Myanmar Chemical & Machinery Co., Ltd.

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องค์การที่มีการจัดตั้ง (66)


copy of

1. Technical Proposal  องค์การที่มีการจัดตั้ง (66)

MCM/DP/Air-0018/2019

Assuming responsibility, I declare that Sloboda Company, a company based in Serbia, Anti-Aircraft Ammunition and Aircraft Ammunition manufacturers, presented a Technical Proposal to the Myanmar Chemical and Machinery Co., Ltd. as per the requirements.

Signed: Managing Director

Myanmar Chemical & Machinery Co., Ltd.
1. LIGHT AIRCRAFT AND HELICOPTER POD WITH TWO 7.62 mm MACHINEGUNS

Application: Close air support COIN
Full pod weight: 97 kg
Dimensions: 1750 x 320 mm
Magazine capacity: 600 rds
Machinegun caliber: 7.62 x54 mm
Efficient range: 800 – 1000 m
Combined rate of fire: 1600 rds/min
2. HELICOPTER/AIRCRAFT POD M09 WITH 20 mm CANNON

Application: Close air support COIN, efficient against unarmored and light armored vehicles and troops in unfortified facilities

Pod weight (no ammo /with ammo) .............................................. 138 kg/198 kg
Dimensions ................................................................. 2605 x 400 x 430 mm
Magazine capacity (rounds in the link belt) .............. 190 rds
Cannon caliber ...................................................... 20 x110 mm
Cannon weight .............................................................. 49 kg
Rate of fire ................................................................. 650 - 730 m/min
Action modes ............................................................ short bursts of 5 and 10 rounds and continuous bursts
Efficient range ............................................................... 2000 m
Triggering ................................................................. electric

The installed shock absorber reduces considerably the recoil force.
The weapon is cocked from the cockpit, by means of a pneumatic nitrogen installation integrated with the pod, enabling the weapon to be cocked five times during the flight.
3. LIGHT 57MM 7-BARREL ROCKET LAUNCHER

Application: Close air support COIN - efficient against troops in the field, unfortified facilities and light armored vehicles, and against various material targets

Number of rockets: 7
Rocket weight (shape charge, HE, HEAT) 3.7 to 4.5 kg
Empty launcher, weight 21 kg
Launcher with rockets, weight: 47 - 51 kg
Dimensions 1050 x 230 mm
Maximum rocket speed 600 - 670 m/s
Rocket flying time at up to 1000 m, ca. 2 - 2.5 s
Efficient range: 2000 m
Warhead: shape charge, fragmentation, combination of shape charge and fragmentation effect
4. Aircraft 16-BARRELED LAUNCHER OF 57mm ROCKETS

Caliber: 57 mm
Number of barrels: 16
Launcher weight (without rockets): ~54 kg
Launcher weight (with rockets): ~117 kg
Length: ~1850 mm
Width: ~335 mm
Height (with lugs): ~392 mm

Rockets are launched either individually or in ripples, with time shift between launchings of not less than ~50 ms.
Launching is controlled electrically, with voltage of 27 ± 10%.

5. 32-BARRELED LAUNCHER OF 57mm ROCKETS

Caliber: 57 mm
Number of barrels: 32
Launcher weight (without rockets): ~105 kg
Launcher weight (with rockets): ~219 kg

Rockets are launched either individually or in ripples, with time shift between launchings of not less than ~50 ms.
Launching is controlled electrically, with voltage of 27 ± 10% V.
6. 80MM S-80KOM UNGUIDED AIR LAUNCHED ROCKET

80 mm S-80KOM/KOM unguided rocket has been designed for engagement of various types of battlefield targets, such as: tanks, self-propelled artillery, armored vehicles, radar stations, aircraft as well as against manpower. The rocket is launched from multiple barrel launchers that can be fitted to various fixed and rotary wing aircraft.

Rocket is comprised of:
- rocket engine
- warhead
- Fuze.

Rocket engine represents original design, with solid rocket fuel, with burning time of 0.7 seconds. Warhead boasts two types of effect: shaped charge (penetration 400 mm RHA) and fragmentation (500 shrapnel's of 3 g weight and fragment leftovers from the body and rocket motor).

The fuze is of piezoelectric contact type, which is armed after the launching in 1.1 to 1.7 seconds time, with minimal acceleration of 32g. Elaborated rockets are stored in wooden boxes with 4 pcs each.

The main technical data
Caliber: 80 mm
Length, overall: 1570 mm
Launch weight: 11.3 kg
Warhead weight: 3.6 kg
Warhead type: HEAT
Explosive weight: 0.9 kg
Armour penetration: 400 mm RHA
7. **B8-V20-BARREL LAUNCHER OF 80mm ROCKETS**

- Caliber: 80 mm
- Number of barrels: 20
- Launcher weight (without rockets): ~125 kg
- Launcher weight (with rockets): ~239 kg

Rockets are launched either individually or in ripples, with time shift between launchings of not less than ~50 ms. Launching is controlled electrically, with voltage of 27 ± 10% V.

8. **S-13 rocket**

- 5-tube launchers B-13L
  - 3.56 m 0.410 m 160 kg 5 0.15 seconds firing interval
- 5-tube launchers B-13LI
  - 3.06 m 0.410 m 140 kg 5 0.15 seconds firing interval

The S-13 unguided aircraft rockets employed from aircraft and helicopters. The S-13 unguided aircraft rockets are classified as air-to-ground rockets.

A number of rocket versions with different warheads are available:
- with two-module concrete-piercing HE warhead;
- with HE fragmentation warhead;

The rockets are intended to engage different types of ground targets (from manpower to armored materiel and hardened shelters).
9. L-128-04 quadruple 128 mm rocket launcher

L-128-04 rocket launcher is suitable for readily adaptable to any fixed or rotary wing aircraft capable of carrying such payloads and provided with weapon release units of 250 mm to 355.6 mm (14 - inch NATO STANDARD) hook spacing.

Launchers are equipped with electrical triggering system activated by pilot or Weapon System Operator.

The weapon is very suitable for cost-effective engagement of variety of battlefield targets, particularly in anti-terrorist operations, including reinforced buildings, bunkers etc.

Modified L-128-4/LG launcher can launch a guided version of 128 mm aircraft rocket equipped with semi-active laser guidance and control module.

<table>
<thead>
<tr>
<th>Launcher length:</th>
<th>2270 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Launcher diameter:</td>
<td>380 mm</td>
</tr>
<tr>
<td>Launcher weight, empty:</td>
<td>85 kg</td>
</tr>
<tr>
<td>Launcher weight, loaded:</td>
<td>240 kg</td>
</tr>
</tbody>
</table>

128 mm aircraft rocket family consists of two basic models: 128 mm KUM M80 with HEAT warhead and 128 mm with HE warhead.

HEAT Rocket technical data:

<table>
<thead>
<tr>
<th>Rocket length:</th>
<th>1835 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
<td>43.7 kg</td>
</tr>
<tr>
<td>Propellant charge type / weight: NGR-246 /</td>
<td>11.3 kg</td>
</tr>
<tr>
<td>HEAT warhead explosive charge weight:</td>
<td>2.5 kg</td>
</tr>
<tr>
<td>Stabilization:</td>
<td>Four folding fins</td>
</tr>
<tr>
<td>Effective range:</td>
<td>1500 m</td>
</tr>
</tbody>
</table>

HE Rocket technical data:

<table>
<thead>
<tr>
<th>Rocket length:</th>
<th>1835 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight:</td>
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</tr>
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<td>4 kg</td>
</tr>
<tr>
<td>Stabilization:</td>
<td>Four folding fins</td>
</tr>
<tr>
<td>Effective range:</td>
<td>1500 m</td>
</tr>
</tbody>
</table>
10. XM 3/23 Low-drag and high-drag modular practice aircraft bomb family

The main features:

Modular construction, by using up to even 18 various aerodynamic shapes and various loads, providing closely simulation of bombing with wide range of free-fall aircraft bombs.

High reached level of accuracy and flight stability; the very low dispersion allows carry out aircrew high successfully practice in bombing with precision targets with small surface, or even on point targets.

- Easily set into operation
- Easily carried by all types of aircraft
- Safety of transportation and handling
- Crushability on impact avoiding ricochet
- No maintenance required

The main operational characteristics:

The bombs from XM-3/23 aircraft low and high drag modular practice bomb family are designed for carriage on the aircraft bomb carrier with 14 inch (356 mm) NATO standard and 250 mm Russian / East standard hook distances bomb carrying /releasing units without or with pyrotechnic pulse ejection device (ejection speed).

All the bomb performances are proven during the bomb integration with the aircrafts “Orao”, G-4 “Super Galeb”, MiG-21 BIS and MiG-29.

The bomb can be carried in the practice bomb container designed for d=100mm bomb body diameter and load carrying capacity of at list 25kg.

The bomb is delivered complete ready for use without pyrotechnic chain, which is packed separately. One specialist can set the bomb in operation and load the bomb carrier within 3 minutes. Safety during ground handling is assured by a safety pin fitted to the pyrotechnic chain ignition assembly. The bomb is packed in the container and no maintenance is required within a 5-year period.

Carrying:

| Speed (V): | less than or equal | 1150 km/h |
| Mach No. (Ma): | less than or equal | 0.95 |
| Load factor (N): | less than or equal | 6 g |
| Altitude (H): | less than or equal | 11000 m |

Releasing:
Speed (V): less than or equal 950 km/h
Mach No (Ma): less than or equal 0.75
Load factor (N): between 0.5 g and 4 g

The main technical characteristics:

<table>
<thead>
<tr>
<th>Bomb type</th>
<th>Diameter (mm)</th>
<th>Length (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-drag (smooth) type</td>
<td>100</td>
<td>950</td>
<td>15</td>
</tr>
<tr>
<td>High-drag type</td>
<td>100</td>
<td>820</td>
<td>5</td>
</tr>
</tbody>
</table>

11. UB-16 AIR BOMB MULTIPLE LAUNCHER

Application: close air support COIN, efficient against troops in the field, on large surfaces, and against various material targets.

Number of bombs: ...........................................8
Dimensions ..................................................1500 x 390 mm
Weight without bombs ...................................25 kg
Full launcher weight ........................................153 kg
Bomb weight ..................................................16 kg
Bomb effect ..................................................fragmentation
FAB-100/250 HE GP aerial bomb has been designed for engagement of wide range of area non-hardened targets, such as: industrial facilities, railroad junctions, roads, warehouses, storage areas, logistic areas, exposed manpower, field fortification areas, army assets and similar.

It is suitable for integration with fixed-wing aircraft of both Western and Eastern origin that are capable of carrying bombs of this weight class and where bomb racks have 250mm or 355.6mm (standard NATO 14-inch) locking lugs hook spacing.

FAB-100/250 aerial bomb can be released safe or armed at speeds up to 1000 km/h.

The main technical data:
- Weight of the bomb assembled with two fuses, without parachute: 119.5 kg
- Weight of the bomb assembled with two fuses, with parachute: 132 kg
- Weight of bomb body: 107 kg
- Tail unit weight: 8.5 kg
- Type of explosive charge: TNT
- Weight of explosive charge: 39 kg
- Bomb diameter: 230 mm
- Bomb length without fuze and parachute: 1490 mm
- Bomb length with fuze and parachute: 1617 mm
- Hook spacing: 250/355.6 mm (14")
- Number of fuses: 2 (front and aft)
- Fuze type: AUFK M91
- Fuze thread: M52 x 3
13. Aircraft bomb-250 kg

The main technical data:

- Weight of bomb assembly without parachute: 244 kg
- Weight of bomb assembly with parachute: 260 kg
- Weight of bomb body: 226 kg
- Tail unit weight: 14.5 kg
- Type of explosive charge: TNT
- Weight of explosive charge: 105 kg
- Bomb diameter: 325 mm
- Bomb length without fuze and parachute: 2015 mm
- Bomb length with fuze and parachute: 2200 mm
- Hook spacing: 250/355.6 mm (14"")
- Number of fuses: 2 (front and aft)
- Fuze type: AUFK M91
- Fuze thread: M52 x 3
14. PLAB-200 incendiary aerial bomb

PLAB-200 flammable aerial bomb is used for engagement of various types of area targets, such as: zones of manpower and combat material concentration, large infrastructure and military facilities, storage areas, etc. This bomb can be attached to various types of combat aircraft, with proviso of filling the bomb with flammable mixture and fuze setting prior to combat sortie.

Main characteristics of PLAB-200 flammable aerial bomb:

- Caliber: 390 mm
- Length: 2314 mm
- Useful volume for filling with flammable mixture: 197 litres
- Weight of empty body (without inflammator and fuze): 22 kg
- Weight of filled aerial bomb, with inflammator and fuze: 178 kg
- Hook spacing on two lugs: 250 mm or 355.6 mm (Standard NATO near center of gravity)
- Hook spacing on single lug (optional): 800 km/h
- Aircraft release speed: 50 m
- Minimal release altitude: AUN-M67
- Fuze: Z-2, laborated with white phosphorus wire/active-passive
- Inflammator: gasoline+NAPALM powder+additives
- Active and passive release: all aircraft with hook spacing of 355.6 and 250 mm with two lugs, or aircraft with single lug
### 15. TECHNICAL DATA FOR UAV FUSE FOR AERIAL BOMB (AUFK M91)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Fuze</td>
<td>Non-delay</td>
</tr>
<tr>
<td>Installation point</td>
<td>Front or Rear</td>
</tr>
<tr>
<td>Safety prior to initiating</td>
<td>Fully safe</td>
</tr>
<tr>
<td>Safety limit</td>
<td>Electrical, rated voltage 24 V</td>
</tr>
<tr>
<td>Sensitivity limit</td>
<td>~30 g (294.3 m/s²)</td>
</tr>
<tr>
<td>Sensitivity limit (longitudinal)</td>
<td>~60 g (588.6 m²/m²)</td>
</tr>
<tr>
<td>Sensitivity limit (lateral)</td>
<td>~120 g (1177.2 m²/m²)</td>
</tr>
<tr>
<td>Time of delay</td>
<td>1.65 +/- 0.1 s</td>
</tr>
<tr>
<td>Weight, overall</td>
<td>18 - 26 s</td>
</tr>
<tr>
<td>Weight of detonating charge</td>
<td>~51 - 53.5 gr</td>
</tr>
<tr>
<td>Diameter of Fuze head</td>
<td>~90 mm</td>
</tr>
<tr>
<td>Diameter of Fuze lower portion</td>
<td>~44 mm</td>
</tr>
<tr>
<td>Total length of Fuze</td>
<td>~258 mm</td>
</tr>
<tr>
<td>Fuze thread for aircraft bomb Fuze socket</td>
<td>M52 x 3</td>
</tr>
<tr>
<td>Fuze length entering into aircraft bomb Fuze socket</td>
<td>136 - 0.5 mm</td>
</tr>
</tbody>
</table>