Advanced PNEUMOFORE air solutions deliver sustainable hollow glass manufacturing

In this issue of Glass Machinery Plants & Accessories, Engineer Daniel Hilfiker unveils PNEUMOFORE's green path to low life cycle cost and minimal environmental impact by offering an overview of his company's durable, high-efficiency compressors and vacuum pumps.

At the heart of a glass factory, bottles come to life where the gob enters the mould at the IS machine. In this process, compressed air and vacuum play a major role, dictating the speed and quality of the hollow glass moulding. The continuous availability of pneumatic energy is a veritable pillar of 24/7 glass production. Industry experts carefully choose equipment, taking into account the total Life Cycle Cost, with a keen focus on electric power consumption and maintenance costs that spans decades. With

Pneumofore UV50 Rotary Vane Vacuum Pump - One of the preferred vacuum pump models in worldwide glassworks

a view to seamlessly navigating this intricate landscape, here are some key guidelines for steering clear of operational issues.

COMPRESSED AIR AND VACUUM DYNAMICS

Whereas vacuum is optional in hollow glass production, compressed air remains crucial. Pressure requirements are typically set at 3,5 bar(g) - occasionally reaching 7 bar(g) in specific operations. In glassworks, the ambient air is far from being pristine, thus requiring the use of pneumatic machinery equipped with effective filters. In line with the average durability of furnaces, which can withstand up to two decades of operation, equipment should share a similar or even longer lifespan and should be designed for longevity - even in round-the-clock operation.

POWER HIERARCHY

In the energy consumption hierarchy of a glasswork, the furnace ranks highest as it's powered by either gas or electricity. But compressors follow closely behind. In an era where climate awareness is constantly rising and CO_2 emissions are directly related to power usage, selecting highly-efficient equipment becomes mandatory. That said, the durability of compressors remains a critical aspect that must be taken into consideration, with the support of clear expense schedules for both routine and extraordinary maintenance over the years.

COMPARING TECHNOLOGIES WITH RELIABILITY

Today high-capacity air compressors and vacuum pumps are flooding the market, even if their technical data sometimes challenges scientific logic in favour of pure sales propaganda. But facts are facts and references of equipment installations run-

AUTHOR BIO

Daniel Hilfiker is the President of Pneumofore, an Italy-based company that has been designing and manufacturing both compressed air and vacuum systems for industrial applications worldwide since 1923. He represents the third generation of Swiss engineers at the helm of the company, which continues now in the centenary legacy of pioneering innovative solutions for pneumatic equipment in glassworks. This commitment reflects the company's dedication to sustainability, efficiency and enduring excellence in the ever-evolving landscape of hollow glass manufacturing.

Pneumofore UV50 Vacuum Pumps for Glass Production in Thailand

ning trouble-free for decades are what to look for when durability is required. Testimonials from customers with long-term running machines offer insights into maintenance costs, efficiency in the long-run as well as spare parts availability. Choosing equipment with prolonged efficiency and durability reduces the need for costly overhauls and it turns out to be the most convenient and sustainable choice over time.

CALCULATING LIFE CYCLE COST

Durable equipment that keeps the efficiency constant year after year has to be the preferred solution. Furthermore, overhauling must be avoided as much as possible as it can be exorbitant. Capital expense costs for new machinery require long approval protocols as they are strictly controlled by the purchasing and accounting departments. In contrast, running costs like maintenance and power consumption fall within the yearly budget and they are hard to be verified in advance, despite the fact that they are the largest expenses over the years. Therefore, it is essential to adopt a more comprehensive approach in decision making - taking total Life Cycle Cost into account, which adds purchase cost, maintenance and energy consumption, together with calculation of the total Cost of Ownership.

ABOUT PNEUMOFORE

Founded in 1923, Pneumofore manufactures vacuum pumps and compressors for industrial applications worldwide. The company's compressors and vacuum pumps are found worldwide, whenever customers require extraordinary reliability and constant performance over time. A leader in Rotary Vane technology, Pneumofore solutions focus on efficiency, durability, minimal Life Cycle Cost, and an elevated respect for the environment.

EFFICIENT VACUUM SOLUTIONS

Pneumofore UV50 Rotary Vane Vacuum Pump is a preferred model in worldwide glassworks. This vacuum pump stands out by boasting 75 kW for 2.700 m^3/h in its standard, fix- speed version. Though the nominal installed power may initially seem high, this unit reveals an oversized electrical motor which ensures an extended bearing life and an improved ventilation. Furthermore, operating in the designed optimal range it does not use the motor's safety factor. Quite the opposite, in equipment that uses the safety factor, the electrical motor lasts only as long as the warranty - soon becoming a component subject to 'forced replacement' or 'forced overhauling'. Here Pneumofore philosophy is in contrast with the 'Programmed Obsolescence' approach, a practice prohibited by law - at least in Europe. The company's commitment to durability is extended to other essential components such as the Air-End, the cooling system and the electrical panel, thereby ensuring longevity and constant efficiency over decades of continuous operation.

OPERATIONAL INDEPENDENCE AND RELIABILITY

Last but not least, those companies that facilitate the OEM (Original Equipment Manufacturer) independence shine in the spotlight, empowering the glasswork's internal service teams to operate autonomously and maintain equipment efficiently. In a factory, where downtime translates into significant costs, having reliable equipment is a key factor and even more important when it concerns the five vital energy resources within a glass factory: electricity, water, gas, compressed air and vacuum.

Pneumofore High-Efficiency Air Compressors for Glass Production in China

Pneumofore
100 Years 1923-2023

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