How to Reduce Floor Vibration Caused by Industrial Compressors

A Practical Approach Without Major Equipment Modification

When large industrial compressors are operating inside factories, vibration-related problems can occur, such as:

- Floor vibration
- Transmission of vibration to nearby equipment
- Deterioration of the working environment
- Negative effects on precision equipment

In many cases, compressor vibration does not remain around the machine itself. Vibration can spread through floors and support structures and affect surrounding areas inside the facility.

Why Compressor Vibration Control Can Be Difficult

Conventional vibration countermeasures may include:

- Additional concrete foundations
- Vibration isolation frames
- Spring mounts

- Redesign of piping or support structures

However, for existing facilities, these approaches may be difficult to implement because they often involve:

- Large-scale construction work
- Equipment downtime
- High installation costs
- Limited installation space

In many production environments, there is strong demand for solutions that can reduce vibration without major modification to existing equipment.

In addition, some vibration isolation materials may not provide sufficient performance depending on operating conditions and vibration frequency ranges.

A Simple Approach to Vibration Control

One alternative approach is to install vibration damping materials at vibration transmission points instead of modifying the entire system.

For example, “NonBuren” by Hirakata Giken is a special elastomer-based vibration damping material used in various industrial applications.

In one compressor-related application, round-shaped NonBuren materials were installed

under the compressor legs to address problems such as:

- Floor vibration during compressor operation
- Transmission of vibration to surrounding areas

This type of vibration control approach offers several potential advantages, including:

- Relatively simple implementation
- Reduced need for major modification work
- Lower maintenance burden

Vibration Control Requirements in Various Equipment

In industrial environments, vibration problems are not limited to compressors alone.

Vibration control may also be required for equipment such as:

- Pumps
- Industrial blowers

- Precision equipment
- Optical equipment

In particular, even small vibrations can affect the stability and performance of precision and optical equipment.

Conclusion

Floor vibration caused by industrial compressors is a common issue in many factories.

However, large-scale vibration countermeasures are not always practical for existing facilities.

For this reason, vibration control approaches that are:

- Relatively easy to implement
- Able to reduce the need for major modification work
- Lower maintenance

are becoming increasingly attractive options for industrial environments.

Hirakata Giken Co., Ltd.

https://www.hirakata-g.co.jp/en/