PLACING OF DRAFT QRs AND TRIAL DIRECTIVES OF ADVANCE MACHINE GUN (7.62X51MM)


2. Meeting of Sub Group of Technical Experts was held on 22 Sep 2020 at 1030 in the conference Hall, HQ NSG for the QRs and Trial Directives of Advance Machine Gun (7.62x51mm).

3. The draft QR/ TDs of Advance Machine Gun (7.62x51mm) was uploaded on MHA and NSG web site wef 29 Sep 2020 to 13 Oct 2020. But no comments received till date. Therefore, it is requested that the draft QRs and Trial Directives of Advance Machine Gun (7.62x51mm) may be uploaded again on MHA website for 15 days to invite vendor comments/ suggestions.

4. As per PM Division, letter under reference, the draft QRs and Trial Directives of Advance Machine Gun (7.62x51mm) as per Appx is forwarded herewith in hard and soft copy for hosting on the MHA website.

(Sonu Rai)
Maj
SC (Ord)
For GC (Prov)

Encls : As above.

Technical Director, NIC, North Block, New Delhi
No. P/604/19(389)/AMG/Prov (Ord)/NSG/232 Dated, the 4th Jan 2021
INVITATION OF VENDOR COMMENTS ON QR/ TDs OF 
ADVANCE MACHINE GUN (7.62X51MM)

1. It is intimated that firms/ vendors' comments are invited on the QR/ TDs of Advance Machine Gun (7.62x51mm). All firms are requested to offer their comments on e-mail address scord@nsg.gov.in or gcproc@nsg.gov.in in under mention format.

<table>
<thead>
<tr>
<th>QRs</th>
<th>TDs</th>
<th>Comments by the firm</th>
</tr>
</thead>
</table>

2. You are requested to offer comments within 15 days from the date of uploading on the website. The QR/ TDs of above mentioned equipment/ weapon are being considered by sub group committee meeting for finalization.

Dated: 4th Jan 2021

(Sonu Rai) 
Maj 
SC (Ord) 
For IG (Prov)
QUALITATIVE REQUIREMENTS OF ADVANCE MACHINE GUN

Operational characteristics:

<table>
<thead>
<tr>
<th>No.</th>
<th>Characteristics</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Caliber</td>
<td>7.62x51mm</td>
</tr>
<tr>
<td>2</td>
<td>Effective range/penetration on test</td>
<td>Not less than 800 mtr. Should penetrate MS plate of 3.5mm at this range.</td>
</tr>
<tr>
<td>3</td>
<td>(i) Accuracy</td>
<td>Distance: Single round fire (If available).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a) 100 mtr. 12x12cm. 50 cm dia.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ii) Hit probability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When 30 rounds are fired in burst or 2-3 rounds from a fixed mount on a 1 feet x 1 feet target placed at 100m, minimum 18 rounds must hit the target.</td>
</tr>
<tr>
<td>4</td>
<td>Cycle rate of fire</td>
<td>Not less than 600 rds per minute.</td>
</tr>
<tr>
<td>5</td>
<td>Types Of fire</td>
<td>i) Single shot.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii) Automatic.</td>
</tr>
<tr>
<td>6</td>
<td>Weight</td>
<td>Not more than 9 kg ± 10% with bipod.</td>
</tr>
<tr>
<td>7</td>
<td>Front Hand Guard/Fore grip</td>
<td>Hand grip should be given in weapon to hold the weapon to fire from standing position.</td>
</tr>
<tr>
<td>8</td>
<td>Feed</td>
<td>Belt fed through attachable ammunition box or drum or pouch.</td>
</tr>
<tr>
<td>9</td>
<td>Mount</td>
<td>Foldable detachable bipod and tripod with adjustable height.</td>
</tr>
<tr>
<td>10</td>
<td>Safety</td>
<td>Should have both mechanical and applied safety.</td>
</tr>
<tr>
<td>11</td>
<td>Picatinny rails</td>
<td>MIL-STD 1913 picatinny rails compatible with most available sights should be provided.</td>
</tr>
<tr>
<td>12</td>
<td>Sighting system</td>
<td>Open sights with luminous tips should be provided.</td>
</tr>
<tr>
<td>13</td>
<td>Carrying Handle</td>
<td>Carrying handle should be provided.</td>
</tr>
<tr>
<td>14</td>
<td>Flash suppressor</td>
<td>Should have integral flash suppressor.</td>
</tr>
<tr>
<td>15</td>
<td>i) Life of Barrel</td>
<td>Minimum 20,000 rounds for each barrel.</td>
</tr>
<tr>
<td></td>
<td>ii) Life of the system</td>
<td>20,000 rounds (The weapon system should not develop any permanent malfunction that renders the weapon unserviceable. However, change of minor spares and components like pin firing, extractor etc will be permissible)</td>
</tr>
<tr>
<td>16</td>
<td>Changeable barrel</td>
<td>The user must be able to change a hot/cold barrel without the use of tools.</td>
</tr>
<tr>
<td>17</td>
<td>Handling</td>
<td>The user must be able to aim and fire the weapon from various positions:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Supported on bipod.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Standing/Kneeling unsupported.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Standing, weapon at the shoulder.</td>
</tr>
<tr>
<td>18</td>
<td>Butt</td>
<td>Fixed/adjustable butt with cheek rest and shoulder rest.</td>
</tr>
<tr>
<td>19</td>
<td>Length</td>
<td>Overall length should not be more than 1200 mm</td>
</tr>
<tr>
<td>20</td>
<td>Color of weapon</td>
<td>Weapon should be matt black in colour</td>
</tr>
<tr>
<td>21</td>
<td>Muzzle Velocity</td>
<td>Minimum 860 mtr/sec</td>
</tr>
</tbody>
</table>
TRIAL DIRECTIVES FOR ADVANCE MACHINE GUN (AMG)

9. **General features:** The Board of Officers will ascertain the general features of weapon as per laid down specification of the QRs. While assessing the general features of the weapons, following will be ascertained:
   a. Technical specification.
   b. Physical characteristic.
   c. Furniture.

10. **Physical handling:** The weapon should be compact, easy to carry, handle and operate. The handling of the weapon should be assessed by the following:
   a. Ease of carriage.
   b. Handling of weapon while mounting/dismounting from vehicle and tripod/bipod.
   c. Bringing the weapons to fire both aimed and un-aimed fire.
   d. Fixed butt with cheek rest and shoulder rest.

11. **Ergonomics:** Special attention to be paid to ascertain that there is no obtrusive protrusion from the body of the weapon and the weapon is smooth to handle with well rounded surfaces and no sharp edges.

12. **Operational reliability:** The operational reliability of the weapons should be evaluated by carrying out firing by the weapons to assess the following:
   a. Accuracy.
   b. Sustainability of continuous fire without stoppages.
   c. Rate of fire single shot and automatic firing mode.
   d. Heating of the fore hand guard.
   e. Barrel condition on sustained firing.

13. **The robustness and versatility of weapons should be checked by performing the following test.**
   a. Drop test
   b. Water immersion test
   c. Mud test
   d. Sand and dust test
   e. Rain test
   f. Muzzle Velocity test

   The details of testing procedure are given at Appendix 'A' attached.

14. **Life of barrel:** The vendor will submit a certificate authenticating the life of barrel from an accredited lab. The user force may however carryout test through conduct of actual fire.

15. **In addition, following should also be checked.**
   a. Smooth fitting and removal of the magazine (belt/ box/pouch) from the weapon.
   b. Ease of ammunition filling into the magazine (belt/box/pouch).
### Trial Directives for Advance Machine Gun (AMG)

**16. Functional adequacy:** The following functional parameters should be evaluated:
- a. Closure of the breech.
- b. Safety mechanism.
- c. Trigger operation.
- d. Recoil.
- e. Safety catch/change lever operation.
- f. Accommodation of the sight.
- g. Extraction process and ejection pattern of cartridge case.
- h. Sling stud point and sling mounting.
- i. Operation of magazine catch.

**17. Accessories and maintainability:**
- **Accessories:** The accessories being provided should be as per the CES of the weapons.
- **Maintainability:** Following will be checked:
  - a. Furniture - ease of replacement and maintenance.
  - b. Mean time between failures/mean time between repair.
  - c. Degree of difficulty in carrying out "in situ" repairs.
  - d. Availability of spares and oil/lubricant.

**18. Questionnaires:**
A set of questionnaires that need to be answered as part of trial is at Appendix-8.

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*Signatures and notes*

- 24/10/19
- J. N. Rajan Babu
- AC/IT 60
- Sunil Kumar
- AC/CNF

*Additional notes*:

- [Signature]
- Sec. in CHQ
- IO 73/PRO
QUALITATIVE REQUIREMENTS OF ADVANCE MACHINE GUN

<table>
<thead>
<tr>
<th>Operation and maintenance :-</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 Should be simple in design and capable of functioning under all operational conditions.</td>
</tr>
<tr>
<td>22 Performance of the weapon should not be adversely affected by extremes of temperature (-40°C to + 55°C).</td>
</tr>
<tr>
<td>23 Stripping and assembling of the system should be simple and should be capable of being field stripped without use of specific tools.</td>
</tr>
<tr>
<td>24 The Gun system should be easy to maintain. The parts should not corrode on exposure to rain and humidity. Suitable cleaning tools should be provided.</td>
</tr>
<tr>
<td>25 The Gun system should be modular in construction to facilitate quick replacement of components.</td>
</tr>
<tr>
<td>26 Gun system should be easy to repair and parts should be easily replaceable.</td>
</tr>
<tr>
<td>27 Suitable packing arrangements should be provided for transportation and storage without causing any damage to the weapon system.</td>
</tr>
<tr>
<td>28 One set of gauges for checking the serviceability of Guns should be provided with every twenty Guns.</td>
</tr>
</tbody>
</table>

29 Accessories: Following items/equipment's must be provided with the Gun:

- a. Spare Barrel (7.62x51mm), with life of 20,000 rounds with certificate from accredited lab.
- b. Cleaning kit.
- c. Test equipment including special maintenance tools & special testing tools and inspection gauges.
- d. MRLS (manufacturers recommended list of spares).
- e. Training aids- charts, slides, training brochure, training work model, blow up diagrams, video films etc.
- f. Technical documentation.
- g. Sling.
- h. ISPL (illustrated spare parts list).
- i. Technical specification of the stores including inspection criteria.
- j. Proof schedules to include details of testing and acceptance criteria.
- k. Technical manual giving full description of item.
- l. General assembly drawing.
- m. User handbook.
- n. Cut out model (if applicable).
- o. Literature on preservation technique as applicable.
- q. Details regarding proof/periodic inspection by the user.
- r. A bag capable of containing a hot barrel must be provided.
- s. A blank firing attachment must be provided with the weapon.
- t. Provide solutions for mounting the weapon on vehicles.
- u. Accessories being provided should be as per the CES of the weapon.
TRIAL DIRECTIVES FOR ADVANCE MACHINE GUN (AMG)

Introduction:

1. Advance Machine Gun (AMG) is required to enhance the operational reach of Forces by enhancing the effective range and ergonomics of available weapons system.

Trial requirements:

2. **Duration of trials:** Minimum 10 days. All the weapons along with accessories, ammunition and related literature being produced for user trial should be available one week prior to commencement of trial for pre trial formalities.

3. **Numbers of weapons:** Three weapons of same class with spare barrels and accessories should be provided by each vendor.

4. **Ammunition:** Vendor to offer 25000 rounds per weapon, of the make of their choice. In addition 5000 rounds as overall reserve. The ammunition as far as possible should be of fresh lot and the type of ammunition that can be fired from the weapons to be specified. However, the weapon should be capable of firing Indian ammunition 7.62 mm x 51 mm made by OFB.

5. **Technical literature:** User hand book, design specification, illustrated spare part list, preservation instruction, (Complete equipment schedule) CES and repair manual including maintenance task, procedure for assembly/stripping and safety precautions. These should be made available at time of trial.

6. **Tools, SMT, Gauges:** One set of SMT and gauges including a device integrated into the weapon enabling it to count shots fired and to store the information should be made available to the trial team.

7. **Environmental adaptability:** OEM to submit a certificate indicating that weapon is tested to withstand operating temperature defined in QRs prior to commencement of user trials. The weapon should have been subjected to proof firing prior to positioning for user trials. A certificate stating that the weapons are safe to fire for trials will be rendered by the OEM prior to commencement of user trials.

8. **Aspects to be evaluated:** A holistic evaluation of the Advance Machine Gun (AMG) will be carried out with reference to the following issues as indicated in the laid down Qr's:

   a. General features/characteristic.
   b. Physical handling.
   c. Operational reliability.
   d. Functional adequacy.
   e. Environmental adaptability.
   f. Accessories and maintainability of the weapons.