



Leading-edge Research Infrastructure Program
Large-scale Cryogenic Gravitational Wave Telescope Project

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KAGRA

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Screw policy for vibration isolation system

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1 Introduction

1.1 Scope

The fastener policy described below refers to the assemblies put together by the vibration isolation system (VIS) subgroup at the NAOJ campus in Mitaka and at the KAGRA site in Kamioka.

2 References

No references.

2.1 Version history

mm/dd/yy: Pre-rev-v1 draft.

3 Fastener selection

In order to choose a fastener all of the following criteria should be considered:

- A. Thread material.
 - a. Aluminium: No surface treatment is required.
 - b. Stainless steel: Surface treatment is necessary; use Bumax 109 or SDC Tanaka.
 - c. Titanium: No surface treatment is required.
- B. Magnetic field in the vicinity.
 - a. Intended to fix an OSEM: use low magnetic permeability Bumax 88 screw.
 - b. Far away from an OSEM: use any other screw suitable according to the other criteria.
- C. Trapped air in threaded hole:
 - a. A vent hole exists: use any screw suitable according to the other criteria.
 - b. There is no vent hole: use a vented screw (a.k.a. hollow). In case the screw goes into a stainless and requires a vent hole it has to be purchased and sent to SDC Tanaka for treatment.
 - c. When the screw is M5 or larger we have agreed to use vented screws even when there is a vent hole. Nevertheless, we have been flexible with this rule when there a vent hole as vented screws have a longer delivery times.
- D. The screw is a set screw and requires a lock nut. In our system set screws always go into aluminium threads and aluminium nuts can be used as lock nuts. In case an stainless steel nut is required the set screw has to be treated by SDC Tanaka.