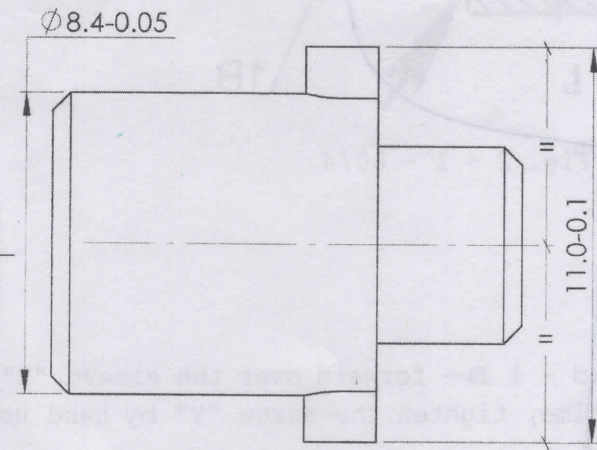
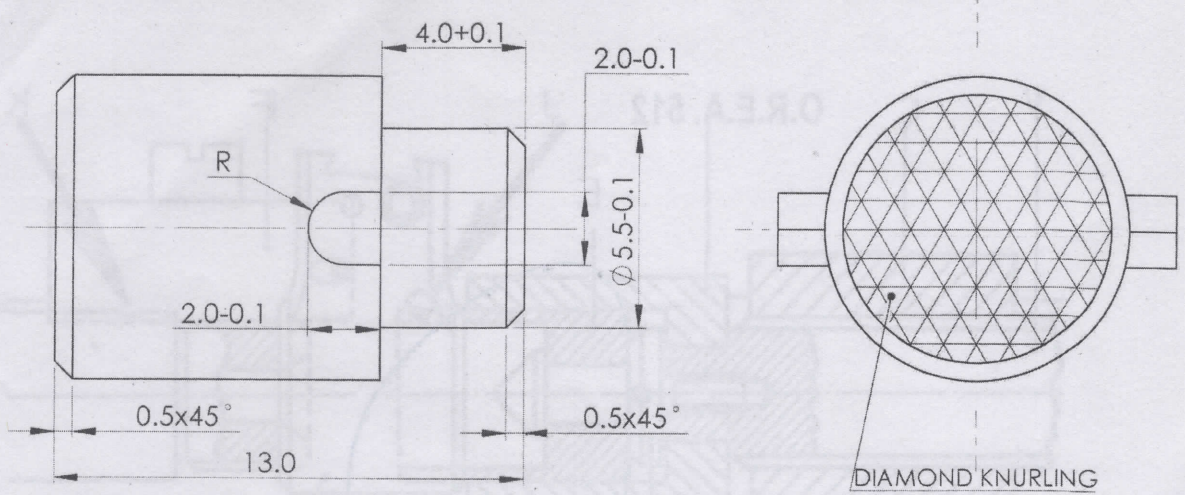


*Handwritten:* 26/7/19

1	2	3	4
ISS A 0 0 0 0	C 4 0 0 0	A 2 0 2	AA 0 0 0 0
C 0 4	SS 0 3	IC 0 2 0 4	DRG No. 0 2 0 4

GENERAL TOL. : FINE / MEDIUM / COARSE CLASS TO IS: 2102 DRG. CONVENTIONS CONFIRM TO INDAN STANDARDS DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED.



- NOTES:-**
- 1) REMOVE ALL SHARP EDGES AND BURRS.
  - 2) HARDNESS : 260 TO 310 H.V.
  - 3) IF COMPONENT IS TO BE MANUFACTURED THROUGH MIM ROUTE REFER ARDE SPECN. No. DRDO/ARDE/MIM/TSP/051/2019.
  - 4) ALT. PROTECTIVE COATING : PHOSPHATED TO SPECN. IS:3618-1966, CLASS 'B'

Sr. No.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD SIGN	GO SIGN
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DRN: SOURABH  
SIGN: *[Signature]*  
DATE: 07/03/2019  
MATERIAL: STEEL TO IS: 5517 -1993, Gd. 55C8

APPD. *[Signature]*  
DATE: 07/03/2019  
FOR DIRECTOR  
PROTECTIVE FINISH: ELCTROLESS NICKEL-BORON NITRIDE (NiBN) COATING AS PER ARDE SPECN. No. ARDE/SA/2016/COATING-02

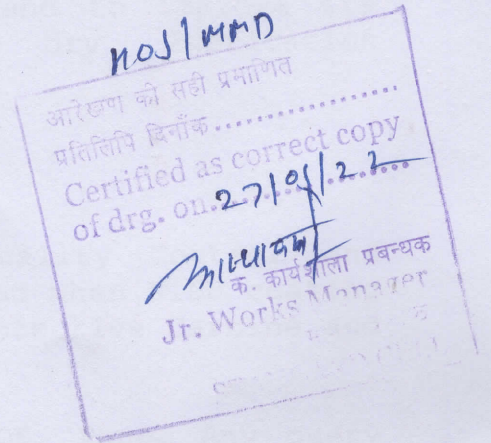
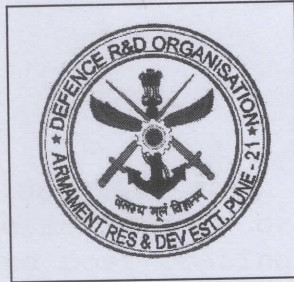
SHEET SIZE: A4  
SCALE: 5:1  
EST. MASS 4.69 gm  
TITLE: **BUTTON CATCH MAGAZINE**  
DESIGN AUTHORITY: **ARDE**  
PUNE 411021

DRG No.	0 2 0 4	0 3	0 4	0 0	0 2	0 0 4	0 0 D A
	IC	SS	S	AA	A	C	SST

JVPC	PART No.	DS CAT No.	AHSP
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Draft Specification for Nickel Boron Nitride Coating on  
Protective Carbine and Magazine

September 2017

Issued

By

ARMAMENT RESEARCH AND DEVELOPMENT ESTABLISHMENT

Dr. HOMI BHABHA ROAD, PASHAN, PUNE - 411 021.

**Specification for Nickel Boron Nitride Coating on JVPC  
and its Accessories**

(Specn No : ARDE/SA/2016/Coating-02)

**1.0 FOREWORD**

This specification has been prepared by ARDE Pune, for Coating of Boron Nitride (NiBN) on 5.56mmx30mm Joint Venture Protective Carbine, its components and Magazine. Coatings are generally applied on the Small Arms and its components for corrosion resistance and to improve its aesthetics, wear resistance, & dry lubrication properties.

**2.0 SCOPE**

This specification lay down the Quality Control and Quality Assurance methods to be adopted when NiBN coating is carried out and post coating on Protective Carbine and its components.

2.1 Quality Assurance Authority is ARDE, Pune. Any query related to this specification shall be referred to The Director, ARDE.

**3.0 RELATED SPECIFICATIONS**

This specification is to be read in conjunction with the drawings, QAP quoted in the contract / tender.

3.1 The references of document/ specification should conform to the latest edition of the documents unless otherwise stated.

**4.0 MANUFACTURE**

Joint Venture Protective Carbine and its components, magazine JVPC and its components will be coated with NiBN coating. The coating thickness of each component and assembly will be as per relevant drawings. The NiBN coating process schedule for the components will be prepared by the vendor undertaking NiBN coating. The Vendor will prepare Quality Control Plan and inform the QA Authority before undertaking the NiBN coatings.

4.1 JVPC and its parts will not be altered or rectified in any way not provided for in the drawing, QAP without prior sanction of ARDE Pune.

4.2 The raw material for coating will be of the highest quality.

## 5.0 TESTS RELATED TO PROCESS

These tests are laid down to assess the coating quality. The vendor will make available required test pieces for assessing the quality. The QA authority will inform him number of test samples required based on the vendors coating plan. The Test piece size and the material will be as follows:

**Material Steel To IS: 7226-1974 C55**

**Size of Test Piece: 25x50x1.0 thick mm**

### 5.1 HARDNESS OF COATING

Hardness of coating will be checked on test piece. The minimum hardness will be 550HV when tested by micro hardness test machine.

The vendor shall intimate hardness value of test pieces to ARDE Pune .If the hardness of test piece found not within specified value, the batch involved will be recoated.

### 5.2 THICKNESS OF COATING

The thickness of the coating of JVPC will be measured on the test pieces used for hardness test. The thickness of coating will be as per drawings. The coating thickness will be measured by vendor by suitable method or instrument. The vendor shall intimate coating thickness value of test pieces to ARDE Pune .If coating thickness value of test piece found deviated from specified value, the batch involved will be recoated

## 6.0 VISUAL INSPECTION

All coated finished components will be visually inspected. The surface of coated components will be free from flaking, blisters, and uncoated areas. The colour and lustrous surface of coating will also be visually inspected. The defects stated at Table -1 will be used for sentencing the components. Areas not required to be coated shall not show generally any sign of chemical attack and shall be free from coating.

## 7.0 RECOATING

The recoating of JVPC components and accessories is allowed for defects. Recoated JVPC components and accessories should be labeled suitably for traceability.

## 8.0 DIMENSIONAL INSPECTION

Coated finished components will be examined for dimensions as per QAP.

## 9.0 QUALITY ASSURANCE

ARDE officer or other officer deputed by ARDE will have access at all times to all department of processing plant which are concerned with the production and storage of the materials, components under the order at works either of the manufacturer or sub manufacturer and shall arrange for quality assurance to be carried out by his representatives as he considers necessary.

9.1 Before proceeding with the process of coating, all materials shall be inspected and accepted by ARDE officers or the officer deputed by him in batches. Each batch shall contain a quantity of material prepared under uniform conditions in respect of composition and manufacturing process. The manufacturer shall not use any material or component until it has been accepted for its purpose by ARDE officer or officer deputed by ARDE.

## 10.0 SUBMISSION AND QUALITY ASSURANCE

The vendor is expected to submit only satisfactory JVPC components and accessories for QA, and shall be required to assume full responsibility of unsatisfactory JVPC components and accessories submitted for QA.

10.1 If a batch of coated JVPC components submitted to ARDE officer or to the officer deputed by ARDE found departure / deviation from the drawings / specification, the whole batch may be rejected.

#### 11.0 **RESUBMISSION OF REJECTED BATCHES.**

Rejected batches shall be resubmitted with approval of ARDE officer, where resubmission is permitted. The manufacturer will repair or remove the defects for which the JVPC components and accessories were rejected and then the same will be submitted.

#### 12.0 **METHOD OF QUALITY ASSURANCE**

The manufacturer shall maintain and provide an effective Quality Assurance system acceptable to ARDE against an order. The written description of the system will be considered acceptable when it provides the quality assurance required by this specification. The results of all examination and test performed under this QA system will be made available to ARDE officer or to the officer deputed by ARDE. The manufacturer shall notify and obtain approval from ARDE for any changes to the degree of assurance required by this specification on other documents referred to therein.

12.1 In case of disputes about the quality assurance characteristics of the item the verdict of ARDE officer will be final and binding.

#### 13.0 **ACCEPTANCE / SENTENCING**

ARDE reserve the right to reject any coatings on JVPC components and accessories during quality assurance which does not satisfy the requirement of drawing / specification.

#### 14.0 **DELIVERABLES**

Coated JVPC and magazines, accepted by ARDE to be delivered in proper packing by vendor.

**TABLE -1**

**VISUAL INSPECTION**

<b>Sl No</b>	<b>Defects</b>	<b>Location on coated component</b>	<b>Sentencing</b>
1.	Fine cut marks, ring marks, tool mark, scratch or minor spots. Total three defects are allowed.	Entire surface	Accept.
2.	Uneven colour and dullness.	Entire surface	Accept.
3.	Blisters	Entire surface	Reject
4.	Peeling/flaking of coating	Entire surface	Reject
5.	Insufficient coating/ surface left uncoated.	Entire surface	Recoat the component.
No coating permitted inside Barrel Bore and Gas Block.			