



VIBRATION ISOLATION

The art of correctly mounting a unit



Select the appropriate vibration isolation method and enjoy trouble-free operation of your equipment

Often considered to be simple and straight forward, true vibration **specialists** know that vibration isolation is an art that requires a lot of **skills and knowledge**. The mechanical drive system of heat rejection equipment typically has very low rotation speeds, which requires very high static deflection of the vibration isolators in order to realize an effective vibration isolation. Misinterpretation of this often results in installations that do not offer effective isolation.

For this reason BAC advises its customers to **consult experts** when selecting **the best vibration isolation method to support BAC cooling equipment**. This document offers you **BAC's advice** on vibration isolation options.



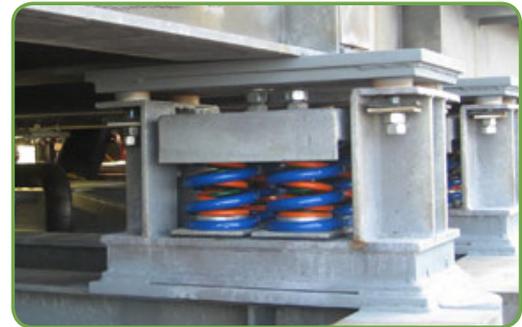
Anti-vibration rails

- Rails are efficient and reliable, **HOWEVER**
- they have **limited structural strength** and are subject to deformation
- they have no lateral load capability, which is **challenging for outside installations** that are subject to windloads
- they are mounted **directly on** the supporting flanges of the cooling tower panel construction before it is installed on the rigid supporting structure on site.

No supporting steel structure in between



anti-vibration rails



Restrained point isolators

- Isolators are efficient and reliable, and **ALSO**
- they have **optimal structural strength**, and are therefore not subject to deformation
- they can resist lateral loads and **can be used for outside installations** that are subject to windloads
- they are not mounted onto the unit's supporting flanges, but installed **underneath** the supporting structure on site, before the equipment is installed.

Supporting steel structure in between



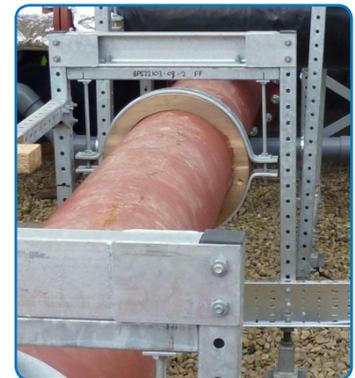
restrained point isolators

Possible ISSUES with using anti-vibration rails

- Most heat rejection equipment is a point load application, so it's very **difficult to co-locate a sufficient number of compression springs** to resist the required load.
- The rail deflection is absolute = **1 inch rail deflects nearly 1 inch under full design load**. The actual deflection variation on site is often controlled by vertical stops, but given the lack of lateral load capability the flexible connections to the units and the flexible pipe supports are a challenge.

Known BENEFITS of using restrained point isolators:

- Isolators provide **optimal structural strength** and are **not subject to deformation**.
- Isolators can resist **lateral loads**, so can be used **outside**. In order to reach lateral load capabilities, BAC recommends using steel structures with integrated lateral bracing.



BAC's advise

BAC **recommends** that the vibration isolation be integrated in the supporting steel work. Taking into account that all piping connections and supports should be calculated in accordance to the isolator selection, we strongly **encourage** to include all vibration isolators into one package, most logically handled by the contractor.

