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## **Technical Specifications of Titanium Fasteners for Aditya-VELC payload**

### **Manufacture and supply of Titanium (Ti6Al4V) Fasteners made by “Head Forged and Thread rolled” process.**

Vendor shall provide following test certificates along with the item:

1. Raw material test report (chemical and mechanical properties including tensile and yield strength)
2. Ultra sonic test report of the raw material used.
3. Tensile test, Break load test and torque test of the fastener.
4. Micro Macro test report
5. Hardness test report
6. Thread profile, visual and dimensional test and inspection report.
7. Expected delivery period: Within 8 to 10 weeks

Item will be inspected before taking delivery. Vendor shall provide guarantee/warranty for the item supplied.

### **Specifications:**

#### **1. Hexagon Socket Head Cap Screws:**

Thread: Metric thread as per ISO 68; Tolerance: 4h, as per ISO 965.

Fastener: Grade A as per ISO 4762

Surface finish: (Before Protection) Ra maximum: 3.2 microns

End of fastener: Chamfered as per ISO 4753

Material: Ti 6Al 4V as per AMS 4967 G;

Ultimate tensile strength, minimum: 1100 MPa, Yield strength: 900 MPa.

Fastener acceptance inspection: ISO 3269, Test method: as per ISO 898

Tolerance on fasteners: as per ISO 4759/1

Acceptable surface discontinuities: as per 6157-3.

Magnetic cleanliness; Non magnetic

Sampling procedure: as per ISO 3269-1984(E)

Surface coating: Basic option: No coating; No oil;

## **2. Socket Head Countersunk Screws:**

Thread: Metric thread as per ISO 68; Tolerance: 4h, as per ISO 965.

Fastener: Grade A as per ISO 10642:1997 / DIN 7991

Surface finish: (Before Protection) Ra maximum: 3.2 microns

End of fastener: Chamfered as per ISO 4753

Material: Ti 6Al 4V as per AMS 4967 G;

Ultimate tensile strength, minimum: 1100 MPa, Yield strength: 900 MPa.

Fastener acceptance inspection: ISO 3269, Test method: as per ISO 898

Tolerance on fasteners: as per ISO 4759/1

Acceptable surface discontinuities: as per 6157-3.

Magnetic cleanliness; Non magnetic

Sampling procedure: as per ISO 3269-1984(E)

Surface coating: Basic option: No coating; No oil;

## **3. Hexagon Nuts:**

Thread: Metric Thread as per ISO 68; Tolerance: 4H5H, as per ISO 965

Fastener: Grade A as per ISO 4032

Surface finish: Ra maximum: 3.2 microns

Material: Ti 6Al 4V as per AMS 4967 G;

Ultimate tensile strength, minimum: 1100 MPa, Yield strength: 900 MPa.

Fastener acceptance inspection: ISO 3269, Test method: as per ISO 898

Tolerance on fasteners: as per ISO 4759/1

Acceptable surface discontinuities: as per 6157-3.

Magnetic cleanliness; Non magnetic

Sampling procedure: as per ISO 3269-1984(E)

Coating: no coating, no oil.

## **4. Plain Washers (metric):**

Applicable Standard: ISO 7089, Product grade A

Acceptance Inspection: ISO 3269

Tolerances: as per ISO 4759/3

Material: Ti 6Al 4V as per AMS 4967 G;

Ultimate tensile strength minimum: 1100 MPa, Yield strength: 900MPa.

Test method: as per ISO 898.

Acceptable surface discontinuities: as per 6157-3.

Magnetic cleanliness; Non magnetic

Surface finish: Ra maximum: 3.2 microns

Surface coating: no coating, no oil.