

Leister tools weld vital ventilation ducts

VARIANT T1 helps to safeguard lives

Air supply is vital for mining work. While in the past metal or canvas ventilation ducts were used, today predominantly flexible air ducts are required. These are manufactured from industrial fabrics by welding with hot air. The company Duflex has specialized in the production of these air ducts. They are not only used in mines; they also protect life and limb in tunnels and in working environments where there is a risk of explosions.

Twenty years of operational experience

The company Duflex, based in Baška in the Czech Republic, has specialized in the manufacturing and repair of plastic and rubber products for more than twenty years. Air ducts are their most important product. They are manufactured both for the high pressure and low pressure (air intake) side of ventilators. The purpose of the ventilation process is predominantly to dilute explosive methane gas into a non-explosive and non-flammable mixture or to extract dust following explosions.

Safety has the highest priority

Duflex can weld all lengths and diameters depending on customer requirements. Flexible flanges connect the individual air ducts. These are inserted into each other without using clips or steel rings. High-pressure air ducts must be able to withstand pressure tests of up to 16 000 Pa, universal designs for low-pressure up to 9000 Pa. Duflex products are as simple as they are important: They are installed to protect life and property in deep mines or tunnels. The welding seams on the air ducts must, of course, be of the very highest quality.



Simple guidance of the VARIANT T1 during the welding process.



Company owner Jiri Zajdlík with a Duflex air duct in a mining tunnel.

Remaining loyal to Leister

Before starting his company, Duflex, Jirí Zajdlík worked as an engineer at the coal research institute on the development of air ducts and on the testing of the materials used for fire and electric resistance. He was therefore well aware of the high demands placed on the quality of air ducts and their welding seams. After starting Duflex, the young entrepreneur needed a professional automatic welding machine which would guarantee the required welding seam strength. At that time he purchased two universal VARIANT tools from Leister for his production. The Swiss quality products have more than proven their worth over many years of use. They have shown themselves to be extremely reliable and flexible. Even after twenty years, both tools are still in full working order and serve as back-up machines for tight production deadlines.



Perfect and practical design: The new VARIANT T1 from Leister.

Specifications met

The safety specifications for certification by the "Technical Laboratories Opava" demand a welding seam width of 40 mm. In 2011 Leister introduced the new VARIANT T1. This was developed specifically for overlap welding of industrial fabrics with a seam width of 40 mm and therefore satisfied the requirements. As Jirí Zajdlík was more than satisfied with the earlier models, he bought two machines of the next generation.

New model – old quality

During the design of this tool, numerous improvements were made to facilitate simple operation in everyday use. The staff at Duflex especially like the new autostart function on the new VARIANT T1. The old model required experience and coordination. The user had to position the weld nozzle with one hand and switch on the drive with the other hand, while controlling the start up. The new VARIANT T1

can even be operated by a novice: As soon as the weld nozzle is moved into position, the machine starts automatically. Handling before and after welding has also become easier. The VARIANT T1 weighs only 22 kg, which is considerably lighter than its predecessor, and is fitted with handles, making it easier to carry. In addition, it is equipped with an easy-to-use lift-up device for rolling before and after welding.

Process control and process monitoring

Initially, the experienced Duflex employees were skeptical about all these innovations. This skepticism has since given way to enthusiasm. – They have come to recognize and value the benefits of the new tool. They are especially taken with the "e-Drive" control unit. The digital display enables constant control and monitoring of the welding parameters of temperature, speed and pressure. Previously, voltage



Connecting high-pressure and low-pressure air ducts.



Welding seams of storage containers for fluids (so-called „flexitanks“) must be able to withstand very high pressures.

fluctuations affected the air temperature of the heating unit and therefore ultimately the weld quality as well. This meant that additional finishing of the welds was needed. Today, the user is either warned of voltage fluctuations or a fault message is displayed and the tool switches off. The Duflex employees have also been convinced by the automatic cooling and switch-off function: The tool automatically cools down and switches off when the weld nozzle is not moved to the welding position or if there is no key entry during the user-defined standby time.

A wide range of applications

At Duflex a VARIANT T1 welds up to 6 km of seams per day. The welding speed is also a decisive factor. "Even if we don't operate the two new VARIANT T1 tools at the highest possible speed of 18 m/min when welding the air ducts, production is still much faster as a result of the technical improvements; quality is improved and therefore productivity is noticeably increased!" explains Production Manager, Petr Rihosek. With the VARIANT T1, the weld parameters can easily be configured for the production of different products. Petr Rihosek again: "We use the VARIANT T1 for the production of our entire product range, for a wide range of materials such as PVC, PP or PE. In addition to air ducts, we also manufacture truck covers, industrial fabrics for covering large events, protective sheeting for rail transportation, protective clothing, barriers for ski slopes, "flexitanks"



The new "e-Drive" control unit for controlling welding parameters.

for storing fluids, pools and storage tanks, but also quite unusual products such as dog training and children's play tunnels."

Professional service and support

Duflex is now the largest manufacturer of flexible air ducts in Central Europe. The management and staff of the company Duflex agree: "This would not have been possible without the modern technology of Leister tools and the outstanding support of our sales and service partner, WELD-PLAST CR." Duflex air ducts will therefore continue to guarantee increased safety in mining in the future. And quite unexpected contemporaries get to enjoy Duflex products: Children and dogs can continue to crawl through the tunnels that have been welded using Leister tools...



PVC training tunnel for dogs.

Manufacturer of air ducts:

Machine supplier:

Leister sales and service partner:

Duflex s.r.o., Baška, Czech Republic, www.duflex.cz

Leister Technologies AG, Kaegiswil, Switzerland, www.leister.com

Weldplast s.r.o., Prag, Czech Republic, www.weldplast.cz

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