



**155MM/45CAL ELECTRONICALLY UPGRADED
GUN SYSTEM**

“DHANUSH”

**QUALITY ASSURANCE PLAN/ACCEPTANCE TEST
PROCEDURE**

OF

Electronic Power Plant

DRG.NO. GCF/50/40782D

GUN CARRIAGE FACTORY

**A GOVT. OF INDIA ENTERPRISES, MINISTRY OF
DEFENCE**

**(A UNIT OF ADVANCED WEAPONS AND EQUIPMENT
INDIA LTD)**

QAP/ATP

This quality assurance plan is a general guide to meet the quality requirements of product. It consists of applicable procedures (describing production processes, inspection & testing instructions), applicable workmanship standards, the measurement tolerances applicable, the description of material standards and so forth. It also mentions the list of documents, test certificates that will be submitted by firm to GCF along with finished component.

1. Nomenclature & Drawing No.:

Electronic Power Plant ASSY DRG.NO. GCF/50/40782D

2. Dimension & Tolerance :

As per relevant IS/BS/BIS standard etc. mention in drawing of item/component. In case of assembly or subassembly drawings the type of fit should be follow as per relevant drawings. Angular or linear attachment or fitting at any location should be as per drawings.

3. Material & Heat Treatment Condition:

As per details and specifications mentioned in above mentioned drawings no.

3.1 Test/Checks and Acceptance criteria for Material.

SL. NO	TEST/CHECK	PARAMETER	ACCEPTANCE/AS PER APPLICABLE SPECIFICATION
1	Chemical	Composition	As per details and specifications mentioned in drawings
2	Mechanical properties	Yield Stress	
		Tensile Strength	
		Elongation	
		Internal Bend Diameter	
		Hardness	
		Charpy Impact Test	
3	Electrical & Electronics properties	Conductivity, Resistivity, Insulation, Current, Voltage, Dielectric, Backup, Efficiency, etc	As per details and specifications mentioned in drawings
4	Environmental Properties	Corrosion resistance, Rusting, etc	As per details and specifications mentioned in drawings

3.2 Manufacturer may supply test piece before bulk supply. (Factory may check chemical/mechanical and other properties whenever required)

4. Method of manufacture *:

4.1 Manufacturer has to strictly follow the Scope of Design and Manufacturing if given in the drawing.

4.2 Manufacturer has to use the specified method of manufacturing of component/item/assembly/subassembly to ensure the quality of item/components. If manufacturer is using another method other than specified, then prior permission from GCF end is required.

4.1.2 At Receipt End:

Inspection at GCF end will be done by Material inspection department as per sampling plan specified in IS standard 2500 part-II, 1965. Selected sample from bulk will be tested in GCF laboratory or any other NABL/GOVT lab to ensure the quality as applicable. Firm has to provide sample of raw material used for manufacturing along with each lot supplied. As per AWEIL input material inspection SOP.

4.3 Dimensional Inspection:

All dimensions (critical, major & minor in nature) & geometrical features of drawings are to be covered in check sheet and should be duly inspected by concerned quality control section. Components, having dimensions as per drawing, should only be accepted by inspectorate.

No deviation in dimension or in geometrical feature is permitted.

Latest and calibrated measuring instrument with high accuracy as possible to be used for measurement.

If computerized measuring machine like coordinate measuring machine etc are used for measurement their details along with tolerance and least count to be provided along with the report or mentioned in report.

5. Other Test on Semi-finished/finished Component.

5.1 Details of tests /check on Semi-finished/ finished items and acceptance criteria:

S No.	TEST / CHECK	SAMPLE SIZE	ACCEPTANCE CRITERIA
A	Hardness Test (In process Inspection)	100%	If applicable, Hardness Within Specified hardness Range as per Standard.
B	Surface Treatment /Coatings	100%	As per standard
C	Environmental /Corrosion test	As applicable	If applicable as per standard specified

5.2 It is to be ensured by vendor that item/component /material supplied having homogeneous chemical/mechanical/physical properties and having uniform surface coating/ treatment /hardness throughout the cross section as mentioned in relevant drawing/standard or specification.

5.3 Dimensional Inspection:

All dimensions (critical, major & minor in nature) & geometrical features of drawings are to be covered in check sheet and should be duly inspected by concerned quality control section. Components, having dimensions as per drawing, should only be accepted by inspectorate.

No deviation in dimension or in geometrical feature is permitted. Latest and calibrated measuring instrument with high accuracy as possible to be used for measurement.

If computerized measuring machine like coordinate measuring machine etc are used for measurement their details along with tolerance and least count to be provided along with the report or mentioned in report.

6. List of Documents:

(To be submitted by firm along with finished component during factory end inspection) Pre inspection report of material/component/item as per specification and standard mentioned in drawing.

- (1) Certificate of conformity by supplier if applicable.
- (2) Vendor should submit dimensional report of material/item/component along with details of instrument and their tolerances as applicable as per Para 4.3 (sample 100%)
- (3) In material test report Heat treatment process and condition should be clearly mentioned and as per specification mentioned in drawing,
- (4) Material Chemical/Mechanical/Physical/ Microstructure/Load test report as per relevant standard and specification mentioned in drawings of supply order from authorized GOVT/NABL /DGQA Laboratory.
- (5) Guarantee/ Warranty certificate as per relevant supply order.
- (6) Life testing/Reliability report for items like bearings etc. as applicable for items which are specially designed or developed for GCF factory.

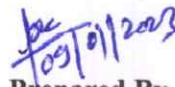
8. Important Note:

- (1) Final authority of acceptance is based on the Fit for Trial (FFT) report of item/material/component.
- (2) Use rust preventative after integration, location specified as per drawings specification; if applicable.
- (3) If any query arises pertaining to dimensions, standards (viz. mechanical properties, chemical composition, Heat treatment etc.) or any other aspects which are mentioned in QAP but the same is mismatched with actual drawings/standards, then the firm should intimate GCF with details explanation. The commencement of bulk production only be initiated after the proper clarification received from GCF Jabalpur.

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**Approved By
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