

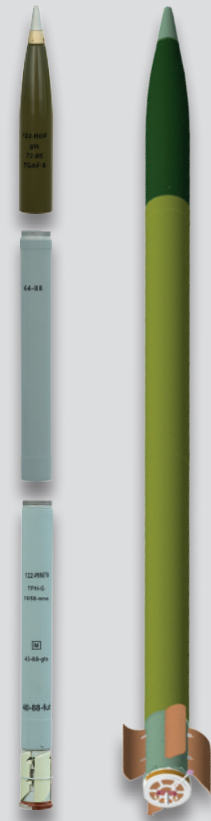


122 mm for RM-70 / BM-21 „GRAD“ rocket

Technological line for inspection of artillery rockets 122 mm JROF RM70 is designed for repair, modernization and inspection in order to extend the live.

At the inspection procedures is performed:

- modernization, which is caused by the requirement to increase the safety of rockets and resistance against unintentional initiation of induction or action of static electric charges
- replacement of damaged parts, which affect its function, internal and external ballistics
- check of alignment of centering ring and the warhead, high of locating pin, position of locating pins to the longitudinal axis, position of the contact cap, geometry of the open stabilizer, circuit and resistance of rockets, air tightness of the tin for fuses
- complete repair of packages



Technical data:	
Caliber	122 mm
Lenght of missile with fuze	2867.31–2882.60 mm
Weight of missile with fuze	66.6–66.75 kg
Max. range	20.4 km
Min. range	3 km
Type of the warhead	High Explosive (HE) Warhead
Fuze MRV-U	Impact fuze (with immediate, short and long delay)
Rocket motor	Double-based solid propellant
Weight:	48.2 kg
Weight of the propellant	20.5 kg
Color	silver
Limits of temperature	
Storage	-40°C / +60°C
Fire	-32°C / +50°C
Packing	One rocket and one fuze in each box





Engine Modernization

Basic version range:

Max: 20,4 km

Min: 3 km

Possibility for engine modernization:

Max. range	36 km (over sea)
	40 km (in 600 m altitude)
Min. range	16 km (over sea)
	21 km (in 600 m altitude)

Warhead Modernization

Basic arhead: High Explosive (HE)

Possibilities for warhead modernization:

HEAP	Number of fragments (shrapnels): 1050 pcs
	Armour penetration: Radius = 15 m Thickness 10 mm Radius = 32 m Thickness 6 mm
HEF	Number of fragments (balls): 9100 pcs
	Fragments density (pcs/m ²) at lethal radius:
	R = 7 m 118.1
	R = 15 m 34.6
	R = 20 m 21.5
	R = 40 m 4.6
AGAT	Container-type projectile including the head which has 50 pcs of cumulative and 6 pcs of incendiary splitting submunition to destroy armoured and others.

Fuse Modernization

Basic version fuse: Impact fuse (with immediate, short and long delay)

Possibility for fuse modernization:

Product name:	Forad-1
Operation regime:	Proximity & Impact as the option
Initiation process:	Mechanical (Impact, Delayed) / Electrical)
Height of explosion: Regular settings in 2 levels:	h=1 ÷ 30 m
	h=1 ÷ 15 m
Protection:	Fuzes are protected against specific electric defense equipment
	Fuzes will not be activated by clouds, fog, storm or sandstorm.
Operational temperatures:	-40°C ÷ +50°C
Lifespan:	Min. 10 years – if stored in original package and all storage conditions are met.

Warranty for technology and equipment: 2 years

Warranty for rockets:

Lifespan is prolonged by 5 years (from 10 years to 15 years)

In the case of modernization the lifespan is prolonged by 10 years

Revision costs are approx. 1/3 of total costs of provision of new rockets

Possibilities for the Modernization of 122 mm Rockets for RM-70

AGAT

Container rocket 122 mm caliber cartridge designed for rocket launchers BM-21 Grad and for with him compatible types (eg. Type 81 vz.70, vz.70 / 85, RM 70, RM-70 Modular / 85M, etc.)

It is designed to destroy live enemy forces, armored vehicles and other targets at a distance of 5 to 16.2 km by using submunitions it contains.

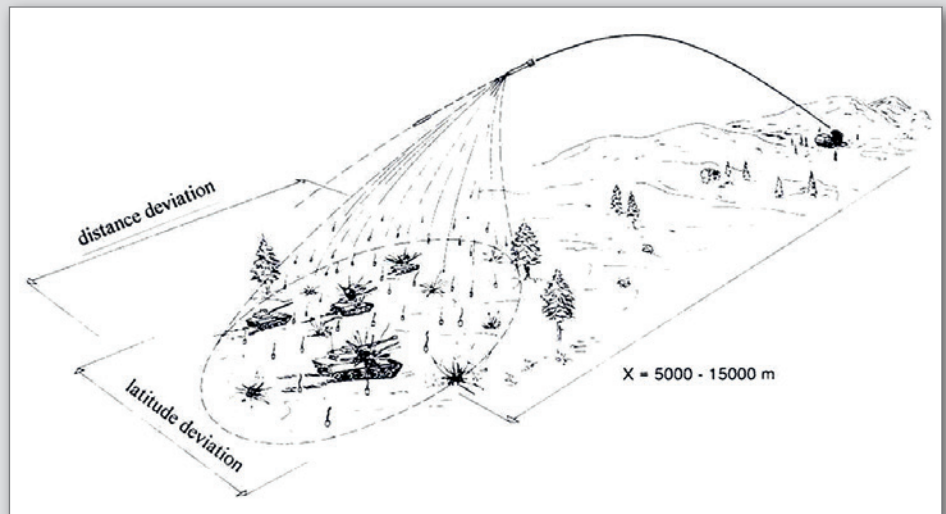
One container with head, timing igniter catapult in target area of 50 cumulative bomblet-6 and ignition bomblet.

One-cumulative/shrapnel bomblet has a mass of 0.275 kg and pierced 120-140 mm homogenous armor.

Each cumulative/shrapnel bomblet contains igniter, which provides self-destruct bombs after a 32 seconds of unlocking it.

122 mm single missile container AGAT set consists of:

- Time igniter TM 120U
- Container with 50 pieces cumulative/shrapnel bomblet and 6pcs ignition bomblet
- Rocket motor RM-GRAD



MODULAR

Improved system of Launcher designed for multiple use of 122 mm JROF.

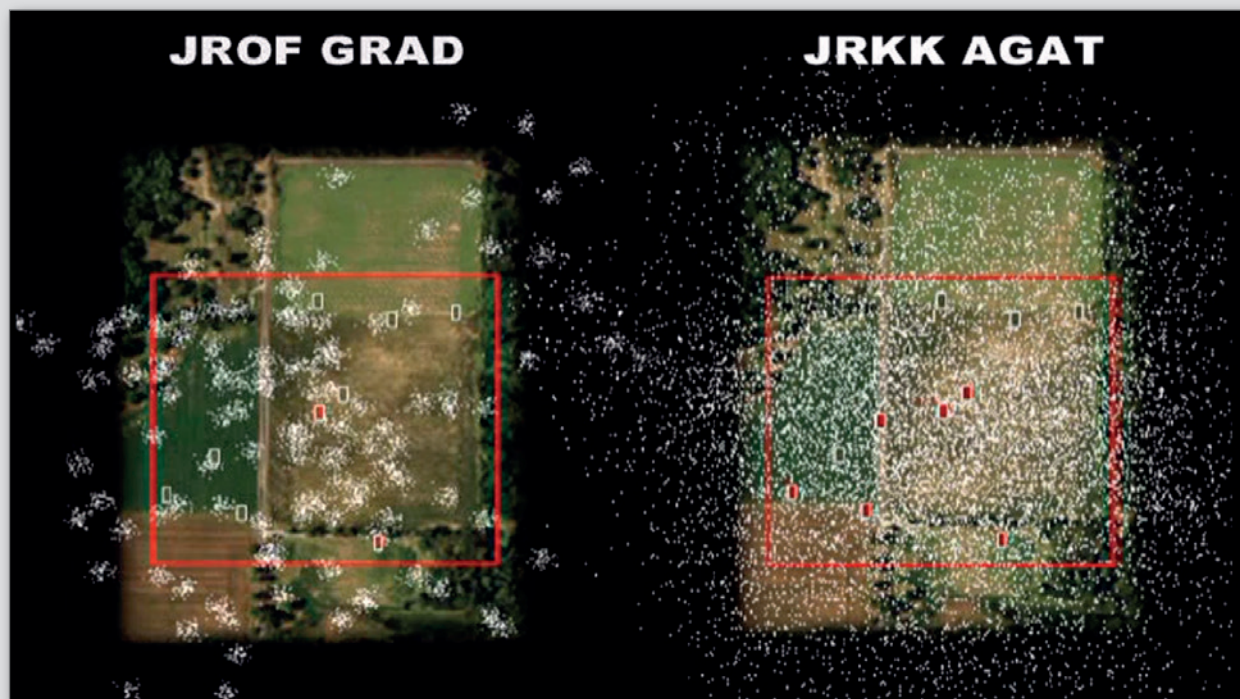
MODULAR container loaded with 122 mm missiles can be transported on carriage body of vehicle, or snugged on RM 70/85 MODULAR rocket launcher and is suited for air and naval transport.

It is possible to launch 122 mm JROF and 122 JROF-M missiles directly from container. Contains 28 pcs of missiles.

- Loads and unloads using built-in crane
- Automatic identification of type of rocket
- Operation from inside the crew cabin
- Autonomous mission capabilities
- Air - transportability



Comparison of the GRAD and AGAT



Reference and experience related to 122 JROF delaboration, revision, modernization and the technology and equipment sales including the implementation



Germany



Syria



Vietnam



Turkey



Egypt



Ministry of defence of Slovak republic

Other Ammunition 122 mm

Technical data:

Cartridge 122 mm	HE	D30, ShH 2S1 Gvozdika
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Cartridge 122 mm	HE	vz. 38/68, vz. 30/78
Cartridge 122 mm	HE-F	RM-70, BM-21



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