

Medical Solutions

Miniature Medical Helpers with Maximum Effect

Freudenberg
offers innovative
medical solutions



Reinraum2: For medical applications, the production in a sterile clean room is essential

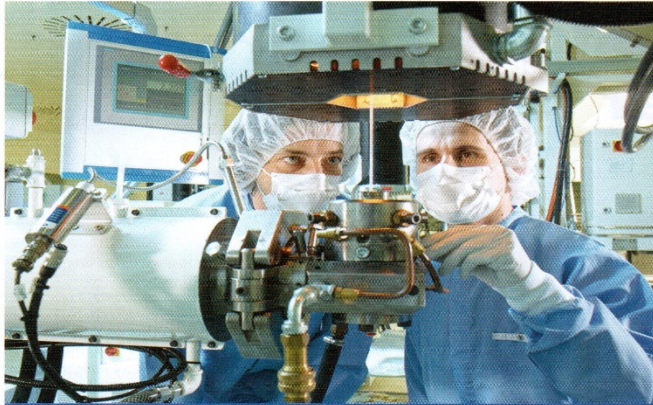


Ophthalmologie: For eye surgeries you need highest precision

Miniaturization is one of the major trends in medical technology. In modern medical devices, very little space is available for precision silicone components. Frequently, individual components only have a size of a few millimeters. Nevertheless, they must reliably perform their increasingly complex functions. As a result, the shapes of the components are also becoming more complex and are subject to tighter and tighter tolerance limits.

The internationally active Freudenberg Group has won a reputation as a leading supplier of precision silicone and thermoplastic components, minimally invasive devices and voice prostheses. The solutions are produced by the Helix Medical Business Group. The medical technology specialist has developed and installed its HelixMicro program that combines innovative technical equipment with materials and process competence. This has led to the development of a unique product portfolio including silicone tubes with a diameter of 0.2 millimeters and lower produced

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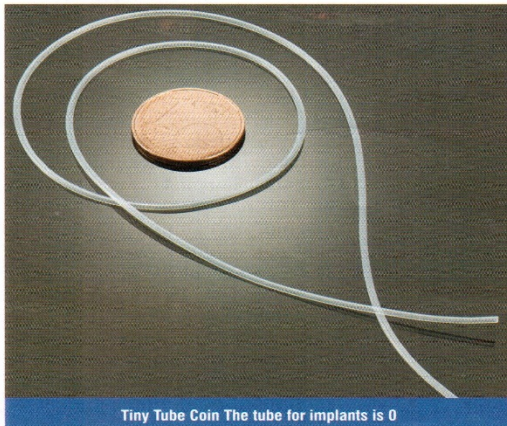


Extrusion (MIT): Extrusion of silicone precision tubes under sterile clean room conditions

to dimension tolerances in the range of hundreds of millimeters.

Helix Medical supplies silicone precision tubes also to India. For example, these are required for cataract operations. Microscopically small moldings are needed both for inserting the artificial lens and for flushing and removing secretions. In cochlear implants, the Freudenberg components ensure that the individual parts of the device are fixed in place and the prosthesis is effectively sealed.

Implants in the fields of ear, nose and throat surgery and neurology call for biocompatible materials



Tiny Tube Coin The tube for implants is 0

and high-precision manufacturing processes. Helix Medical produces silicone moldings using the precision injection molding process that also meet the requirements for microscopically small implants. The material used in each production cycle, the "shot weight", is less than 1 milligram. "With surface modifications using nanotechnology, you can really program a silicone part," explains René Heilmann, Marketing Manager at Helix Medical.

In the HelixMicro program, processes downstream from the actual molding stage are especially important. A wide variety of treatment and coating processes are available. Depending on the material and the effects required, the silicone can be given water-repellent, water-soluble, oil-repellent or oil-soluble properties. In addition, friction can be reduced by targeted surface modification to eliminate the adhesive effect of silicone. Reduced friction is always important if a silicone part is to be installed using an automated process.

The Freudenberg Group offers a wide range of products for the medical sector worldwide: Innovations such as biodegradable wound dressings, real-time lung function monitoring systems or micro-implants make life easier for patients and physicians and improve medical outcomes. Additionally, at its plant in Pune, the company produces multi-stage air filter systems that ensure sterile clean room air quality in operating theatres.

These filters provide protection not only against dust particles but also against bacteria and viruses. The principle is simple and effective. Filter stages that are adapted to each other remove particles ranging from coarse to very fine. In a final stage, suspended material filters, highly efficient in arresting fine particles, and made from fiber-glass paper, are used. An important use case for these filter systems are hospitals. Freudenberg filters play a valuable role in preventing wound infections in operating theaters and in keeping instruments germ-free. Highly-efficient filters are also used in isolation rooms to reduce the risk of infection.



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