



THE VACUUM EXPERIMENT KIT

Exciting experiments that inspire

The future of science depends on young people - this not only applies for universities and research institutes, but also, in particular, for high-tech companies such as Pfeiffer Vacuum. The corporate aim of achieving the highest quality, reliability and efficiency of its vacuum solutions not only applies to the here and now but also in the long term. Pfeiffer Vacuum has made this principle a commitment towards their customers. The promotion of young talent is therefore extremely impor-

tant for the company, and Pfeiffer Vacuum is very active in this area. Against this background, the vacuum experiment kit was created in a project by the company's young employees in collaboration with the Association of German Engineers (VDI). This kit consists of a unique educational and information offer that is intended to promote young people's interest in science and technology.



Scoring with diversity

The diversity of the available experiments provides maximum flexibility and the opportunity to choose from thematic categories. The information relating to the individual experiments provides all the details necessary to easily understand the correlations. The difficulty and complexity of the experiments contained in the kit can easily be customized and extended. This allows the kit to be adjusted to the needs of different user groups and, in addition to schools and student laboratories, it can also be used at trade fairs and for training programs. The case was designed and manufactured by junior staff from various departments at Pfeiffer Vacuum.

Manfred Bender, CEO of Pfeiffer Vacuum, is excited about the vacuum experiment kit and its success: "The vacuum experiment kit is a great idea created by junior employees at our company, who have developed and implemented it all on their own. The goal is to experience vacuum and excite children about the 'nothingness' of vacuum. Anyone who has children knows: children are fascinated by experiments. And we totally succeeded in doing that."

The complete package for school and research

The vacuum experiment kit contains a complete test set-up, a vacuum pump, and various experimental utensils from everyday life. These utensils can be used to carry out simple experiments that explain the subject of vacuum and its physical characteristics in a demonstrative way.

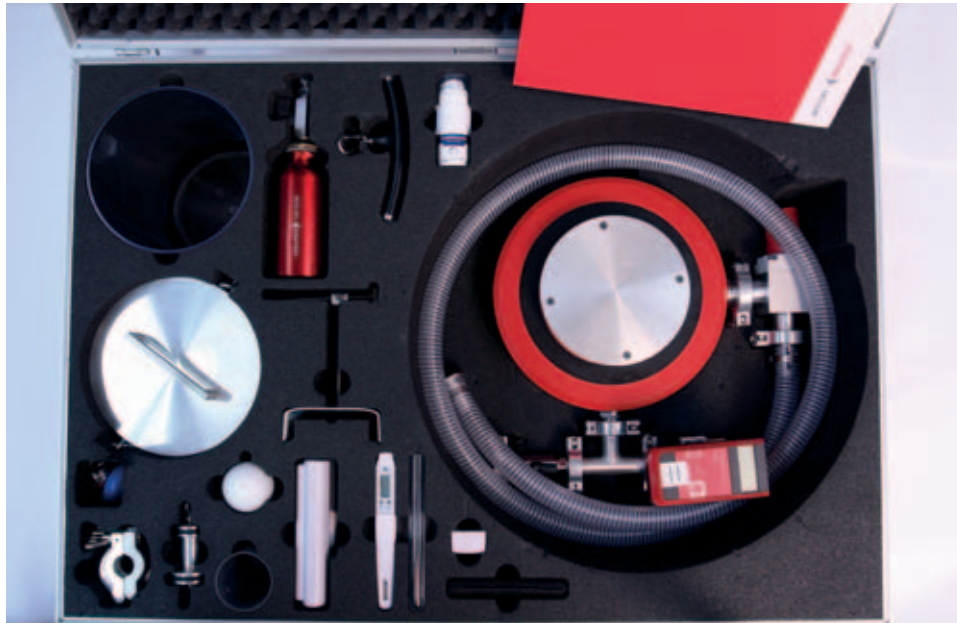
What happens to fruit or water in a vacuum? Can you evacuate a balloon? And how does sound actually behave in a vacuum? These questions and their physical background can be explored independently with the vacuum experiment kit. An instruction manual which was developed in collaboration with educators provides assistance. The individual experiments, their correct implementation and the theoretical background are explained there in an easy and understandable way. The experiment kit consists of two sturdy cases with wheels and can be used both in the classroom and in student or research laboratories.



Overview of experiments

The carefully selected everyday objects and the easily understandable test procedures should spark the children's and adolescents' fascination for "nothingness". Experience it yourself and don't just hear about it - this motto is what it's all about. The test objects from the children's and adolescents' daily lives arouse their interest and curiosity. The best conditions for achieving long lasting learning success!

Each of the eight experiments examines a different phenomenon of vacuum technology:



The vacuum experiment kit by Pfeiffer Vacuum contains all accessories that are required to carry out the experiments.

- 1. Magdeburg vacuum plates**
This experiment is based on the possibly best-known experiment in the field of vacuum technology, which is also the cornerstone of today's knowledge: Otto von Guericke's "Magdeburg hemispheres". In 1654, the physicist demonstrated the effect of air pressure with this experiment. The experiment setup in the Pfeiffer Vacuum experiment kit is based on the identical principle, which allows the students to find out for themselves how strong the pressure of the surrounding air is.
- 2. The liquid barometer setup**
Instruments known as barometers are often used even today to predict the weather. Changes in air pressure often indicate a change in the weather. The barometer indicates these changes and enables conclusions and meteorological predictions to be drawn. With the barometer experiment from the experiment kit, a liquid barometer can be recreated using a water column in order to shed light on this phenomenon.
- 3. Weight of air**
Does air weigh anything? And if so, how much? Users of the vacuum experiment kit will also explore these questions with a hands-on experiment.
- 4. Objects in a vacuum**
This experiment shows how various objects such as balloons, shaving cream or marshmallows behave in a vacuum. Following the experiments, students can test to see if the vacuum has affected the taste of the food.
- 5. Sound in a vacuum**
Can you talk to other people in a vacuum? Would astronauts be able to understand each other if they talked to each other in space? This experiment provides answers to these questions and the physical background as well.
- 6. Buoyancy in a vacuum**
This experiment explores whether buoyancy exists in a vacuum.
- 7. Fruits in a vacuum**
This experiment demonstrates what happens to a piece of fruit that is exposed to vacuum for any length of time. What industrial process lies behind the phenomenon that can be observed?
- 8. Water in a vacuum**
The students have already learned how solid objects and foods behave in a vacuum. But how about liquids like water? In space, it's very difficult to find water. Is it even possible for it to exist there?

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From a single component to complex systems:

We are the only supplier of vacuum technology that provides a complete product portfolio.

COMPETENCE IN THEORY AND PRACTICE

Benefit from our know-how and our portfolio of training opportunities!

We support you with your plant layout and provide first-class on-site service worldwide.

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perfect vacuum solution?
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