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Advancements in Pneumatic Fluid Power Technology by Ritter

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Fluid power has become so commonplace in a variety of everyday applications that often times; this astounding technology can be overlooked. Each day, millions of people hear the familiar hissing sound assembly line carriers, or that of aircraft actuators. These sounds become so ingrained people often take for granted the opportunities fluid power technology has brought in recent decades. Fluid power innovation is progressing at an astonishing rate - so rapidly that experts cite more progress in the last decade than in the previous five decades. Fluid power plays a key role in evolving technology that provides unprecedented opportunities to control force, torque, position and motion in a variety of applications. The use of fluid power, combined with advanced electronics, increases control and flexibility. This in turn increases the strength of hydraulics and the speed of pneumatics.

We are in the midst of a fluid power revolution and the technology is only getting better. Pumps are now more powerful, the valves used in applications are smarter, and actuators are reaching levels of precision that were not possible in the past. For example, in the past, engineers believed it was impossible to position a cylinder using air. Pneumatic positioning has however proved that not only is it possible, manufacturers can repeatedly position a cylinder to within three thousandths of an inch. As a result, many industrial users have replaced electric drives with precise pneumatic servo systems in recent years.Pneumatics can reduce manufacturing costs with minimum investment or complexity. Pneumatic automation can be adapted for use in countless automation processes in regards to manufacturing. Because pneumatic components are available in a vast variety of sizes and configurations, they can be tailored to meet the specifics of any job. Pneumatic components are also now smarter than ever. For use on assembly lines, these parts can now "talk" to personal computers and programmable logic controllers through networks. The pneumatic components relay information regarding their working status, such as calibration data, and they decide whether they need replacement. These smart components offer new levels of diagnostics and in recent years, many automated factories throughout the world have adopted the technology.

Advancements in new sealing components have also brought about changes to the industry. These new sealing techniques are so effective that manufacturers have the confidence to raise the operating pressures of hydraulic pumps. Today, it is not uncommon to find pumps operating at pressures 2,000 to 3,000 psi higher than they could just a few years ago.Advancements in fluid power technology not only add more power and convince to manufacturing, they have launched completely new technological disciplines. The most dramatic changes in the field of fluid power are happening now, and innovation in fluid power is continuing to progress.

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