



### Heat exchangers

Heat exchangers with Witzemann corrugated pipes offer better performance in less space than exchangers with plain pipes. The larger surface area of the corrugated hose enables significantly better heat transmission.

Furthermore, the corrugated profile ensures constant turbulence throughout the medium within the hose, which leads to a self-cleaning effect. That rules out deposits of lime. Good thermal stability, a scalable design and an individually optimised plastic housing are further advantages of such heat exchangers.



### Miniature hoses

Witzemann is the only manufacturer in the world producing metal hoses with tiny diameters from 1.5 to 6 mm – and in the very best quality. In the form of stripwound or pressure-tight and diffusion-resistant annular corrugated hoses.

Depending on the type of application, these miniature hoses are fitted with a sheath (for minimal invasive surgery), with a highly flexible inner liner (for laser or optoelectronic applications), or special end fittings. Our miniature hoses are extremely flexible, extremely durable and 100% resistant to ageing.



### Corrugated hoses

Witzemann corrugated hoses are manufactured from various materials, with a corrugated profile. They are available in diameters from DN 6 to DN 300, for operating pressures up to 400 bar (depending on the nominal diameter) and for temperatures from -270 to max. 600°C.

Corrugated hoses are used in the chemicals industry, vacuum engineering, as vibration-damping and soundproofing elements between vibrating and rigid systems, and to compensate thermal movements or linear travel.



### Protective hoses

Protective hoses with interlocked or engaged profiles are primarily used for protecting electric cables, rubber and elastomeric hoses, and for optical fibres. The degree of flexibility as well as resistance to tension, torsion and transverse compressive loading depend on type and profile.

Witzemann protective hoses are available in different materials. Resistance to chemicals and solvents and suitability for various temperature ranges depends on the material.



### Extraction and conveying hoses

Witzemann extraction and conveying hoses are stripwound metal hoses with a polygonal or round cross-section and an interlocked or engaged profile. Despite their low weight and simple installation, they are highly flexible. Their thermal stability depends on the material of the hose and the seals.

Applications: extraction of hot and cold air, vapours, exhaust gases, smoke and fumes; transporting dust, sawdust, chips, swarf, granules, cereals, etc. Ideal for use in ventilation systems, woodworking, metalworking, textiles industry, chemicals industry and automotive engineering.



**Gas hoses**

Safety, reliability and durability are the critical factors for gas supplies. At the same time, those are also the primary features of metal hoses used as flexible connections. Witzemann gas supply hoses are already in use in millions of applications throughout Europe, where they have proved to be trouble-free, safe and reliable. To achieve maximum safety, we carry out an extensive programme of tests, including flexural fatigue strength tests meeting a number of European standards. Compared with rigid pipework, flexible metal hoses also result in clear advantages for assembly and installation.



**Solar applications**

We like to cover a wide field, and so we have developed several different flexible arrangements for connecting solar collectors. A bellows, which enables a particularly compact layout of the solar collectors, a component for absorbing particularly large lateral movements, a connection as a compression coupling, specially designed for copper pipe, and the "omega elbow", which is ideal for collector connections in large arrays. All connections are designed for a temperature range from -20 to +200°C, are fabricated ready to install and come complete with a guarantee for at least 10,000 load cycles.



**Special hoses**

We can supply customized hoses for many special applications, including: domestic and industrial uses, heated and cooled dual hose assemblies, vibration dampers, flexible installation aids for building services, easily bendable annular corrugated boiler hoses for self-assembly or fabricated by us ready to use.

In addition, safety hoses for washing machines and dishwashers, flexible arms for microphones and optical fibres, flexible metal elements for automotive engineering, flexible sprinkler installations and much more besides.



**Appliance pipework**

Significantly shorter and simpler installation – that is one of the biggest advantages of the semi-flexible connecting line for appliance pipework. This is available in two versions: the HX version, an easily bendable hose for tight and multiple bends, and the IX version, with a high flexural strength, which, once bent, remains reliably in that position. Witzemann hoses for appliance pipework are 100% diffusion-resistant; 3D bends are possible at any point. The hoses can also be supplied in batches, factory pre-bent and complete with end fittings – upon request also insulated.



**Sprinkler hoses**

The VdS-approved "HYDRA sprinkler hose and special holder" flexible installation system avoids the need for troublesome rigid connections to sprinkler nozzles.

The Witzemann installation system consists of a HYDRA stainless steel hose and a special holder plus two fixing plates made from galvanised sheet steel. Hoses are available in nominal lengths of 1000, 1200, 1500 and 2000 mm.



**Flexible arms**

High load-carrying capacity, flexible but at the same time rigid, robust and versatile – those are the features of the Witzemann stainless steel "flexible arms". These universal hoses are used, for example, as microphone stands, for lamps, for optoelectronic devices, coated to permit autoclave treatment in medical technology applications – the possibilities are endless. The potential applications are just as diverse as the selection of arms. Our flexible arms are available painted, powder-coated, chrome-plated, nickel-plated or with a silicone shrink-wrap sleeve, in diameters from 6 to 26 mm, and with the appropriate end fittings.

