completely safe from ammo 7,62x54 API (weapon Kalasnjikov) and corresponding fragments.

ATIR develops a new contemporary sandwich composite armor called BORITZ for AMV, ballistic levels 4 and 5 according to STANG 4569, which is inserted as a sandwich to the side and top of the vehicle. An additional ballistic protection system with existing steel plates makes the armored vehicle a well-guarded zone for armored vehicles. By adding armor sandals it has minimal impact on the weight of the vehicle. It protects complex straight and / or curved shapes, providing optimal ballistic protection.

Lightweight composite multilayer inserts made of multi-layered hard ceramic, polyamide, graphite and high-strength polyethylene laminated capsules, resistant to multiple firefighting of large caliber ammunition up to 14.5 and 25 mm. Such a composite armor system makes it easy to install without welding and can be adapted to different levels of threats depending on mission requirements. Servicing and maintenance and replacement of damaged parts of composite armor, pellets, make it price-eligible.

The new composite armor has the following advantages:

- ☐ Masu i do 50 % manju nego da se umeće pancirni čelik tvrdoće do 500 HB (npr. Armox 500)
- ☐ Otporan na kratku rafalnu paljbu streljiva kalibra 14,5x114 API B32 i 25x137 APDS-T
- ☐ Racionalno servisiranje i održavanje, zamjena oštećenih dijelova kompozitnog oklopa: peletna izvedba pojedinih sekcija oklopa, omogućava zamjenu oštećenih peleta.
- ☐ Vlastiti dizajn i proizvodnja kompozitnog oklopa.

Figure 1 shows the left-hand side of the AMV armor embedded in the composite armor sandwich. The composite armor sandwich is also mounted on the right side of the AMV armor.

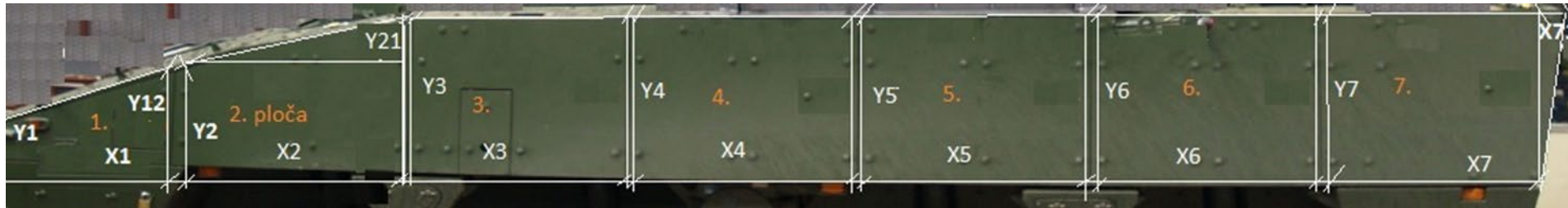


Figure 1 Side of AMV in which the Sandwich Level 4 or 5 composite arm is inserted.



Figure 2. AMV

New Armor Sandwich for AMV level ballistic protection level 4 or 5 according to STANAG 4569

Figure 3 shows the structure of the composite armor:

A – Existing armor; B- Insert composite armor; C-sandwich composite armor

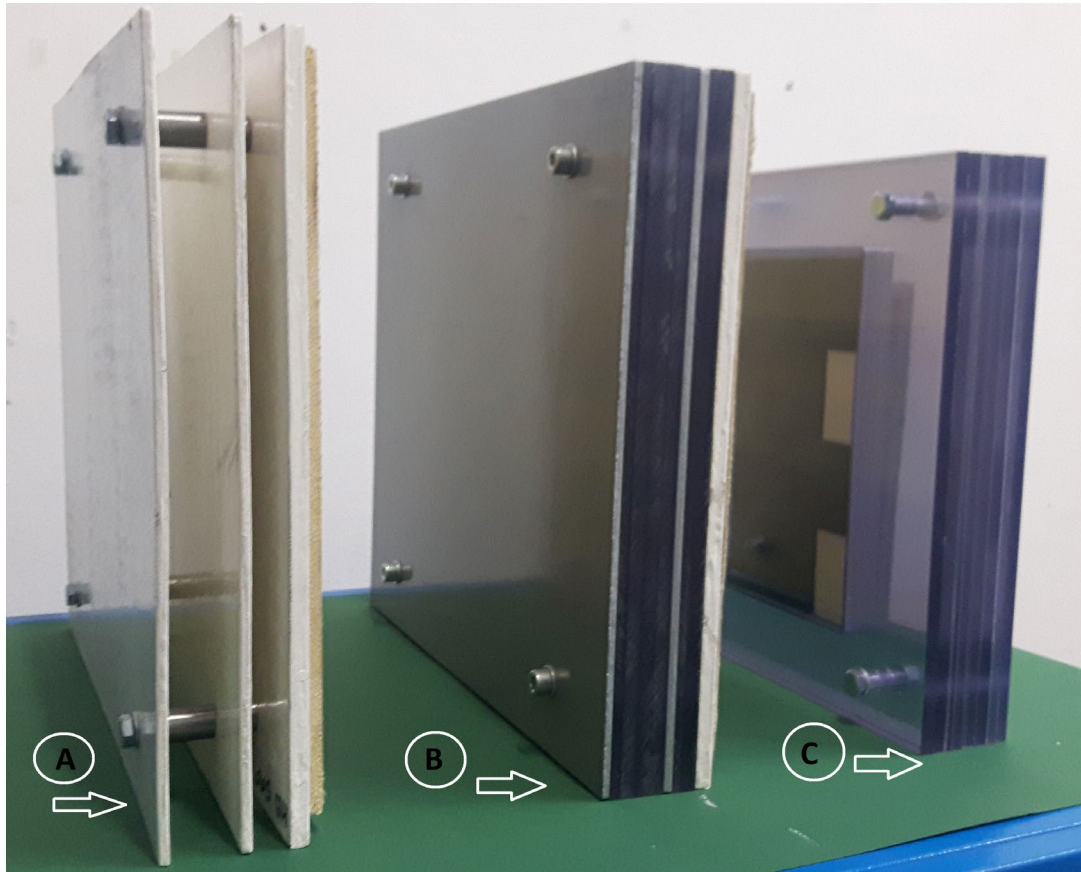


Figure 3 Structure of composite armor level 4 or 5

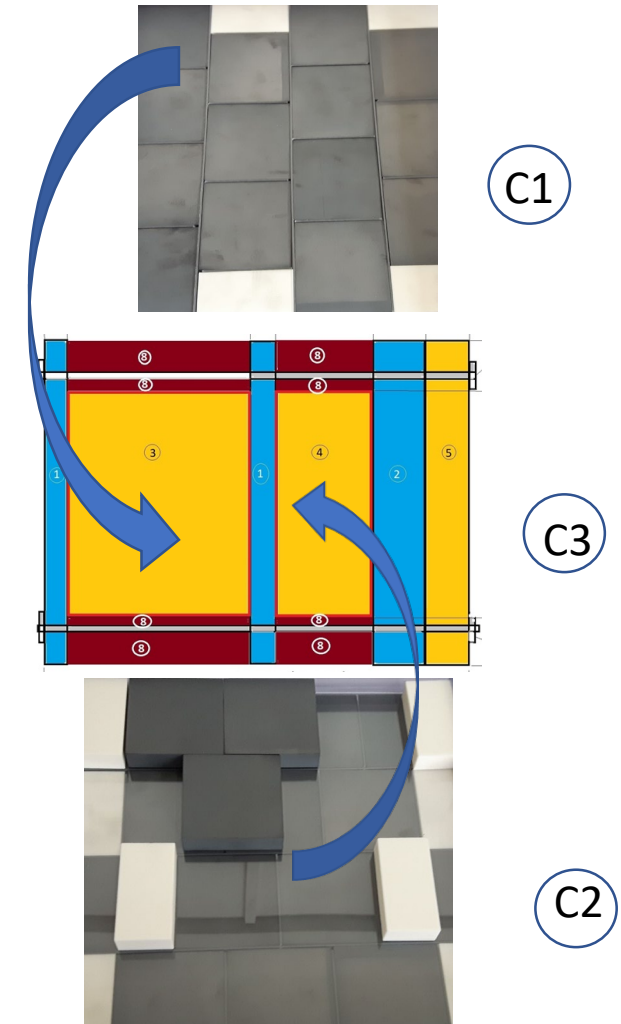
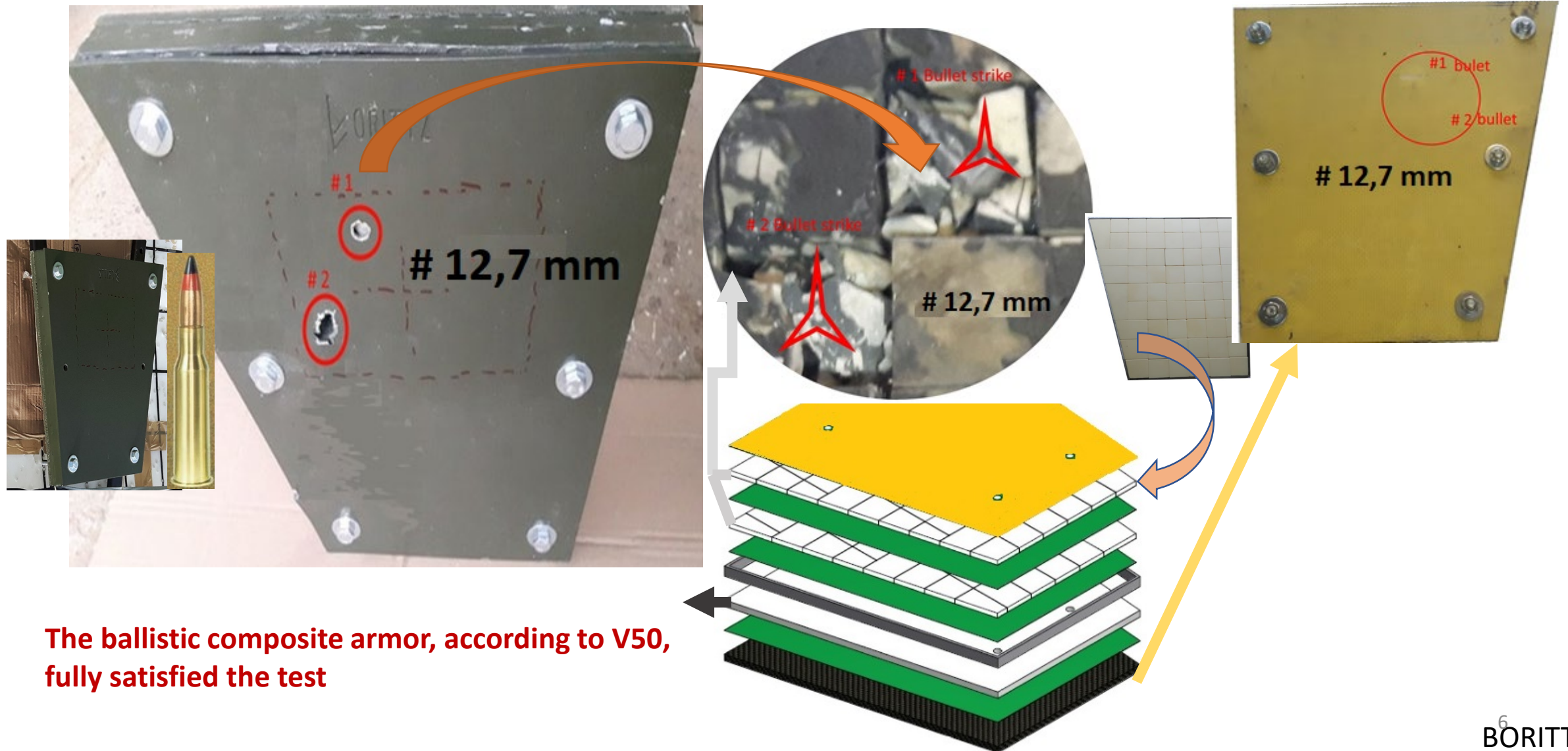


Figure 4. Sandwich composite shells

New Armor Sandwich for AMV level ballistic protection level 4 or 5 according to STANAG 4569

Results of composite armor testing according to NATO-VPAM PM 13 standard Cannon gun 12.7x108 mm Pancirno flammable
(NSV Weapons- Russian **НСВ Никитина-Соколова-Волкова**).



Levels of protection according NATO STANG 4569 (Extract)

Level	NATO STANAG 4569		
5	25x137 APDS-T (PMB 073)	$V_{500}=1258$ m/s	± 30° FRONTAL ARC 0° ELEVATION
	DISTANCE 500 m		
	155 mm burst DISTANCE 25 m		360° AZIMUTH 0-90° ELEVATION
4	14,5x114 API B32	$V_{200}=911$ m/s	360° AZIMUTH
	DISTANCE 200 m		0° ELEVATION
	155 mm burst DISTANCE 25 m		360° AZIMUTH 0-90° ELEVATION
3	7,62x51 AP (WC) NATO	$V_{30}=930$ m/s	360° AZIMUTH
	7,62x54 API B32 RUSSIAN	$V_{30}=854$ m/s	0-30° ELEVATION
	DISTANCE 30 m		
2	155 mm burst		360° AZIMUTH
	DISTANCE 60 m		0-30° ELEVATION
	7,62x39 API BZ	$V_{30}=695$ m/s	360° AZIMUTH
	DISTANCE 30 m		0-30° ELEVATION
	155 mm burst DISTANCE 80 m		360° AZIMUTH 0-22° ELEVATION

New Armor Sandwich for AMV level ballistic protection level 4 or 5 according to STANAG 4569

Conclusion

The new composite armor has the following advantages:

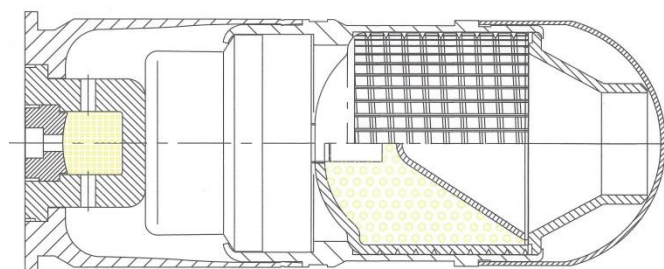
- ☐ Weight up to 50% smaller than to insert a steel pancreas hardness up to 500 HB (eg. Armox 500)
- ☐ Resistant to short firefighting of ammunition 14.5x114 API B32 and 25x137 APDS-T
- ☐ Cost-effective servicing and maintenance, replacement of damaged parts of the composite armor:
the pelvis design of the individual armor sections, allows the replacement of damaged pellets
- ☐ Own design and production of composite armor.

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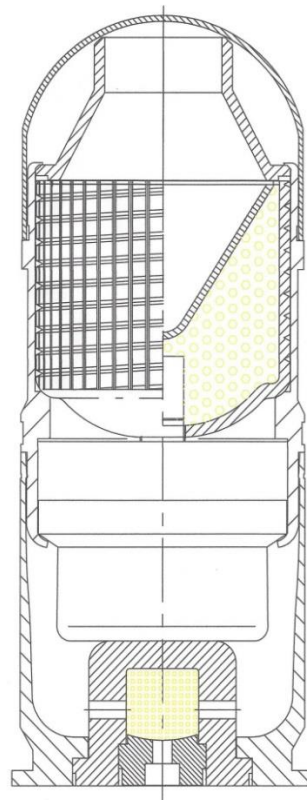
40X46 MM LV AMMUNITION



FIREPOWER, RIOT CONTROL, TRAINING



HEDP – HIGH EXPLOSIVE DUAL PURPOSE LOW VELOCITY



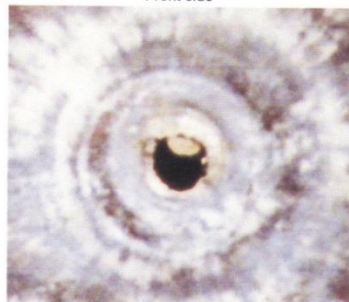
HEDP ATIR Ammunition tests armored vehicle steel plate – penetration through three armored steel plates

PENETRATION EFFECTS HEDP 01 GRENADE

HE DP 01
PLATE 50 mm
Front side

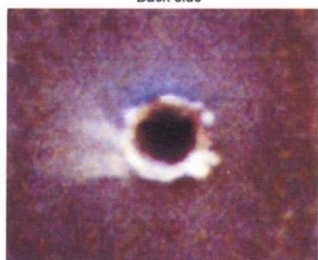


DETAIL "A"
PLATE 50 mm
Front side



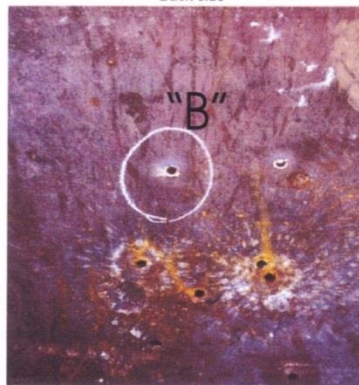
0 5 10 mm

DETAIL "B"
PLATE 50 mm
Back side

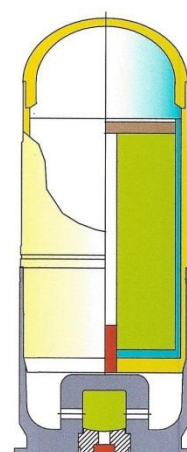
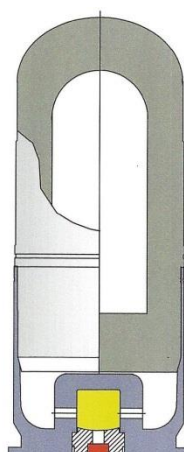
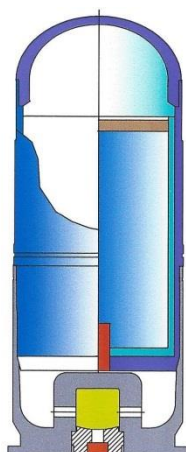
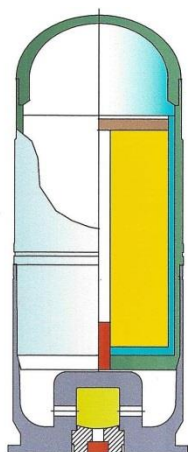
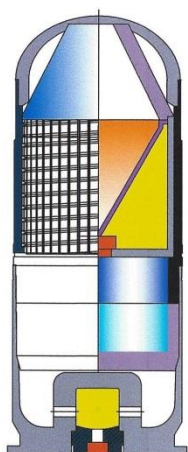


0 4 8 mm

HE DP 01
PLATE 50 mm
Back side



FAMILY OF 40X46 mm AMMUNITION



40X46 SMOKE



No	TECHNICAL DATA	GRENADE TEAR CS M9651
1.	Type	SMOKE
2.	Cartridge Length	106 mm
3.	Cartridge Mass	238 g
4.	Projectile weight	189 g
5.	Fuze	M100 pyrotechnics
6.	Projectile Spin	3.600 min ⁻¹
7.	Pyrotechnics	Colored smoke charge
8.	Pyrotechnic charge	50 g
9.	Burning time	>25 s
10.	Delay time	2-4 s
11.	Range	375 (400) m
12.	Velocity	76 m/s
13.	Color, painting	Yellow/aluminum nature
14.	Employment	40 mm RBG-6, MGL-6, M79, M203, RBG-1, EX41, HK69A1, HK79
15.	Guarantee	3 years
16.	Useful life	10 years
17.	Operating Temp.	-40 °C to + 63 °C
18.	Production	2019/2020
19.	Packing	Metal box, 50 PIECES, Plastic box, 100 PIECES
20.	Hazard Classification	UN Class: 1.4 G , UN No

40X46 TEAR GAS CS



No	TECHNICAL DATA	GRENADE TEAR CS M9651
1.	Type	RIOT CONTROL (Tear gas CS)
2.	Cartridge Length	106 mm
3.	Cartridge Mass	238 g
4.	Projectile weight	189 g
5.	Fuze	M100 pyrotechnics
6.	Projectile Spin	3.600 min ⁻¹
7.	Pyrotechnics	CS smoke charge
8.	Pyrotechnic charge	50 g
9.	Burning time	>25 s
10.	Delay time	2-4 s
11.	Range	375 (400) m
12.	Velocity	76 m/s
13.	Color, painting	Gray/aluminum nature
14.	Employment	40 mm RBG-6, MGL-6, M79, M203, RBG-1, EX41, HK69A1, HK79
15.	Guarantee	3 years
16.	Useful life	10 years
17.	Operating Temp.	-40 °C to + 63 °C
18.	Production	2019/2020
19.	Packing	Metal box, 50 PIECES, Plastic box, 100 PIECES
20.	Hazard Classification	UN Class: 1.4 G , UN No

40X46 RUBBER



No	TECHNICAL DATA	GRENADA Rubber M9006
1.	Type	RIOT CONTROL (rubber cartridge)
2.	Cartridge Length	106 mm
3.	Cartridge Mass	200 g
4.	Projectile weight	140 g
5.	Fuze	no
6.	Projectile Spin	3.600 min ⁻¹
7.	Pyrotechnics	no
8.	Range	150 m
9.	Velocity	76 m/s
10.	Color, painting	BLACK/aluminum nature/blue
11.	Employment	40 mm RBG-6, MGL-6, M79, M203, RBG-1, EX41, HK69A1, HK79
12.	Guarantee	3 years
13.	Useful life	10 years
14.	Operating Temp.	-40 °C to + 63 °C
15.	Production	2019/2020
16.	Packing	Metal box, 50 PIECES

40X46 PRACTICE



No	TECHNICAL DATA	GRENADE
1.	Type	PRACTICE CARTRIDGE
2.	Cartridge Length	106 mm
3.	Cartridge Mass	238 g
4.	Projectile weight	189 g
5.	Fuze	no
6.	Projectile Spin	3.600 min ⁻¹
7.	Pyrotechnics	no
8.	Range	375 (400) m
9.	Velocity	76 m/s
10.	Color, painting	BLACK/aluminum nature/blue
11.	Employment	40 mm RBG-6, MGL-6, M79, M203, RBG-1, EX41, HK69A1, HK79
12.	Guarantee	3 years
13.	Useful life	10 years
14.	Operating Temp.	-40 °C to + 63 °C
15.	Production	2019/2020
16.	Packing	Metal box, 50 PIECES

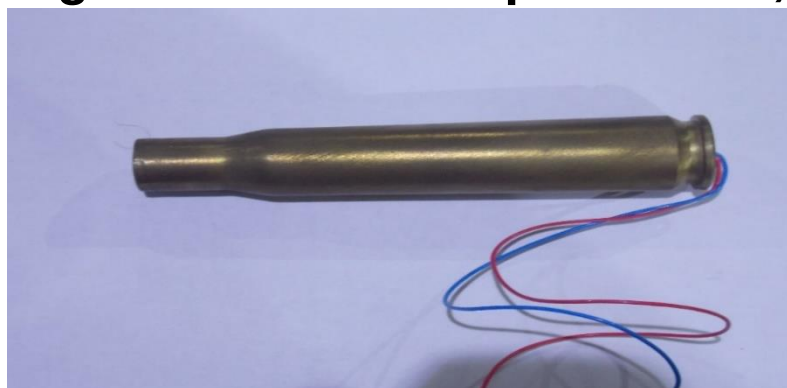
Cartridge for water disruptor VR-29



Tehničke karakteristike / technical specification

Karakteristika / properties	Specifikacija (specification)
Promjer / diameter - caliber	29 mm
Visina / height	170 mm
Masa / weight	170 ± 2 g
Duljina vodiča / wire length	30 ± 2 cm
Elektro vodiči / type of wire	Bakreni (Cu) / cooper
Otpor R_{max} / resistance	1,4-1,9 Ω
Sigurnosna struja / no fire current	0,18 A
Struja paljenja / fire current	$2,1-2,4 A^{\pm 10\%}$

Cartridge for water disruptor VR 12,7 mm



Karakteristika/ properties	Specifikacija/specification
Kalibar / caliber	12,7x99 mm
Način aktiviranja streljiva/ initiation	Elektrozapaljiva glavica / Fuse heads
Masa/ weight	74 ± 2 g
Brtvljenje / seal	Epoksidna smola / epoxy resin
Duljina vodiča /wire length	30 ± 2 c m
Elektro vodiči/ type of wire	Bakreni (Cu) / cooper
Otpor R_{max} /resistance	1,4-1,9 Ω
Sigurnosna struja/ no fire current	0,18 A
Struja paljenja / fire current	$2,1-2,4 A^{\pm 10\%}$