Roots pumps series set new standards

Categories : Pumps & Compressors

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Pfeiffer Vacuum, provider of vacuum technology, is presenting the new and innovative Roots pumps of the Hi Lobe series which can be used for numerous industrial vacuum applications such as electron beam welding, vacuum furnaces or freeze drying. The pumps of the Hi Lobe series are of particular interest for fast evacuations (load-lock chambers or leak detection systems). Furthermore, they are suitable for use in coating applications.

Compact and powerful Roots pumps

The compact Roots pumps offer a wide nominal pumping speed range of 520 – 2.100 m^3/h. This is made possible through the new drive concept in conjunction with frequency converters. Thanks to their individual speed control, the pumps can be precisely tailored to customer-specific requirements. Thanks to this powerful drive concept, the Hi Lobe achieves approximately 20 percent shorter pump-down times than conventional Roots pumps. Rapid evacuation reduces costs and increases the efficiency of the production system.

Process-reliable and cost-efficient vacuum

The maintenance and energy costs of the Hi Lobe are >50 percent lower compared to conventional Roots pumps. The reason for this is a drive with energy efficiency class IE4 and the special rotor geometries of the pumps. The sealing concept also contributes to this. The pumps are hermetically sealed to the atmosphere and have a maximum integral leakage rate of $1 \cdot 10^{-6}$ Pa m^3/s. Dynamic seals are eliminated and, as a result, maintenance is only required every four years. Due to the innovative sealing concept in the suction chamber, the use of sealing gas is superfluous in most applications, which also has a positive effect on the operating costs. Since the operation of the Hi Lobe Roots pumps is possible even at ambient temperatures of up to +40 °C with flexible air cooling, cost-intensive water cooling is unnecessary.

Control and communication are the essential factors for increasing system availability. The intelligent interface technology of the Hi Lobe allows very good adaptation and monitoring of the processes. This facilitates anticipatory and efficient work. By integrating such condition monitoring, information about the condition of the vacuum system is always available. In addition, condition monitoring increases system availability allowing users to plan maintenance and repair measures in a useful and anticipatory way and prevent cost-intensive production downtimes. These advantages lead to a long service life and maximum operational safety. Depending on their suitability for the existing system, the Hi Lobe vacuum pumps can either be aligned vertically or horizontally. This allows maximum pumping speed and a more customized and efficient use of space at the customer's production site.