

**ORDNANCE FACTORY BADMAL
MINISTRY OF DEFENCE
GOVERNMENT OF INDIA**

**SPECIFICATION ON COMBUSTIBLE CARTRIDGE CASE (CCC) COMPONENTS
FOR SCCC OF 125MM AMMUNITION
TO GOVERN MANUFACTURE, QUALITY ASSURANCE AND SUPPLY**

Issued by

**GENERAL MANAGER, ORDNANCE FACTORY BADMAL
BADMAL, BOLANGIR -767 070 (ODISHA)
MINISTRY OF DEFENCE
DEFENCE PRODUCTION & SUPPLIES**

RECORD OF AMENDMENTS

Amendment Sl.No.	Date	Details of amendment	Amendment carried out by and Date







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0. FOREWORD:

- 0.1 This specification is prepared by Ordnance Factory Badmal(OFBL),Bolangir -767070 (Odisha) .
- 0.2 This specification is based on Doc.No.3-026892 4*40 and amendments issued time to time.
- 0.3 This specification shall be used for Tender Enquiry, Procurement, Manufacture and Quality Assurance.
- 0.4 Quality Assurance Authority for this store is OFBL . Enquiries regarding this specification relating to technical or any other contractual conditions shall be referred to OFBL.

0.5 Copies of related documents are obtainable as follows:

- | | | |
|---|---|---|
| a) Indian Standard |  | Bureau of Indian Standards
Manak Bhavan, 9 Bahadur Shah
Zafar Marg, New Delhi – 110 011 |
| b) IND/ME Specn. |  | The Controller
CQA(ME)
Khadki, Pune -411 003 |
| c) Joint Service Specn.
(Paints / Checimals) |  | The Directorate of Standardisation,
New Delhi |
| d) DEF Specn./STD |  | The Manager
H.M.S.O.Sales Section
British Information Service,
Chanakyapuri, New Delhi – 110 011 |
| e) IA Specn.
f) CQA(A) Specn. |  | The Controller
CQA (A),
Khadki, Pune – 411 003 |
| g) HEMRL Specification |  | The Director,
HEMRL,Sutarwadi,
Pune -411 021. |

1. SCOPE:

- 1.1 This specification is meant to govern manufacture, quality assurance, marking, packing, proof and supply of combustible components viz (i) Body (ii) Cover (iii) Ram cover (iv) Cylinder (Sleeve) for SCCC of 125mm Ammunition.
- 1.2 The manufacturer has to produce first Pilot Lot of CCC component consisting of Lot Size-200 sets and after satisfactory proof report of Pilot Lot bulk production clearance will be given by OFBL. Then subsequent bulk lot will be undertaken by the manufacturer and the bulk lot size will be 2000 + proof sample as per *Proof Schedule No:CQA (A) / PS/GA/201(prov)(e) based on Drawing No.3-026892 Index 4*40.*

SPECIFICATION OF CCC FOR 125MM SCCC

Description	SET OF COMBUSTIBLE CARTG. CASE FOR SCCC OF 125MM HE 1A CONSISTING OF 01 NO EACH 1) BODY TO DRG NO. 3-026892 4*40 Det-2 2) COVER TO DRG NO. 3-026892 4*40 Det-8 3) RAM COVER TO DRG NO. 3-026892 4*40 Det-9 4) CYLINDER (SLEEVE) : TO DRG NO. 3-026892 4*40 Det-10	
Raw Material	1) PYRO XYLENE CELLULOSE SHEET 0.29mm to 0.34 mm (Specn. No. – OST B 84-807-83) 2) PYRO XYLENE CELLULOSE SHEET 0.52mm to 0.56 mm (Specn. No. – OST B 84-807-83) 3) TNT Grade-1E (Specn. No. – GOST B 7059-73) 4) Nitromastic without talc Specn.No: OST B 84-75-75 5) Dye Rhodamine "C" Specn.No: JSS 6820-03-2009 (Rev.-2)	1) PC Sheet testing to be done at CQA(ME), Pune 2) TNT Gr-1E procurement from HE factory Pune 3) Quality Certificate of Nitromastic without talc & Dye Rhodamine "C" is to be produced from NABL/Govt.Lab.

2. RELATED DOCUMENTS:-

- 2.1 This specification is to be read in conjunction with the drawing/ drawings quoted in the contract/ order.
- 2.2 Whenever a reference is to be made to any documents in this specification it should be taken as a reference to the latest edition of the documents unless otherwise stated.

3. STANDARD PATTERN:-

3.1 Any sample lent/given to the manufacture shall be used only as a guide to workmanship and not as a guide to detail. However, standard pattern, if obtainable from the purchasing or Quality Assurance Authority, shall constitute the standard as regards any particulars or properties noted/ defined in this specification.

4. COMPONENTS: -

4.1 The details of components required for manufacture/assembly of the store listed below:

Sr. No	Component	Drawing / Part No	Det. No	No. of Sht.
1	BODY	3-026892 4*40	2	02
2	COVER	3-026892 4*40	8	02
3	RAM COVER	3-026892 4*40	9	01
4	CYLINDER (SLEEVE)	3-026892 4*40	10	01

5. MATERIAL:-

5.1 Following material should confirm to the specification mentioned against each:

Sr. No	Raw Material	Specification
1	Pyroxylyene Cellulose Sheet 0.29 to 0.34 mm	OST B 84-807-83
2	Pyroxylyene Cellulose Sheet 0.52 to 0.56 mm	OST B 84-807-83
3	TNT Grade-1E	GOST B 7059-73
4	Nitromastic without talc powder	OST B 84-75-75
5	Dye Rhodamine 'C'	JSS 6820-03-2009 (Rev.-2)

5.2 The manufacture will also supply any other materials required for completion of the order.

6. MANUFACTURE:-

6.1 The dimension and form of the store and its components are to be in conformity with the drawing album No. 3-026892-4*40. **The manufacturer should prepare process schedule, Inspection Schedule, gauge schedule & tools schedule and get it approved by OFBL before undertaking of production which is to be followed for the manufacture of store and its components.** Any subsequent change in the process schedule **Inspection Schedule & gauge schedule** should be get approved by OFBL in advance.

6.2 Neither the completed store nor any component part shall be altered or rectified in any way not provided for in the drawing or specification without the prior sanction of OFBL.

6.3 Where the drawing or specification permits a choice of alternative material or forms for particular components, the manufacturer is required to obtain prior approval from OFBL in advance in writing.

6.4 All sharp edges and corners shall be rounded off unless otherwise stated on the drawing Burrs to be removed.

- 6.5 Various parameters to be examined are given in Appendix 'A.'
- 6.6 Defect classification together with AQL for all the components are given in CQA(A), Pune Proof Schedule No. CQA(A)/PS/GA/201 (Prov) (e).
- 6.7 Manufacture of combustible cartridge case components shall be carried out as per procedure given in Process Schedule made by Manufacturer and approved by OFBL.

7. WORKMANSHIP AND FINISH:-

- 7.1 The dimensions of the components should be in accordance with the relevant store drawings. The components should be clean and free from cracks, foreign materials, transparent patches, patch work, lump/ knots, dent/uneven surface, folds, ovality etc. inclusions or any other defects. The surfaces should be smooth all over and edges are free from burrs.

8. PAINTING MARKING AND STENCILING:-

- 8.1 Painting and marking will be done as per the relevant drawings.

9. PRE INSPECTION OF STORE BY MANUFACTURER:-

- 9.1 Manufacturer must satisfy themselves that the stores manufactured are in accordance with the contract and fully conform to the specification, by carrying out thorough pre-inspection of each lot/batch and forward the Manufacturer's Inspection Report to OFBL for pre-delivery inspection by OFBL.
- 9.2 A declaration by the manufacturer that necessary pre inspection / tests have been carried out on the stores tendered and the same are fit for inspection, test and firing shall be rendered along with the intimation about the readiness of the lot for inspection. The declaration shall include the method followed in pre-inspection showing features checked / tested and will be accompanied by the test report.
- 9.3 The manufacturer shall provide and maintain an effective quality assurance system acceptable to OFBL , covering the supplies of the order. The written description of the system will be considered acceptable if it provides the quality assurance required by the specification and the related documents and also provides 100% examination of the product for each listed critical defect. Results of all examination and tests perform under this quality assurance system shall be made available to OFBL. The manufacturer shall notify OFBL and obtain approval of any change to the written procedure that affect the degree of assurance required by the specification or other documents referred therein.

10. QUALITY ASSURANCE:-

- 10.1 The manufacture will notify OFBL when he is in a position to start work and will inform him of all suborders placed in connection with main order at the same time, as and when they are placed.

10.2 OFBL shall have access, all times to all departments of manufacturing plant which are concern with the production and storage of materials or components under the order at the works either of manufacturer or the sub manufacture and shall arrange for quality assurance as to be carried out by his representative as considered necessary.

10.3 QUALITY ASSURANCE OF MATERIALS:

10.3.1 Before proceeding to manufacture, all materials shall be submitted to OFBL in batches along with QC documents. Each batch shall contain a quantity of material prepared under uniform conditions in respect of composition and manufacturing process.

10.3.2 The manufacture shall not take into use any material or component until it has been accepted for its purpose by OFBL, who may require the bulk of the material or the component to be sealed or bonded until results of test or analysis of samples are available.

10.4 QUALITY ASSURANCE DOCUMENTS:

10.4.1 Manufacturer shall maintain complete QC documentation at all stages of manufacture/ assembly and submit same along with batches/ lot of components to OFBL to enable to take correct decision and to decide the need for reduction / tightening QC / QA procedures. All QC/QA documents for all lots shall be made available for reviewing guidelines for further QC/QA follow-up.

10.5 SAMPLE FOR TESTING:

10.5.1 The manufacturer shall supply and prepare free of charge the materials or components required by OFBL for testing purpose and shall provide necessary facility and apparatus which may be required for carrying out the test called for by the drawing or by this specification and other standard specification.

10.5.2 Test pieces or sample will invariable be selected by OFBL or his representative and will remain the property of Govt. of India.

10.6 SAMPLING PLAN:

10.6.1 General requirement of sampling:

In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed. Samples shall be taken from any place as desired by the inspector. The sampling instruments and sample containers shall be clean. Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument and the containers for samples from adventitious contamination.

10.6.2 Scale of sampling:

Samples of CCC components of Pilot Lot / Bulk Lot will be submitted to OFBL for physico-chemical analysis and to be tested as per Specification No. (i) GOST-11857-77 (ii) OST B 84-831-77 (iii) Branch specification OST B 84-1464-77, OST B 84-1465-77, OST B 84-831-77, OST B 84-835-77 (iv) OST B 84-802-73, OST B 84-803-73.

(a) Initial first PILOT Lot :

Lot Size : 200 Sets (includes dynamic proof samples 34 sets)

(Details of Dynamic Proof Sample 34sets :
24 sets for functioning & safety +10 sets
for completeness of combustion)

(b) Subsequent BULK Lot:

Lot Size : 2000 + proof sample 10 sets
(Note: every 15th lot , 10 sets proof sample will be under gone
for completeness of combustion test).

- 10.6.3 The firm shall provide Raw material details for sampling by OFBL for raw material clearance before undertaking bulk production.
- 10.6.4 Sampling will be done on daily/shift basis of winding of Body/Cover/Ram Cover/Cylinder (Sleeve) for testing NC & TNT percentage. The testing report will be submitted to OFBL by Manufacturer from NABL/Govt. Laboratory on daily basis winding production.
- 10.6.5 The firm shall provide inspection of individual component of bulk lot by OFBL. The sample from each component will be drawn by OFBL for necessary testing as per specification.
- 10.6.6 The Firm shall provide final sample to OFBL for dynamic proof which will be drawn by OFBL at Manufacturer's premises after satisfactory clearance of individual component of bulk lot.
- 10.6.7 After satisfactory result of dynamic proof, OFBL will give clearance for dispatch of accepted bulk lot.
- 10.6.8 Physical inspection and drawal of samples from pilot/ Bulk lot shall be carried out in a separate inspection room with $60 \pm 5\%$ RH and at the room temperature of $27 \pm 2^{\circ}\text{C}$.

10.7 SUBMISSION AND QUALITY ASSURANCE :

- 10.7.1 The manufacturer is expected to submit material or components for ensuring Quality Assurance Satisfactory and he is required to assume full responsibility for any material or components submitted which is found to be unsatisfactory.
- 10.7.2 The manufacturer shall submit for acceptance the material, components or assemblies called for in order in suitably sized batches. The amount of material or number of units that comprises a batch will be decided by OFBL.
- 10.7.3 Any change or departure in the material composition and its properties, established process control parameters, process of manufacture and machining facilities from those specified or established shall be done in consultation and with the approval of OFBL. Complete record of details of changes/ departure made shall be maintained and performance monitored. The specific change made shall also be recorded in the Quality passport report while forwarding the proof samples.

10.8 RESUBMISSION OF REJECTED BATCH :

- 10.8.1 Rejected batches may be resubmitted with the approval of OFBL. Where resubmission is permitted and the manufacturer elects to resubmit, the manufacturer shall first inspect the rejected batches, either for particular types or classes of defects that cause the batch to be rejected or for all types and classes of

defects, as directed by OFBL and shall repair or remove all defectives of these types or classes. OFBL shall rigidly examine a resubmitted batch for these types or classes of defects.

10.9 DISPOSAL OF REJECTED MATERIALS, COMPONENTS AND ASSEMBLY

10.9.1 All the material and components finally rejected at any stage of manufacture shall immediately be deformed suitably and disposed off to avoid mix-up with the serviceable items and complete record of the same shall also be maintained.

10.10 UTILISATION OF COMPONENTS MADE FOR A SPECIFIC LOT BUT NOT SUBJECTED TO PROOF.

10.10.1 The manufacturer with the clearance from OFBL, may utilize the batches of components (which were not subjected to proof firings in assembled conditions) in the formation of new lots.

10.11 REPLACEMENT BY MANUFACTURER:

10.11.1 Formal acceptance of material or components by OFBL, shall not relieve the manufacturer of his responsibility for the quality of the components, which may subsequently prove to be defective. If material or components from batches accepted during examination or assembly, the manufacturer shall be required to replace the defective material or components free of cost.

10.11.2 If the material of finished or partly finished CCC are expended or damaged in examination or test as stipulated in this specification or elsewhere as a condition for acceptance, the manufacturer will be required to replace or repair free of charge the number as expended or damaged which become the property of Government.

10.11.3 Where finished store are expended in proof as stipulated in the specification or elsewhere as a condition of acceptance, the cost of samples so expended will be borne by the consignee, if the samples representing the lot, have passed satisfactorily. Where a reproof or any other type of proof is requested by the manufacturer, a written request for such a proof should be obtained from the manufacturer including his willingness to bear entire cost of such proof, including that of all proof stores. In case of rejected lots, cost of all the samples spent in all the proofs should be borne by the manufacturer.

10.12 METHODS OF QUALITY ASSURANCE:

10.12.1 For the first pilot lot (200 sets) and Bulk Lot 2000 sets + proof samples, the components, sub-assemblies as well as trial assemblies shall be subjected to 100% inspection by OFBL. During Quality Assurance, data will be collected lot wise, so as to finalise sampling plan.

10.12.2 The components shall be inspected as per Inspection Schedule approved by OFBL.

10.12.3 List showing classification of defects and AQL to be adopted as per proof schedule No.CQA(AA)/PS/GA/201(Prov) (e).

10.12.4 In case of dispute about the quality assurance characteristics of any item, the verdict of OFBL shall be final and it will be binding upon the manufacturer.

11. LOTTING PROCEDURE:

11.1 Each batch of the components shall be made from a single batch/lot of raw materials. The identity of the batch/lot of components will be maintained with full details of the individual material lots to enable OFBL to select sample as per sampling plan (Article-10.6).

11.2 Lot Nos. will be allotted serially. Lot No.will be suffixed with manufacturer's initial or recognized trademark followed by month and year of manufacture. For example: 01 BL 05/17.
where;

01 – Lot No.

BL - Manufacturer's initial

05/17- Month and year of manufacture(May 2017)

Note:- Written confirmation is required from OFBL for stenciling of lot number,since directives are awaited from CQA(A), Pune

12. PROOF:

12.1 The store will be proved and sentenced in accordance with relevant proof schedule No.CQA(A)/PS/GA/201 (Prov) (e).

13. PACKING AND DELIVERY:

13.1 The store will be delivered in lots as appropriate for the lot size, plus the number required for proof.

13.2 The CCCs will be packed in suitable containers as per the details given in Appendix 'B' to give effective protection from damage during transit, dirt or moisture.

13.3 These containers will be kept in proper packages to ensure that the store will reach the consignee in perfectly serviceable condition.

13.4 Each package will be clearly marked with nomenclature, lot No., quantity in the package, manufacturer's monogram or recognized trade mark, month and year of manufacture and any other marking which OFBL may direct.

13.5 As the packages are used for delivering the stores from trade firm to filling factory, Acceptance/Quality assurance will be done by consignee as per the drawings prepared by Drawing No:3-026892 4*40.

14. WARRANTY :

14.1 Store supplied against this specification shall be deemed to bear the warranty of the manufacturer against defective design, material, workmanship and performance for a period of one year from the date of acceptance of store at consignee end. If during the specified period, the store supplied are found to

be defective, the same shall be replaced immediately with serviceable store by the manufacturer at OFBL site free of any charges or as may be decided by OFBL.

15. DEFENCE STORE CATALOGUE NUMBER :

15.1 Not applicable.

16. RESPONSIBILITY FOR SAFETY:

16.1 Nothing in this specification shall relieve the manufacturer of the responsibility for the safety of his operation.

17. DRAWINGS/SKETCHES WHERE APPLICABLE.

17.1 Related drawings/sketches as mentioned in contract/order may be obtained from the concerned agency.

18. SUGGESTIONS FOR IMPROVEMENT:

18.1 Any suggestion for improvement of this specification may be forwarded to :-

The General Manager
Ordnance Factory Badmal
Bolangir, Odisha – 767 070
E-mail : qgofbol.ofb@ofb.gov.in

LIST OF THE GAUGES FOR CCC COMPONENTS OF SCCC 125MM HE 1A

Sr. No.	Gauge No.	Description of Gauge	Feature/dimensions of store to be checked
1.	OFBL/PT/SCCC/019	Go Ring Gauge	For inspecting diameter of cover 146.95
2.	OFBL/PT/SCCC/020	Go Ring Gauge	For inspecting diameter of Body \varnothing 157.2 ^{+0.8}
3.	OFBL/PT/SCCC/021	No Go Ring Gauge	For inspecting diameter of Body \varnothing 157.2 ^{+0.6}
4.	OFBL/PT/SCCC/023 Sl.no-1	Height Gauge	For checking of Height of Parting and polished Body
5.	OFBL/PT/SCCC/025	Go Ring Gauge	For inspection of outer diameter of the mouth \varnothing 151.9
6.	OFBL/PT/SCCC/028	Plug Gauge	For inspection of internal diameter of neck \varnothing 146.4-0.1
7.	BL/G/SCCC/064	No Go Ring Gauge	For checking body after cleaning \varnothing 157.0 ^{+0.1}
8.	BL/G/SCCC/065	Go Ring Gauge	For checking Ramcover blank \varnothing 157.5 Max.
9.	BL/G/SCCC/066	Height Gauge	For checking Ramcover 38 ^{±2}
10.	BL/G/SCCC/067	Go Ring Gauge	For checking Ramcover outer dia H \varnothing 157 & L \varnothing 155.9

Appendix -'B'

PACKING DETAILS FOR CCC COMPONENTS FOR SCCC OF 125MM AMMUNITION

The item required for packing Combustible Cartridge Case shall comply with specification no/drg. No as given below.

SI No	Nomenclature	Drg. No	Specification No.
1	Packing of CCC sets (Lot wise)		
2	Wooden Box for transit packing of SCC	BL/SK/U-17/292	
3	Body	3-026892 4*40 2	
4	Cover	3-026892 4*40 8	
5	Ramcover	3-026892 4*40 9	
6	Cylinder (sleeve)	3-026892 4*40 10	
7	Packing of CCC set in RK33 000 Container with insert.	4-24929	4728-56 "1"