

Investment project

This investment project involves the development and production startup of VM-4 Jmil light twin-engine helicopters.

The project is to last three years and includes three stages oriented on development of design and technological documentation, creation of prototypes, their testing and certification as well as preparation for mass production.

Starting from the fourth year it is planned to launch the initial preproduction batch of VM-4 Jmil helicopters and its versions at Antonov Aircraft Plant's production facilities or at our own plant (if the decision for its construction is approved by the investor).



Description and performance of Shmel light utility helicopter

Helicopter design

VM-4 Shmel light utility helicopter and its versions is a streamlined flying machine made of composite and aluminum materials equipped with two piston engines.

Schmel is a single-rotor helicopter with tree-blade main rotor and two-blade tail rotor.

Promotion of safety

Installation of two engines improves operation capabilities of the helicopters, enlarges their implementation area and improves in-flight safety. In case of engine failure the helicopter is capable to continue controlled full-load horizontal flight until safe landing.

Operation conditions

The equipment onboard the helicopter allows to operate it in the daytime under visual meteorological conditions. Above that, installation of special equipment set is possible which will allow to operate it at night and in adverse weather conditions.

Scoup of aplication the helicopter VM-4 Jmel

- the administrative apparatus of regional, city and district administrations;
- energy company;
- naval aviation (deck and shore);
- oil and gas, forestry and water management;
- sanitary aviation;
- power structures
- business structure;
- city air transport (excursions, air taxi, air patrol, ambulance);
- fishing control;
- rescue operations in the mountains, in forests, in water areas;
- flight schools;
- agriculture;
- the private sector.

VM-4 Jmil helicopter

Performance	Value
Number of seats	1+3
Take-off weight (max.), kg	1,000
Empty weight, kg	520
Load weight, kg	480
Operating speed, km/h	200
Max. speed, km/h	230
Steady-flight ceiling, m	1,500
Dynamic ceiling, m	4,500
Engine type	Mwfly B25D piston engine
Engine take-off power, h.p.	145 (155 max)
Number of engines	2
Engine power, h.p.	290
Fuel	A-95 car gasoline 100LL aircraft gasoline
Fuel consumption, l/h	45
Flight time	3.5
Flight range	550



MD-500 counterpart helicopter

Performance	Value
Number of seats	1+4
Take-off weight, kg	1,600
Empty weight, kg	672
Load weight, kg	689
Operating speed, km/h	239
Max. speed, km/h	280
Steady-flight ceiling, m	2,590
Dynamic ceiling, m	4,227
Engine type	Rolls-Royce 250-C20 jet engine
Engine take-off power, h.p.	420
Number of engines	1
Engine power, h.p.	420
Fuel	Jet kerosene
Fuel consumption, l/h	80
Flight time	2.8
Flight range	431



Robinson R44 counterpart helicopter

Performance	Value
Number of seats	1+3
Take-off weight, kg	1,080
Empty weight, kg	720
Load weight, kg	380
Operating speed, km/h	210
Max. speed, km/h	240
Steady-flight ceiling, m	1,500
Dynamic ceiling, m	4,250
Engine type	Lycoming J-540 piston engine
Engine take-off power, h.p.	225 (260 max)
Number of engines	1
Engine power, h.p.	225 (260 max)
Fuel	B91/115 aircraft gasoline (100LL)
Fuel consumption, l/h	57-62
Flight time	3.5
Flight range	650



VM-4 Jmil versions

VM-4S Pean medevac helicopter

Bell-47 helicopters were widely used for medevac operations during the wars in Vietnam and Korea



Helicopters in medevac operations

• The helicopters were first used by French military for mass evacuation of wounded men during Indochina war in 1946-1954.

- From April to July 1954, **10,820 wounded** and ill men were evacuated and **38 pilots were rescued**.

Indochina
1946-1954

Korea
1950-1953

- The Americans used light and medium helicopters for evacuation of wounded men from battalion aid stations.
- In the process of evacuation they ran **blood transfusion procedures** onboard the helicopters.
- In total, about **50,000 wounded men** were evacuated during Korean war.

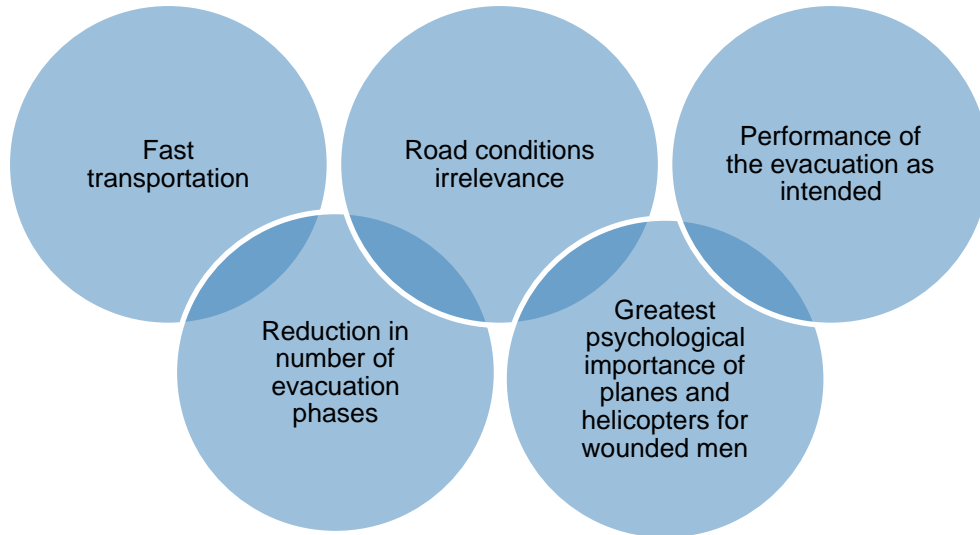
• Due to US medevac helicopters, **up to 95% of wounded men were evacuated; the aid was provided within 1-2 hours after they had been injured.**

- Whereas the lethality was about 8 % during the first world war and about 4.5% during the second world war, **it reduced to about 1.5%** during Vietnam events.

Vietnam,
1957-1975 .

Advantages of helicopter medevac operations

The time passed from the moment of being injured or disease manifestation to the moment when the incapable man is taken to the medical facility is a key factor determining his further life, severity of developing complications, the degree of incapacitation, terms of return to normal labor or restoration of the combat power. From that point of view, the aerial evacuation of wounded or sick men is of the utmost importance.



383 637 wounded men were rescued by Americans with the use of medevac aircraft from July 1944 to May 1945; only **5 men were lost then.**

The lethality among the total number of 1,250,000 wounded men evacuated by US medevac aircraft was about **0.0065%**

VM-4P Patrol police helicopter



River police



Urban air police



Highway air police



Main areas of use of VM-4P Patrol police helicopters

City borders control

- Patrolling over large highways and urban settings
- Patrolling over critical, manufacturing and transportation facilities

Rapid response to urgent situations

- Evacuation of victims from crash sites
- Transportation of special police teams, assistance to operative groups in detention of lawbreakers, coordination and support of operative actions.

Ecological control

- Illegal dumping spots detection within and out of city borders.
- Monitoring of forestry and water areas, poachers detection.



VM-4W “Cyborg” light attack helicopter



OH-6 light attack helicopter (USA)





VM-4BS special mission helicopter



Special operation squad is in action
(MD-500, USA)





VM-4VN light cargo helicopter

Delivery of small batches of ammunition, foodstuff, medicines and small cargoes.



MD-500 Defender helicopter (USA)





Helicopter VM-4 PK Dozor for border protection

Coastal guard operations



Mountain frontier service





VM-4K Neptune carrier –based helicopter

VM-4KPL carrier-based anti-submarine helicopter



MQ-8 Fire Scout unmanned carrier-based reconnaissance helicopter (USA)



MD-500 carrier-based helicopter (USA)



Size parameters of the helicopter

