

**GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
LIQUID PROPULSION SYSTEMS CENTRE  
VALIAMALA, TRIVANDRUM 695547, KERALA  
PURCHASE & STORES**

Ph No: 0471-2567 726/813/317/319  
Fax +091-0472-2800712,0471-25673

Date :21/12/2018

**INVITATION TO TENDER**

M/s

000000

Our Ref No : TM07 2018-031994-01

Tender Due: 14:00 Hrs ISTon 24/01/2019

Opening : 14:30 Hrs ISTon 29/01/2019

Dear Sirs,

Please submit your sealed quotation , in the Tender Form enclosed here along with the descriptive catalogues / pamphlets / literature ,superscribed with Our Ref.No. and Due Date for the supply of the following items as per the terms & conditions mentioned in Annexure( Form No: ENCLOSED )

| S.No. | Description of Items with Specifications  | Unit | Quantity |
|-------|---|------|----------|
| 1     | Al. Alloy sheets AA 2219-TO,SIZE 2000X1000X1.5mm +/- 0.10, 300 Nos as per LPSC-TS-AA2219-02A & annexure-I | Kgs  | 2520     |
| 2     | Al. Alloy sheets AA 2219-TO,SIZE 6000X1500X5mm +/- 0.25, 25 Nos as per LPSC-TS-AA2219-02A & annexure-I    | Kgs  | 3150     |
| 3     | Al. Alloy sheets AA 2219-TO,SIZE 4000X2300X6.5mm +/- 0.25, 198 Nos as per LPSC-TS-AA2219-02A & annexure-I | Kgs  | 43344    |
| 4     | Al. Alloy plates AA 2219-TO,SIZE 4000X2300X9.7mm +/- 0.4, 120 Nos as perLPSC-TS-AA2219-02A & annexure-I   | Kgs  | 30000    |
| 5     | Al. Alloy plates AA 2219-TO,SIZE 4000X2300X10mm +/- 0.45, 120 Nos as per LPSC-TS-AA2219-02A & annexure-I  | Kgs  | 31000    |
| 6     | Al. Alloy plates AA 2219-T87,SIZE 7000X1500X7mm +/- 0.25, 60 Nos as per LPSC-TS-AA2219-02A & annexure-I   | Kgs  | 12360    |
| 7     | Al. Alloy plates AA 2219-T87,SIZE 7000X2400X9.5mm +/- 0.4, 80 Nos as per LPSC-TS-AA2219-02A & annexure-I  | Kgs  | 35760    |
| 8     | Al. Alloy plates AA 2219-T87,SIZE 7000X1500X10mm +/- 0.25, 60 Nos as per LPSC-TS-AA2219-02A & annexure-I  | Kgs  | 17640    |
| 9     | Al. Alloy plates AA 2219-T87,SIZE 7000X2100X10mm +/- 0.45, 13 Nos as per LPSC-TS-AA2219-02A & annexure-I  | Kgs  | 6720     |
| 10    | Al. Alloy plates AA 2219-T87,SIZE 7000X2700X12mm +/- 0.50, 26 Nos as per LPSC-TS-AA2219-02A & annexure-I  | Kgs  | 16536    |
| 11    | Al. Alloy sheets AA 6061-T6,SIZE 2000X1340X2.8mm +/- 0.10, 240 Nos as per AMS4027N & annexure-II          | Kgs  | 5043     |

**DELIVERY AT:** BANGALORE

**MODE OF DESPATCH** BY ROAD/AIR/SEA

**DUTY EXEMPTIONS** BANGALORE

**SPECIAL INSTRUCTIONS GIVEN BELOW**

**SPECIFIC TERMS** ENCLOSED

**INSTRUCTIONS TO TENDERERS:**

- NOTE: 1. Technical Terms and conditions as Annexure-I  
2. Detailed Specifications as per Annexure-II.

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Date :21/12/2018

3. General terms and conditions as per Annexure-III
  4. Compliance sheet attached as Annexure-IV herewith shall be duly filled in & sent along with quotation, without which your quotation will be rejected.
  5. Taxes applicable, commercial terms such as mode of despatch, delivery terms, delivery period etc., shall be clearly mentioned in your quotation. Please furnish your current E-MAIL ID & CONTACT NO. in your offer.
  6. Fax/ e-mail quotation will not be considered. Please send your quotation BY POST to reach us within the due date/ time.
  7. Aluminium Manufactures (OEM) with Indian, European, USA, Canada, UK and Australia origin only need to quote.
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For and on behalf of the President of India  
The Purchaser

**AA2219 sheets/plates -technical terms and conditions**

**1. Specification**

AA2219 sheets/plates shall be supplied as per enclosed specification LPSC-TS-AA2219-02A.

In, clause number 9.1 of LPSC-TS-AA2219-02A, Re testing shall be performed on double the number of specimens in accordance with AMS 2355.

**2. Quantity tolerance:**  $\pm 10\%$  in terms of total weight & total value. Tolerance on number of pieces per line item is -1/+2.

**3. Test/ Inspection certificates:** Company shall supply all certificates of conformity in accordance with standard referred. Report shall include the purchase order No, Lot No, Standard No, size and quantity from each lot.

For Foreign Manufacturers: All test certificates shall be duly certified by third party inspection agencies like Bureau Veritas or Lloyds and shall be sent to LPSC for verification and clearance. One set of all mill certificates (without 3<sup>rd</sup> party attestation) shall be sent us in advance for our scrutiny and acceptance. The items shall be dispatched only after the written clearance from LPSC after verification and clearance of Third Party certified test certificates.

For Indian Manufacturers: Process plan shall be sent to LPSC prior to material manufacturing and upon clearance from LPSC only the manufacturing shall be initiated. Upon completion of manufacturing, pre delivery inspection shall be intimated to LPSC and QC, LPSC personnel shall witness all the qualification tests mentioned in LPSC-TS-AA2219-02A and annexure I. Upon written clearance from LPSC personnel only, the material shall be dispatched after inspection.

**We reserves the right to accept or reject any quotation fully or partly without assigning any reason there for.**

**AA6061 sheets -technical terms and conditions**

- 1. Specification:** AA6061 sheets shall be supplied as per AMS 4027N specification.
- 2. Quantity tolerance:**  $\pm 10\%$  in terms of total weight & total value.
- 3.** Fe content and Mg/Si ratio shall be aimed to maintain 0.3% and 1.6 to 1.8 % respectively.
- 4.** Ultrasonic test shall be carried at the Slab stage as per AMS 2630 class A (single defect 2.0 mm FBH and multiple linear defects 1.2mm FBH).

5. Metallographic examination shall be carried on one sample per lot/heat batch/size as per ASTM E3 & 407. The material shall be of uniform grain size and free from micro porosities, stringers, segregation etc. there shall be no evidence of eutectic melting and high temperature oxidation. Average grain width shall be less than 150 microns and length shall be less than 450 microns.
6. **Test/ Inspection certificates:** Company shall supply all certificates of conformity in accordance with standard referred. Report shall include the purchase order No, Lot No, Standard No, size and quantity from each lot.  
**For Foreign Manufacturers:** All test certificates shall be duly certified by third party inspection agencies like Bureau Veritas or Lloyds and shall be sent to LPSC in advance for verification and clearance. The items shall be despatched only after the written clearance from LPSC after verification and clearance of the mill certificates.  
**For Indian Manufacturers:** Process plan shall be sent to LPSC prior to material manufacturing and upon clearance from LPSC only the manufacturing shall be initiated. Upon completion of manufacturing, pre delivery inspection shall be intimated to LPSC and QC, LPSC personnel shall witness all the qualification tests mentioned in AMS 4027N and annexure II. Upon written clearance from LPSC personnel only, the material shall be dispatched after inspection.
7. Each sheet shall be marked with identification details of batch number, heat number, material grade and P.O number.
8. Packing shall be as per standard and adequate protection shall be provided to ensure safety during handling and transportation.

**We reserves the right to accept or reject any quotation fully or partly without assigning any reason there for.**

## TECHNICAL & QUALITY SPECIFICATIONS FOR AA2219 ALUMINIUM ALLOY SHEETS/PLATES

### 1.0 SCOPE :

This specification defines the manufacturing and testing requirements for AA2219 Aluminium Alloy Sheets and plates of chemical milling quality.

### 2.0 APPLICABLE STANDARDS:

The following standards form a part of this specification to the extent specified herein. **The latest issue of these documents in effect on the date of material production shall be applicable**

|  |   |  |
|--|---|--|
| AMS 2630   | - | Ultrasonic inspection of products over 12.7mm  |
| AMS 2632   | - | Ultrasonic inspection of thin materials.   |
| AMS 2772   | - | Heat treatment of Aluminium alloy raw materials.   |
| AMS 2355   | - | Quality assurance, sampling and testing Aluminium alloy and Magnesium alloy sheet  |
| ANSI H35.2   | - | Aluminium alloy and Magnesium alloy sheet and plate tolerances on dimension ( metric)  |
| ASTM E10   | - | Standard Test Method for Brinell hardness of Metallic Materials.   |
| NFA-04-503   | - | Semi-finished products of Aluminium, Copper, Nickel and other Alloys, determination of grain size- Aluminium and Aluminium alloys. |
| AIR 9048   | - | Surface finish requirement of Aluminium alloy sheets.  |
| AMS QQA 250/30 - Federal specification Aluminium alloy 2219 plate and sheet. |   |  |

### 3.0 OPERATIONAL REQUIREMENTS:

- 3.1 Not more than one cast shall be used to make one slab.
- 3.2 By process, hydrogen content at melt stage shall not exceed 0.15ml/100gm of metal.
- 3.3 Sodium content in the metal shall not exceed 0.005% by mass.
- 3.4 The supply condition should be such that its properties are compatible for chemical Milling. A chemical milling suitability test shall be carried out on sample taken from one of the sheets in each batch. This suitability test is applicable only for supply condition T87 (Test details as per section 13). A batch is defined as "All material from the same melt, thickness, heat treated in the same furnace, at the same time in case of batch type furnace."

- 3.5 A very careful filtration per casting need be adopted and under strict supervision of Metallurgist.
- 3.6 The material shall be suitably processed to guarantee the mechanical properties listed in Section 8.0.
- 3.7 Flatness tolerance:-

| Thickness of sheet/plate (mm) | Sheet Width (mm) | Longitudinal Flatness | Transverse Flatness |
|-------------------------------|------------------|-----------------------|---------------------|
| 1- 3                          | < 2000           | 0.3% max.             | 0.4% max.           |
| 3- 15                         | > 2000           | 0.2% max.             | 0.3% max.           |
| >15                           |                  | 0.15% max.            | 0.2% max.           |

#### 4.0 **CHEMICAL COMPOSITION:**

- 4.1 Each product shall conform to the following chemical composition determined in accordance with AMS 2355

**Table-1**

| ELEMENT                 | Percentage by Weight |         |
|-------------------------|----------------------|---------|
|                         | Minimum              | Maximum |
| Copper                  | 5.80                 | 6.80    |
| Manganese               | 0.20                 | 0.40    |
| Zirconium               | 0.10                 | 0.25    |
| Vanadium                | 0.05                 | 0.15    |
| Titanium                | 0.02                 | 0.10    |
| Iron                    | --                   | 0.30    |
| Silicon                 | --                   | 0.20    |
| Zinc                    | --                   | 0.10    |
| Magnesium               | --                   | 0.02    |
| Other impurities, each  | --                   | 0.05    |
| Other impurities, total | --                   | 0.15    |
| Aluminium               | Balance              |         |

- 4.2 Hydrogen and Sodium content shall be limited to the values given in Para 3.2, 3.3, respectively.
- 4.3 Calcium content in the metal shall not exceed 0.005% by mass and measured value to be reported.

## 5.0 **SUPPLY CONDITION:**

- 5.1 The sheet/plate shall be supplied in the Temper condition specified against each item. The surface shall be of standard uniform bright finish on each side with  $Ra=3.2\text{ }\mu\text{m}$  (max).

## 5.2 **DIMENSIONAL TOLERANCES:**

- 5.2.1 For each sheet, tolerance on width, length, lateral deflection and parallelism shall be in accordance with the standard ANSI H35.2. Thickness tolerance shall be as specified in the purchase order.
- 5.2.2 Thickness tolerance agreed for each item will be valid for each individual sheet/plate as well as for the whole lot.

## 6.0 **HEAT TREATMENT:**

Heat treatment and quench delay shall be in accordance with standard AMS 2772.

- 6.1 The calibration and the qualification of heat treatment furnaces are to be in accordance with 'NADCAP'. Party has to mention the validity of the certificate.

## 7.0 **SAMPLING PLAN FOR CHEMICAL ANALYSIS:**

Sampling plan for chemical analysis shall be in accordance with AMS 2355.

## 8.0 **MECHANICAL PROPERTIES:**

The preparation of specimen for tensile properties evaluation and the method of testing shall be strictly in accordance with AMS 2355.

### 8.1 **TENSILE PROPERTIES:**

- 8.1.1 The sheet and plates shall conform to the requirements for tensile properties specified as follows:

**TABLE-2**

### **MINIMUM TENSILE PROPERTY TO BE GUARANTEED**

(At Room temperature)

| Temper condition | Nominal Thickness<br>mm |       | Tensile Strength<br>MPa | Yield Strength at<br>0.2% offset<br>MPa | Elongation<br>in 50mm<br>% |
|------------------|-------------------------|-------|-------------------------|---|----------------------------|
|                  | Over                    | Incl. |                         |   |                            |
| T87              | 0.5                     | 1     | 441                     | 359                                     | 5                          |
|                  | 1                       | 6     | 441                     | 359                                     | 6                          |
|                  | 6                       | 25    | 441                     | 352                                     | 7                          |
|                  | 25                      | 76    | 441                     | 352                                     | 6                          |
|                  | 76                      | 102   | 427                     | 345                                     | 4                          |
|                  | 102                     | 127   | 421                     | 338                                     | 3                          |
| O                | 0.5                     | 51    | 221 (max)               | 110 (max)                               | 12                         |

8.1.1.1 Wherever sheets/plates are delivered in O condition, properties to be guaranteed in T62 condition meeting the requirements given in table 3.

**TABLE 3: MINIMUM TENSILE PROPERTIES IN T62 CONDITION**

(At Room temperature)

| Temper<br>condition | Nominal<br>Thickness<br>mm |       | Tensile<br>Strength<br>MPa | Yield<br>Strength at<br>0.2% offset<br>MPa | Elongation<br>in 50mm<br>% |
|---------------------|----------------------------|-------|----------------------------|--|----------------------------|
|                     | Over                       | Incl. |                            |  |                            |
| T62                 | 0.5                        | 1     | 372                        | 248  | 6                          |
|                     | 1                          | 6     | 372                        | 248  | 7                          |
|                     | 6                          | 25    | 372                        | 248  | 8                          |

#### 8.1.2 SPECIMEN ORIENTATION:

Specimen shall be taken in perpendicular and parallel to the direction of rolling for evaluation of long – transverse & longitudinal tensile properties respectively. Three specimens shall be selected for each direction per lot.

#### 9.0 RE-SAMPLING AND RE-TESTING:

9.1 Re-sampling and re-testing shall be in accordance with AMS 2355.

9.2 The material shall not be re-solution treated more than once.

#### 10.0 METALLURGICAL ANALYSIS:

10.1 Metallographic examination shall be carried out representing each lot/batch. The material shall be of uniform grain size and free from micro-porosity, micro-cracks, stringers, segregations etc. There shall be no eutectic melting and no evidence of high temperature oxidation

10.2. Grain size shall be 150  $\mu\text{m}$  (max) with aspect ratio 3.

#### 11.0 QUALITY ASSURANCE:

11.1 The supplier is responsible for the quality of the product delivered to the customer and must carry out all tests and inspections required in order to ensure that the specifications are met. The customer reserves the right to carry out any additional tests on the delivered item to ensure that it conforms to the requirements of this specification.



## 11.2 SURFACE FINISH:

The surface of the sheet/plates must be smooth without flaws, blister, cracks, holes or scratches (other than those normally caused by rolling) traces of foreign matter, corrosion, and other defects.

Surface roughness shall be  $Ra=3.2\text{ }\mu\text{m}$  (max) as given in Para 5.1.

- Note: 1) Special care is to be taken regarding the above requirements in order to ensure that both sides of the sheets are suitable for chemical milling.
- 2) Any grinding for rectifying defect is not acceptable. Before carrying out any operation refer to section 18 hereafter.

## 11.3 ULTRASONIC TESTING:

11.3.1 For sheets of thickness (e) up to 12.7 mm, ultrasonic inspection shall be done at intermediate rolling stage, when the sheets are nearing the end of fabrication but still suitable for ultrasonic testing ( $e \leq 12.7$ ) as per AMS 2630 (normal beam) and the acceptance level shall be QUALITY CLASS A.

11.3.2 Plates of thickness 12.7mm and above shall be ultrasonically inspected in accordance with AMS 2630/AMS 2632 (normal beam) and the acceptance level shall be QUALITY CLASS A.

11.3.3 All NDE tests shall be carried out by personnel qualified for ISNT/ASNT level-II (minimum) or equivalent.

## 12.0 BEND TEST

12.1 Material procured in 'O' temper shall be capable of withstanding without cracking, bending at room temperature through an angle of 180 degrees around a mandrel having a diameter equal to N times the nominal thickness of the product with axis of bend either parallel to or transverse to the direction of rolling.

Bend Factor

| Nominal thickness(mm) | Bend Factor (N) |
|-----------------------|-----------------|
| 0.5 to 6 incl.        | 4               |
| Over 6 to 10 incl.    | 6               |

## 13.0 CHEMICAL MILLING COMPATIBILITY

Chemical milling suitability test as per section 3.4 shall be made on sample.

### 13.1 PRINCIPLE

The test involves Chemical milling of a test specimen to half its thickness in accordance with Figure1 using a caustic soda bath.

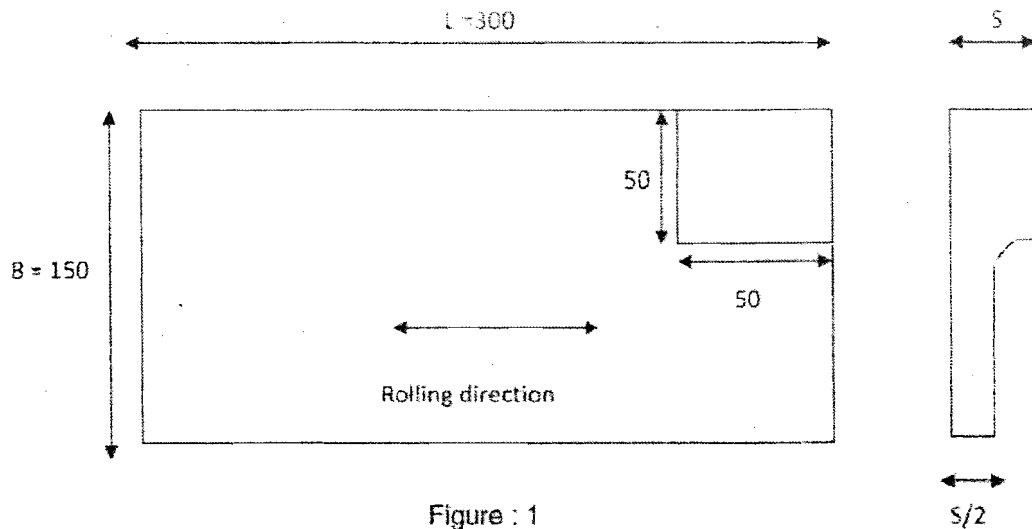


Figure : 1

Dimensions in mm

### 13.2 Bath Characteristics

Chemical milling bath characteristic shall be one of the following.

#### 13.2.1 Bath Characteristic No:1

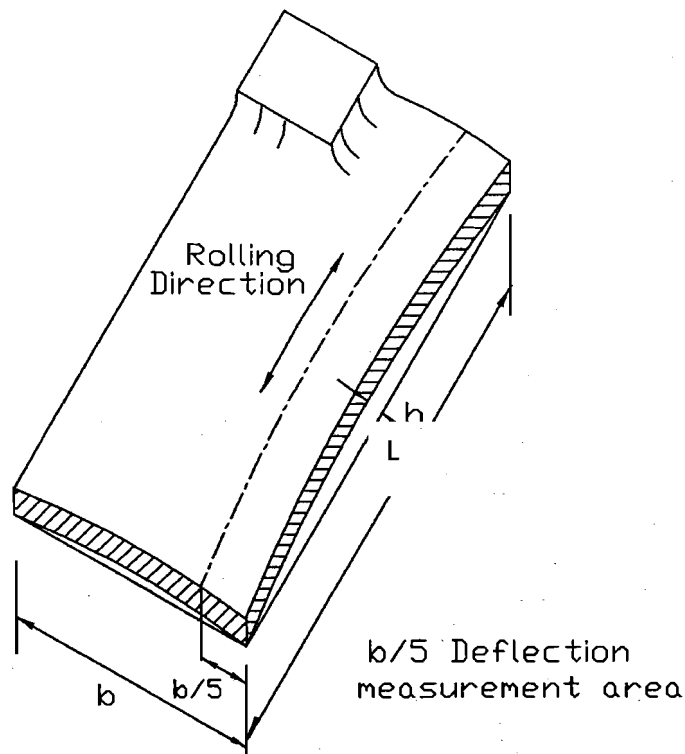
|             |                     |              |              |                  |
|-------------|---------------------|--------------|--------------|------------------|
| Composition | Na OH               | Dissolved Al | Sulphurs S-2 | H <sub>2</sub> O |
|             | 100±10g/l           | 50±20g/l     | 18 to22g/l   | Remainder        |
| Temperature | 80±2°C              |              |              |                  |
| Volume      | 50 Litres (minimum) |              |              |                  |

#### 13.2.2 Bath Characteristic No: 2

| Composition | Na OH               | Dissolved Al | Sulphurs<br>S-2 | Na gluco     | H <sub>2</sub> O |
|-------------|---------------------|--------------|-----------------|--------------|------------------|
|             | 100±10 g/l          | 50±20g/l     | 2 to 5 g/l      | 15 to 20 g/l | Remainder        |
| Temperature | 80±2°C              |              |                 |              |                  |
| Volume      | 50 Litres (minimum) |              |                 |              |                  |

### **13.3 MEASUREMENT OF DEFLECTION:**

After etching, place the test specimen on a flat table. The deflection 'h' is equal to the greatest distance between the table plane and the test specimen across the width  $b/5$  parallel to rolling direction at the edge of the test specimen (see figure 2).



### **13.4 Acceptance Criteria.**

13.4.1 The deflection 'h' shall not exceed 3.2mm for L=300. For test specimen with L=250 mm 'h' shall not exceed 2.7mm.

13.4.2 Surface roughness shall not exceed 6.3  $\mu\text{m}$

13.4.3 There shall be no noticeable difference between the form of the ridges parallel to the rolling direction and the form of the ridges perpendicular to this direction.

13.4.4 Mechanical properties to be evaluated by conducting test on 3 specimen. It should meet the minimum specified values of tensile properties.

#### **14.0 IDENTIFICATION MARKING:**

Each sheet shall have marking at minimum two locations (extreme ends) in rows running in the direction of rolling 150mm apart on one surface. Every third row shall contain producer's name or trade mark and the nominal thickness. The other rows shall contain the following information:

Specification No: LPSC-TS-AA2219-02A

Alloy and temper

In addition to the above, each sheet shall contain the following information at least in one suitable location:

Size

Sheet Serial Nos.

Purchase Order No.

Inspector's stamp for clearance.

#### **15.0 PRESERVATION AND PACKING:**

- 15.1 All aluminium sheets and plates shall be cleaned thoroughly by non corrosive solvent like acetone to remove any loose particles, oil grease dirt or corrosion.
- 15.2 The sheets/plates shall be provided with peelable PVC (Poly Vinyl Chloride) coating on either side.
- 15.3 Sheet/Plate shall be packed to provide adequate protection during normal handling and transportation.
- 15.4 Package shall be designed to avoid any relative displacement of sheets during transit or handling.
- 15.5 Each shipping container shall be marked with the Purchase Order No., Sheet/Plate sizes, Specification, Alloy and temper, Gross and Net mass and the producer's name or trade mark, etc.
- 15.6 Packing shall be checked by the inspector before dispatch.

#### **16.0 INSPECTION:**

The manufacturer shall afford the purchaser's inspection, all reasonable facilities necessary to satisfy him that the material is being produced and furnished in accordance with this specification. All tests and inspection shall be carried out at the place of the producer unless otherwise agreed to in the presence of the representative of LPSC/Authorised third party in advance as specified in the Purchase Order. In case of third party inspection, all the test reports should be certified by them.

## **17.0 ACCOMPANYING DOCUMENTS:**

Manufacturer shall supply to the purchaser all certificates of conformity in accordance with the standards referred, signed by the Quality Manager and duly counter signed by the third party identified by the purchaser. The acceptance report and the process document used for production/qualification of the product also should be furnished along with the report for the following.

- Chemical analysis
- Metallography – Grain size
- Mechanical property
- Ultrasonic soundness
- Dimensional inspection
- Heat treatment

*Note: The supplier shall provide manufacturer's original certificate (MILL certificate) for the above before dispatch for LPSC Clearance.*

## **18.0 NON-CONFORMITY:**

If non-conformity occurs before the acceptance test, the manufacturer should obtain clearance of the purchaser by fax mentioning the type of non-conformity and suggestions. The manufacturer may have to avoid any delay in delivery.

## **19.0 WARRANTY:**

The manufacturer has to guarantee the correctness of the data and all results given in the Acceptance Report and in the Acceptance certification under the responsibility of the inspector. The period of warranty shall be TWO years from the date of delivery to the customer.

# AEROSPACE MATERIAL SPECIFICATION

**SAE AMS4027N**

Issued 1942-12  
Reaffirmed 2007-04  
Revised 2008-07

Superseding AMS4027M

Aluminum Alloy, Sheet and Plate  
1.0Mg - 0.60Si - 0.28Cu - 0.20Cr (6061; -T6 Sheet, -T651 Plate)  
Solution and Precipitation Heat Treated  
(Composition comparable to UNS A96061)

## RATIONALE

AMS4027N is changed to add response to heat treatment requirements. Amended per Spring 2008 Committee D Minutes.

### 1. SCOPE

#### 1.1 Form

This specification covers an aluminum alloy in the form of sheet and plate.

#### 1.2 Application

These products have been used typically for parts where strength is required and limited formability is acceptable, but usage is not limited to such applications.

### 2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

#### 2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

|         |   |
|---------|---|
| AMS2355 | Quality Assurance, Sampling and Testing, Aluminum Alloys and Magnesium Alloy, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings |
| AMS2772 | Heat Treatment of Aluminum Alloy Raw Materials  |
| AS1990  | Aluminum Alloy Tempers  |

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SAE WEB ADDRESS: <http://www.sae.org>

## 2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

ASTM B 660 Packaging/Packing of Aluminum and Magnesium Products

ASTM B 666/B666M Identification of Aluminum and Magnesium Alloy Products

## 2.3 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

ANSI H 35.2 Dimensional Tolerances for Aluminum Mill Products

ANSI H 35.2M Dimensional Tolerances for Aluminum Mill Products (Metric)

## 3. TECHNICAL REQUIREMENTS

### 3.1 Composition

Shall conform to the percentages by weight as shown in Table 1, determined in accordance with AMS2355.

TABLE 1 - COMPOSITION

| Element               | Min       | Max  |
|-----------------------|-----------|------|
| Silicon               | 0.40      | 0.8  |
| Iron                  | --        | 0.7  |
| Copper                | 0.15      | 0.40 |
| Manganese             | --        | 0.15 |
| Magnesium             | 0.8       | 1.2  |
| Chromium              | 0.04      | 0.35 |
| Zinc                  | --        | 0.25 |
| Titanium              | --        | 0.15 |
| Other Elements, each  | --        | 0.05 |
| Other Elements, total | --        | 0.15 |
| Aluminum              | remainder |      |

### 3.2 Condition

The product shall be supplied in the following condition:

#### 3.2.1 Sheet

Solution and precipitation heat treated to the T6 temper (See AS1990) in accordance with AMS2772.

#### 3.2.2 Plate

Solution heat treated, stretched to produce a nominal 1-1/2% nor more than 3%, and precipitation heat treated in accordance with AMS2772 to the T651 temper (See AS1990).

### 3.3 Properties

The product shall conform to the following with AMS2355 on the mill produced size.

#### 3.3.1 Tensile Properties

Shall be as shown in Table 2.

TABLE 2A - MINIMUM TENSILE PROPERTIES, INCH/POUND UNITS

| Nominal Thickness<br>Inches | Tensile Strength<br>ksi | Yield Strength<br>at 0.2% Offset<br>ksi | Elongation in<br>2 inches or 4D<br>% |
|-----------------------------|-------------------------|---|--------------------------------------|
| 0.006 to 0.007, incl        | 42.0                    | 35.0                                    | 4                                    |
| Over 0.007 to 0.009, incl   | 42.0                    | 35.0                                    | 6                                    |
| Over 0.009 to 0.020, incl   | 42.0                    | 35.0                                    | 8                                    |
| Over 0.020 to 0.499, incl   | 42.0                    | 35.0                                    | 10                                   |
| Over 0.499 to 1.000, incl   | 42.0                    | 35.0                                    | 9                                    |
| Over 1.000 to 2.000, incl   | 42.0                    | 35.0                                    | 8                                    |
| Over 2.000 to 4.000, incl   | 42.0                    | 35.0                                    | 6                                    |
| Over 4.000 to 6.000, incl   | 40.0                    | 35.0                                    | 6                                    |

TABLE 2B - MINIMUM TENSILE PROPERTIES, SI UNITS

| Nominal Thickness<br>mm     | Tensile Strength<br>MPa | Yield Strength<br>at 0.2% Offset<br>MPa | Elongation in<br>50.8 mm or 4D<br>% |
|-----------------------------|-------------------------|---|-------------------------------------|
| 0.15 to 0.18, incl          | 290                     | 241                                     | 4                                   |
| Over 0.18 to 0.23, incl     | 290                     | 241                                     | 6                                   |
| Over 0.23 to 0.51, incl     | 290                     | 241                                     | 8                                   |
| Over 0.51 to 12.67, incl    | 290                     | 241                                     | 10                                  |
| Over 12.67 to 25.40, incl   | 290                     | 241                                     | 9                                   |
| Over 25.40 to 50.80, incl   | 290                     | 241                                     | 8                                   |
| Over 50.80 to 101.60, incl  | 290                     | 241                                     | 6                                   |
| Over 101.60 to 152.40, incl | 276                     | 241                                     | 6                                   |

#### 3.3.2 Bending

Product shall withstand, without cracking, bending at room temperature through an angle of 180 degrees around a diameter equal to the bend factor shown in Table 3 times the nominal thickness of the product with axis of bend parallel to the direction of rolling.

TABLE 3 - BENDING PARAMETERS

| Nominal Thickness<br>Inches | Nominal Thickness<br>Millimeters | Bend<br>Factor |
|-----------------------------|----------------------------------|----------------|
| 0.006 to 0.020, incl        | 0.15 to 0.51, incl               | 2              |
| Over 0.020 to 0.036, incl   | Over 0.51 to 0.91, incl          | 3              |
| Over 0.036 to 0.064, incl   | Over 0.91 to 1.63, incl          | 4              |
| Over 0.064 to 0.128, incl   | Over 1.63 to 3.25, incl          | 5              |
| Over 0.128 to 0.249, incl   | Over 3.25 to 6.32, incl          | 6              |
| Over 0.249 to 0.499, incl   | Over 6.32 to 12.67, incl         | 7              |



#### 4. QUALITY ASSURANCE PROVISIONS

##### 4.1 Responsibility for Inspection

The vendor of the product shall supply all samples for vendor's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements of this specification.

##### 4.2 Classification of Tests

###### 4.2.1 Acceptance Tests

Composition (3.1), tensile properties (3.3.1), and tolerances (3.5) are acceptance tests and, except for composition, shall be performed on each lot.

###### 4.2.2 Periodic Tests

Bending (3.3.2) is a periodic test and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser. Response to heat treatment (3.3.3) is performed when specified by purchaser.

##### 4.3 Sampling and Testing

Shall be in accordance with AMS2355.

##### 4.4 Reports

The vendor of the product shall furnish with each shipment a report stating that the product conforms to the composition and showing the numerical results of tests to determine conformance to the other acceptance tests. This report shall include the purchase order number, producer lot number(s), AMS4027M, product form, size, and quantity. The report shall also identify the producer and the size of the mill product.

##### 4.5 Resampling and Retesting

Shall be in accordance with AMS2355.

#### 5. PREPARATION FOR DELIVERY

##### 5.1 Identification

Shall be in accordance with ASTM B 666/B 666M.

##### 5.2 Packaging

5.2.1 Product shall be protected from damage during storage and shipment by a method determined by vendor unless specified by purchaser. Examples of typical protective methods include but are not limited to interleaving with paper or oiling of the surface.

5.2.2 The product shall be prepared for shipment in accordance with ASTM B 660 and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the product to ensure carrier acceptance and safe delivery.

## 6. ACKNOWLEDGMENT

A vendor shall include this specification number and its revision letter in all quotations and when acknowledging purchase orders.

## 7. REJECTIONS

Product not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

## 8. NOTES

8.1 A change bar (|) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

8.2 Dimensions and properties in inch/pound units are primary; dimensions and properties in SI units are shown as the approximate equivalents of the primary units and are presented only for information.

8.3 Terms used in AMS are clarified in ARP1917.

8.4 Purchase documents should specify not less than the following:

AMS4027N

Form and size of product required

Quantity of product required

Response to heat treatment.

### 8.5 Similar Specifications

AMS-QQ-A-250/11 is listed for information only and shall not be construed as an acceptable alternate unless all requirements of this AMS are met.

8.6 These mechanical properties have been taken from QQ-A-250/11 and have not been substantiated by AMS statistical procedures.

PREPARED BY AMS COMMITTEE "D"

**General Terms and Conditions:****1) Earnest Money Deposit :**

Earnest Money Deposit amounting to Rs.5,00,000/- shall invariably be submitted by you along with your offer. Offer without EMD will be rejected. The EMD shall be submitted in the form of Demand Draft/Bankers Cheque/FD receipts or Bank Guarantee drawn in favour of Accounts Officer, LPSC and payable at Thiruvananthapuram/Bengaluru. Submission of EMD is exempted in respect of Registered vendors, Foreign vendors, CPSU/CPSE, MSE, KVIC, NSIC. Vendors seeking exemption from payment of EMD shall submit necessary proof like registration number, copy of relevant valid certificates along with your offer, failing which the said offer will be rejected. The EMD of a vendor will be forfeited if the vendor withdraws or amends their tender or deviates from the tender in any respect within the validity period of the tender.

**2) Purchase / Price Preference to MSEs**

Purchase/Price preference will be applicable to the product reservation admissible to the Micro and Small Enterprises. Purchase/Price Preference shall be extended to the MSEs under the Public Procurement Policy for MSEs formulated under the Micro, Small and Medium Enterprises Development Act, 2006. The participating MSEs in a tender, quoting price within the band of L-1 + 15% may also be allowed to supply a portion of the requirement by bringing down their price to the L-1 price, in a situation where L-1 price is from someone other than an MSE. Such MSEs may be allowed to supply upto 20% of the total tendered value. In case of more than one such eligible MSE, the supply will be shared equally.

**3) Warranty**

You shall provide applicable warranty for the items offered by you without fail. For the applicable period you shall provide necessary warranty certificate.

**4) Performance Bank Guarantee**

Towards the performance of the systems during the warranty period you shall submit a performance bank guarantee equivalent to 10% of the order value to cover the warranty period. This PBG shall be interest free and the same shall be returned to you on successful completion of all contractual obligations. The said PBG shall have a further claim period of 6 months.

**5) Security Deposit**

On acceptance of the order, you shall submit an interest free amount equivalent to 10% of the total contract/order value towards security deposit. This security deposit is collected towards the performance of the Contract. The said Security Deposit shall be submitted either in the form of Bank Guarantee/Demand Draft/PDR receipts duly endorsed in the name of the centre. The Security Deposit will be returned to you on successful completion of the Contractual obligations; failing which it shall be forfeited/adjusted.

**6) Offer Validity**

Your offer shall be valid for 120 days from the date of tender opening. In case you offer validity less than 120 days, the said offer is liable for rejection which may please be noted.

**7) Liquidated Damages:**

If you fail to deliver the ordered items satisfactorily within the time specified or any extension thereof, Liquidated Damage @ 0.5%(zero point five percent) of the order value or part thereof the un-delivered items for each calendar weeks of delay shall be recovered from your bill. However total Liquidated Damage shall not exceed 10%(ten percent) of the order value.

**8) Tender fee Rs.573/- (Rupees Five Hundred and Seventy Three only) (Including Service Tax)** shall be payable only in the form of Bank draft in favour of Accounts Officer, LPSC, Valiamala payable at Trivandrum and the same shall be enclosed along with Part-I, Techno-Commercial Bid, without which your offer will not be considered.

**Instruction to Indigenous Suppliers:**

- 9) Our Normal payment terms are 100% within 30 days after receipt and acceptance of the item at our site. Please confirm acceptance in your quotation.
- 10) We are exempted from payment of Excise Duty as per Notification No.10/97 CE Dtd.01.03.1997 as amended by Notification No.16/2007 CE Dt.01.03.2007.Necessary Excise Duty Exemption Certificate shall be issued in case of an order on you. As such you may be quote accordingly.
- 11) Please specify Sales Tax percentage, if any, in your offer

**Instruction to foreign Suppliers:-**

- 12) Our normal payment term is **SIGHT DRAFT**, Please confirm acceptance in your offer, if you insist for L/C, and all bank charges shall be to your account. Confirm acceptance.
- 13) We prefer import from sources abroad directly against payments in foreign exchange. In case due to certain reasons this is not possible, we prefer to go for 'High Sea Sales' against payment in Indian Rupee. In this case, consignments shall be cleared through Customs only by us.
- 14) In case the quote is on Indian Rupee (Outside High Sea Sale), the price shall include taxes and duties if any. We shall not able to provide any duty or tax exemption/concession certificates. If the item quote is of USA make, please quote for all-inclusive price since we prefer to get the item on FOR destination basis.
- 15) Please specify whether any export clearance is required in case of an order on you.
- 16) Warranty/Guarantee applicable for the item shall be mentioned in your offer.

- 17) Special Certification for packing Material : as per Plant Quarantine (Regulation of Control into India) Order 2003, Articles packed with packing material of plant origin viz., hay, straw, wood shavings, wood chips, saw dust, wood waste, wooden pallets, Dunn age Mats, wooden packages, coir pith, peat or sphagnum moss etc., will be allowed entry by Customs only with a Phytosanitary Certificate. In case of a Purchase Order, if you propose to use any of the above material for packing such a certificate issued by your local Plant Quarantine Authority shall be furnished.
- 18) Confirm whether any Export License is required and for which End User Certificate is to be provided by us, in case of an Order on you. (Enclose format for EUC, if applicable)
- 19) Either Indian Agent on behalf of the foreign principal or the foreign principal directly can quote against this order, but not both. In either case an Indian agent cannot represent more than one principal against the same tender.

## COMPLIANCE STATEMENT FOR COMMERCIAL TERMS

## Annexure-IV

| Sl. No. (1) | Description (Commercial terms & conditions) (2)  | Compliance to Col. (2) [YES/NO] (3) | Remarks (4) |
|-------------|--|-------------------------------------|-------------|
| 1.          | P & F charges, if any,<br>(If mentioned as EXTRA OR INCLUDED in your quote, please mention the percentage in Remarks Column)..   |                                     |             |
| 2.          | Whether applicable GST percentage mentioned in offer<br>(If mentioned as EXTRA OR INCLUDED in your quote, please mention the percentage in Remarks Column).  |                                     |             |
| 3.          | Please specify whether you are a registered vendor<br>(If NO, please mention the same in remarks column)   |                                     |             |
| 4.          | ISRO is exempted from payment of Customs Duty vide Notification No.12/2012-Customs dated 17.03.2012. and Notification No. 50/2017-customs dtd 30.06.2017<br><br>[We will provide Customs Duty Exemption Certificate for bought out items being imported for manufacturing the ordered items (List of items to be imported with quantities to be enclosed along with offer) OR for Orders placed on Foreign Vendors OR for High Sea Sale orders.] |                                     |             |
| 5.          | Installation Charges, if any,<br>(If mentioned as EXTRA OR INCLUDED in your quote, please mention the percentage in Remarks Column).   |                                     |             |
| 6.          | <b>Delivery Term :-</b> <ul style="list-style-type: none"> <li>FOR : LPSC, VALAIAMALA</li> <li>In case of Foreign orders, FOB or FCA</li> </ul>  |                                     |             |
| 7.          | Freight charges, if any.<br>(If mentioned as EXTRA OR INCLUDED in your quote, please mention the percentage in Remarks Column).  |                                     |             |
| 8.          | Delivery Period<br>(If any specific delivery period is mentioned in the tender, please comply the same. If not agreed, please mention your delivery period in remarks column OR if already mentioned in your quote please mention as "already furnished in the quote")   |                                     |             |
| 10.         | <b>Payment Term :-</b> <p>(a) 100% payment shall be made through RTGS within 30 days of receipt and acceptance of the item at our site.</p> <p>(b) In case of Foreign orders, Payment term shall be SIGHT DRAFT / 80% BY IRREVOCABLE LETTER OF CREDIT AND BALANCE 20% BY WIRE TRANSFER AFTER RECEIPT &amp; ACCEPTANCE OF THE ORDERED ITEM.</p>   |                                     |             |
| 11.         | <b>Liquidated Damages (LD) :-</b> If the ordered items are not supplied within the delivery schedule, LD shall be levied from your bill @ 0.5% per week for the undelivered items subject to a maximum of 10% of the order value for the delayed period.<br><b>(Note : This is a mandatory clause)</b>   |                                     |             |

| Sl. No.<br>(1) | Description<br>(Commercial terms & conditions)<br>(2)  | Compliance to Col. (2)<br>[YES/NO]<br>(3) | Remarks<br>(4) |
|----------------|--|---|----------------|
| 12.            | <b>Warranty :-</b> Warranty for the offered item shall be from the date of acceptance of the item at our site for a minimum period of one year or as specified in the tender document.   |   |                |
| 13.            | <b>Security Deposit (SD) :- (only for order value above Rs.5 Lakh)</b><br><br>You have to furnish a Bank Guarantee for 10% of the order value within 10 days of receipt of Order towards the faithful execution of the order valid till the completion of the scope of work as per order plus sixty days. (This will be returned to you immediately on execution of the order satisfactorily as per order terms. In case of non-performance / poor performance, the amount will be forfeited). |   |                |
| 14             | <b>Performance Bank Guarantee (PBG) :-</b><br><br>You have to submit a PBG from a Nationalised / Scheduled Bank for 10% of the order value towards the performance of the system at the time of supply valid till the completion of warranty period plus 60 days as per the format provided by the Department.<br><br>OR<br><br>10% OF THE ORDER VALUE SHALL BE WITH HELD TILL THE COMPLETION OF WARRANTY PERIOD PLUS 60 DAYS.   |   |                |
| 15..           | In case, if parties are unable to provide two separate BGs, i.e., one for SD and one for PBG, they can submit a combined BG for SD & PBG within 10 days of receipt of order for 10% of order value valid till the completion of total contractual obligation (i.e., supply period + warranty period + 60 days) as per the format provided by the Department.   |   |                |
| 16.            | <b>Insurance :-</b><br><br>Being a Govt. Of India Dept., Insurance is not required at our cost. Please ensure the safe delivery of the ordered item with proper AIR / SEA / ROAD worthy packing.   |   |                |

| Sl. No.<br>(1) | Description<br>(Commercial terms & conditions)<br>(2)  | Compliance to Col. (2)<br>[YES/NO]<br>(3) | Remarks<br>(4) |
|----------------|--|---|----------------|
| 17.            | <p><b>Validity of Offer :-</b></p> <p>(a) The validity of the offers should be 90 days (in case of single part tender) from the date of opening of the tenders.</p> <p>(b) The validity of the offers should be 120 days (in case two part tender) from the date of opening of the tenders.</p> <p><b>Note :- Tenders shorter than offer validity mentioned above will not be considered for evaluation.</b></p>   |   |                |
| 18.            | <p>In case of foreign orders,</p> <p>(a) Please specify whether any Export clearance is required. If it is required please provide End User Certificate format along with offer.</p> <p>(b) Please specify whether any Agency Commission is involved or not. If 'YES' mention the percentage of Agency Commission.<br/>[Agency Commission shall be claimed by the Indian Agent through an Invoice. The Agency Commission shall be paid to the Indian Agent in Indian Rupees worked out on the basis of Telegraphic Transfer buying rate of exchange prevailing on the date of placement of the Purchase order/Contract and within 30 days from the date of satisfactory acceptance of the item at our site. Distributors are not eligible for Agency Commission]</p> |   |                |
| 19.            | <p><b>Special conditions against Indian Agents submitting quotations in Foreign Currency.</b></p> <p>(a) Foreign Principal's proforma invoice indicating the commission payable to the Indian Agent and nature of after sales service to be rendered by the Indian Agent.</p> <p>(b) Copy of Agency agreement with the Foreign Principal, precise relationship between them and their mutual interest in the business.</p> <p>(c) The enlistment of the Indian Agent with Director-General of Supplies &amp; Disposals under the Compulsory Registration Scheme of Ministry of Finance.</p>  |   |                |



GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
**LIQUID PROPULSION SYSTEM CENTRE**  
PURCHASE DIVISION  
VALIAMALA P.O. THIRUVANANTHAPURAM

Tender No : **TM07 208031994 01**

Due on : **24.01.2019**

Ref. No : .....

Date : .....

**TENDER FORM**

From :

.....

.....

.....

To: The Purchase & Stores Officer,  
Liquid Propulsion Systems Centre  
Valiamala P.O.  
Thiruvananthapuram – 695 547

Dear Sir,

I/We hereby offer to supply the stores detailed below at the price hereunder quoted and agree to hold this offer open till.....I/We shall be bound to supply the stores hereby offered upon the issue of the Purchase Order communicating the acceptance there of on or before the expiry of the last mentioned date. You are at liberty to accept any one or more of the items of stores tendered for or any portion of any one or more of the items of such stores. I/We notwithstanding that the offer in this tender has not been accepted in whole, shall be bound to supply to you such items and such portion or portions of one or more of the items as may be specified in the said Purchase Order communicating the acceptance:

| Sl. No. | Description | Quantity | Unit | Rate Rs. | Delivery Date |
|---------|-------------|----------|------|----------|---------------|
|---------|-------------|----------|------|----------|---------------|

.....

.....

NOTE: All the rates should be given both in figures and words.

Place at which delivery will be made: .....

Date by which the ordered items will be supplied:.....

2.I/We have understood the items of the tender annexed to the invitation to tender and have thoroughly examined the specification/drawing and / or pattern quoted or referred to herein and /are fully aware of the nature of the stores required and my/our offer is to supply the stores strictly in accordance with the requirements subject to the terms and conditions stipulated in the enquiry and contained in the purchase order communicating the acceptance of this tender either in whole or in part.

Signature of Tenderer  
Date.....  
(Seal)

GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
**LIQUID PROPULSIONS SYSTEMS CENTRE**  
PURCHASE AND STORES DIVISION

**TERMS AND CONDITIONS OF TENDER FOR INDIGENIOUS STORES ITEM**

1. Tenders should be sent in sealed envelopes superscribing the relevant tender No, and the due date of opening. Only one tender should be sent in each envelope.
2. Late tenders and delayed tenders will not be considered.
3. Sales Tax and/or other duties/levies legally leviable and intended to be claimed should be distinctly shown separately in the tender.
4. As a Government of India Department, this office is exempted from payment of Octroi and similar local levies. Tenderers shall ensure that necessary Exemption Certificates are obtained by them from the Purchase Officer concerned to avoid any payment of such levies.
5. a) Your quotation should be valid for 90 days from the date of opening of the tender or any other period as specified in the tender enquiry. Offer with validity lesser than that specified is liable for exclusion from the procurement process.  
b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the tender form, relationship between the two sets of units must be furnished.
6. (a) All available technical literature, catalogues and other data in support of the specifications and details of the items should be furnished along with the offer.  
(b) Samples, if called for, should be submitted free of all charges by the tenderer and the Purchaser shall not be responsible for any loss or damage thereof due to any reason whatsoever. In the event of non-acceptance of tender, the tenderer will have to remove the samples at his own expense.  
(c) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should also be indicated in your offer.  
(d) **Specifications:** Stores offered should strictly confirm to our specifications. Deviations, if any, should be clearly indicated by the tenderer in his quotation. The tenderer should also indicate the Make/Type number of the stores offered and provide catalogues, technical literature and samples, wherever necessary, along with the quotations. Test Certificates, wherever necessary, should be forwarded along with supplies. Wherever options have been called for in our specifications, the tenderer should address all such options. Wherever specifically mentioned by us, the tenderer could suggest changes to specifications with appropriate response for the same.
7. The purchaser shall be under no obligation to accept the lowest or any tender and reserves the right of acceptance of the whole or any part of the tender or portions of the quantity offered and the tenderers shall supply the same at the rates quoted.
8. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount quoted in words and figures, amount quoted in words shall prevail.
9. The tenderer should supply along with his tender, the name of his bankers as well as the latest Income-Tax clearance certificate duly countersigned by the Income-Tax Officer of the Circle concerned under the seal of his office, if required by the Purchaser.
10. The Purchaser reserves the right to place order on the successful tenderer for additional quantity up to 25% of the quantity offered by them at the rates quoted.
11. The authority of the person signing the tender, if called for, should be produced.

**TERMS & CONDITIONS OF TENDER**

1. DEFINITIONS:

- (b) The term 'Purchaser' shall mean the President of India or his successors or assigns.
- (c) The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's successors, representative, heirs, executors and administrators unless excluded by the Contract.
- (c) The term 'Stores' shall mean what the Contractor agrees to supply under the Contract as specified in the Purchase Order including erection of plants & machinery and subsequent testing, should such a condition is included in the Purchase Order.
- (d) The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an Officer duly authorised intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the tender or offer of the Contractor for supply of stores or plant, machinery or equipment or part thereof.

2. PRICES:

Tender offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotation with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variation/s.

3. SECURITY DEPOSIT:

On acceptance of the tender, the Contractor shall, at the option of the Purchaser and within the period specified by him, deposit with him, in cash or in any other form as the Purchaser may determine, security deposit not exceeding ten percent of the value of the Contract as the Purchaser shall specify. If the Contractor is called upon by the Purchaser to deposit, 'Security' and the Contractor fails to provide the security within the period specified, such failure shall constitute a breach of the Contract, and the Purchaser shall be entitled to make other arrangements for the re-purchase of the stores Contracted at the risk of the Contractor in terms of Sub-Clause (ii) and (iii) of clause 10(b) hereof and/or to recover from the Contractor, damages arising from such cancellation.

4. GUARANTEE & REPLACEMENT:

- (a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down, for material, workmanship and performance.
- (b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein found to have developed under proper use, arising from faulty stores design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the purchaser who shall state in writing in what respect the stores or any part thereof are faulty.
- (c) If, in the opinion of the purchaser, it becomes necessary to replace or renew any defective stores such replacement or renewal shall be made by the Contractor free of all costs to the purchaser, provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- (d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- (e) The decision of the purchaser notwithstanding any prior approval or acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the Contractor are defective or any defect has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement, shall be final, conclusive and binding on the Contractor.
- (f) **Performance Bank Guarantee:** To fulfil guarantee conditions outlined in clause 4 (a) to (e) above, the Contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- (g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of the stores at purchaser's site.
- (h) Even while the 12 months guarantee applies to all stores, in case where a greater period is called for by our specifications then such a specification shall apply in such cases the period of 14 months referred to in para 4 (b) & (c) shall be the 'asked for' guarantee period plus two months.

5. **PACKING FORWARDING & INSURANCE:**

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by rail, road, sea or air to withstand transit hazards and ensure safe arrival at the destination. The packing and marking of packages shall be done by and at the expense of the Contractor. The purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the Contractor and the Purchaser shall pay only for such stores as are actually received in good condition in accordance with the Contract.

6. **DESPATCH:**

The Contractor is responsible for obtaining a clear receipt from the Transport Authorities specifying the goods despatched. The consignment should be despatched with clear Railway Receipt/Lorry Receipt. If sent in any other mode, it shall be at the risk of the Contractor. Purchaser will take no responsibility for short deliveries or wrong supply of goods when the same are booked on 'said to contain' basis. Purchaser shall pay for only such stores as are actually received by them in accordance with the Contract.

7. **TEST CERTIFICATE:**

Wherever required, test certificates should be sent along with the despatch documents.

8. **ACCEPTANCE OF STORES:**

- (a) The stores shall be tendered by the Contractor for inspection at such places as may be specified by the purchaser at the Contractor's own risk, expense and cost.
- (b) It is expressly agreed that the acceptance of the stores Contracted for, is subject to final approval by the purchaser, whose decision shall be final.
- (c) If, in the opinion of the purchaser, all or any of the stores that do not meet the performance or quality requirements specified in the Purchase Order, they may be either rejected or accepted at a price to be fixed by the purchaser and his decision as to rejection and the prices to be fixed shall be final and binding on the Contractor.
- (d) If the whole or any part of the stores supplied are rejected in accordance with Clause No. 8 (c) above, the purchaser shall be at liberty, with or without notice to the Contractor, to purchase in the open market at the expense of the Contractor stores meeting the necessary performance and quality Contracted for in place of those rejected, provided that either the purchase, or the agreement to purchase, from another supplier is made within six months from the date of rejection of the stores as aforesaid.

9. **REJECTED STORES:**

Rejected stores will remain at destination at the Contractor's risk and responsibility. If instructions for their disposal are not received from the Contractor within a period of 14 days from the date of receipt of the advice of rejection, the purchaser or his representative has, at his discretion, the right to scrap or sell or consign the rejected stores to Contractor's address at the Contractor's entire risk and expense, freight being payable by the Contractor at actuals.

10. **DELIVERY AND LIQUIDATED DAMAGES:**

- (a) The time for and the date of delivery of the stores stipulated in the Purchase Order shall be deemed to be the essence of the Contract and delivery must be completed on or before the specified dates.
- (b) Should the Contractor fail to deliver the stores or any consignment thereof within the period prescribed for such delivery, the purchaser shall be entitled at his option either.
  - (i) to recover from the Contractor as agreed liquidated damages and not by way of penalty, a sum of 0.5% per week of the price of any stores which the Contractor has failed to deliver as aforesaid or during which the delivery of such store may be in arrears subject to a minimum of 10%, or
  - (ii) to purchase from elsewhere, without notice to the Contractor on the account and at the risk of the Contractor, the stores not delivered or others of a similar description (where others exactly complying with the particulars, are not, in the opinion of the purchaser, readily procurable, such opinion being final) without cancelling the Contract in respect of the consignment (s) not yet due for delivery, or
  - (iii) to cancel the Contract or a portion thereof and if so desired to purchase or authorise the purchase of stores not so delivered or others of a similar description (where others exactly if complying with the particulars are not, in the opinion of the purchaser, readily procurable, such opinion final) at the risk and cost of the Contractor.

In the event of action being taken under sub-clause (ii) & (iii) of clause 10 (b) above, the Contractor shall be liable for any loss which the purchaser may sustain on that account, provided that the re-purchase or if there is an agreement to re-purchase then such agreement is made within six months from the date of such failure. But the Contractor shall not be entitled to any gain on such re-purchase made against default. The manner and method of such re-purchase shall be at the discretion of the purchaser, whose decision shall be final. It shall not be necessary for the purchaser to serve a notice of such re-purchase on the defaulting Contractor. This right shall be without prejudice to the right of the purchaser to recover damages for breach of Contract by the Contractor.

**11. EXTENSION OF TIME:**

As soon as it is apparent that the Contract dates cannot be adhered to, an application shall be sent by the Contractor to the purchaser. If failure, on the part of the Contractor, to deliver the stores in proper time shall have arisen from any cause which the purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final) he may allow such additional time as he considers it to be justified by circumstances, of the case without prejudice to the purchaser's right to recover liquidated damages under clause 10 thereof.

**12. ERECTION OF PLANT & MACHINERY:**

Wherever erection of a plant or machinery is the responsibility of the Contractor as per the terms of the Contract and in case the Contractor fails to carry out the erection as and when called upon to do so within the period specified by the purchaser, the purchaser shall have the right to get the erection done through any source of his choice. In such an event, the Contractor shall be liable to bear any additional expenditure that the purchaser is liable to incur towards erection. The Contractor shall, however, not be entitled to any gain due to such an action by the purchaser.

**13. PAYMENT:**

Contractor's bill will be passed for payment only after the stores have been received, inspected and accepted by the Purchaser.

**14. MODE OF PAYMENT:**

Normally payment will be made for the accepted stores within 30 days from the date of receipt of the materials.

**15. RECOVERY OF SUM DUE:**

Whenever any claim for the payment of, whether liquidated or not, money arising out of or under this Contract against the Contractor, the purchaser shall be entitled to recover such sum by appropriating in part or whole, the security deposited by the Contractor, if a security is taken against the Contract. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor under this or any other Contract with the purchaser. Should this sum be not sufficient to cover the full amount recoverable, the Contractor shall pay to the purchaser on demand the remaining balance due. Similarly, if the purchaser has or makes any claim, whether liquidated or not, against the Contractor under any other Contract with the purchaser, the payment of all moneys payable under the Contract to the Contractor including the security deposit shall be withheld till such claims of the purchaser are finally adjudicated upon and paid by the Contractor.

**16. INDEMNITY:**

The Contractor shall warrant and be deemed to have warranted that all stores supplied against this Contract are free and clean of infringement of any Patent, Copyright or Trademark, and shall at all times indemnify the purchaser against all claims which may be made in respect of the stores for infringement of any right protected by Patent Registration of design or Trade mark and shall take all risk of accidents or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for sufficiency of all means used by him for the fulfilment of the contract.

**17. ARBITRATION:**

In the event of any question, dispute or difference arising under these conditions or any conditions contained in the Purchase Order or in connection with this Contract (except as to any matter the decision of which is specially provided for by these conditions), the same shall be referred to the sole arbitration of the Head of the Purchase office or some other person appointed by him. It will be no objection that the arbitrator is a Government servant, that he had to deal with matter to which the Contract relates or that in the course of his duties as Government servant he has expressed views on all or any other matters in dispute or difference. The award of the arbitrator shall be final and binding on the parties of this Contract.

If the arbitrator be the Head of the Centre/Unit –

- (i) In the event of his being transferred or vacating his office by resignation or otherwise, it shall be lawful for his successor-in-office either to proceed with reference himself, or to appoint another person as arbitrator, or
- (ii) In the event of his being unwilling or unable to act for any reason, it shall be lawful for the Head of the Centre/Unit to appoint another person as arbitrator.

If the arbitrator be a person appointed by the Head of the Purchase Office – In the event of his dying, neglecting or refusing to act or resigning or being unable to act, for any reason, it shall be lawful for the Head of the Centre/Unit either to proceed with the reference himself or appoint another person as arbitrator in place of the outgoing arbitrator.

Subject as aforesaid the Arbitration & Conciliation Act 1996 and the rules thereunder and any statutory modifications thereof for the time being in force shall be deemed to apply to the arbitration proceedings under this Clause. The Arbitrator shall have the power to extend with the consent of the purchaser and the Contractor the time for making and publishing the award. The venue of arbitration shall be the place as purchaser in his absolute discretion may determine. Work under the Contract shall, if reasonably possible, continue during arbitration proceedings.

In the event of any dispute or difference relating to the interpretation and application for the provisions of the Contracts, such dispute or difference shall be referred by either party to Arbitration of one of the Arbitrations in the Department of Public Enterprises. The Arbitration Act 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute provided however any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Govt. of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary / Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the parties finally and conclusively. The parties to the dispute will share equally, the cost of arbitration as intimated by Arbitrator.

**18. COUNTER TERMS AND CONDITION OF SUPPLIERS:**

Where counter terms and conditions printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the Purchaser, unless specific written acceptance thereof is obtained.

**19. SECURITY FOR PURCHASE OF MATERIALS:**

Successful tenderer will have to furnish in the form of a bank guarantee or any other form as called for by the purchaser towards adequate security for the materials and properties provided by the Purchaser for the due execution of the Contract.

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## TERMS AND CONDITIONS OF TENDERS FOR IMPORTED STORES ITEMS

1. The Tenderers should submit quotations in duplicate in a sealed envelope, superscribing the Tender No. and due date of opening and complete in all respects with technical specifications, including pamphlets and catalogues.
2. A Proforma Invoice may also be given which should contain the following information:
  - a) The FOB/FCA value, the C & F value for import by Sea freight / Air freight up to and for air parcel post up to ..... should be separately indicated.
  - b) Agency Commission: The amount of commission included in the price and payable to the Indian Agent of the Contractor shall be paid directly to the Indian Agent by the Purchaser in equivalent Indian Rupees on the basis of an ~~invoice~~ <sup>note</sup> from him applying T.T. buying rate of exchange ruling on the date of placement of the Purchase Order and which shall not be subject to any further exchange variations. This payment will be released to the Indian Agent immediately after Customs clearance of the goods in India.
  - c) The Contractor shall invoice only for the net amount payable to him, after deducting the amount of Agency Commission included in the invoice which will be paid to the Indian Agent directly by the Purchaser. However, ~~the~~ Contractor's invoice ~~should~~ <sup>shall</sup> separately reflect the amount of commission payable to his Indian Agent.
  - d) The earliest delivery period and country of origin of the Stores.
  - e) Banker's name, address, telephone/fax Nos. & e-Mail ID of the Contractor.
  - f) The approximate net and gross weight and dimensions of packages/cases.
  - g) Recommended spares ~~for~~ <sup>for</sup> satisfactory operation for ~~an~~ <sup>a</sup> minimum period of one year.
  - h) Details of any technical service, if required for erection, assembly, commissioning and demonstration.
3. The FOB/FCA and C & F prices quoted should be inclusive of all taxes, levies, duties arising in the tenderer's country.
4. The offer should be valid for a minimum period of 120 days from the due date of opening of the tender.
5. Samples, if called for, should be sent free of all charges.
6. Late and delayed tenders will not be considered. Quotations by cable must be followed by detailed offers.
7. Offers made by Indian Agents on behalf of their Principals, should be supported by the proforma invoice of their Principals.
8. The details of Import Licence will be furnished in the Purchase Order.
9. The authority of person signing the tender, if called for, shall be produced.
10. Instructions / Operation Manual containing all assembly details including wiring diagrams should be sent wherever necessary in duplicate. All documents / correspondence should be in English language only.
11. The Purchaser reserves the right to accept or reject the lowest or any offer in whole or part without assigning any reason.
12. It is expressly agreed that the acceptance of the Stores Contracted for is subject to final approval in writing by the Purchaser.
13.
  - a) Part shipment is not allowed unless specifically agreed to by us.
  - b) As ~~far~~ <sup>as</sup> possible stores should be despatched by Indian Flag Vessels / Air India through any Agency nominated by us.
14. Inspection / Test Certificate should be provided ~~for~~ <sup>for</sup> the goods ~~after~~ <sup>after</sup> testing it thoroughly at the Contractor's works. If any Inspection by Lloyds or any other testing agency is considered necessary, it shall be arranged by Contractors.
15. Where erection or assembly or commissioning is a part of the Contract, it should be done immediately on notification. The Contractor shall be responsible for any loss/damage sustained due to delay in fulfilling this responsibility.
16. For items having shelf life, those with maximum shelf life should be supplied if order is placed

### I. TERMS AND CONDITIONS

1. DEFINITIONS:
  - a. The term 'Purchaser' shall mean the President of India or his successors or assignees.
  - b. The term 'Contractor' shall mean, the person, firm or company with whom or with which the order for the supply of stores is placed and shall be deemed to include the Contractor's Successors, representatives, heirs, executors and administrators unless excluded by the Contract.
  - c. The term 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf of the Purchaser on the terms and conditions mentioned or referred to in the said communication accepting the Tender or offer of the Contractor for supply of stores of plant, machinery or equipment of part thereof.
  - d. The term 'Stores' shall mean ~~what~~ <sup>what</sup> the Contractor agrees to supply under the Contract as specified in the

Purchase Order.

2. PRICES:

Tenders offering firm prices will be preferred. Where a price variation clause is insisted upon by a tenderer, quotations with a reasonable ceiling should be submitted. Such offers should invariably be supported by the base price taken into account at the time of tendering and also the formula for any such variations.

3. TERMS OF PAYMENT:

- 3.1. Being a Department of the Government of India, the normal terms of payment are by Sight Draft. However other terms of payment like establishment of Letter of Credit may be considered by the Purchaser on such terms and conditions as may be agreed upon.
- 3.2. The Sight Draft / Letter of Credit will be operative on presentation of the under mentioned documents:
  - a) Original Bill of Lading / Airway Bill
  - b) Commercially certified invoices describing the stores delivered, quantity, unit rate and their total value, in triplicate. The invoice should indicate the discounts, if any, and Agency Commission separately.
  - c) Packing List showing individual dimensions and weight of packages.
  - d) Country of Origin Certificate in duplicate.
  - e) Test Certificate.
  - e) Declaration by the Seller that the contents in each case are not less than those entered in the invoices and the quality of the Stores are guaranteed as per the specifications asked for by the Purchaser.
  - f) Warrantee and guarantee Certificate/s vide Clause 20 herein below

4. IMPORTANT LICENCE:

Reference to Import License No. & date and Contract number & date shall be prominently indicated in all the documents vide para 3.2

5. DEMURRAGE:

Supplier shall bear demurrage charges, if any, incurred by the purchaser due to delayed presentation of shipping documents as prescribed in para 3.2 to the bankers within a reasonable time (say within 10-12 days) from the date of bill of lading for sea consignments and within 3-4 days from the date of Air Way Bill for air consignments.

6. ADDRESS OF INDIAN AGENTS:

.....  
.....

7. GUARANTEED TIME DELIVERY:

The time for and the date of delivery stipulated in the Purchase Order shall be deemed to be the essence of the Contract. Delivery must be completed within the date specified therein.

8. INSPECTION AND ACCEPTANCE TEST:

- 8.1. The Purchaser's representatives shall also be entitled at all reasonable times during manufacture to inspect, examine and test on the Contractor's premises the material and workmanship of all stores to be supplied under this Contract and if part of the said stores is being manufactured on other premises, the Contractor shall obtain for the purchaser's representative permission to inspect, examine and test as if the equipment were being manufactured on the Contractor's premises. Such inspection, examination and testing shall not release the Contractor from the obligations under this Contract.
- 8.2. For tests on the premises of the Contractor or of any of his sub-Contractors, the Contractor shall provide free of cost assistance, labour, material, electricity, fuel and instruments as may be required or as may be reasonably needed by the purchaser's representative to carry out the tests efficiently.
- 8.3. When the stores have passed the specified test, the purchaser's representative shall furnish a certificate to the effect in writing to the Contractor. The Contractor shall provide copies of the test/s certificates to the purchaser as may be required.

9. MODE OF DESPATCH:

Generally, stores should be despatched through Indian Flagged Vessel / Air India or through any other Agency nominated by the purchaser. A copy of the invoice and packing list should invariably be kept inside each of the packages.

10. PORT OF ENTRY:

Thiruvananthapuram/Chennai/Mumbai/Hyderabad/Bangalore/

11. CONSIGNEE:

Purchase & Stores Officer, Stores, (Valiamala, Thiruvananthapuram)



12. SHIPPING MARKS.

The mark on the shipping documents such as invoice, bill of lading and on the packages should be as follow:

PURCHASE ORDER NO. ....

DATED .....

GOVERNMENT OF INDIA  
DEPARTMENT OF SPACE  
LIQUID PROPULSION SYSTEM CENTRE  
DESTINATION: THIRUVANANTHAPURAM / MADRAS / BANGALORE  
PORT OF ENTRY: THIRUVANANTHAPURAM / MADRAS / BANGALORE

13. INSURANCE OF THE STORES:

The necessity or otherwise of insurance will be as indicated in the Purchase Order.

14. CONTRACTOR'S DEFAULT LIABILITY:

4.1. The purchaser may upon written notice of default to the Contractor terminate the Contract in whole or in part in circumstances detailed hereunder:

- a) If in the judgment of the Purchaser the Contractor fails to make delivery of Stores within the time specified in the Contract/agreement or within the period for which extension has been granted by the Purchaser to the Contractor.
- b) If in the judgment of the Purchaser the Contractor fails to comply with any of the other provisions of this Contract.

15. In the event the Purchaser terminates the Contract in whole or in part as provided in Clause 14 the Purchaser reserves the right to Purchase, upon such terms and in such a manner as he may deem appropriate, stores similar to that terminated and the Contractor shall be liable to the Purchaser for any additional costs for such similar stores and/or for liquidated damages for delay as defined in Clause 19 until such reasonable time as may be required for the final supply of stores.

15.1. If this Contract is terminated as provided in Clause 14 the Purchaser in addition to any other rights provided in this Article, may require the Contractor to transfer title and deliver to the Purchaser under any of the following clauses in the manner and as directed by the Purchaser:

- a) Any completed stores.
- b) Such partially completed stores, drawing, information and Contract rights (hereinafter called manufacturing material) as the Contractor has specifically produced or acquired for the performance of the Contract as terminated. The Purchaser shall pay to the Contractor the Contract price for completed stores delivered to and accepted, by the purchaser and for manufacturing material delivered and accepted.

15.2. In the event the Purchaser does not terminate the Contract as provided in Clause 14, the Contractor shall continue the performance of the Contract in which case he shall be liable to the purchaser for liquidated damages for delays set out in Clause 19 until the stores are accepted.

16. REPLACEMENT:

If the stores or any portion thereof is damaged or lost during transit, the Purchaser shall give notice to the Contractor setting forth particulars of such stores damaged or lost during transit. The replacement of such stores shall be effected by the Contractor within a reasonable time to avoid unnecessary delay in the intended usage of the Stores. In case the purchaser agrees, the price towards replacement items shall be paid by the purchaser on the basis of original price quoted in the tender or as reasonably worked out from the tender.

17. REJECTION:

In the event that any of the stores supplied by the Contractor is found defective in material or workmanship or otherwise not in conformity with the requirements of the Contract specifications, the purchaser shall either reject the stores or request the Contractor, in writing, to rectify the same. The Contractor, on receipt of such notification, shall either rectify or replace the defective stores free of cost to the purchaser. If the Contractor fails to do so, the purchaser may at his option either –

- a) replace or rectify such defective stores and recover the extra cost so involved from the Contractor, or
- b) terminate the Contract for default as provided under clause 14 above, or
- c) Acquire the defective stores at a reduced price considered equitable under the circumstances. The

provision of this article shall not prejudice the Purchaser's rights under clause 19.

18. EXTENSION OF TIME:

If the completion of supply of stores is delayed due to reason of *force majeure* such as acts of god, acts of public enemy, acts of Government, fires, floods, epidemics, quarantine restriction, strikes, freight embargoes, etc., the Contractor shall give notice within 15 days to the purchaser in writing of his claim for an extension of time. The purchaser on receipt of such notice after verification, if necessary, may agree to extend the Contract delivery date as may be reasonable but without prejudice to other terms and conditions of the Contract.

19. DELAY IN COMPLETION / LIQUIDATED DAMAGES:

If the Contractor fails to deliver the stores within the time specified in the Contract or any extension thereof, the purchaser shall recover from the Contractor as liquidated damages a sum of one-half of one percent (0.5 percent) of the Contract price of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed ten percent (10 percent) of the Contract price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time as the missing parts are delivered.

20. GUARANTEE & REPLACEMENT:

- a) The Contractor shall guarantee that the stores supplied shall comply fully with the specifications laid down for material, workmanship and performance.
- b) For a period of twelve months after the acceptance of the stores, if any defects are discovered therein or any defects therein are found to have developed under proper use arising from faulty materials, design or workmanship, the Contractor shall remedy such defects at his own cost provided he is called upon to do so within a period of 14 months from the date of acceptance thereof by the Purchaser who shall state in writing in what respect the stores or any parts thereof are faulty.
- c) If in the opinion of the purchaser it becomes necessary to replace or renew any defective stores, such replacements or renewals shall be made by the Contractor free of all costs to the purchaser provided the notice informing the Contractor of the defect is given by the purchaser in this regard within the said period of 14 months from the date of acceptance thereof.
- d) Should the Contractor fail to rectify the defects, the purchaser shall have the right to reject or repair or replace at the cost of the Contractor the whole or any portion of the defective stores.
- e) The decision of the Purchaser, notwithstanding any prior approval or acceptance or inspection thereof on behalf of the purchaser, as to whether or not the stores supplied by the Contractor are defective or any defects has developed within the said period of 12 months or as to whether the nature of the defects requires renewal or replacement shall be final, conclusive and binding on the Contractor.
- f) To fulfill guarantee conditions outlined in Clause 20 (a) to (e) above, the Contractor shall, at the option of the purchaser, furnish a Bank Guarantee (as prescribed by the purchaser - Bank Guarantee format enclosed) from a Bank approved by the purchaser for an amount equivalent to 10% of the value of the Contract along with first shipment documents. On the performance and completion of the Contract in all respects, the Bank Guarantee will be returned to the Contractor without any interest.
- g) All the replacement stores shall also be guaranteed for a period of 12 months from the date of arrival of stores at purchaser's site.
- h) Even while the 12 months guarantee applies to all stores, in case where a greater period is called for by our specifications, then such a specification shall apply, and in such cases, the period of 14 months referred to in Clause 20 (b) and (c) shall be asked for guarantee period plus two months.

21. REQUIREMENT OF ADDITIONAL NUMBERS OF THE STORES/SPARE PARTS ORDERED:

The Contractor shall also undertake the supply of additional number of items covered by the order as considered necessary by the purchaser at a later date, the actual price to be paid shall be mutually agreed to after negotiations.

22. PACKING:

- a) The Contractor wherever applicable shall pack and crate all stores for sea / air shipment as applicable in a manner suitable for export to a tropical humid climate, in accordance with internationally accepted export practices and in such a manner so as to protect it from damage and deterioration in transit by road, rail or sea for space qualified stores. The Contractors shall be held responsible for all damages due to improper packing.
- b) The Contractor shall ensure that each box / unit of shipment is legible and properly marked for correct identification. The failure to comply with this requirement shall make the Contractor liable for additional expenses involved.

- c) The Contractor shall notify the purchaser of the date of shipment from the port of embarkation as well as the expected date of arrival of such shipment at the designated port of arrival.
- d) The Contractor shall give complete shipment information concerning the weight, size, content of each packages, etc.
- e) Transshipment of equipment shall not be permitted except with the written permission of the purchaser.
- f) Apart from the despatch documents negotiated through Bank, the following documents shall also be airmailed to the purchaser within 7 days from the date of shipment by sea and within 3 days in case of air-consignments:
  - Commercial Bill of Lading / Air Way Bill / Post parcel Receipt. (Two non-negotiable copies)
  - Invoice (3 copies)
  - Packing List (3 copies)
  - Test Certificate (3 copies)
  - Certificate of Origin.

The Contractor shall also ensure that one copy of the packing list is enclosed in each case

23. **ARBITRATION:**

If at any time any question, dispute or difference whatsoever shall arise between the purchaser and the Contractor upon or in connection with this Contract, either party may forthwith give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of two arbitrators, one to be nominated by purchaser, other by a Contractor and in the event of any difference of opinion, the arbitrators will refer the matter to the umpire. The arbitration shall be conducted in accordance with the rules and procedure for arbitration of the International Chamber of Commerce at Paris. The expenses of the arbitrators and umpire shall be paid as may be determined by them. However, the venue of such arbitration should be in India.

24. **LANGUAGE AND MEASURES:**

All documents pertaining to the Contract including specification, schedule, notice, correspondence, operating and maintenance instructions, drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in the Contract.

25. **INDEMNITY:**

The Contractor shall warrant and be deemed to have warranted that all Stores supplied against this Contract are free and clean of infringement of any patent, copyright or trade mark and shall at all times indemnify the purchaser against all claims which may be made in respect of stores for infringement of any right protected by Patent, Registration of design or Trade Mark, and shall take all risk of accident or damage which may cause a failure of the supply from whatever cause arising and the entire responsibility for the sufficiency of all the means used by him for the fulfillment of the Contract.

26. **COUNTER TERMS AND CONDITIONS OF SUPPLIERS:**

Where counter terms and conditions/printed or cyclostyled conditions have been offered by the supplier, the same shall not be deemed to have been accepted by the purchaser unless specific written acceptance thereof is obtained.

27. **SECURITY INTEREST:**

On each item to be delivered under this Contract, including an item of work in progress in respect of which payments have been made in accordance with the terms of the Contract, purchaser shall have a security interest in such items which shall be deemed to be released only at the time when the applicable deliverable item is finally accepted and delivered to the purchaser in accordance with the terms of the Contract. Such security interest of the purchaser shall constitute a prior charge as against any other charge or interest created in respect of such items by any entity.

28. **BANK CHARGES:**

While the purchaser shall bear the bank charge payable to his Bankers (State Bank of India), the Contractor shall bear the Bank charges payable to his Bankers including the cheques towards advising amendment commissions.

29. **TRAINING:**

The Contractor shall, if required by the purchaser, provide facilities for the practical training of Purchaser's engineering / technical personnel from India and for their active association on the manufacturing processes throughout the manufacturing period of the Contract / stores, number of such personnel to be mutually agreed upon.

30. **APPLICABLE LAW:**

The Contract shall be interpreted, construed and governed by the laws of India.