



MSM GROUP Ltd. was established by transformation of MSM Martin Ltd., which dealt with construction, development, production and sales mainly with military material. MSM Martin Ltd. in the last few years took over several military companies located in the middle of Slovakia, and built on its traditional manufacturing activities in military and civil production.

Due to **ZVS** inclusion into the group structure we can state that the origin of **MSM GROUP Ltd.** comes **back to 1927** when then Škoda Works in Plzeň, as a monopoly producer of ammunition decided to build so called „spare factory“ in Slovakia. The company was totally destroyed during the World War II, and it took several years while the production was restored to such extend, that its products were supplied not only for the Ministry of National Defence, but for many countries worldwide as well.

Today the **MSM GROUP Ltd.** makes use of rich experiences from the past and know-how of highly qualified workers and vast archive of technical documentation for all necessary procedures.

In 2009 the biggest Czech industry holding CSG (CZECHOSLOVAK GROUP) entered MSM as a co-owner.

WHY TO COOPERATE WITH US:

More than 70 years experiences in the ammunition development, production and complete services in this field.

Long tradition in the MSM locations for the ammunition production processes with significant effects as the deep skilled personal, support industries, development fields, education etc.

More information at
www.msm.sk

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www.msm.sk



MILITARY VEHICLES

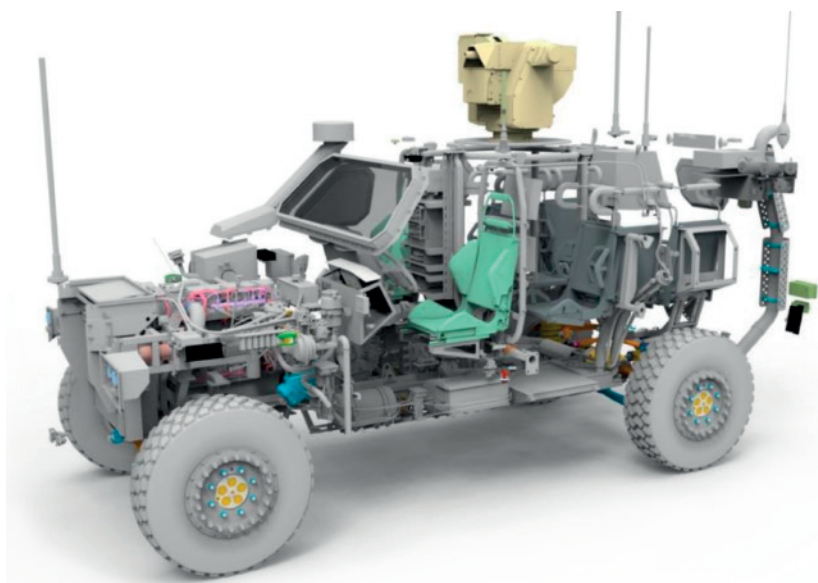
➤ ALIGATOR 4x4 MASTER II





ALIGATOR 4x4 MASTER II

WHEELD 4X4 ARMORED MRAP VEHICLE



ALIGATOR 4x4 MASTER is the basic vehicle platform, from which all the fleet variants can be derived. The essential characteristics as detailed hereunder are standard across the fleet variants. The vehicle has been developed to NATO standards in order to undertake a wide range of roles such as tactical combat vehicle, mobile command and communications post, internal security role for PSP missions, VIP transport, police, border patrol, surveillance and reconnaissance, target acquisition, military policing and civil control.

Powertrain and Driveline system :

Engine:

CUMMINS ENGINE ISB 6,7 E 3245, EURO 3,

1. Advertised Power : 180 kW @ 2,500 rpm
242BHP @ 2,500 rpm
2. Peak Torque : 925 Nm @ 1,500rpm;
682 lbft @ 1,500rpm
3. Configuration : 6 cylinder in-line
4. Displacement : 6.7 Liter

Transmission:

The driveline comprises of Allison transmission 2500SPT with torque converter TC221 with SAE 3 housing and T-case adapter for direct mounted (None Allison) auxiliary gearbox, coupling not included.

Gears: 6 forward, 1 reverse

Max Power: 254 kMJ with shift energy management

Max Input torque 895 Nm in gear 1,2,6

Max Input torque 950 Nm in gear 3,4,5

Converter stall torque ratio: 1.73

Max vehicle weight: 15,000 kg

and 2x integral distribution gearbox. with differential locking, and reduction hub assemblies are used. The transmission is electronically controlled and fully integrated with the engine EMS. The transfer gearbox includes a differential, which incorporates a differential lock. Drive is permanent all-wheel drive to independent coil sprung wheel stations using gas telescopic shock absorbers. High quality differentials, with differential locking, and reduction hub assemblies are used.

Axles, suspension and steering:

AXA 40 front and rear axles and independent suspension, ZF Servocom 8095 power assisted left hand drive steering. Differential locks and indicators in cabin. Heavy duty springs, with heavy duty shock absorbers.

Tyres and wheels:

Pirelli or Michelin 335 80 R20 XZL tyres are standard supply. ZF power assisted steering.

EQUIPMENT

Communication devices:

Connection based on specification provided by customer (Harris type) prepared for installation of radio station at customer.

Self-recovery winch

Gun storage cabinet integrated in the vehicle

Opto-Electronical reconnaissance system

OTHER EQUIPMENT

- Fire detection and suppression system for engine, cabin, and tires
- Shooting ports with same level of protection
- Self-recovery Winch
- Special sand Filters and heavy-duty air, oil and fuel filters
- Bullet Proof Fuel Tank
- Special Filtration with indicator in the Cabin
- One spare wheel with Tyre and Run Flat.
- Navigation System

TRANSPORTABILITY

Air transportability by tactical transport aircraft

- C-130 HERKULES – 2 vehicles
- C-17 GLOBMASTER – 6 vehicles
- C-5 GALAXY – 11 vehicles
- AN-124 RUSLAN/Condor – 12 vehicles

Railway transport

- According to international standards [e.g. STANAG 2832]: 4 vehicles on railway wagon

Road transport

- By truck, heavy military trailer and semi-trailer, Concordance to NATO Standards: STANAG 4357, STANAG 4358, STANAG 2832, STANAG 4569

Potential available training simulators

Optionally on request, we can separately deliver a vehicle simulator ALIGATOR 4x4 MASTER II.

1. Vehicle's self-supported monocoque body is produced from welded armor (500-540 brinel). It is equipped with independent chassis, it is all wheel drive and have trapezoidal suspension mechanism
2. The Mil Std electrical CAN BUS system is used, powered by a 28V 200A alternator. Two 12V 180Ah batteries are fitted and the system is EMC protected to Mil Std 461/D. All electrical switches are durable and robust.
3. Standard NATO main lights, black lights and trafficator lamps are fitted. NATO rear lamps equipped by external power connector are used.
4. Standard illuminated dashboard instrumentation monitors all normal vehicle functions together with monitor screen providing information, diagnostic and optionally self - management system.
5. All gauges are illuminated and read in metric units. They are heavy-duty and well-sealed against dust and humidity.
6. All writings are in English
7. Windscreen wipers operate on single front windscreens
8. The standard configuration vehicle has a capacity to carry crew of six members, with standard operational equipment. The driver is seated on the left side, the commander on the right and the six seats behind them. Driver and commander enter and exit through outwardly opening doors whilst crew members do so through 2 side doors – (5 hand drive) or through large rear door (3 doors vehicles). There is one roof hatch.
9. Seats are ergonomically designed, adjustable, and provided with four-point safety belts
10. Alternative seating arrangements are available.
11. The vehicle is fitted with tropical type suitable for ambient temperature of +55°C and of high capacity air conditioning system, which consists of a two-stage fan that enables heating or cooling of the crew compartment

to a comfortable temperature whilst outside ambient temperature may be in the range of -32°C to +55°C

12. Upper lifting, front towing eyes and rear hook with lock and electric connection are a standard configuration
13. Sound insulation level and vibrations inside the cabin is within the standard range
14. Provision can be optionally made for a wide range of military standard radios, ruggedized computers and systems monitors. Separate electrical circuit, recharging, vibration damping and antennae mounts can be optionally all accommodated.
15. A range of optional GPS systems are optionally available.
16. A wide range of vehicle mounted infantry weapon stations can be optionally provided to this vehicle, subject to customer preference. These can range from a basic GPMG ring mount to manned and remotely controlled turret systems, with interchangeable or multiple weaponry.
17. Complete documentation
 - a) Operating a vehicle
 - b) Treatment of the vehicle,
 - c) Technical description of the vehicle,
 - d) Catalogue of spare parts



ADVANTAGES OF ALIGATOR MASTER II

FLEXIBLE CONFIGURATION

- 5-doors variant
- Right-hand drive

OPTIONALLY

- Left-hand drive
- 3-doors variant

REINFORCED ROOF

- Weight limit up to 500 kg

SERVICE AND MAINTANANCE

Availability:

- The selected aggregate units are widely used items produced in large serial batches and compatible within the NATO countries and available worldwide.

Simple service

- The actual technical solution provides the user with extremely simple options for replacement and repair of individual aggregates even in the field conditions.

Basic vehicle technical parameters:		
Type	4x4 armoured wheeled transporter with independent axles	
Class	NG 2 5doors, right-hand drive	
Number of seats	6 seats	
Dimensions	– Length	5,765 mm
	– Width	2,515 mm
	– Height Track	2,498 mm
Track	2,095 mm	
Ground clearance	400 mm	
Weight	– Combat weight	12,000 kg
	– Unloaded weight	9,700 kg
	– Payload	2,300 kg
Speed (on tarmac, concrete, etc.)	130	
Range (on tarmac, concrete, etc.)	Min. 700 km	
Measurable performance	22 kW/t	
Gradient	60%	
Obstacles overcoming	– Side slope	40%
	– Trench	0.85 m
	– Vertical obstacle	0.40 m
Turning radius	– Tracked	7.8 m
	– Shaped	8.2 m
Angle of approach/departure	70°/42°	
Angle of approach/departure - water	– Above water	15°/20°
	– Below water	15°/20°
	– Fording (without preparation)	1.5 m
All round ballistic protection	STANAG 4569 Level II	
Mine protection	grenades, shell fragments however can be increased on request by add on armor to higher levels (STANAG 4569 Level 2A/2B)	
Main vehicle aggregates		
Engine	Max. power output	EURO 3 – six cylinder in line, turbo charged, liquid cooled, diesel
	Max. torque	185kW / 2,500 r.p.m.
	Displacement	925 Nm / 1,500 r.p.m. 6,700 ccm
Gear box	Automatic, 6 gears forward, 1 gear reverse	
Axles, Differentials	Independent axles, Cooled differentials	
Brakes	Twin circuit, power assisted, hydraulic control	
Tyres	Tubeless with run flat and CTIS	
Steering	ZF – Servocom 8098	
Electrical system	24V CAN BUS with diagnostic system	

