



**GOVERNMENT OF INDIA
MINISTRY OF DEFENCE**

JOINT SERVICES SPECIFICATION

ON

**PAPER & BOARD, AMMUNITION AND
PAPER & BOARD, CORRUGATED, WAXED, AMMUNITION**

- (DS Cat No. 1) Paper Corrugated Amn Single Faced – 8135-000 001**
2) Board Corrugated Amn Double Faced – 8135-000 271
3) Board Corrugated Amn Double Double Faced – 8135-000 272
**4) Board Corrugated Amn Double Double Faced
Fine and Fine Flute – 8135-000 273**

**JSS 8135-08:2008
(Revision No. 3)
Supersedes JSS 8135-08:1998**

**DIRECTORATE OF STANDARDISATION
DEPARTMENT OF DEFENCE PRODUCTION
MINISTRY OF DEFENCE
'H' BLOCK, NIRMAN BHAWAN PO
NEW DELHI - 110 011**

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**LIST OF MEMBERS ASSOCIATED WITH ARMAMENT STANDARDISATION
SUB COMMITTEE**

1. This Joint Services Specification has been approved by Dr. BR Gandhe, Director, Directorate of Armaments (R&D), and Chairman Armament Standardisation Sub Committee by circulation.
2. The following members were present/consulted in approving the document: -

Sl No.	Name & Designation	Organisation
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2.	Col SK Mohan	ADGWE/GS (WE-2/3), New Delhi
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10.	Col AK Mehta, Jt Controller	CQA (Amn), Pune
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17.	Lt Col R K Talwar	Secretary ASSC

RECORDS OF AMENDMENTS

Amendment		Amendment pertains to SI No./ para No./ Column No.	Authority	Amended by Name & Appointment (IN BLOCK LETTERS)	Signature & Date
No.	Date				

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0. FOREWORD

0.1 This Joint Services Specification has been prepared by Armament Standardisation Sub Committee on the authority of the Standardisation Committee, Ministry of Defence.

0.2 This specification has been approved by the Ministry of Defence and is mandatory for use by the Defence Services.

0.3 This specification is revision of JSS 8135-08: 1998 (Revision No. 2) and supersedes the same.

0.4 This specification would be used for manufacture, supply and quality assurance of Paper and Board, Corrugated, Ammunition and Paper & Board, Corrugated, Waxed Ammunition.

0.5 Quality Assurance Authority for the item covered by this specification is The Controller, Controllerate of Quality Assurance (Military Explosives), Aundh Road, Kirkee, Pune -411 020 Enquiries regarding this specification relating to any contractual conditions should be addressed to the Quality Assurance Authority named in the tender or contract. Other enquiries should be referred to: -

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' Block, Nirman Bhawan PO,
New Delhi - 110 011.

0.6 Copies of this specification can be obtained on payment from:-

The Director,
Directorate of Standardisation
Standardisation Documents Centre,
Ministry of Defence
Room No. 5, 'J' Block
Nirman Bhawan, PO New Delhi- 110011

0.7 This specification holds good only for the supply order for which it is issued.

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1. SCOPE

1.1 This specification is meant to govern manufacture, supply and quality assurance of Paper & Board, Corrugated, Ammunition and Paper & Board, Corrugated, Waxed, Ammunition suitable for cushioning, chocking and bracing items in packaging.

2. RELATED SPECIFICATIONS

2.1 Reference is made in this specification to: -

IS 138: 1992	Ready Mixed Paint, Marking, for Packages and Petrol Containers – Specification (Third Revision) Reaffirmed 2004, Amds1
IS 1060 (Part 1): 1966	Methods of sampling and test for paper and allied products: Part 1 (Revised) Reaffirmed 1992, Amds 4
IS 1060 (Part 2): 1960	Methods of sampling and test for paper and allied products: Part 2 Reaffirmed 1997
JSS 9160-09: 2001	Paraffin Wax, Ammunition
IND/ME/789 (Prov)	Paper Commercial Kraft, for ammunition purposes
JSG 0114: 1994	Methods of tests for Textiles. used in Ammunition

2.2 Copies of the Indian Standards are obtainable on payment from :-

Bureau of Indian Standards
Manak Bhawan
9, Bahadur Shah Zafar Marg
New Delhi - 110 002

or

their regional/branch offices.

2.3 Copies of the IND/ME Specifications are obtainable on payment from :-

The Controller,
Controllerate of Quality Assurance (Military Explosives),
Aundh Road, Kirkee,
Pune - 411 020.

2.4 Copies of the Joint Services Guide and JSS are obtainable on payment from :-

The Director,
Directorate of Standardisation
Standardisation Documents Centre,
Ministry of Defence
Room No. 5, 'J' Block
Nirman Bhawan, PO New Delhi- 110011

3. MATERIAL/FINISH

3.1 Paper & Board, Corrugated, Ammunition and Paper & Board, Corrugated, Waxed Ammunition shall be made with flutings of material of the strawboard type. It shall be single faced, double faced or double double faced with facings and flutings, coarse or fine as specified in the contract. The material shall be uniformly made and shall not show any segregation of layers when cut into discs. All flutes shall be upright, free from splittings and firmly attached to the facings.

4. MANUFACTURE

4.1 The material shall be manufactured by a process which has received authoritative approval. The Quality Assurance Officer/Quality Assurance Authority shall be informed regarding the process used and shall be given prior notification of any proposed deviations there from. The adhesive used in the manufacture of the material shall not consist of Sodium silicate except for waxed corrugated material. Confirmatory test for the presence of Sodium silicate is given in Appendix 'A'. The Paraffin wax used shall conform to JSS 9160-09.

5. TENDER SAMPLE

5.1 The contractor/manufacturer/supplier shall submit free of charge, a sample not less than 500 g and unless otherwise specified shall consist of sheets at least 30 x 30 cm. The sample sheets shall be kept flat, free from wrinkles and folds and protected from exposure and undue handling.

6. PRE-INSPECTION OF STORES/CONSIGNMENT

6.1 Manufacturers/contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification, by carrying out a thorough pre-inspection of each lot before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract. A declaration by the contractor that a necessary pre-inspection has been carried out on the stores tendered, will be submitted alongwith the challan. The declaration will also indicate the method followed in carrying out pre-inspection showing the features checked/tested and will have the test certificate attached to the challan/declaration.

6.2 If the Quality Assurance Officer finds that pre-inspection of the consignment as required above has not been carried out, the consignment is liable for rejection.

7. QUALITY ASSURANCE

7.1 Inspection

7.1.1 The material and the packages in which it is packed, shall be subject to inspection by and to the approval of the Quality Assurance Officer/Quality Assurance Authority.

7.2 Sampling

7.2.1 At least 5 per cent of the packages shall be sampled. Four continuous representative sheets shall be taken from each sampled package. The sample sheets shall be cut with edges parallel to the machine and cross directions of the paper respectively.

7.2.2 Samples taken from rolls shall not include the end portions.

7.3 Criteria For Conformity

7.3.1 If on examination, any sample is found not to conform to this specification, the whole batch/lot/consignment may be rejected.

7.4 Test Requirements

7.4.1 Samples taken from any portion of the batch/lot/consignment of material shall conform to clause 3 and 4 and in addition shall conform to the following test requirements: -

Test Requirements of Paper & Board, Corrugated, Ammunition and Paper & Board, Corrugated, Waxed, Ammunition

(a) Chemical

Sl No.	Characteristics	Requirements	Test Method Reference to
(a)	Moisture content at 103°C to 105° C for 2 hour, per cent by mass	Max 7.0	IS 1060 (Part 1)-Method 9
(b)	pH of water extract	Min 5.5 Max 7.5	IS 1060 (Part 1)-Method 10
(c)	Water soluble chlorides, calculated as Sodium chloride, per cent by mass	Max 0.05	JSG 0114 - Method 7
(d)	Water soluble sulphates calculated as anhydrous Sodium sulphate, per cent by mass	Max 0.25	IS 1060 (Part 2) Method 18
(e)	Fatty acids, calculated as Oleic acid, per cent by mass	Max 0.25	IS 1060 (Part 2)-Method 19
(f)	Ash on incineration at 800°C + 25°C, per cent by mass	Max 10.0	IS 1060 (Part 1)-Method 11
(g)	Matter soluble in Ether, essentially Paraffin wax (in case of waxed material only), per cent by mass	Min 25.0	IS 1060 (Part 2)-Method 20

Note: - All percentages shall be calculated on the dry mass material after drying to constant mass.

(b) Physical

The material shall be conditioned, prior to test, for 24 hours in an atmosphere of 65 + 2 per cent relative humidity at 27°C ± 2°C.

The material shall comply with the physical requirements according to the schedule given below: -

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Sl. No.	Grade	No. of Flutes per metre	Mass un-waxed g/m ²	Thickness unwaxed mm (inches) Minimum		Corrugating material Thickness mm (inches) Minimum
				Fac- ing	Middle Liner	
(a)	Paper Corrugated Ammunition, Single faced:			0.305 (0.012)	-	0.229 (0.009)
	i) Coarse Flute	105 to 125	410 to 460			
	ii) Fine Flute	160 to 180	400 to 450			
(b)	Board Corrugated Ammunition, Double faced:			0.305 (0.012)	-	0.229 (0.009)
	(i) Coarse Flute	105 to 125				
	ii) Fine Flute	160 to 180				
(c)	Board Corrugated Ammunition, Double Double faced			0.305 (0.012)	0.305 (0.012)	0.229 (0.009)
	i) Coarse and Coarse Flute	105 to 125				
	ii) Coarse and Fine Flute	105 to 125 and 160 to 180 respectively				
	iii) Fine and Fine Flute	160 to 180				

Note: (i) The kraft paper used for facing should conform to specification IND/ME/789 Grade 3.

(ii) The mass (g/m²) given for Paper Corrugated Ammunition, single faced, coarse or fine, is for facing thickness 0.305 mm and corrugated material thickness 0.229 mm. The mass will vary proportionately with increasing thickness of facing corrugating material.

8. WARRANTY

8.1 The stores supplied against the contract shall be deemed to be warranted against defective material and performance by the contractor for a period of 12 months from the date of receipt of the store at the consignee's end and if during this period any of the stores supplied is found defective the same shall be replaced by the manufacturer/supplier/ contractor free of charges at the consignee's premises.

9. PACKAGING

9.1 The packaging (Preservation, identification and packing) shall be in accordance with the terms of the contract. The material shall be supplied in sheets or rolls of such sizes and substance as may be prescribed in the terms of the contract.

9.2 The inclusion of any foreign matter or impurities in any of the packages shall render the whole batch liable to rejection.

9.3 Any other form of package shall have the prior approval of the Quality Assurance Authority.

10. MARKING

10.1 All packages containing the material shall be indelibly and legibly marked with the following details: -

- (a) Nomenclature and Specification number of the material.
- (b) Name and address of the consignee.
- (c) A.T. or S.O. number and date.
- (d) Consignment Number.
- (e) Lot/batch number and date of manufacture.
- (f) Gross and net mass.
- (g) Consecutive number of package and total number of packages in the consignment.
- (h) Date of Supply.
- (j) Contractor's initials or recognised trade mark.

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10.2 The paint used for marking should conform to IS 138 and to the satisfaction of the Quality Assurance Officer/Quality Assurance Authority.

11. SAFETY OF OPERATIONS

11.1 Nothing in this specification shall relieve the manufacturer/ supplier/ contractor/user of his responsibility for the safety of operations in manufacture, storage, transit or use of this store.

12. DEFENCE STORES CATALOGUE NUMBER

12.1 Defence Stores Catalogue Number allotted to this store are

(i) Paper Corrugated Amn Single Faced – 8135-000 001

(ii) Board Corrugated Amn Double Faced – 8135-000 271

(iii) Board Corrugated Amn Double Double Faced – 8135-000 272

(iv) Board Corrugated Amn Double Double Faced Fine and Fine Flute – 8135-000 273

13. SUGGESTIONS FOR IMPROVEMENT

13.1 Any suggestion for improvement in this document may be forwarded to: -

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' Block, Nirman Bhawan PO,
New Delhi - 110 011.

APPENDIX 'A'

A. TEST FOR THE PRESENCE OF SODIUM SILICATE

A.1. Take 5 g of sample and extract with water. Collect the water extract and test for the presence of Sodium silicate by adding: -

(i) Few ml of Silver nitrate solution. Formation of yellow precipitate of Silver silicate (Ag_2SiO_3) soluble in dilute acids and dilute Ammonia solution indicates the presence of Sodium silicate.

(ii) Few ml of dilute HCl to the water extract. A gelatinous precipitate of Meta Silicic acid is obtained particularly on boiling. The precipitate is insoluble in concentrated acids.