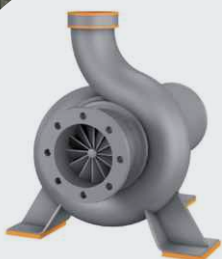
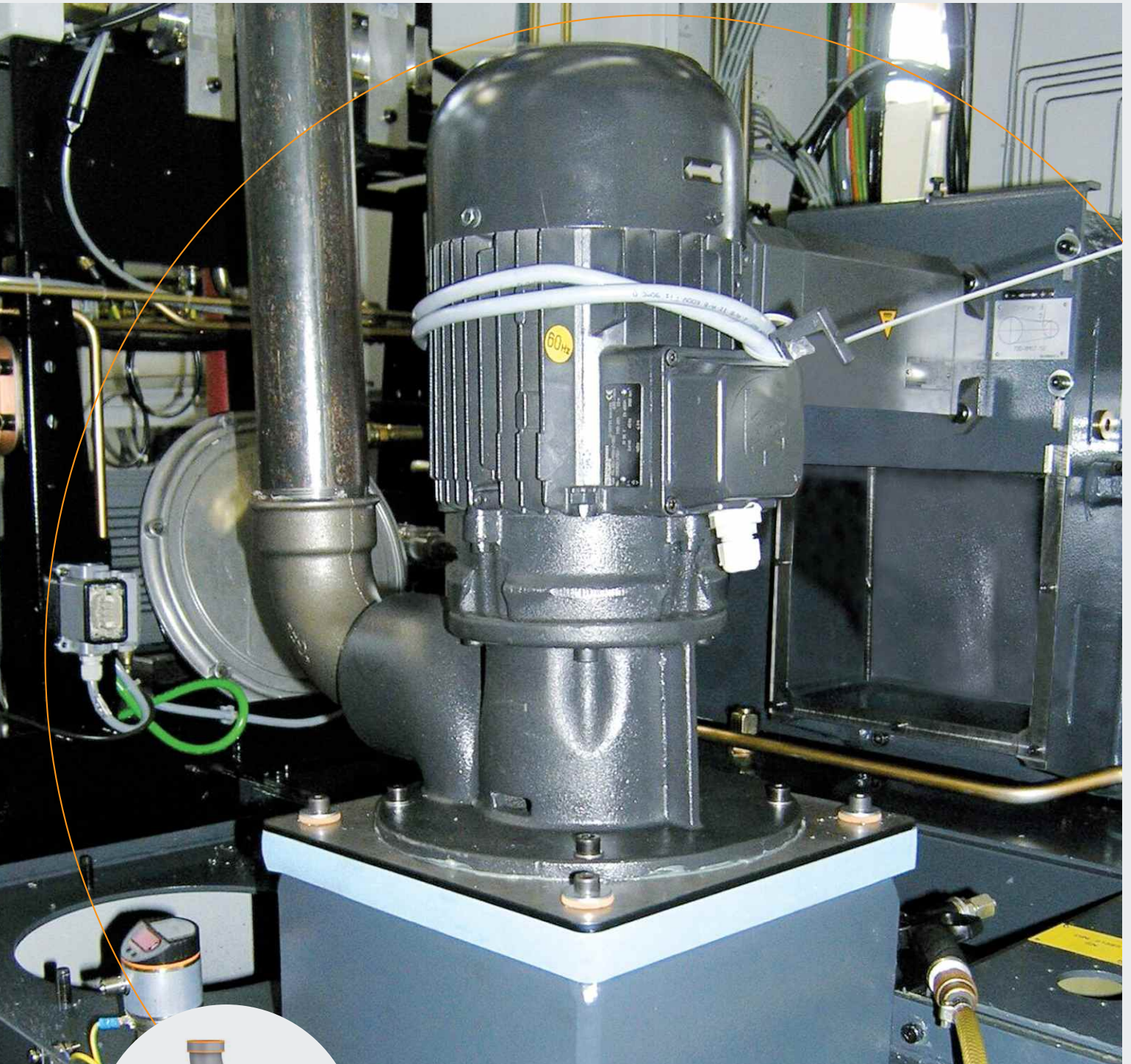


# Vibration Protection for Pumps



# Elastic Decoupling of Pumps



Noise and vibrations are reduced by the elastic decoupling of pumps

## The application

Whether a pump is conveying gaseous or liquid media is irrelevant - they all share a common feature: pumps generate vibrations and hence secondary airborne noise. An effective way of isolating these vibrations is to elastically decouple the pump. This can be done directly on the pump (e.g. machine base) or under the pump foundation (e.g. foundation bearing).

The best results are obtained when the resilient bearing of the pump is considered at the design and planning stage. Every manufacturer benefits from a smooth and stable operation. A resilient bearing can also be introduced during the installation and assembly of the pump. The retrofitting of existing systems - usually using sandwich elements or a foundation bearing - is also possible.

### Advantages of a resilient bearing

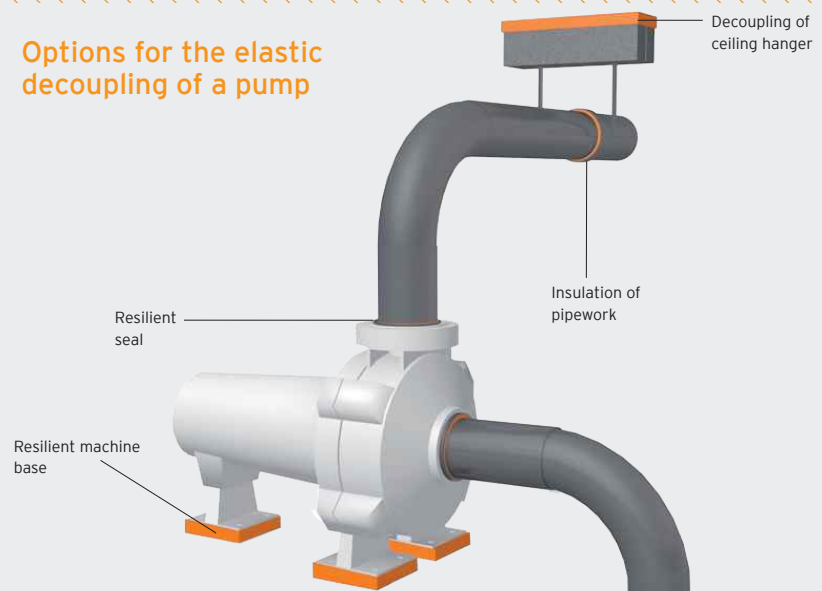
Installing a resilient bearing for a pump in a professional manner protects the surroundings and the pump from vibrations. If there is no vibration, e.g. in a building, then no vibration can be transmitted; the pump itself is also protected from the effects of external vibrations. This increases the service life of all items in the vicinity, e.g. machinery and buildings, including that of the pump itself.

If the vibrations generated by a pump act on a vibrating mass, such as a ceiling within a building, then these body-mass vibrations can be transformed into airborne noise. This secondary airborne noise is one of the main reasons for increased noise levels around pumps. An elastic decoupling can significantly reduce secondary airborne noise, and lower noise levels result in better working conditions in the vicinity of machinery. A resilient bearing made from Sylomer® or Syldyn® is maintenance-free. The individual polyurethane bearings can be tailored to the requirements of the particular installation, which means that every bearing is able to achieve the highest

possible level of effectiveness. The material properties of the bearing remain unchanged over the entire service life of the pump and guarantee that the bearing remains maintenance-free.

The broad selection of standard polyurethane materials and the ability to cut them to size as required enables bearings to be provided for pumps ranging from just a few kilograms to several tonnes. Depending on the nature and thickness of the bearing, natural frequencies of up to 7 Hz are possible.

### Options for the elastic decoupling of a pump







Damping vibrations efficiently:  
decoupling pumps and pipework

### Challenge

A customised bearing for a pump will only be effective if all the framework conditions are considered and included in the calculation. Therefore, it is important to ensure that elastic connectors (e.g. compensators) are selected. In addition to the material recommendation, all the relevant parameters for the resilient bearing, such as its static deflection and natural frequency, can be calculated.

The centre of gravity distribution of the pump must also be taken into account in the calculation to counter any tendency of the pump to tip over. Floor bolts should be elastic in design rather than rigid to prevent them transmitting structure-borne noise. Climatic influences often pose a further challenge. Frequent temperature changes, the effects of water and the sun cause brittleness and a loss of effectiveness to conventional bearings (e.g. rubber). Pump bearings made from Sylomer® and Sylodyn® are resistant to hydrolysis and UV. The materials remain fit for purpose over the entire service life of the pump - and in a temperature range of -30 °C to 70 °C. Temperatures lower and higher than these for short periods only result in a brief reduction in effectiveness and cause no lasting damage to the materials.

### Service provision

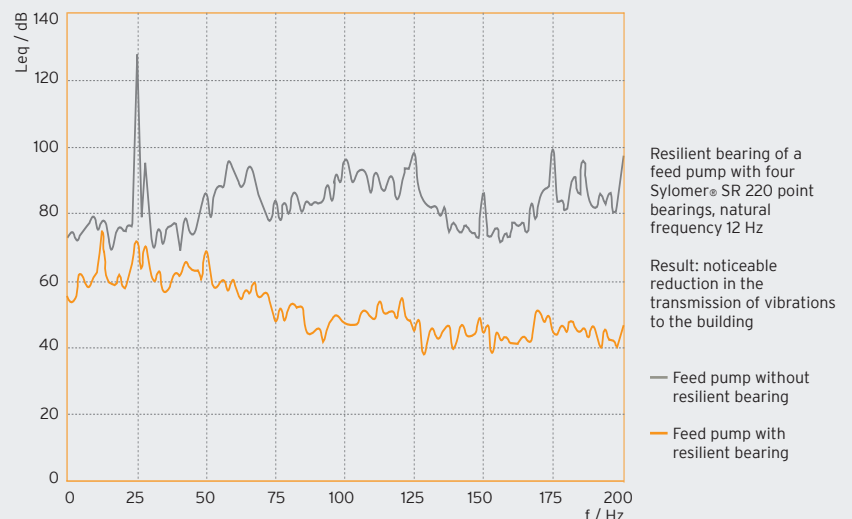
Getzner Werkstoffe has been providing pump bearings around the world for decades and offers the following range of services:

- Customised calculations for every bearing - to achieve the highest levels of effectiveness
- Support during design and development - to achieve the most efficient and cost-effective solution
- Help in conjunction with other materials (e.g. surface coatings, recommended bonders)
- Decades of experience in the design of pump bearings
- Development of all materials in our in-house laboratory

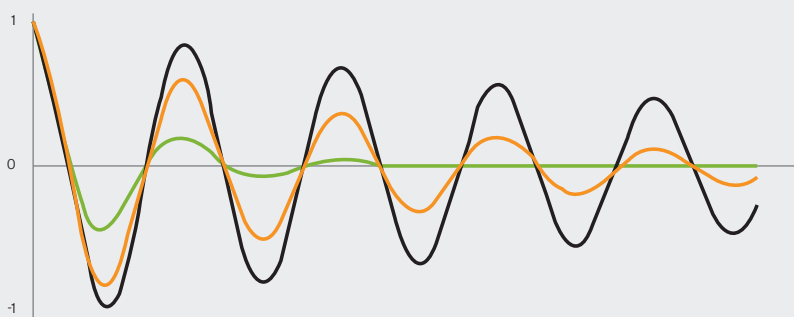
### Advantages of a resilient pump bearing

- Longer service life of the pump
- Fewer vibrations
- Lower noise levels
- Maintenance-free bearings
- Smoother operation
- Customised calculations
- Various bearing sizes

### Vibration reduction with a resilient bearing



## How Sylomer® SR, Sylodyn® and Sylodamp® work



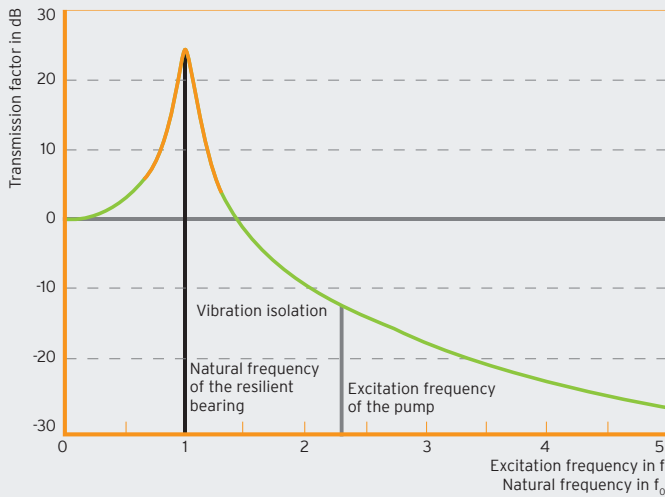
Sylomer® - Universally applicable resilient PU material, spring /damper combination



Sylodyn® - Technical spring with pronounced dynamic, highly elastic behaviour



Sylodamp® - Damper with special energy-absorbing properties



## References

Renowned pump manufacturers around the world - manufacturers of heat pumps, water pumps, etc. - place their trust in the effectiveness and reliability of Getzner.

The installation instructions of numerous pump manufacturers even contain recommendations that their products are mounted on Sylomer® and Sylodyn® bearings from Getzner.

Over the decades, bearings for a whole range of pumps in the project business have been prepared with the help of Getzner calculations.

## Reference projects (extract from reference list)

TYPE OF PUMP	PROJECT	COUNTRY
Water pump	Water supply pipelines	Saudi Arabia
Oil pump	Oil pump bearing for pipeline	The Netherlands
Feed pump	Elastic decoupling of oil feed pump for pipeline	Spain
Water pump	Foundation bearing for feed water pump, Mellach power station	Austria