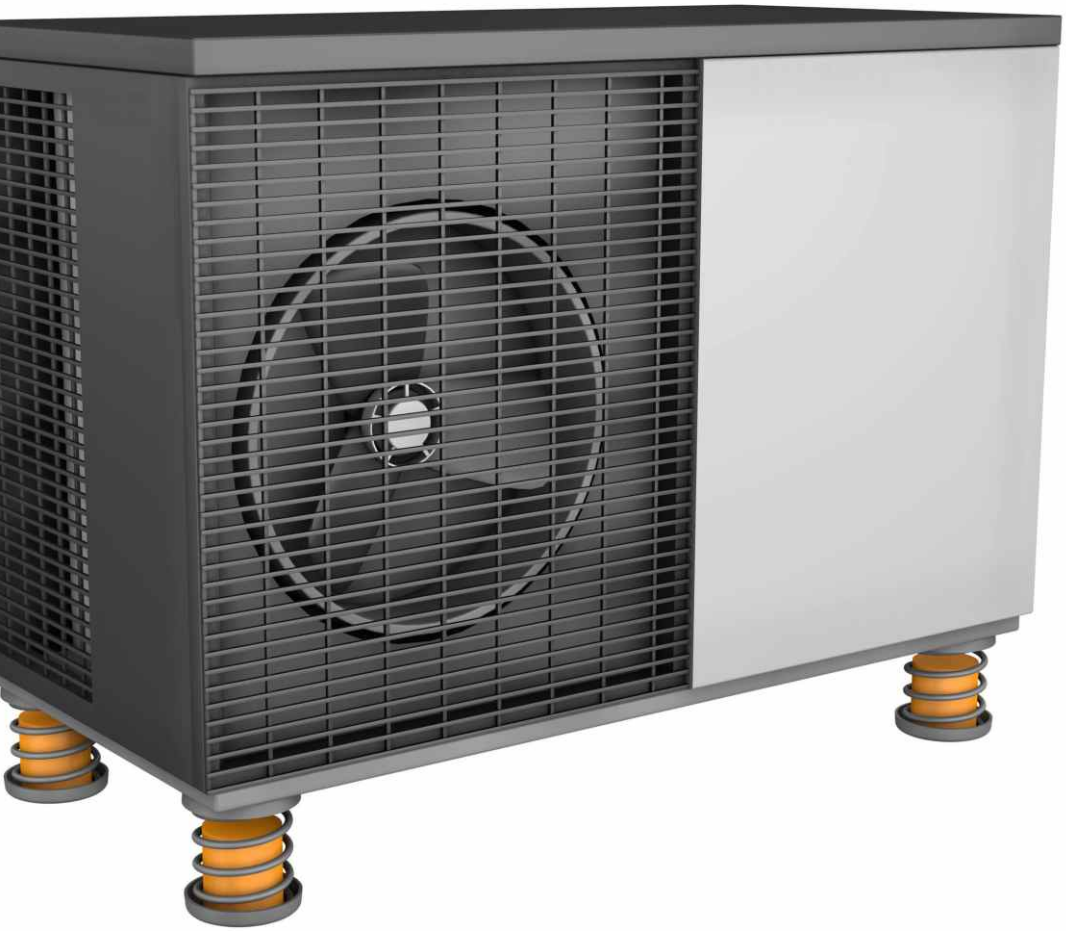
getzner
engineering a quiet future



Elastic bearing of heat pumps

Quieter equipment thanks to efficient vibration isolation

During the operation of heat pumps, strong vibrations are generated by the compressors and fans used. These spread into adjacent parts of the building as structure-borne noise and cause an annoying humming noise. Parts of the housing inside the heat pump also start to vibrate, which has an immediate impact as (primary) airborne noise. Selecting the correct bearings for isolating the vibrations is critical to ensuring quieter devices.

Key benefits

- Quieter equipment thanks to efficient vibration isolation
- Reduced secondary airborne noise even in critical installation locations (e.g. flat roofs, utility rooms, etc.)
- Time and cost savings during design, procurement and installation
- Reduced maintenance costs

Application

The refrigerant compressor is the primary source of vibrations in a heat pump. These vibrations are often perceived in the adjacent living or working areas as a deep, irritating “hum”. Tricky installation sites, such as flat roofs or walls in particular, make it harder for the bearings to exert their full isolating effect.

In newer heat pump systems, speed-controlled compressors are increasingly being used. These also operate in the low-frequency partial load range and thus close to the natural frequencies of rubber-metal bearings. With conventional bearings, this leads to a reduction in the decoupling effect and even to an increase in vibrations in the resonance range.

The precise calculation and correct choice of bearings is therefore crucial for a good result and prevents unnecessary alterations or retrofitting.

Bearing of a heat pump with Isotop® DMSN

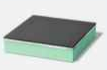
Bearing of a compressor with Isotop® MSN-DAMP

Bearing concepts

When it comes to the elastic bearing of heat pumps, there are two options:

1 Bearing of the entire heat pump
Even if fans already operate very quietly, air currents and turbulences can generate vibrations. These are isolated easily by placing the entire heat pump on suitable bearings.

2 Bearing of the compressor
The correct bearing of the compressor, as the source of the vibrations, is particularly important. This prevents vibrations from being transmitted into the heat pump housing and also reduces the noise level. The compressor can either be placed directly on the bearing or with an intermediate plate.

Products		Bearing concept 1	Bearing concept 2
	Isotop® DMSN/ DSD	√	√
	Isotop® MSN-DAMP	√	√
	Isotop® Compact	√	√
	Sylodyn®/ Sylomer® Compressor Grommet CGR		√
	Isotop® ENI	√	
	Isotop® SE light	√	

Want to find out more about the best solution for your machine?
The EquipCalc selection tool makes it easy to choose the right product for you:
www.getzner.com/equipcalc