

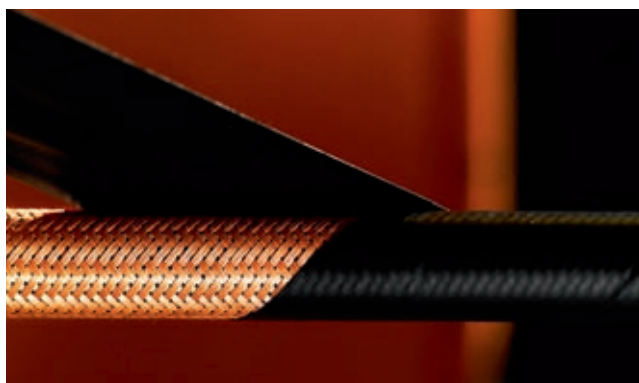
Flexible yet sturdy: Braided inserts stabilise the hoses and make for easy handling.

Ensuring Safe Passage for Fuels

Refuelling hoses perform demanding tasks under extreme conditions.

Refuelling is something so run-of-the-mill hardly anyone really thinks about how much high tech is involved in ensuring the safe flow of petrol at the filling station, kerosene at the airfield or heating oil when delivered to your home. ContiTech has a hand in the highly fascinating and sophisticated technology employed.

Refuelling hoses all have one thing in common: they have to put up with a lot. At the filling station, in home heating oil deliveries or when servicing airplanes, they are routinely dragged across walkways, courtyards or other rough concrete. They must, therefore, exhibit ultra abrasion resistance. To get into underground tanks, the hoses used by filling-station supply lorries must exhibit high bendability. In general, hoses must ensure reliable performance in all types of weather. Good flexibility is a basic prerequisite in guaranteeing that tank lorry drivers as well as motorists at filling stations have no trouble using them even in frigid temperatures. What's more, as harmless as "bio diesel" may sound, it is one of the most aggressive media to flow through a hose. The fuels coming out of the petrol pump nowadays are highly flammable. They release explosive fumes and can pose a health risk under certain circumstances. That is why fuel pump hoses have to be absolutely leakproof. And despite large diameters, the oil suction and discharge hoses used to service ships have to be sturdy enough to reliably allow for the passage of crude, heating oil or carburettor fuel.



Many aspects of safety

No doubt about it: Refuelling hoses have to guarantee an extremely high standard of safety. At the same time, however, they should satisfy a wide range of other properties. These include minimal weight and ample flexibility for easy handling. That notwithstanding, they should also be sturdy, tough, resistant to pressure and impermeable. What is more, the hoses must not release any rubber particles into the media passing through them. They likewise have to be resistant to ozone and UV radiation and electrically conductive so as to prevent any electrostatic charges that could emit sparks or trigger explosions. All of these properties are in demand all around the world, in Saudi Arabia just as much as in the Arctic Circle.

As Willi Emde points out: "That works only if the hose design and rubber compound form a perfect match." Head of the Industrial Hose segment at ContiTech Fluid Technology, Emde is an expert on refuelling hoses. In the development area, ContiTech has collaborated closely with ELAFLEX for decades now. ContiTech profits from the Hamburg-based company's

wide-ranging know-how, which is specialised in the development, testing and sale of refuelling systems. In 1960 ELAFLEX launched the legendary ZVA fuel nozzle. Continually developed further since then, this valve is today built into every German fuel pump. >>



Refuelling hoses: High-tech at our side throughout the day – even if we take no notice of it.





Lord of the rings: Jörg Roßmann,
head of production for industrial hoses at
ContiTech Fluid Technology.

ELAFLEX, for its part, makes the most of ContiTech's materials and production competence. Last but not least, this is evident in the ingenious hose-in-hose system that makes possible active vapour recovery at every German filling station, thereby preventing the release of toxic fumes. Externally the system is easy to spot from the fuel nozzle's twin tube: the inner tube for dispensing fuel and the outer tube for vapour recovery.

The collaboration has proved successful: "Our business relations are characterised by steady, healthy and organic growth," says Karsten Ehlers, head of marketing at ELAFLEX. Together we have managed to grab roughly 90 per cent of the filling pump hose market in Germany and 35 per cent worldwide.

Optimally designed

The airplane refuelling hoses are to be found from Atlanta to Zurich and from Copenhagen to Cape Town at nearly all the world's airports. The railway tank car solutions and tanker discharge systems developed by ELAFLEX likewise sport ContiTech hoses. Optimally developed, designed and manufactured products account for this gratifying market presence. Take airplane refuelling hoses, for example. ContiTech extrudes the inner lining in such a way that there is no joint. "This ensures a wider margin of safety and extended service life," explains Jörg Roßmann, head of Industrial Hose production at ContiTech Fluid Technology. "The special rubber compound, for its part, prevents substances in the hose from mixing with the kerosene."

Braided plies stabilise the hoses and allow for easy handling – something the airport's ground personnel very much appreciate. At the same time this design ensures that the hoses can withstand a bursting pressure of over 100 bar. (The standard stipulates merely 80 bar.) The hose cover is also made of a high-quality rubber compound that is jointlessly extruded for resistance to light cracking and to ensure fire retardancy, high wear resistance and electrical conductivity. This makes possible a service life of well over ten years without any cover cracking.

Special hoses with low-temperature flexibility can be used without fear of rupture even in arctic zones, at ambient conditions as low as minus 50°C. "It comes as no surprise, then, that we control a particularly large chunk of the market in a country like Canada," remarks Emde. "Or that our yellow ringed hoses are employed at the Neumayer III research station at the South Pole," adds Ehlers.

There is obviously no real alternative to ContiTech refuelling hoses. These safe, sturdy and flexible high-tech hoses cross our paths time and again in many areas of life – at filling stations and airports or even when heating oil is delivered to our homes. <<

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