

Vibration Isolation

In HVAC equipment, vibrations occur as a result of blowers, propellers, or other oscillating components. As these elements rotate, minute differences in weight or alignment cause the elements to move against their constraints. This reaction results in vibrations, typically worsening in severity with increased speed. Excessive vibrations result in noise, lower equipment life, and potential damage or injury. This paper will discuss the vibration management options available through RuppAir.

The most efficient time to manage vibrations is during the design stage. Here it is important to assess the needs of the space and choose equipment accordingly. As such, RuppAir designs and sizes equipment conservatively in regards to rotational speed (RPM). Additionally, all equipment is statically and dynamically balanced before leaving the factory. This design approach results in equipment that uses a larger impeller for a given air volume, reducing motor size required as well as vibration propagation. Under typical use, additional vibration isolation is not required. However, in applications or installations where additional damping is required, RuppAir provides the following vibration isolation options:

Industrial Heaters:

Although vibration isolation is not needed for typical use, RuppAir's industrial line offers several vibration isolation options for unique applications or job requirements. Internal motor and blower vibration isolation is available on most models, while spring isolation is available for indoor floor mount or ceiling hung installations.

Modular Line of Products:

RuppAir modular products are assembled with compact forward curved blowers. These smaller blowers (when compared to your typical air handler) have decreased vibration concerns, so the standard neoprene isolation in RuppAir's modular units is sufficient to damp unwanted vibrations. If necessary for ceiling hung applications, an indoor spring-isolated hanging cradle option is available.

Exhaust Fans:

RuppAir inline fan and utility set models come with an option to add spring isolation. Centrifugal fans have a neoprene isolation option. Mixed flow fan designs are another way to ensure quiet and efficient operation with minimal vibrations.