# Technical Compliance Statement

| Sl No | Specification | Value/Remarks | Compliance ( Write Values for each specification. Simple Yes/NO may lead to rejection) |
|---|---|---|---|
| | **Mechanical Specification** | | |
| 1.1 | Type | Linear , Pull type with self-resetting after de-energization with redundant winding | |
| 1.2 | Stroke | 4mm to 5mm | |
| 1.3 | Starting Force | ≥ 2kgf | |
| 1.4 | Dimension | Φ65mm x 35mmL or lesser | |
| 1.5 | Mass | ~ 450gm (To be verified by the vendor) | |
| 1.6 | Operation cycles | >1 million actuations | |
| 1.7 | Plunger material | SS 440C or equivalent | |
| 1.8 | Bobbin Material | Polyphenylene Sulphide or equivalent | |
| | **Electrical Specifications** | | |
| 2.1. | Coil Resistance | 11.5 Ω ± 10% | |
| 2.2. | Maximum Power | 100W or less ( Value to be specified by the vendor) | |
| 2.3. | Nominal Current | 2.5A (approx.). Value to be specified by the vendor | |
| 2.4. | Maximum Allowed Current | To be specified by the vendor | |
| 2.5. | Nominal Voltage | 28V | |
| 2.6. | Wire Type | Copper, with a two-part Polyesteramide- imide insulation (200°C) or equivalent | |
| | **Environmental Specifications** | | |
| 3.1. | Operating Temperature | $-20^0$ to $+60^0$ C | |
| 3.2. | Storage Temperature | $-35^0$ to $+70^0$ C | |
| 3.3. | Outgassing specifications | CVCM <0.1% and TML <1% | |
| 3.4. | Vacuum | $10^{-6}$ Torr or better | |
| 3.5. | Sinusoidal vibration | 50g/5-100 Hz | |
| 3.6. | Random vibration | 20g RMS/20-2000 Hz | |

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| 1. | Any lubrication Materials, coatings, adhesives, impregnation, magnet etc used should be compatible for operation under space environment and should conform to the Outgassing specifications (CVCM < 0.1% and TML < 1%). Solenoid to be vacuum baked to meet Outgassing if required. Material list to be provided before the start of fabrication for clearance by ISRO. | |
| 2. | Mounting interface and mechanical drawing of the solenoid to be provided at the time of quotation. Mounting interface should have 2 Nos of M6 fastening screws on a PCD of 30.5mm. In case vendor is supplying UNC threads for fastening, suitable fasteners may also be supplied along with the Solenoid during delivery. Maximum allowed output shaft diameter is 10mm. | |
| 3. | Force characterisation plot obtained from simulations should be provided at the time of quotation for various stroke lengths and operating voltages along with the complete data sheet of the solenoid. Plot of Force Vs Current should also be provided. | |
| 4. | The solenoid output shaft should come back to the nominal position after the shutting off of the power supply. Typical diagram showing the requirement is given in figure-1. The output shaft should be restraint from rotating and should ensure pure linear motion. | |
| 5. | All units to be acceptance tested for its performance as per Annexure-1. Test results for performance tests, vibration tests etc. are to be sent before shipment for clearance from ISRO | |
| 6. | All the solenoids should belong to single batch only and should be identified with suitable numbers | |
| 7. | Supply Schedule: The solenoids should be delivered within 24 weeks from the date of clearance from ISRO. | |
| 8. | Packing: The solenoids should be properly packed to prevent damage during transit/shipment. Use grease for corrosion prevention if required; indicate the type of grease used and method of removal. | |
| 9. | If the vendor has supplied a similar solenoid to other space agencies, please provide the data sheet and test report of the same at the time of quotation. | |
| 10. | Quotation should have point by point compliance matrix of each and every clause given in the specification and other requirements with values without which quotation will not be accepted. Simply writing “Yes” and “No” against the clause shall not be considered. | |
| 11. | In case of foreign supplier, please provide the details of the principal supplied at the time of quotation. | |