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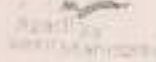
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To,


The Sr General Manager
Ordnance Factory Chanda
(Unit of Munitions India Ltd)
Fax No. 07175-254043/254276
Kind attn.: (Shri Shri Gurbinder Singh, AWM),

Sub: Forwarding of Document: 120mm Arjun Ammunition

Following revised document pertaining to 120mm Arjun Ammunition is forwarded herewith for your retention.

Document No.	Document Title	
DRDO-ARDE-DOA- SPEC-247-2018 Issue No. 2 Revision 2 dated 6/6/2022	QAP for Laminated Paper Container Assembly for 120mm Arjun Ammunition	Controlled copy No. 1

Encl: As above


(RD Khedkar)
Dy. Director
For Director ARDE, Pune

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QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

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**QAP FOR
LAMINATED PAPER CONTAINER ASSEMBLY
FOR 120mm ARJUN AMMUNITION
(PROVISIONAL)**



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
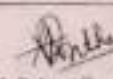
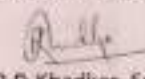
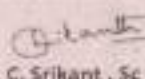

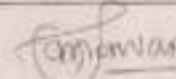


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 QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

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1. GENERAL INFORMATION

1.1 SCOPE:

This specification provides guidelines for manufacturing, selection of material, inspection and testing of Laminated Paper Container Assembly for 120mm ARJUN Ammunition.

1.2 INTRODUCTION:

ARDE has taken up a project for design and development of 120mm ammn (FSAPDS Mk-II, 120mm Practice ammn. and already Developed 120mm FSAPDS Mk-I A ammn. & 120mm HESH Mk-IA ammn.) for MBT Arjun Tank, which is single piece ammunition. The Laminated Paper Container is used to pack 120mm ARJUN ammunition and this LP container is packed in steel box with foam cushioning.

1.3 GENERAL:

- 1.3.1. This specification is the property of the Ministry of Defence and must be returned to the Department from which it is issued immediately after the tender has been declined or on completion of the contract or on demand.
- 1.3.2. This specification or any other information issued in connection therewith may only be issued for specific enquiries, tenders or orders placed by a competent authority on behalf of the Ministry of Defence. It is not to be used for any other purpose whatsoever without the express written sanction of the Director ARDE. Any enquiries regarding this specification should be addressed to the inspecting Authority named in the tender or contract.
- 1.3.3. Contractor before commencement of bulk production shall submit requisite number of samples, test pieces as directed by the inspector for qualifying material / process / component as the case may be. All the tests including hardness check of components / assemblies shall be undertaken by the manufacturer in presence of the representative of inspection agency.
- 1.3.4. The firm shall fabricate initial one-sample (prototype), which shall be taken up for various qualification testing. Only on clearance of the same the bulk clearance shall be accorded.
- 1.3.5. Sample of respective 120mm ARJUN dummy round shall be made available whenever necessary for fitment trials.

1.4 APPLICABLE DOCUMENT

This specification should be read in conjunction with the

1	Drawing No. 1006 05 15 00 00 000 14TA--	LP Container (FSAPDS MK-II & Proof Shot MK-II)
2	Drawing No. 1006 05 15 00 00 000 24TA--	LP Container (FSAPDS MK-I A)
3	Drawing No. 1006 05 15 00 00 000 34TA--	LP Container (Proof Shot MK-I A)
4	Drawing No. 1006 05 15 00 00 000 44TA--	LP Container (HESH MK-I A)
5	Drawing No. 1006 05 15 00 01 000 14TA--	Container Assembly (FSAPDS MK-II & Proof Shot MK-II)
6	Drawing No. 1006 05 15 00 01 000 24TA--	Container Assembly (FSAPDS MK-I A)
7	Drawing No. 1006 05 15 00 01 000 34TA--	Container Assembly (Proof Shot MK-I A)
8	Drawing No. 1006 05 15 00 01 000 44TA--	Container Assembly (HESH MK-I A)
9	Drawing No. 1006 05 15 00 01 001 00TA--	Cap End
10	Drawing No. 1006 05 15 00 01 002 00TA--	Tube Outer
11	Drawing No. 1006 05 15 00 01 003 00TA--	Tube Inner
12	Drawing No. 1006 05 15 00 01 004 00TA--	Collar
13	Drawing No. 1006 05 15 00 01 005 00TA--	Sleeve-I
14	Drawing No. 1006 05 15 00 01 006 14TA--	Sleeve-VII (FSAPDS MK-II & Proof Shot MK-II)
15	Drawing No. 1006 05 15 00 01 006 24TA--	Sleeve-II (FSAPDS MK-I A)
16	Drawing No. 1006 05 15 00 01 006 34TA--	Sleeve-III (Proof Shot MK-I A)
17	Drawing No. 1006 05 15 00 01 006 44TA--	Sleeve-V (HESH MK-I A)
18	Drawing No. 1006 05 15 00 01 007 00TA--	Sleeve-VI
19	Drawing No. 1006 05 15 00 02 000 00TA--	Sleeve IV (FS PS)
20	Drawing No. 1006 05 15 00 03 000 00TA--	Lid Assembly
21	Drawing No. 1006 05 15 00 03 001 00TA--	Tube Lid
22	Drawing No. 1006 05 15 00 03 002 00TA--	Mill Board Washer

* Appropriate set of drawings and relevant components QAP are to be referred as per the relevant store/ammn. for which LP container is used.

(Copies of drawing and specification can be obtained from Director ARDE)

1.5 RAW MATERIALS

- 1.5.1 All the raw materials must be procured from the reputed vendors as per the requirements given on the relevant drawings / specifications. The manufacturer shall undertake chemical and mechanical testing of raw material on accordance with the relevant specification quoted in the manufacturing drawing. Acceptance of raw materials shall be as per the material tests certificate produced by the reputed vendor. Tested quantity of material with lot homogeneity shall be procured in suitable batches and these shall be sealed by the inspecting agency after inward goods inspection. Once the raw material has been accepted for the internal use for manufacture of components it shall not be changed, altered, modified during the process. No other material in lieu of already sealed one shall be permitted without the written approval.
- 1.5.2 Contractor is responsible for the procurement of raw material conforming to the specification in the requisite sizes.
- 1.5.3 Raw material lots that do not correspond to the specifications must be rejected. The supplier has the right to be convinced about the justification of the rejection. The results of the inward goods inspection shall be communicated in writing to the supplier (contractor).
- 1.5.4 If there is any dispute in acceptance of material on the suppliers test certificate, inspector reserves the right to get it tested from a neutral test agency and satisfy the requirements as per specification.
- 1.5.5 If the lot of raw material is rejected at the discretion of the inspection authority it should be discarded and care should be taken to avoid mixing of the rejected lot with accepted lots. A proper rejection control / system shall be adopted by the contractor.
- 1.5.6 The raw materials procured should be stamped duly by the inspection agency. Inspection agency should also ensure that the same material is being processed for the subsequent cutting or machining operation. The trace ability of the material shall be ensured to the inspecting agency, whenever required.

- 1.5.7 Wherever the specification or drawing permits a choice of alternative material(s), the contractor must inform in writing to the Inspecting Authority, which of the permitted alternatives he chooses to produce and once the choice has been granted to the event of this choice requiring further amendment, the fabricator/contractor is bound to get the prior approval of inspecting agency & Inspection Authority for such a change over.

1.6.0 MANUFACTURE/FABRICATION

- 1.6.1 The contractor may subcontract the fabrication of sub -assembly or part thereof with prior permission and approval of inspection authority.
- 1.6.2 Wherever the specification or drawing permits a choice of alternative method(s) of manufacture, the contractor must inform in writing to the Inspecting agency, which of the permitted alternatives he chooses to produce and once the choice has been granted to the contractor, he shall not deviate from this choice during course of manufacture. In the event of this choice requiring further amendment, the fabricator/ contractor is bound to get the prior approval of inspecting agency & Inspection Authority for such a change over.
- 1.6.3 The contractor shall submit the manufacturing / fabrication process with relevant control points for stage inspection and quality assurance plan to the inspecting authority for approval before starting any process. Once the process of manufacture/ fabrication has been documented, process sheets prepared and approval granted, no changes should be allowed without the written approval of the Inspecting Authority.
- 1.6.4 All details of workmanship shall be consistent with the requirement. There shall be no cracks, burrs, dents, scratches, sharp edges, loose parts, foreign matter or any other evidence of poor workmanship that will render components/ subassemblies unsuitable for its internal use. Cleaning methods used shall not be injurious to any of the parts .No parts shall be contaminated by cleaning agent.
- 1.6.5 Components shall be manufactured as per the approved plan from the

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specified materials and should meet all physical, chemical, metallurgical and geometrical requirements as indicated by relevant document/specification.

1.6.6 No mechanical work, heat treatment or any other operation, which may modify, alter the metallurgical or physical properties of the material will be carried out after it has been submitted for approval.

1.6.7 All tolerances specified are absolute with no allowance made for manufacturing process, machine inaccuracies (or measuring instruments inaccuracies). All components are to be manufactured within the tolerance limits specified.

1.7.0 INSPECTION

1.7.1 Unless otherwise stated in the contract or purchase order, supplier is responsible for the performance of inspection requirement as per relevant drawing / specification using his in-house facility or as per the directive issued by the Inspecting agency.

1.7.2 The right to perform any inspection, testing at any stage during course of production or at the completion of manufacture rests with the Inspecting Agency. Contractor shall inform Inspection Agency of his readiness to commence manufacture at his place or at the place where sub-contracting has been made and make available all facilities and access to all places of work to undertake inspection task.

1.7.3 All the test fixture, tools, gauges, equipment, instrument etc., required to undertake inspection/ testing along with calibration certificate shall be made available by the supplier.

1.7.4 Any component, sub-assembly or assembly spent / damaged during the course of transit etc., shall be replaced free of cost by the supplier.

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- 1.7.5 Contractor before commencement of bulk production shall submit requisite number of samples, test pieces as directed by the inspector for qualifying material/ process/ component as the case may be.
- 1.7.6 Inspection Agency representatives shall also draw samples of raw materials and carry out the chemical / mechanical testing independently. The representative is at his / her liberty to select more than one rod, plate etc. The manufacturer shall also provide the certificate of purchase of raw material with heat / lot number in order to ensure trace ability, where possible. The facilities for testing will be provided / arranged by the contractor.
- 1.7.7 Supplier (Manufacturer) and inspector shall mutually agree on the requirements of on-line inspection during the processing of the components and inspection criteria. Further, manufacturer shall submit only those components / parts, which meet all the requirements as stipulated on the drawings/ specifications.
- 1.7.8 Any component/ pattern sent to the supplier shall be used only as guide to manufacture and not for details.
- 1.7.9 All components / stores shall be manufactured using the same process, material, procedure and equipment approved prior to the start of manufacture.
- 1.7.10 Prior to submission, manufacturer in his own interest shall inspect all the components to the degree necessary to ensure that they confirm to the requirement and submit his documents/ records/ test results along with the statement of findings for material, test standards etc., to

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- the inspector for his scrutiny / vetting.
- 1.7.11 All tests including hardness check of components / assemblies shall be undertaken by the manufacturer in presence of the representative of Inspection Agency.
- 1.7.12 Samples containing known defects shall not be submitted.
- 1.7.13 Fresh samples shall be submitted for inspection/testing whenever there is a change in material, specification, process, and drawings or if there is a lapse of more than one year in production. These repeat samples shall be subjected to the severity of test/ inspection criteria as in the case of original sample
- 1.7.14 During production, any major component, subassembly and final assembly not meeting the requirements stipulated in this specification or relevant drawings, shall be referred to the inspecting authority, who in turn on the merits of deviations observed will seek the approval of waiver board or any such competent authority either for acceptance, rectification and resubmission or rejection as the case may be.
- 1.7.15 All the rejected components / subassemblies / final assemblies shall be segregated and destroyed under instructions to Inspection Agency & Inspection Authority.
- 1.7.16 Inspection Agency will prepared inspection note of accepted / rejected cable assemblies and forward to procurement agency, user/depot & supplier.

1.8.0 DEFINITIONS

- 1.8.1 **Lot/ Batch Formation:** Unless otherwise specified, a lot is that quantity which is produced according to the same production basis and production process in an unbroken continuous sequence by the manufacturer and with the same lot/ batch of material received fulfilling the condition of homogeneity without exceeding the maximum quantity mentioned in the specification
- 1.8.2 **Defect Classification - Critical, Major and Minor**
- Critical defect*
A defect that would render the item totally unfit for use or could result in hazardous or unsafe conditions for individuals using or maintaining the item.
- Major defect*
A defect, other than critical defect that could result in failure, or materially reduces the usability of the item or product for its intended purposes.
- Minor defect*
A defect other than critical and major defect that does not materially reduce the usability of the product for its intended purpose.
- 1.8.3 **Lot size for components:** Unless otherwise mentioned hereinafter, the lot size will be 500 up to 1000 Nos. For lot size less than 16 nos., 100% inspection shall be carried out on all the dimensions.
- 1.8.4 **Sampling:** During production unless otherwise specified hereafter or by the inspecting authority, for a given lot/ batch size, sample size shall be in accordance with the general inspection level II and single sampling AQL plans, given in "Inspection by attributes and by count defects" as per specification no. IS: 2500 (Part- I) – 2000.
- 1.8.5 **Acceptance Quality Levels:** during the initial production inspection will be carried out as per the sample size given in QAP, if any deviation occurred than 100% inspection will be carried out and accepted components will be taken for assembly. (Acceptance clause shall be

decided at the discretion of inspecting agency wherever applicable.)

Critical None
Major 4.0
Minor 10

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1.9.0 MARKING

1.9.1 **Raw Materials:** All the raw material shall be identified suitably with the following information

Source of supply:

Order No.:

Batch No.:

Identification code:

1.9.2 **Components:** All the components from the acceptable batch shall be marked with a serial number/ lot number wherever it is mentioned in this specification. All the accepted components shall be grouped in suitable batches and shall be identified on their package with the following information. This information shall also be recorded on the inspection reports and be moved along with the batch.

Quantity:

Lot no.:

Manufacturer's code:

Date / Year of manufacturing:

1.9.3 Marking can be either stenciled, inked, painted, etched unless otherwise mentioned, such that it does not vanish during handling, storage, transportation.

1.10 DEVIATION MANAGEMENT

The acceptance inspection shall be in accordance with relevant sections of Para 10 of this document. All defective items are to be rejected and deviations are to be addressed in the manner as given below.

Defect Class	Deviation handling
Critical	In exceptional cases may be referred to Deviation Board.
Major	Refer to Deviation Board.
Minor	Should be referred to AHSP for acceptance under deviation by Production agency.

1.11 PACKING/ TRANSPORTATION & STORAGE

Unless otherwise specified herein or in relevant documents, between various works centers the manufacturer is responsible for transportation/ storage of components / empty sub-assemblies in suitable transit packages in such a way that the components are protected from abrasion, corrosion, mishandling and other environmental effects.

1.12 DETAILED SUB ASSEMBLY / COMPONENT WISE INSPECTION AND ACCEPTANCE CRITERIA:

The quality assurance method for each component and sub-assembly is given as below:

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2.0 LAMINATED PAPER CONTAINER ASSEMBLY

- 2.1 Drawing No i)1006 05 15 00 00 000 14TA 120mm FSAPDS MK-II & Proof Shot MK-II
 ii)1006 05 15 00 00 000 24TA 120mm FSAPDS MK-I A
 iii)1006 05 15 00 00 000 34TA Proof Shot MK-I A
 iv)1006 05 15 00 00 000 44TA HESH MK-I A

2.2 Method of Manufacturing : Assembly

i) 120mm FSAPDS MK-II & Proof Shot MK-II

One set of Laminated Paper Container Assembly consist of following components and Assemblies:

Sl. No.	Components	Drawing Number	Qty.
1.	Container Assembly	1006 05 15 00 01 000 14TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Cap End	1006 05 15 00 01 001 00TA	2
5.	Collar	1006 05 15 00 01 004 00TA	1
6.	Sleeve-I	1006 05 15 00 01 005 00TA	1
7.	Sleeve-VII (FSAPDS MK-II & Proof Shot MK-II)	1006 05 15 00 01 006 14TA	1
8.	Sleeve-VI	1006 05 15 00 01 007 00TA	1
9.	Sleeve IV (FS, PS)	1006 05 15 00 02 000 00TA	1
10.	Lid Assembly	1006 05 15 00 03 000 00TA	1
11.	Tube Lid	1006 05 15 00 03 001 00TA	1
12.	Washer mill board	1006 05 15 00 03 002 00TA	1

ii) 120mm FSAPDS MK-I A

One set of Laminated Paper Container Assembly consist of following components and Assemblies:

Sl. No.	Components	Drawing Number	Qty.
1.	Container Assembly	1006 05 15 00 01 000 24TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1

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4.	Cap End	1006 05 15 00 01 001 00TA	2
5.	Collar	1006 05 15 00 01 004 00TA	1
6.	Sleeve-I	1006 05 15 00 01 005 00TA	1
7.	Sleeve-II (FSAPDS MK-I A)	1006 05 15 00 01 006 24TA	1
8.	Sleeve-VI	1006 05 15 00 01 007 00TA	1
9.	Sleeve IV (FS, PS)	1006 05 15 00 02 000 00TA	1
10.	Lid Assembly	1006 05 15 00 03 000 00TA	1
11.	Tube Lid	1006 05 15 00 03 001 00TA	1
12.	Washer mill board	1006 05 15 00 03 002 00TA	1

iii) 120mm Proof Shot MK-I A

One set of Laminated Paper Container Assembly consist of following components and Assemblies:

Sl. No.	Components	Drawing Number	Qty.
1.	Container Assembly	1006 05 15 00 01 000 34TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Cap End	1006 05 15 00 01 001 00TA	2
5.	Collar	1006 05 15 00 01 004 00TA	1
6.	Sleeve-I	1006 05 15 00 01 005 00TA	1
7.	Sleeve-III (Proof Shot MK-I A)	1006 05 15 00 01 006 34TA	1
8.	Sleeve-VI	1006 05 15 00 01 007 00TA	1
9.	Sleeve IV (FS, PS)	1006 05 15 00 02 000 00TA	1
10.	Lid Assembly	1006 05 15 00 03 000 00TA	1
11.	Tube Lid	1006 05 15 00 03 001 00TA	1
12.	Washer mill board	1006 05 15 00 03 002 00TA	1

iv) HESH MK-I A

One set of Laminated Paper Container Assembly consist of following components and Assemblies:

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Sl. No.	Components	Drawing Number	Qty.
1.	Container Assembly	1006 05 15 00 01 000 44TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Cap End	1006 05 15 00 01 001 00TA	2
5.	Collar	1006 05 15 00 01 004 00TA	1
6.	Sleeve-I	1006 05 15 00 01 005 00TA	1
7.	Sleeve-V (HESH MK-I A)	1006 05 15 00 01 006 44TA	1
8.	Sleeve-VI	1006 05 15 00 01 007 00TA	1
9.	Sleeve IV (FS, PS)	1006 05 15 00 02 000 00TA	1
10.	Lid Assembly	1006 05 15 00 03 000 00TA	1
11.	Tube Lid	1006 05 15 00 03 001 00TA	1

- 2.3 Raw Material :---NA---
- 2.4 Test/ Checks and Acceptance Criteria for Raw Material :---NA---
- 2.5 In- Process Inspection :---NA---
- 2.6 :---NA---
- 2.7 Final Inspection :---NA---
- 2.8 Visual Inspections :---NA---
- 2.8.1 Features for Visual Inspection and acceptance criteria

Sr. No.	Acceptance Criteria	Sample Size	Defect Class
1.	No Cut Marks and Tears	100%	Major
2.	No any foreign matters and lump sticks on inner and outer surfaces	100%	Major
3.	No Swells	100%	Major
4.	No De-lamination	100%	Major

2.8.2 Dimensional Inspection

- 2.8.2.1 Critical Dimensions :---NA---
- 2.8.2.2 Geometrical Features :---NA---
- 2.8.2.3 Major Dimensions :

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Sr. No	Dimensions /Features	Drawing Zone	Inspection Method
1.	Length 1042 ± 3 mm	B-4	Steel Rule
2.	Ø182 ±2	C-8	Vernier

2.8.2.4 Minor Dimensions : Nil

2.9.1 Test on Finish Items :

Details of test/checks on finished items, Acceptance criteria and other Information

Sr. No.	Test/check
1	<p>LP Container Fitment Check (Major Defect)</p> <p>Sample Size: 20 % or 10 no's whichever is more per lot during manufacture</p> <p>Acceptance Criteria Dummy round shall be accommodated in LP container satisfactorily</p>
2.	<p>Pull of Test: (Major Defect)</p> <p>Sample Size: 3 no's per lot</p> <p>Method: The test shall be performed on metal ends of the cover and the body assembly. The assembly shall be prepared for test by cutting the body tube 200mm from metal end and extracting all components parts where necessary, from the cover or body assembly without damage to the crimp of metal end of the tube. The prepared cover and body assemblies shall be assembled in approved manner similar to figure1(Enclosed in Appendix 1) The test may be performed on tensile testing machine of in static arrangement. To determine the load required to separate the metal end from the tube by applying the load parallel to centerline of the specimen. When using the tensile testing machine the rate of travel of head shall not exceed 0.6 mm per minute. Acceptance Criteria : 250 kg (minimum)</p>
3.	<p>Crushing Test: (Major Defect)</p> <p>Sample Size: 3 nos. per lot</p> <p>Method:</p>

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	<p>Cut The container in such a manner as to obtain circular rings representing maximum and where possible intermediate wall thickness. The width of the ring should be approximately 20 mm for minimum and 40 mm for higher thickness, cut the faces of the ring smooth and parallel.</p> <p>Calculate the cross section area of the ring. Gradually apply an axial compressive load on the ring by any suitable device record the load at which the ring starts crumbling.</p> <p>Calculate the stress value by dividing the above load by area of cross section of the ring, the stress value should not be less than 50kg/cm²</p>
4.	<p>WATERPROOFNESS (Major Defect)</p> <p>The six containers shall be conditioned at ambient condition (23 to 25 °C) for 4 hours. A known mass of 200g of silica gel in cotton bag shall be placed in each container and in turn the containers shall be properly sealed as specified in the method of pack. The 3 containers shall then be tested by total immersion 25 mm below the surface of water at a temperature of 4 °C for 15 minutes. The remaining 03 sample shall be held as control specimen at (23 to 25 °C)</p> <p>After removal from the water, all containers shall be opened and inspected for moisture.</p> <p>The absorption of moisture shall be calculated by checking the initial and final weight of silica gel before and after the end of test.</p> <p>% of moisture of test specimen = (Final weight -Initial weight)/ Initial weight</p> <p>% of moisture of controlled specimen = (Final weight -Initial weight)/ Initial weight</p> <p>The percentage increase shall not exceed that of control sample. Failure to meet this test shall cause for rejection of represented lot.</p>

2.10 Other Information :

2.10.1 Adhesive :

Adhesive used in L.P. Container assembly is synthetic resin emulsion based adhesive

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2.10.2 Marking :

a)	Title/Nomenclature shall be screen printed in 30 mm letter size paint Yellow Golden (IS: 5, Shade no. 356).
b)	Approved initial of manufacturer, Month & Year of manufacture, orientation of Launcher and arrow mark for storage shall be marked as shown in the drawing ii) Packing of Primary cartridge: 1. Place the round on a firm place with tip upwards. 2. Invert the LP container with round. 3. Assemble the cap over the LP container. 4. Seal the joint with waterproof steel grip adhesive tape. ii) Packing Slip (Blank format with information as under): 1. Store Nomenclature: 120 mm FSAPDS 2. Lot No. : 3. Month & year of filling & Supply Authorized initials with stamp.

* Appropriate set of drawings and relevant components QAP are to be referred as per the relevant store/ammn. for which LP container is used.

(Copies of drawing and specification can be obtained from Director ARDE)

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3.0 CONTAINER ASSEMBLY

- 3.1 Drawing No : i) 1006 05 15 00 01 000 14TA 120mm FSAPDS MK-II & Proof Shot MK-II
 ii) 1006 05 15 00 01 000 24TA 120mm FSAPDS MK-I A
 iii) 1006 05 15 00 01 000 34TA Proof Shot MK-I A
 iv) 1006 05 15 00 01 000 44TA HESH MK-I A

3.2 Method of Manufacturing : Assembly

i) 120mm FSAPDS MK-II & Proof Shot MK-II

One set of Lid Assembly consist of following components

Sl. No.	Components	Drawing Number	Qty.
1.	Cap End	1006 05 15 00 01 001 00TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Collar	1006 05 15 00 01 004 00TA	1
5.	Sleeve-I	1006 05 15 00 01 005 00TA	1
6.	Sleeve-VII (FSAPDS MK-II & Proof Shot MK-II)	1006 05 15 00 01 006 14TA	1
7.	Sleeve-VI	1006 05 15 00 01 007 00TA	1

ii) 120mm FSAPDS MK-I A

One set of Lid Assembly consist of following components

Sl. No.	Components	Drawing Number	Qty.
1.	Cap End	1006 05 15 00 01 001 00TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Collar	1006 05 15 00 01 004 00TA	1
5.	Sleeve-I	1006 05 15 00 01 005 00TA	1
6.	Sleeve-II (FSAPDS MK-I A)	1006 05 15 00 01 006 24TA	1
7.	Sleeve-VI	1006 05 15 00 01 007 00TA	1

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iii) Proof Shot MK-I A

One set of Lid Assembly consist of following components

Sl. No.	Components	Drawing Number	Qty.
1.	Cap End	1006 05 15 00 01 001 00TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Collar	1006 05 15 00 01 004 00TA	1
5.	Sleeve-I	1006 05 15 00 01 005 00TA	1
6.	Sleeve-III (Proof Shot MK-I A)	1006 05 15 00 01 006 34TA	1
7.	Sleeve-VI	1006 05 15 00 01 007 00TA	1

iv) HESH MK-I A

One set of Lid Assembly consist of following components

Sl. No.	Components	Drawing Number	Qty.
1.	Cap End	1006 05 15 00 01 001 00TA	1
2.	Tube outer	1006 05 15 00 01 002 00TA	1
3.	Tube inner	1006 05 15 00 01 003 00TA	1
4.	Collar	1006 05 15 00 01 004 00TA	1
5.	Sleeve-I	1006 05 15 00 01 005 00TA	1
6.	Sleeve-V (HESH MK-I A)	1006 05 15 00 01 006 44TA	1
7.	Sleeve-VI	1006 05 15 00 01 007 00TA	1

- 3.3 Raw Material :---NA---
- 3.4 Test/ Checks and Acceptance Criteria for Raw Material :---NA---
- 3.5 In- Process Inspection :---NA---
- 3.6 Stage Inspection :---NA---
- 3.7 Final Inspection :---NA---
- 3.8 Visual Inspections :---NA---
- 3.8.1 Features for Visual Inspection and acceptance criteria

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Sample 100% by factory/manufacturing QC as per AQL By AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP intervention
1.	No Cut Marks and Tears	Major	Audit
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

3.8.2 Dimensional Inspection

3.8.2.1 Critical Dimensions :---NA---

3.8.2.2 Geometrical Features :---NA---

3.8.2.3 Major Dimensions :---NA---

3.8.2.4 Minor Dimensions :---NA---

3.9.1 Test on Finish Items :---NA---

2.10 Other Information :

2.10.1 Adhesive :

Adhesive used in L.P. Container assembly is synthetic resin emulsion based adhesive

CONTROL COPY No.....

* Appropriate set of drawings and relevant components QAP are to be referred as per the relevant store/ammn. for which LP container is used.

(Copies of drawing and specification can be obtained from Director ARDE)

4.0 CAP END

- 4.1 Drawing No : 1006 05 15 00 01 001 00TA
- 4.2 Method of Manufacturing : Sheet Metal Operation
- 4.3.0 Raw Material : Hot Rolled Carbon Steel Sheet Strips to specification 1079 (Any Grade) or Cold Rolled Low Carbon Steel and Strip to Specification IS 513 (Any Grade) or Equivalent.
- 4.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacture as per specification
 Or
 Original manufactures Certificate
- 4.3.2 Chemical Composition : As per Specification (For information only)
- 4.4 In- Process Inspection : ---NA---
- 4.5 Stage Inspection : ---NA---
- 4.6 Final Inspection : ---NA---

4.6.1 Visual Inspections

4.6.1.1 Features for Visual Inspection and acceptance criteria

Sr. No.	Acceptance Criteria	Sample Size	Defect Class
1.	No Cracks	100%	Major
2.	No sharp Edges	100%	Major

4.6.2 Dimensional Inspection

4.6.2.1 Critical Dimensions : ---NA---

4.6.2.2 Geometrical Features : ---NA---

4.6.2.3 Major Dimensions :

Sample 100% by factory/manufacturing QC as per AQL By AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø182.0-0.50	C-2	SP
2.	Ø175.0	C-2	

4.6.2.4 Minor Dimensions : ---NA---

4.7.0 Protective finish

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1. Phosphating to specification IS 1279 , Class II or Zinc Plated as per IS 1573 Or Powder Coated
 2. Painting with oil paint after phosphating.
- 4.8.0 Any other information :---NA---

FOR REFERENCE

5.0 TUBE INNER

- 5.1 Drawing No : 1006 05 15 00 01 003 00TA
- 5.2 Method of Manufacturing : Integration/ Lamination
- 5.3.0 Raw Material :Kraft board/paper
- 5.3.1 Test/ Checks and Acceptance Criteria for Raw Material :NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 5.3.2 Mechanical Properties :

FOR REFERENCE

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM (g/m^2)	$(300-450) \pm 7\%$	CP
2.	Density (g/cm^3)	$0.700 \pm 10\%$	
3.	Average Ply bond (J/m^2)	$650 \pm 7\%$	
4.	Cobb g/m^2	$208 \pm 7\%$	
5.	Moisture Content (%)	$7.2 \pm 7\%$	

- 5.4 In- Process Inspection :----NA----
- 5.5 Stage Inspection :----NA----
- 5.6 Final Inspection :----NA----

5.6.1 Visual Inspections

5.6.1.1 Features for Visual Inspection and acceptance criteria

Sample Size: 100% by factory QC and AQL by AHSP/SQEA

Sr. No.	Acceptance Criteria	Defect Class	AHSP intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

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5.6.2 Dimensional Inspection

5.6.2.1 Critical Dimensions :---NA---

5.6.2.2 Geometrical Features :---NA---

5.6.2.3 Major Dimensions

Sr. No.	Dimensions /Features	Drawing Zone	AHSP intervention
1.	Ø163.0+0.80	D-5	SP
2.	Ø175.0-0.80	D-7	
3.	Length 1009-1.0	E-6	

5.6.2.4 Minor Dimensions :---NA---

5.7.0 Protective finish

1. To be coated externally with two coats of Polykraft coating paper.

5.8.0 Any other information :---NA---

CONTROL COPY No.....

6.0 TUBE OUTER

- 6.1 Drawing No : 1006 05 15 00 01 002 00TA
- 6.2 Method of Manufacturing : Integration/ Lamination
- 6.3.0 Raw Material :Kraft board/paper
- 6.3.1 Test/ Checks and Acceptance Criteria for Raw Material :NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipments.
- 6.3.2 Mechanical Properties :

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM(g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

- 6.4 In- Process Inspection :---NA---
- 6.5 Stage Inspection :---NA---
- 6.6 Final Inspection :---NA---
- 6.6.1 Visual Inspections
- 6.6.1.1 Features for Visual Inspection and acceptance criteria
 Sample Size :100% by factor QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

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6.6.2 Dimensional Inspection

6.6.2.1 Critical Dimensions :---NA---

6.6.2.2 Geometrical Features :---NA---

6.6.2.3 Major Dimensions

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	∅182.0-0.5	F-3	SP
2.	∅175+0.80	D-3	
3.	Length 840-1	E-6	

6.6.2.4 Minor Dimensions :---NA---

6.7.0 Protective finish

1. To be coated externally with two coats of Polykraft coating paper.

6.8.0 Any other information :---NA---

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7.0 COLLAR

- 7.1 Drawing No : 1006 05 15 00 01 004 00TA
- 7.2 Method of Manufacturing : Integration/ Lamination
- 7.3.0 Raw Material : 1. Kraft board/paper
 2. Cross- Linked Polyethylene foam
- 7.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacture as per specification
 or, Original manufactures Certificate or Test at vendors place with calibrated equipment

7.3.2 Mechanical Properties :

1. Cross- Linked Polyethylene foam

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP intervention
1.	Density	70± 5 kg/m ²	CP

2. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP intervention
1.	Grade and GSM(g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

7.4 In- Process Inspection :---NA---

7.5 Stage Inspection :---NA---

7.6 Final Inspection :---NA---

7.6.1 Visual Inspections

7.6.1.1 Features for Visual Inspection and acceptance criteria

Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	SP

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2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	SP
3.	No Swells	Major	SP
4.	No De-lamination	Major	SP

7.6.2 Dimensional Inspection

7.6.2.1 Critical Dimensions :---NA---

7.6.2.2 Geometrical Features :---NA---

7.6.2.3 Major Dimensions

Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø163-0.8	D-4	SP
2.	Ø67+1.0	E-3	SP
3.	Length 60-1	E-6	SP

7.6.2.4 Minor Dimensions :---NA---

7.7.0 Protective finish

1. To be coated externally with two coats of polykraft coating lamination paper.

7.8.0 Any other information

Assembly Process.(for information only)

- Two surface marked on the Item 1 with *** to be joined together using SR 998 Adhesive fevicol or its equivalent to form tube. Over a mandrel of Ø67.
- Item 1 to be pasted around item 3 using SR 998 Adhesive fevicol or its equivalent on the both the inner surface of item 1 and outer surface of item 2
- Item 3 to be pasted and wrapped around the assembly of item 1 and item 2 using the SR 998 Adhesive fevicol or its equivalent

Item 4 to be than pasted on the lower and upper end of the assembly formed by item 1, item 3 and item 2.

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8.0 SLEEVE-I

- 8.1 Drawing No : 1006 05 15 00 01 005 00TA
- 8.2 Method of Manufacturing : Integration/ Lamination
- 8.3.0 Raw Material :1. Kraft board/paper
2. Cross Linked Polyethylene foam.
- 8.3.1 Test/ Checks and Acceptance Criteria for Raw Material :NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 8.3.2 Mechanical Properties :

1. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM(g/m^2)	$(300-450) \pm 7\%$	CP
2.	Density (g/cm^3)	$0.700 \pm 10\%$	
3.	Average Ply bond (J/m^2)	$650 \pm 7\%$	
4.	Cobb g/m^2	$208 \pm 7\%$	
5.	Moisture Content (%)	$7.2 \pm 7\%$	

2. Cross Linked Polyethylene foam.

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Density	$70 \pm 5 kg/m^2$	CP

- 8.4 In- Process Inspection :---NA---
- 8.5 Stage Inspection :---NA---
- 8.6 Final Inspection :---NA---
- 8.6.1 Visual Inspections
- 8.6.1.1 Features for Visual Inspection and acceptance criteria
Sample Size: 100% by factory QC and as per AQL by AHSP

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Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	SP
4.	No De-lamination	Major	

8.6.2 Dimensional Inspection

8.6.2.1 Critical Dimensions :----NA----

8.6.2.2 Geometrical Features :----NA----

8.6.2.3 Major Dimensions

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Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø122.0	F-3	SP
2.	Ø163-0.80	D-3	
3.	Length 278-1	E-6	

8.6.2.4 Minor Dimensions :----NA----

8.7.0 Protective finish

1. To be coated externally with two coats of Polykraft coating paper.

8.8.0 Any other information :----NA----

9.1 Sleeve-VII (FSAPDS MK-II & Proof Shot MK-II)

- 9.1 Drawing No : 1006 05 15 00 01 006 14TA
- 9.2 Method of Manufacturing : Integration/ Lamination
- 9.3.0 Raw Material : 1. Kraft board/paper.
 2. Cross Linked Polyethylene foam.
- 9.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 9.3.2 Mechanical Properties :

1. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM (g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

2. Cross- Linked Polyethylene foam

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Density	70± 5 kg/m ³	CP

- 9.4 In- Process Inspection :---NA---
- 9.5 Stage Inspection :---NA---
- 9.6 Final Inspection :---NA---
- 9.6.1 Visual Inspections
- 9.6.1.1 Features for Visual Inspection and acceptance criteria
 Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

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Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	CP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	CP
4.	No De-lamination	Major	

9.6.2 Dimensional Inspection

9.6.2.1 Critical Dimensions :----NA----

9.6.2.2 Geometrical Features :----NA----

CONTROL COPY No.....

9.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø120.0-0.80	F-3	SP
2.	Ø30+1	F-3	
3.	Length 90+1	F-7	

9.6.2.4 Minor Dimensions :----NA----

9.7.0 Protective finish

1. To be coated externally with two coats of polykraft coating lamination paper.

9.8.0 Any other information :----NA----

Assembly Process for information only

1. Two surface marked on the Item 1 with *** to be joined together using SR 998 Adhesive fevicol or its equivalent to form tube over a mandrel of Ø30.
2. Item 1 to be pasted around item 3 using SR 998 Adhesive fevicol or its equivalent on the both the inner surface of item 1 and outer surface of item 2
3. Item 3 to be pasted and wrapped around the assembly of item 1 and item 2 using the SR 998 Adhesive fevicol or its equivalent
4. Item 4 to be than pasted on the lower and upper end of the assembly formed by item 1, item 3 and item 2

9.2 Sleeve II (FSAPDS MK-I A)

- 9.1 Drawing No : 1006 05 15 00 01 006 24TA
- 9.2 Method of Manufacturing : Integration/ Lamination
- 9.3.0 Raw Material : 1. Kraft board/paper.
 2. Cross Linked Polyethylene foam.
- 9.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacturer as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 9.3.2 Mechanical Properties :

1. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM (g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

2. Cross- Linked Polyethylene foam

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Density	70± 5 kg/m ³	CP

9.4 In- Process Inspection :---NA---

9.5 Stage Inspection :---NA---

9.6 Final Inspection :---NA---

9.6.1 Visual Inspections

9.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

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Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	CP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	CP
4.	No De-lamination	Major	

9.6.2 Dimensional Inspection

9.6.2.1 Critical Dimensions :---NA---

9.6.2.2 Geometrical Features :---NA---

9.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø120.0-0.80	F-3	SP
2.	Ø30+1	F-3	
3.	Length 150+1	F-7	

9.6.2.4 Minor Dimensions :---NA---

9.7.0 Protective finish

1. To be coated externally with two coats of polykraft coating lamination paper.

9.8.0 Any other information :---NA---

Assembly Process for information only

- Two surface marked on the Item 1 with *** to be joined together using SR 998 Adhesive fevicol or its equivalent to form tube over a mandrel of Ø30.
- Item 1 to be pasted around item 3 using SR 998 Adhesive fevicol or its equivalent on the both the inner surface of item 1 and outer surface of item 2
- Item 3 to be pasted and wrapped around the assembly of item 1 and item 2 using the SR 998 Adhesive fevicol or its equivalent
- Item 4 to be than pasted on the lower and upper end of the assembly formed by item 1,item 3 and item 2

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9.3 Sleeve III (Proof Shot MK-I A)

- 9.1 Drawing No : 1006 05 15 00 01 006 34TA
- 9.2 Method of Manufacturing : Integration/ Lamination
- 9.3.0 Raw Material : 1. Kraft board/paper.
2. Cross Linked Polyethylene foam.
- 9.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 9.3.2 Mechanical Properties :

1. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM (g/m^2)	$(300-450) \pm 7\%$	CP
2.	Density (g/cm^3)	$0.700 \pm 10\%$	
3.	Average Ply bond (J/m^2)	$650 \pm 7\%$	
4.	Cobb g/m^2	$208 \pm 7\%$	
5.	Moisture Content (%)	$7.2 \pm 7\%$	

2. Cross- Linked Polyethylene foam

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Density	$70 \pm 5 \text{ kg/m}^3$	CP

9.4 In- Process Inspection :---NA---

9.5 Stage Inspection :---NA---

9.6 Final Inspection :---NA---

9.6.1 Visual Inspections

9.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

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Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	CP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	CP
4.	No De-lamination	Major	

9.6.2 Dimensional Inspection

9.6.2.1 Critical Dimensions :---NA---

9.6.2.2 Geometrical Features :---NA---

9.6.2.3 Major Dimensions

CONTROL COPY No.....

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø120.0-0.80	F-3	SP
2.	Ø30+1	F-3	
3.	Length 122+1	F-7	

9.6.2.4 Minor Dimensions :---NA---

9.7.0 Protective finish

1. To be coated externally with two coats of polykraft coating lamination paper.

9.8.0 Any other information :---NA---

Assembly Process for information only

1. Two surface marked on the item 1 with *** to be joined together using SR 998 Adhesive fevicol or its equivalent to form tube over a mandrel of Ø30.
2. Item 1 to be pasted around item 3 using SR 998 Adhesive fevicol or its equivalent on the both the inner surface of item 1 and outer surface of item 2
3. Item 3 to be pasted and wrapped around the assembly of item 1 and item 2 using the SR 998 Adhesive fevicol or its equivalent
4. Item 4 to be than pasted on the lower and upper end of the assembly formed by item 1,item 3 and item 2

9.4 Sleeve V (HESH MK-I A)

- 9.1 Drawing No : 1006 05 15 00 01 006 44TA
- 9.2 Method of Manufacturing : Integration/ Lamination
- 9.3.0 Raw Material : 1. Kraft board/paper.
2. Cross Linked Polyethylene foam.
- 9.3.1 Test/ Checks and : NABL test Certificates to be submitted by the
Acceptance Criteria for manufacture as per specification
Raw Material or, Original manufactures Certificate or Test at
vendors place with calibrated equipment
- 9.3.2 Mechanical Properties :

1. Kraft board/Paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Grade and GSM (g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

2. Cross- Linked Polyethylene foam

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP Intervention
1.	Density	70 ± 5 kg/m ³	CP

- 9.4 In- Process Inspection :----NA----
- 9.5 Stage Inspection :----NA----
- 9.6 Final Inspection :----NA----
- 9.6.1 Visual Inspections
- 9.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	CP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	CP
4.	No De-lamination	Major	

9.6.2 Dimensional Inspection

9.6.2.1 Critical Dimensions :---NA---

9.6.2.2 Geometrical Features :---NA---

9.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	∅163±0.25	C-8	SP
2.	Length 95	F-7	

9.6.2.4 Minor Dimensions :---NA---

9.7.0 Protective finish

1. To be coated externally with two coats of polykraft coating lamination paper.

9.8.0 Any other information :---NA---

Assembly Process for information only

1. Two surface marked on the Item 1 with *** to be joined together using SR 998 Adhesive fevicol or its equivalent to form tube over a mandrel of ∅30.
2. Item 1 to be pasted around item 3 using SR 998 Adhesive fevicol or its equivalent on the both the inner surface of item 1 and outer surface of item 2
3. Item 3 to be pasted and wrapped around the assembly of item 1 and item 2 using the SR 998 Adhesive fevicol or its equivalent
4. Item 4 to be than pasted on the lower and upper end of the assembly formed by item 1,item 3 and item 2

CONTROL COPY No.....

10.0 SLEEVE -VI

- 10.1 Drawing No : 1006 05 15 00 01 007 00TA
- 10.2 Method of Manufacturing : Integration/ Lamination
- 10.3.0 Raw Material : 1. Kraft board/paper.
- 10.3.1 Test/ Checks and Acceptance Criteria for Raw Material :NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 10.3.2 Mechanical Properties :

1. Kraft board/Paper			
Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP intervention
1.	Grade and GSM (g/m ²)	(300-450) ± 7 %	CP
2.	Density (g/cm ³)	0.700 ± 10%	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

- 10.4 In- Process Inspection :----NA----
- 10.5 Stage Inspection :----NA----
- 10.6 Final Inspection :----NA----
- 10.6.1 Visual Inspections
- 10.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

10.6.2 Dimensional Inspection

10.6.2.1 Critical Dimensions :---NA---

10.6.2.2 Geometrical Features :---NA---

10.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP intervention
1.	Ø163-0.8	B-3	SP
2.	Ø159.50+0.50	D-3	
3.	Length 440-1	B-6	

10.6.2.4 Minor Dimensions :---NA---

10.7.0 Protective finish

1. To be coated externally with two coats of Polykraft coating sheet during lamination paper.

10.8.0 Any other information :---NA---

CONTROL COPY No.....

11. SLEEVE IV (FS PS)

- 11.1 Drawing No : 1006 05 15 00 02 000 00TA
- 11.2 Method of Manufacturing : Assembly
- 11.3.0 Raw Material : 1. Cross Linked Polyethylene foam.
- 11.3.1 Test/ Checks and : To be cleared on Original Manufactures certificate.
- Acceptance Criteria for Raw Material
- 11.3.2 Mechanical Properties :

1. Cross Linked Polyethylene foam.			
Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP intervention
1.	Density	70±5 kg/m ³	CP

- 11.4 In- Process Inspection :---NA---
- 11.5 Stage Inspection :---NA---
- 11.6 Final Inspection :---NA---

11.6.1 Visual Inspections

11.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP intervention
1.	No Cut Marks and Tears	Major	CP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

11.6.2 Dimensional Inspection

- 11.6.2.1 Critical Dimensions :---NA---
- 11.6.2.2 Geometrical Features :---NA---
- 11.6.2.3 Major Dimensions

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP intervention
1.	126.5±0.50	D-5	SP
2.	162.8±0.50	D-7	SP
3.	80	E-6	

11.6.2.4 Minor Dimensions :---NA---

11.7.0 Protective finish :---NA---

11.8.0 Any other information :

Items 1 and Item 2 are to be pasted with adhesive FEVICOL SR 998 or its equivalent as shown in the drawing

CONTROL COPY No.....

12. LID ASSEMBLY

- 12.1 Drawing No : 1006 05 15 00 03 000 00TA
 12.2 Method of Manufacturing : Assembly

One set of Lid Assembly consist of following components

Sr. No.	Components	Drawing Number	Qty.
1.	Tube Lid	1006 05 15 00 03 001 00TA	1
2.	Washer, Mill Board	1006 05 15 00 03 002 00TA	1
3.	End Cap	1006 05 15 00 01 001 00TA	1

12.3.0 Raw Material :----NA----

12.3.1 Test/ Checks and :----NA----

Acceptance Criteria for

Raw Material

12.4 In- Process Inspection :----NA----

12.5 Stage Inspection :----NA----

12.6 Final Inspection :----NA----

12.6.1 Visual Inspections

12.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	
4.	No De-lamination	Major	

12.6.2 Dimensional Inspection

12.6.2.1 Critical Dimensions :----NA----

12.6.2.2 Geometrical Features :----NA----

12.6.2.3 Major Dimensions :----NA----

12.6.2.4 Minor Dimensions :----NA----

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

- 12.7.0 Protective finish :---NA---
- 12.8.0 Any other information :---NA---

CONTROL COPY No.....

13.0 TUBE LID

- 13.1 Drawing No : 1006 05 15 00 03 001 00TA
- 13.2 Method of Manufacturing : Lamination/Integration
- 13.3.0 Raw Material :Kraft Board/paper
- 13.3.1 Test/ Checks and Acceptance Criteria for Raw Material : NABL test Certificates to be submitted by the manufacture as per specification or, Original manufactures Certificate or Test at vendors place with calibrated equipment
- 13.3.2 Mechanical Properties :
 Kraft Board/paper

Sl. No.	Mechanical Properties	Acceptance Criteria	AHSP intervention
1.	Grade and GSM(g/m ²)	(300-450) ± 7 %	SP
2.	Density (g/cm ³)	0.700 ± 10 %	
3.	Average Ply bond (J/m ²)	650 ± 7%	
4.	Cobb g/m ²	208 ± 7%	
5.	Moisture Content (%)	7.2 ± 7%	

- 13.4 In- Process Inspection :----NA----
- 13.5 Stage Inspection :----NA----
- 13.6 Final Inspection :----NA----
- 13.6.1 Visual Inspections
- 13.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	
3.	No Swells	Major	SP
4.	No De-lamination	Major	SP

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

- 13.6.2 Dimensional Inspection
- 13.6.2.1 Critical Dimensions :---NA---
- 13.6.2.2 Geometrical Features :---NA---
- 13.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø182.0-0.50	D-5	SP
2.	Ø175.0+0.80	D-7	
3.	199-1	E-6	

- 13.6.2.4 Minor Dimensions :---NA---
- 13.7.0 Protective finish :---NA---
- 13.8.0 Any other information :---NA---

CONTROL COPY No.....

14.0 WASHER MILL BOARD

- 14.1 Drawing No : 1006 05 15 00 03 002 00TA
- 14.2 Method of : Cutting/Punching
 Manufacturing
- 14.3.0 Raw Material : Mill board
- 14.3.1 Test/ Checks and : To check Properties for information only
 Acceptance Criteria for
 Raw Material
- 14.4 In- Process Inspection : Nil
- 14.5 Stage Inspection : Nil
- 14.6 Final Inspection : Nil
- 14.6.1 Visual Inspections
- 14.6.1.1 Features for Visual Inspection and acceptance criteria

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Acceptance Criteria	Defect Class	AHSP Intervention
1.	No Cut Marks and Tears	Major	SP
2.	No any foreign matters and lump sticks on inner and outer surfaces	Major	SP
3.	No Swells	Major	SP
4.	No De-lamination	Major	SP

- 14.6.2 Dimensional Inspection
- 14.6.2.1 Critical Dimensions : Nil
- 14.6.2.2 Geometrical Features : Nil
- 14.6.2.3 Major Dimensions

Sample : Sample Size: 100% by factory QC and as per AQL by AHSP

Sr. No.	Dimensions /Features	Drawing Zone	AHSP Intervention
1.	Ø174.0 -1	D-4	SP
2.	Ø60.0+1	B-4	SP

Document No: DRDO-ARDE-DOA-SPEC -247-2018
QAP FOR LAMINATED PAPER CONTAINER 120mm ARJUN AMMUNITION

3.	Thickness 1	E-2	SP
14.6.2.4	Minor Dimensions	: Nil	
14.7.0	Protective finish	: Nil	
		1. To be coated externally with two coats of Polykraft coating paper.	
14.8.0	Any other information	: Nil	

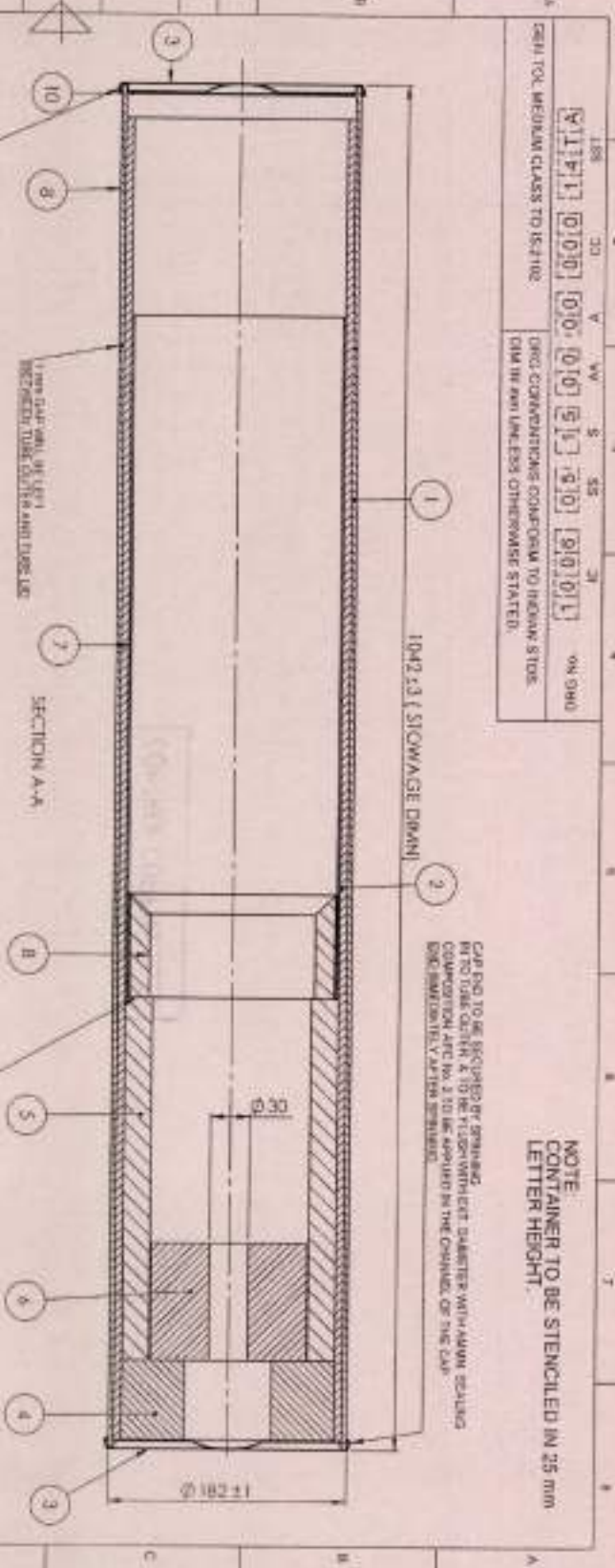
CONTROL COPY No.....

APPENDIX

DRAWINGS

ISS	20	V	W	S	SS	31	ON DRG
011111	0100	010	010	010	010	010	010

DRG. COMMENTS CONFORM TO DRAWING STORE
 DIM IN MM UNLESS OTHERWISE STATED.



CAP END TO BE SECURED BY GRINDING IN TO TUBE OUTER, & TO BE FUSED WITH LCT SEALER WITH AUVN SEALING COMPOSITION APT No. 2 TO BE APPLIED IN THE CHANNEL OF THE CAP END IMMEDIATELY AFTER DRAWING.

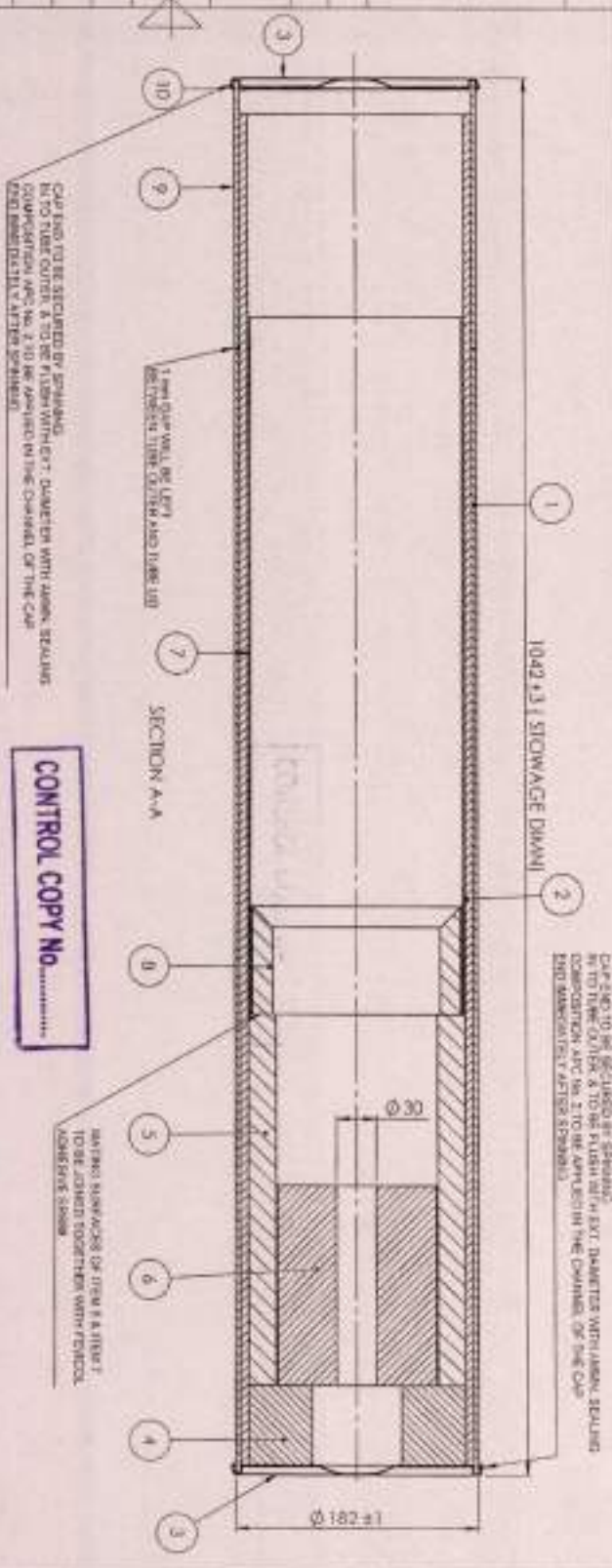
LIST OF COMPONENTS

ITEM NO.	DESCRIPTION	DRAWING NO
1	TUBE OUTER	1006 05 15 00 01 002 001A
2	TUBE INNER	1006 05 15 00 01 003 001A
3	CAP END	1006 05 15 00 01 001 001A
4	COLLAR	1006 05 15 00 01 004 001A
5	SLEEVE-I	1006 05 15 00 01 005 001A
6	SLEEVE-VII (SAPDS MK-II)	1006 05 15 00 01 006 1A1A
7	SLEEVE-VI	1006 05 15 00 01 007 001A
8	SLEEVE-IV (FS PSI)	1006 05 15 00 02 000 001A
9	TUBE LID	1006 05 15 00 03 001 001A
10	WASHER MILL BOARD	1006 05 15 00 03 002 001A

CONTROL COPY No.

DESIGN NO.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	00
101006		CHL	WATERPROOFING			
APPROV			PROTECTIVE FINISH			
DATE 2004/02/22		For Designer				
SCALE: NTS	EST MATE					
	1:1					
DESIGN AUTHORITY	TITLE					
ARDE	LAMINATED PAPER CONTAINER ASSEMBLY 120mm FSAPDS MK-II & PROOF SHOT MK-II					
DRG No	101006	IS	DR CAT No	NS	AS	CC
PART No						

OPEN TOOL MEDIUM CLASS TO BE 2102	DRUG COMPONENTS COMP-ORIG TO INCLAS STOS- DIM IN MM UNLESS OTHERWISE STATED.
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



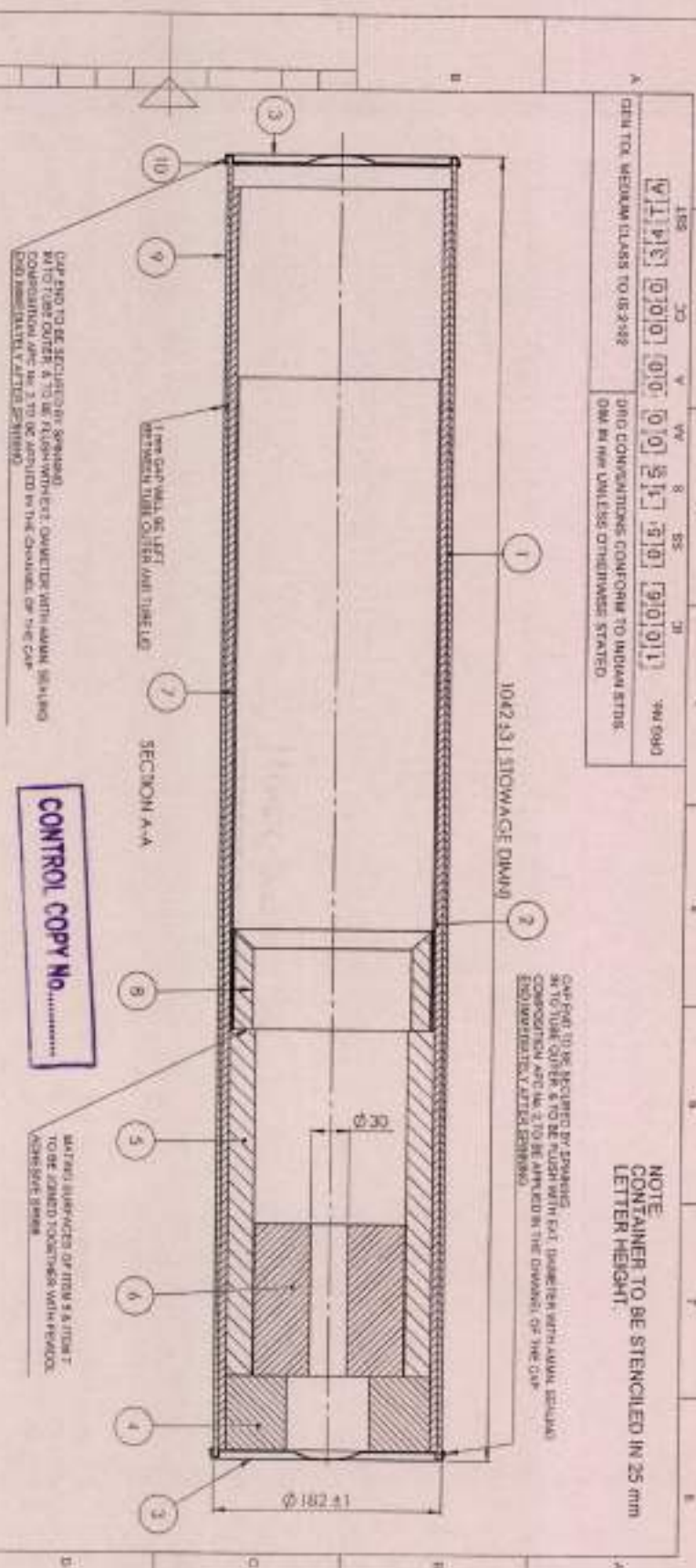
LIST OF COMPONENTS

ITEM NO.	DESCRIPTION	DRAWING NO.	QTY.
1	TUBE OUTER	1006 05 15 00 01 002 007A	1
2	TUBE INNER	1006 05 15 00 01 003 007A	1
3	CAP END	1006 05 15 00 01 001 007A	2
4	COLLAR	1006 05 15 00 01 004 007A	1
5	SLEEVE-I	1006 05 15 00 01 005 007A	1
6	SLEEVE-II	1006 05 15 00 01 006 247A	1
7	SLEEVE-III	1006 05 15 00 01 007 007A	1
8	SLEEVE-IV (PS)	1006 05 15 00 02 000 007A	1
9	TUBE LID	1006 05 15 00 03 001 007A	1
10	WASHER MILL BOARD	1006 05 15 00 03 002 007A	1

CONTROL COPY No.

DRG NO.	110106	REV.	01	DATE	05/15/00
DESIGNER	ARDE	CHECKED	[Signature]	DATE	05/15/00
APPROVED	[Signature]	SCALE	NTS	TITLE	LAMINATED PAPER CONTAINER ASSEMBLY 120mm FSAPDS MK-I A
DESIGNER	ARDE	SCALE	NTS	TITLE	LAMINATED PAPER CONTAINER ASSEMBLY 120mm FSAPDS MK-I A
DESIGNER	ARDE	SCALE	NTS	TITLE	LAMINATED PAPER CONTAINER ASSEMBLY 120mm FSAPDS MK-I A

LIB	CO	V	W	R	SS	DI	MM	GRID
01	14	03	00	00	00	00	00	00
CELL FOR MEDIUM CLASS TO IS-2-182								
DIM CONVENTIONS CONFORM TO INDIA STDS. DIM IN MM UNLESS OTHERWISE STATED								



LIST OF COMPONENTS

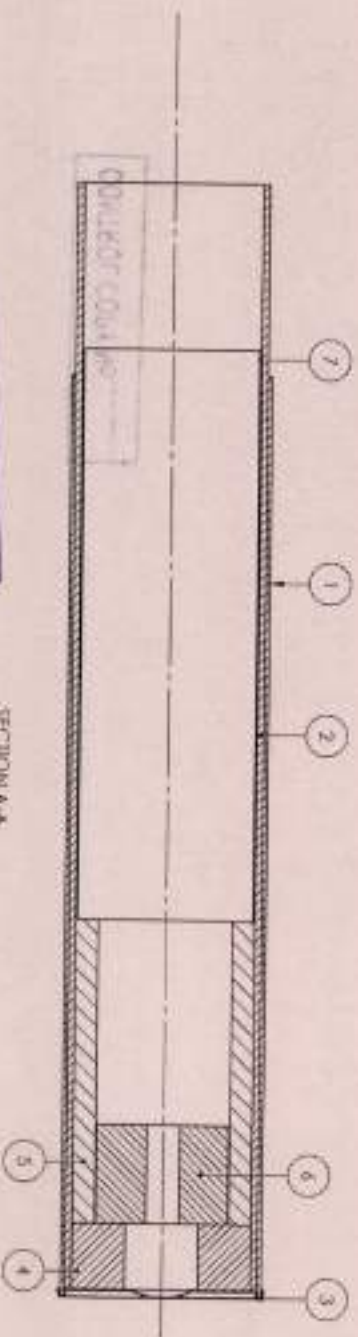
ITEM NO.	DESCRIPTION	DRAWING NO	QTY.
1	TUBE OUTER	1006 05 15 00 01 002 00TA	1
2	TUBE INNER	1006 05 15 00 01 003 00TA	1
3	CAP END	1006 05 15 00 01 001 00TA	2
4	COLLAR	1006 05 15 00 01 004 00TA	1
5	SLEEVE-1	1006 05 15 00 01 005 00TA	1
6	SHOT MK-1A	1006 05 15 00 01 006 00TA	1
7	SLEEVE-VI	1006 05 15 00 01 007 00TA	1
8	SLEEVE-VI(FS PS)	1006 05 15 00 02 000 00TA	1
9	TUBE LID	1006 05 15 00 03 001 00TA	1
10	WASHER/MILL BOARD	1006 05 15 00 03 002 00TA	1

CONTROL COPY No.

REV	DATE	AUTHORITY	DRAWING NO.	PARTIAL
1			1006 05 15 00 01 002 00TA	
APPRO	DATE	SCALE	TITLE	
			LAMINATED PAPER CONTAINER ASSEMBLY PROOF SHOT MK-1A	
DESIGN APPROVAL	DATE	SCALE	TITLE	
			LAMINATED PAPER CONTAINER ASSEMBLY PROOF SHOT MK-1A	
DRG NO	REV	DATE	SCALE	TITLE
PARTIAL	REV	DATE	SCALE	TITLE

ISIRI TOL. MEASURE CLASS TO IS 2102
 DRG. CONVENTIONS CONFORM TO INDIA STDS.
 DIMS IN MM UNLESS OTHERWISE STATED.

NOTES:
 CAP END TO BE SECURED BY SPINNING CURLED EDGE INTO
 TUBE OUTER
 TO BE FLUSHED WITH EXTERNAL DIA. WITH A.M.M. SEALING COMPOSITION NO. 2
 TO BE APPLIED IN THE CHANNEL OF THE CAP END IMMEDIATELY AFTER SPINNING



CONTROL COPY No.

SECTION A-A
 SCALE 1:1.25

LIST OF COMPONENTS

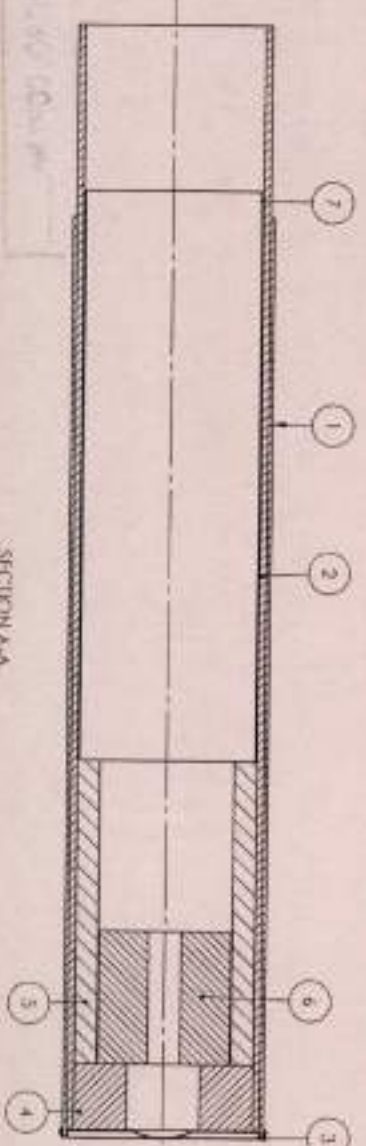
ITEM NO.	PART NUMBER	DRAWING NO.	QTY.
1	TUBE OUTER	1006 05 15 00 01 002 007A	1
2	TUBE INNER	1006 05 15 00 01 003 007A	1
3	CAP END	1006 05 15 00 01 001 007A	1
4	COLLAR	1006 05 15 00 01 004 007A	1
5	SLEEVE-I	1006 05 15 00 01 005 007A	1
6	SLEEVE-VII (FSAPDS MK-II)	1006 05 15 00 01 006 147A	1
7	SLEEVE-VI (PROOF SHOT MK-II)	1006 05 15 00 01 007 007A	1

H NO.	DATE	AUTHORITY	BRIEF RECORD	ZONE	GD	GD
	DRN.	CAD				
APPD	DATE DRAWING FOR DESIGN	PROTECTIVE FINISH- —NA—	TITLE CONTAINER ASSEMBLY (120 mm FSAPDS MK-II & PROOF SHOT MK-II)			
SCALE: NTS	EST. MASS kg/lb	ARDE				
Dwg No. 1006 05 15 00 01 001 007A		DS CAT No.		ANGP		

GEN TOL MEDIUM CLASS TO R23102
 DRG CONVENTIONS CONFORM TO INDAV STDG
 DRG IN ENR UNLESS OTHERWISE STATED.

UN 0900

NOTES:
 CAP END TO BE SECURED BY SPINNING-CURLED EDGE INTO
 TUBE OUTER
 TO BE FLUSHED WITH EXTERNAL DIA. WITH APPROP. SEALING COMPOSITION NO. 2
 TO BE APPLIED IN THE CHANNEL OF THE CAP END IMMEDIATELY AFTER SPINNING.



CONTROL COPY No.

LIST OF COMPONENTS

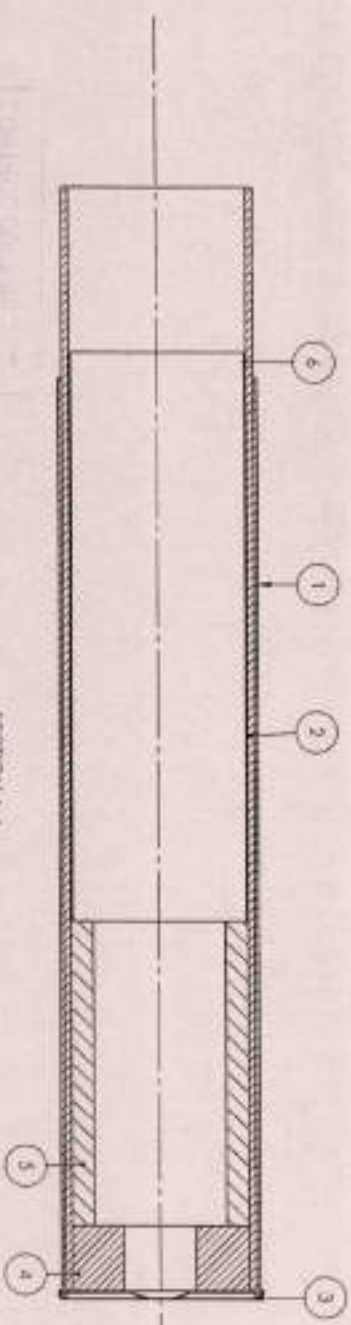
ITEM NO.	PART NUMBER	DRAWING NO.	QTY.
1	TUBE OUTER	1006 05 15 00 01 002 007A	1
2	TUBE INNER	1006 05 15 00 01 003 007A	1
3	CAP END	1006 05 15 00 01 001 007A	1
4	COLLAR	1006 05 15 00 01 004 007A	1
5	SLEEVE-I	1006 05 15 00 01 005 007A	1
6	SLEEVE-III (PROOF SHOT MK-I A)	1006 05 15 00 01 006 347A	1
7	SLEEVE-VI	1006 05 15 00 01 007 007A	1

NO.	DATE	AUTHORITY	ENTER RECORD	ZONE	CD	SD
DRW/ADL	CRD/MD		MATERIAL			
APRD			PROTECTIVE FINISH			
DATE SPECIFIED FOR DESIGN						
SCALE: NTS	FEET MARKED (N/A/APPD)		TITLE			
SCALE: NTS			CONTAINER ASSEMBLY			
			PROOF SHOT MK-I A			
DRG. NO.	1 0 0 6	0 5 1 5 0 1 0 0 1 0 0 0 3 4 7 A				
PRINT NO.						
DRG. CAT. NO.						
APRSD						

V.I.L. 40001000151509001 (W. DRD)

DRG FOR MEDIUM CLASS TO SF-7102 DRG CONVERTING CONFORM TO INDIAN STDR. DIM IN mm UNLESS OTHERWISE STATED.

NOTES:
 CAP END TO BE SECURED BY SPINNING-CURLED EDGE INTO TUBE OUTER
 TO BE FLUSHED WITH EXTERNAL DIA. WITH A.W.M.M. SEALING COMPOSITION No.2 TO BE APPLIED IN THE CHANNEL OF THE CAP END IMMEDIATELY AFTER SPINNING



SECTION A-A
 SCALE 1:375

CONTROL COPY No.

LIST OF COMPONENTS

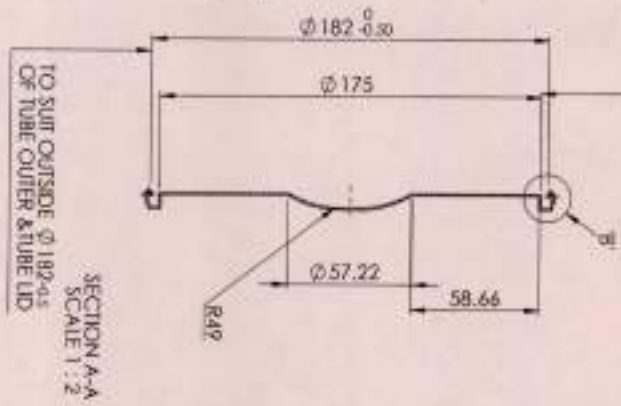
ITEM NO.	PART NUMBER	DRAWING NO.	QTY.
1	TUBE OUTER	1006 05 15 00 01 002 00TA	1
2	TUBE INNER	1006 05 15 00 01 003 00TA	1
3	CAP END	1006 05 15 00 01 001 00TA	1
4	COLLAR	1006 05 15 00 01 004 00TA	1
5	SLEEVE-I	1006 05 15 00 01 005 00TA	1
6	SLEEVE-VI	1006 05 15 00 01 007 00TA	1

APPROV. <i>(Signature)</i> DATE: 14/03/2008 FOR: Designer		BRIEF RECORD MATERIAL: ---NA--- PROTECTIVE FINISH: ---NA---
DESIGN AUTHORITY ARDE EST. NAME Hyderabad SCALE: NTD	TITLE CONTAINER ASSEMBLY HESH MK-1A	
DRG NO. 10060515000100200TA DRG CAT. NO.	PART NO.	SHIP

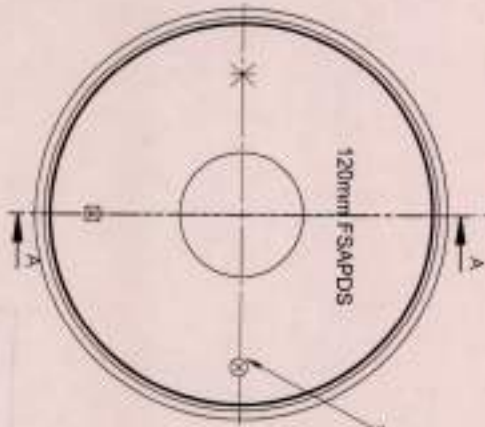
V 1 0 0 1 0 0 1 0 0 0 5 1 5 0 9 0 0 1 IN DRD

GEN TOL. MEDIUM CLASS T/IS-2162 DRG CONVENTIONS CONFORM TO INDIAN STDS. DIM IN MM UNLESS OTHERWISE STATED.

CONTROL COPY No.

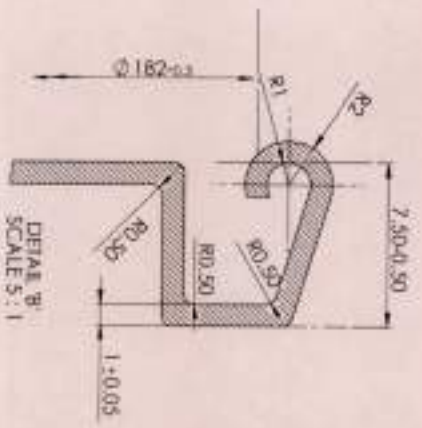


SECTION A-A
TO SUIT OUTSIDE $\phi 182_{-0.30}$
SCALE 1 : 2
OF TUBE OUTER & TUBE I.D.



SEE NOTE 5

- NOTES-**
1. MATERIAL: HOT ROLLED CARBON STEEL SHEET STRIP TO SPEC IS 1078 (ARY GRADE) OR FOLDED LOW CARBON STEEL AND STRIPS TO SPEC IS 513 (ARY GRADE)
 2. FINISH: POLISHED
 3. INSPECTION: THE CAP END TO BE INSPECTED TO SPEC. TO S 1279 CLASS B OR ZINC PLATED IS 1078 OF POWDER COATED OR APC. USE COATED ALL OVER WITH TWO COAT OF APC NC238
 4. MARKING TO BE SHOWN AS PER IS 4311
 5. CONTRACTOR'S NOTE: TO BE REMOVED TRADE MARK
 6. DATE OF MARKS FACTURE (M/D/Y) IS 7/20/0
 7. BATCH No.
 8. LOAD FOR PULL OFF TEST - 220kg MINIMUM
 9. SPACING TO BE SUITABLE & CHANGED FOR RESPECTIVE AMMUNITION
 10. OPEN HERE
 11. SHOW PROOF SHOT



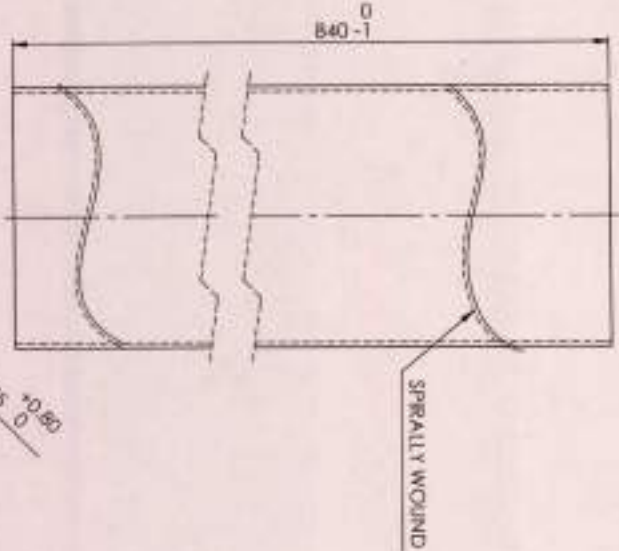
DETAIL 'B'
SCALE 5 : 1

R No.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD.	SD.
ADL		CHD. RDK	MATERIAL: SEE NOTE ABOVE			
APPROD. DATE: 14/09/17			PROTECTIVE FINISH: SEE NOTE ABOVE			
SEALER: EST MASS (kg/Approx)			TITLE: CAP END			
DESIGN AUTHORITY: ARDE						
PART No. 1 0 0 5 0 5 1 5 0 0 0 1 0 0 1 0 0 0 1 A						
DRG No. 1 0 0 5 0 5 1 5 0 0 0 1 0 0 1 0 0 0 1 A						
DGS CAT No.						
AHPSP						

GEN TOL. MEDIAN CLASS TO IS 2100
 DIM IN mm UNLESS OTHERWISE STATED.

1 2 3 4 5 6 7 8
 1 0 0 0 2 0 0 1 0 0 0 5 1 5 0 9 0 0 1

NOTES:
 PROTECTIVE FINISH-
 TO BE COATED EXTERNALLY
 WITH TWO COATS OF POLYKRAFT COATING.

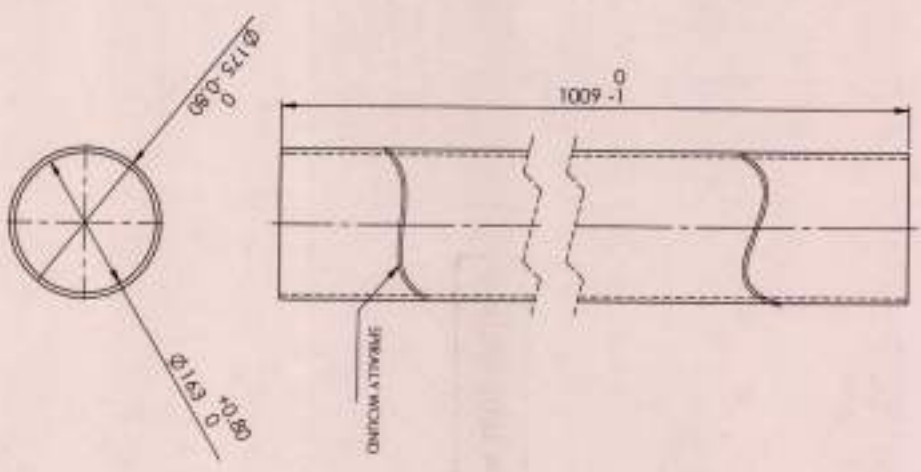


CONTROL COPY No.

R NO.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	GO
DRW. ACCT. A.P.		CHKD. S.L.	MATERIAL: KRAFT PAPER			
MDK						
APPD.	DATE 14/02/2017	FOR DESIGNAL. S.C. VU	PROTECTIVE FINISH- SEE NOTE ABOVE			
SEALD.						
SCALE: NTS	EST. MASS:		TITLE			
	(kg/1000mm)		TUBE OUTER			
DESIGN AUTHORITY	ARDE					
DRWG No.	1 0 0 0 6	0 5 1 5 0 0 0 1	0 0 2	0 0 T	0 0 T	A
PART No.						
DS CAT No.						

GEN TOL MEDIAN CLASS TO IS 2102
 DIM IN mm UNLESS OTHERWISE STATED

IN STD
 9 0 0 0 1



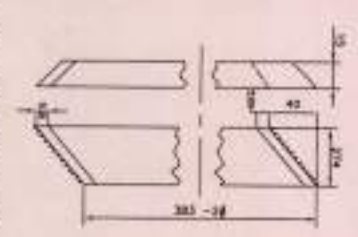
CONTROL COPY No.....

NOTE-
 PROTECTIVE FINISH-
 TO BE COATED EXTERNALLY WITH TWO COATS OF
 POLYKRAFT PAPER.

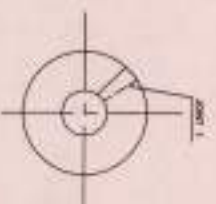
PR No.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	GD
DIRN. NO.	Q. No.	CHD	MATERIAL - KRAFT PAPER			
Appd			PROTECTIVE FINISH - SEE NOTE			
DATE: MANGSHI RUMAL, Sr. Ct. For Director						
SEALED			TITLE			
SCALE: NTS			TUBE INNER			
DESIGN AUTHORITY: ARDE						
EST MASS: kg/Depot						
DIRC No.			1 0 0 6 0 5 1 5 0 0 0 1 0 0 3 0 0 T A			
PART No.			DS CAT No.			
			ANSP			

115	2	Y	V	W	X	11	12	21	18	19	20
AL00151016	11010	0	511510191011	01	1	1	1	1	1	1	1

FORM NO. MARR-01 (REVISED) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01) (MARR-01)



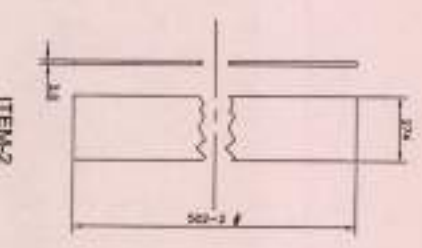
DEVELOPMENT - ITEM 1
 Qty-01 Nos
 Material: Cross-Linked
 Polyurethane Foam Density
 70±5 kg/m³



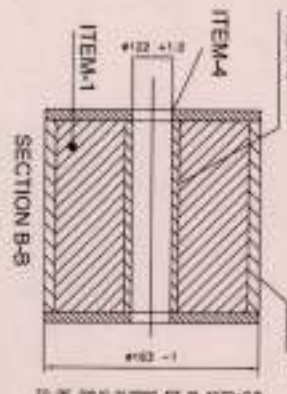
ITEM 1



SECTION A-A



ITEM-2
 Qty-1 Nos
 Material: Kraft Board



SECTION B-B

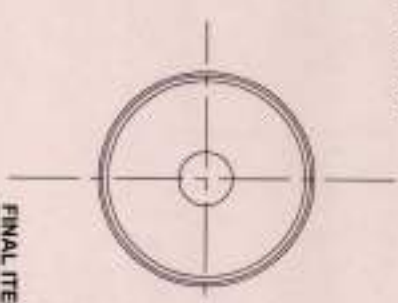


SECTION C-C
 ITEM 3
 Qty- 01 Nos
 Material- Kraft Board



ITEM 4
 Qty- 02 Nos
 Thickness- 2 mm
 Material : Kraft Board

CONTROL COPY No.



FINAL ITEM



TO BE SHOWN IN FIT TO BE SHOWN IN FIT

- NOTES:**
- TWO SURFACES OF ITEM 1 ARE TO BE JOINED TOGETHER WITH ADHESIVE. REFER TO DRAWING LABEL DICK A FOR DIMENSIONS OF 420.
 - ITEM 1 TO BE WRAPPED AROUND ITEM 3 WITH APPLICATION OF ADHESIVE. REFER TO DIMENSIONS OF 420.
 - ITEM 2 TO BE INSERTED AROUND ASSEMBLY FORMED BY ITEM 1 AND ITEM 3.
 - ADHESIVE TO BE APPLIED ON LOWER AND UPPER SURFACE AFTER ASSEMBLY.
 - ADHESIVE TO BE APPLIED ON LOWER AND UPPER SURFACE AFTER ASSEMBLY.
 - THICKNESS VARIATION OF 10% IS ALLOWED IN BOTH ITEMS 1 AND 2.
 - TO ACHIEVE FINAL DIMENSIONS.
 - THE DIMENSIONS LISTED ARE FOR GUIDANCE ONLY. THE MANUFACTURER IS AT LIBERTY TO CHANGE THESE DIMENSIONS TO ACHIEVE THE FINAL DIMENSIONS OF ITEM FINAL ITEM.

NOTE: 1) All Dimensions given for Item's 1 to Item's 2 are for reference.
 2) Final Item should have dimensions as specified in the drawing.

REV	DATE	DESCRIPTION	BY	CHKD
1	10/10/16	ISSUE FOR PRODUCTION		

DESIGN NO: 1101016015115 0101011 0101510101A

DATE	APPROVED	DATE	BY
10/10/16			

REVISIONS

NO	DATE	DESCRIPTION	BY	CHKD
1	10/10/16	ISSUE FOR PRODUCTION		

DESIGNER: SRIJITH S

CHECKER: SRIJITH S

DATE: 10/10/16

SCALE: 1:1

TITLE: SECTION C-C

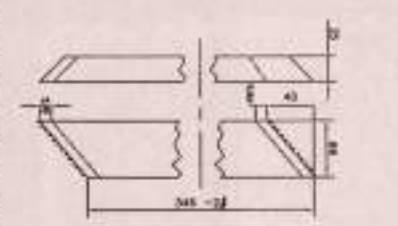
DRAWN BY: SRIJITH S

APPROVED BY: SRIJITH S

COMPANY: SRIJITH S

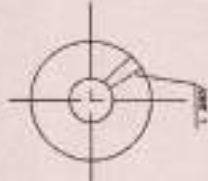
PROJECT NO: 1101016015115 0101011 0101510101A

155
4111900 1100 1100 1100 1100 1100 1100 1100 1100 1100
PAPER CLASSIFICATION SYMBOL
CLASSIFIED BY 011211

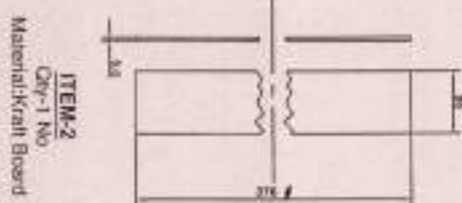


DEVELOPMENT - ITEM 1

Qty-01 No
Material: Cross-Linked Polyethylene Foam Density 70±5 kg/m³



ITEM 1



ITEM-2

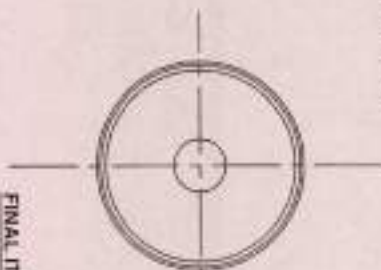
Qty-1 No
Material:Kraft Board

CONTROL COPY No.....

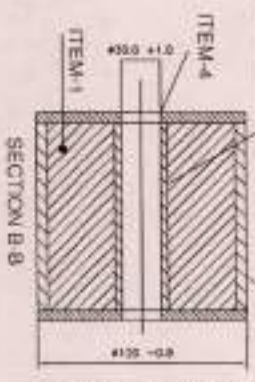


ITEM 4

Qty-02 Nos
Thickness- 2 mm
Material : Kraft Board



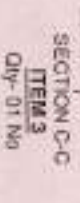
FINAL ITEM



SECTION B-B

NOTES:

- 1. TWO SURFACES OF ITEM ① MAPPED ***** TO BE JOINED (Label 1) WITH ADHESIVE POUCH SF 999 TO FORM LABEL OVER A MAXIMUM OF 440.
- 2. ITEM ① TO BE WAPPED AROUND ITEM 3 WITH APPLICATION OF ADHESIVE POUCH SF 999 ON BOTH THE CONTACT SURFACES.
- 3. ITEM ② TO BE WAPPED AROUND ACCORDING TO ITEM 1 AND ITEM 3.
- 4. ADHESIVE POUCH SF 999 ON BOTH THE CONTACT SURFACES.
- 5. ITEM ③ TO BE PASTED ON LINER AND LETTER SIDE AFTER ASSEMBLY WITH ADHESIVE POUCH SF 999 ON BOTH THE CONTACT SURFACES.
- 6. THICKNESS VARIATION OF 10% IS ALLOWED IN BOTH ITEM ① AND ② TO ACHIEVE TRUCK DIMENSIONS.
- 7. THE DIMENSIONS MAPPED # ARE FOR SUBJECT ONLY. THE MANUFACTURER IS AT LIBERTY TO CHANGE THESE DIMENSIONS TO ACHIEVE THE FINAL DIMENSIONS OF RAW ITEM.



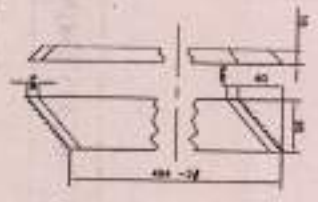
SECTION C-C

ITEM 3
Qty- 01 No
Material: Kraft Board

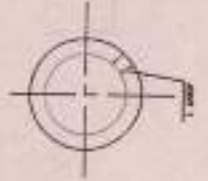
NOTE: 1) All Dimensions given for Item 1 to Item 4 are for reference.
2) Final item should have dimensions as specified in the drawing

REV	DATE	DRAWN	CHECKED	APP. REV. (S)	DATE	SCALE
01						
DESCRIPTION			MATERIAL - DESIGN DESIGNATION			UNIT
ITEM 1			POLYETHYLENE FOAM			NO.
ITEM 2			KRAFT BOARD			NO.
ITEM 3			KRAFT BOARD			NO.
ITEM 4			KRAFT BOARD			NO.
APPROVED BY						DATE
SUKREK VTB (PRINCE MK-II) THROOF SHOW MK-II						
DRAWN BY						DATE
0101015 015115 0101011 0101514775						
SCALE						

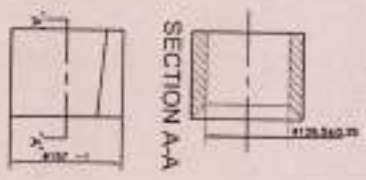
REVISIONS
 1. 100% DIMENSIONS GIVEN FOR ITEM 1 BY ITEM 2 ARE FOR REFERENCE.
 2. Final form should have dimensions as specified in the drawing.



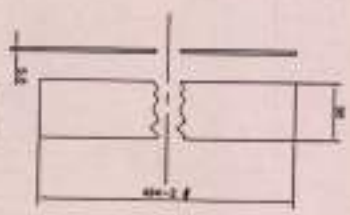
DEVELOPMENT - ITEM 1
 Qty-01 No
 Material: Cross-Linked
 Polyethylene Foam Density
 70±5 kg/m³



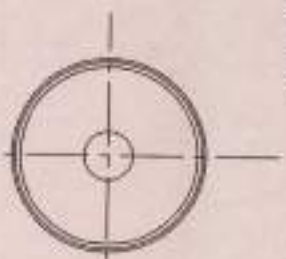
ITEM 1



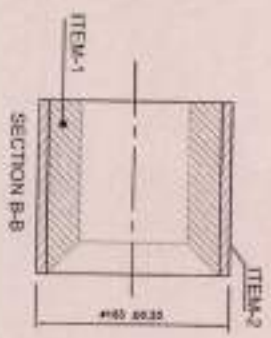
CONTROL COPY No.....



ITEM 2
 Qty-1 No
 Material:Kraft Board



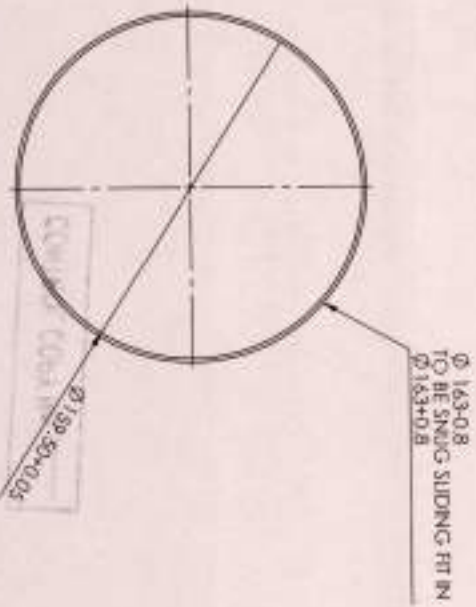
FINAL ITEM



- NOTES**
1. TWO SURFACES OF ITEM 1 MARKED ***** TO BE JOINED (LOOK 1) WITH SPECIFIC TENSION 90 990 TO FORM LIDEL. COPY A MATERIAL OF 440.
 2. ITEM 1 TO BE WOUND AROUND ITEM 2 WITH APPLICATION OF ADHESIVE FORCE OF 55 500 ON BOTH THE CONTACT SURFACES.
 3. THICKNESS VARIATION OF 10% IS ALLOWED IN BOTH ITEM 1 AND 2 TO ACHIEVE FINAL DIMENSIONS.
 4. THE DIMENSIONS MARKED # ARE FOR STUDENT ONLY. THE MANUFACTURER IS AT LIBERTY TO CHANGE THESE DIMENSIONS TO ACHIEVE THE FINAL DIMENSIONS OF FINAL ITEM.

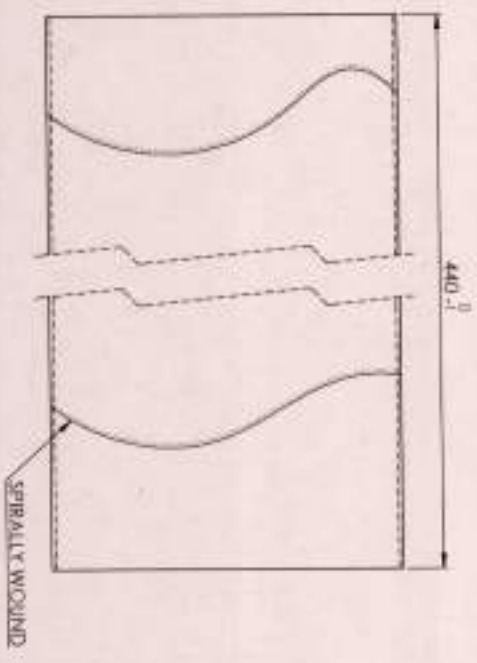
NO. 1	DATE	REVISION	BY	CHKD
1				
GENERAL : SELECT SUBSTITUTION PROJECT NO: VIKAS-18 COURSE: VET TITLE: SLEEVE V (HSEI MK-1 A) NAME: TEJESWARI SUDHAKAR				
100% DIMENSIONS GIVEN FOR ITEM 1 BY ITEM 2 ARE FOR REFERENCE. 2. Final form should have dimensions as specified in the drawing.				

IDENTIFICATION CLASSIFICATION: **1 0 0 0 7 0 0 0 1 0 0 0 5 1 5 0 9 0 0 1** ON GRD
 GEN TOL MEDIAN CLASS TO IS:2102 DRG CONVENTIONS CONFORM TO NMAN STDS.
 DIM IN MM UNLESS OTHERWISE STATED



CONTROL COPY NO. [REDACTED]

NOTES:-
 PROTECTIVE FINISH-
 TO BE COATED EXTERNALLY WITH
 TWO COATS OF POLYKRAFT COATING



DRG No.	1 0 0 0 6 0 5 1 5 0 0 0 1 0 0 7 0 0 7 A	DS CAT No.		ANSP		
PART No.						
REV	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	DD
DRN		CHD	MATERIAL			
APPD		CHK	KRAFT BOARD			
DATE (HABRIT)		FOR DIRECTION	PROTECTIVE FINISH- SEE NOTE			
SEALD						
SCALE NTS		EST MASS	TITLE			
		(kg/Approx)	SLEEVE-VI			
DESIGN AUTHORITY	ARDE					

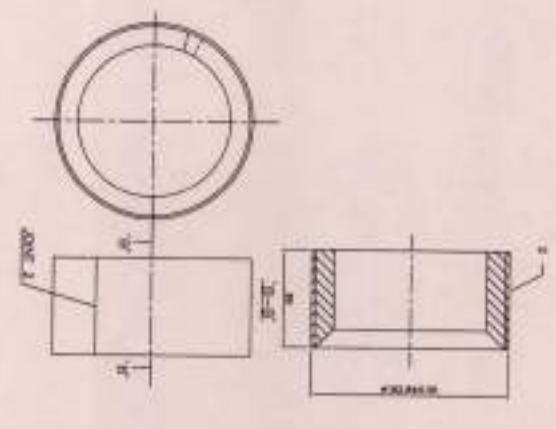
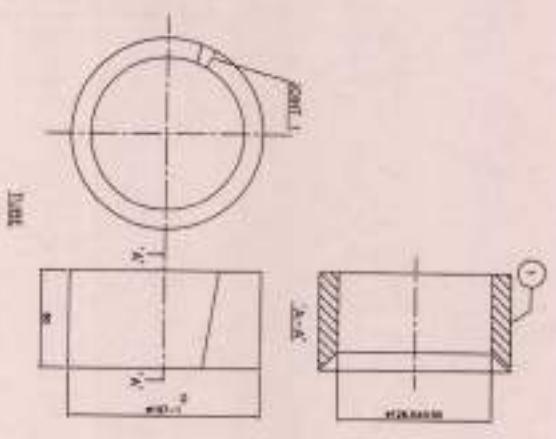
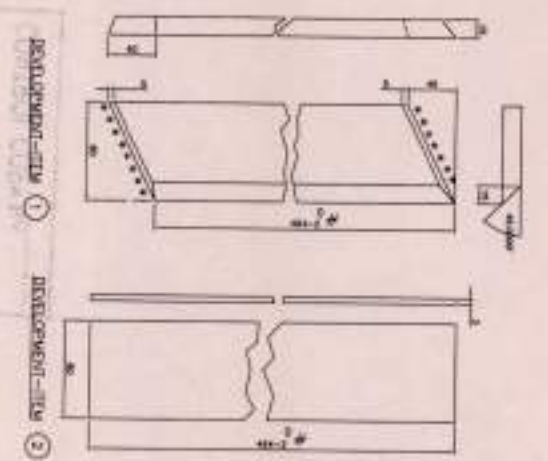
VINCENNES UNIVERSITY LIBRARY
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 TEL: 765/253-8000 FAX: 765/253-8001
 LIBRARY ID: 00101001000000000000000000000000

CONTROL COPY NO. 111111111111

MATERIAL: STEEL
 PART: FLANGE
 PART NO.: 1000

NOTES:

- 1. NO IMPACT OF THIS DRAWING ***** TO BE JAWED
- 2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
- 3. DIMENSIONS OF PARTS TO BE CHECKED FOR CONFORMANCE WITH DRAWING SHALL BE AS SHOWN ON DRAWING
- 4. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THIS DRAWING
- 5. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THIS DRAWING



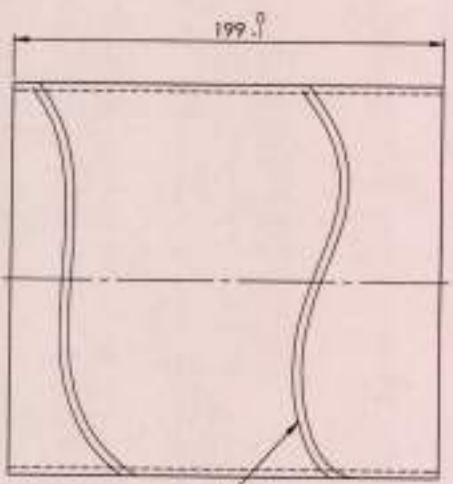
REV. NO.	DATE	DESCRIPTION	BY	CHECKED	APPROVED

TITLE: SLEEVE W/ (P/S, P/S)
 PART NO.: 1000

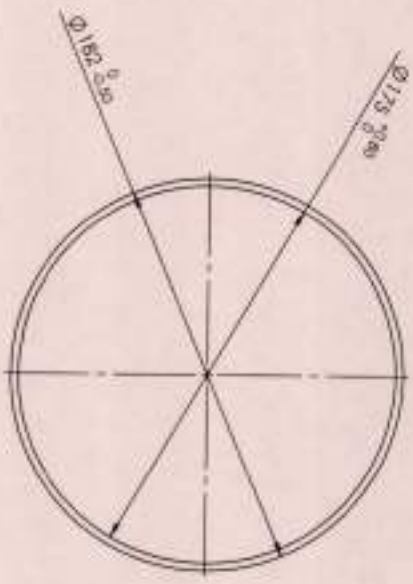
V 1 0 0 1 0 0 3 0 0 0 5 1 5 0 9 0 0 1

IN DRG

GEN TOL MEDIUM CLASS TO IS 2112
 DIM CONVENTIONS CONFORM TO INDIAN STDS.
 DIM IN mm UNLESS OTHERWISE STATED.



SPIRALLY WOUND



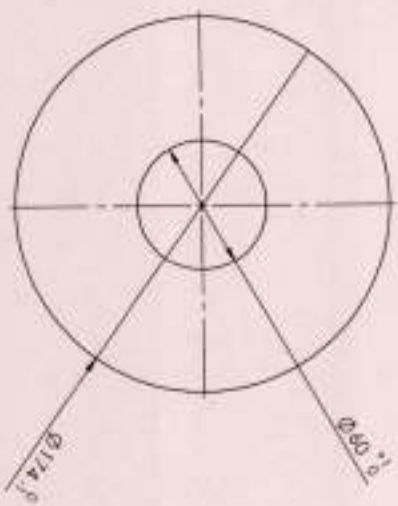
NOTES-
 PROTECTIVE FINISH
 TO BE COATED EXTERNALLY WITH TWO COATS OF
 POLYKRAFT COATING

CONTROL COPY No.....

R No.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	SO
DIRN. B.		CHD MKS	MATERIAL: KRAFT BOARD			SIGN
APPD						
DATE: 14/08/17	R.D. MISAL, Sr. D	PROTECTIVE FINISH- SEE NOTE ABOVE				
SCALE: NTS	EST MASS: kg/Approx	TITLE				
SCALE: NTS		TUBE LID				
DESIGN AUTHORITY	TESTING					
ARDE						
DRG No.	1 0 0 6 0 5 1 5 0 0 0 3 0 0 1 0 0 T A					
PART No.	DS CAT No.					
	ANSP					

GEN TOL. MEDIUM CLASS TO IS 27102
 DRG NO. 100020000051509001
 DRG CONVENTIONS CONFORM TO MILWA STD8
 DIM IN mm UNLESS OTHERWISE STATED.

NOTES:
 PROTECTIVE FINISH-NIL



CONTROL COPY No.

NO.	DATE	AUTHORITY	BRIEF RECORD	ZONE	CD	EQ
DRN: <i>50</i>		CHD: <i>11</i>	MATERIAL: MILL BOARD			
APP'D		RDPK	PROTECTIVE FINISH: SEE NOTE			
DATE MFGT	R. DIMEN. SE. (V)					
SEAL'D	FOR DIMEN'S					
SCALE: NTS	EST MASS	TITLE				
	(kg/Approx)	WASHER, MILL BOARD				
DESIGN AUTHORITY						
ARDE						
DRG No. 100061505000300200TA						
PRINT No.	DIS CAT No.	APSP				