

Air Motor Is A "Sweet Find" For Equipment Manufacturer



When you're the purchasing manager of a packaging equipment manufacturer that wants to make a basic, relatively low-cost meat packing machine with a fairly high degree of precision and automation, it's a good day when your design engineer walks in with your power transmission solution.

"The Huco Dynatork air motor was a sweet find for us," said Brian Newman, of Greydon, Inc., a global supplier of printing equipment for form, fill and seal packaging machines for the meat, cheese, medical and pharmaceutical industries. "It fits perfectly into our application for this meat and cheese bagger."

Newman and his engineers had been searching for a cost-effective motor with capability to precisely advance the bags on their film packing station. The GTBL-1000 Bagaire Taped Bag Loader needed precision advance and control not only for bag opening and filling, but also for code-dating with the non-contact ink jet or contact wet ink printers that are part of Greydon's Codeaire Dating Systems.

Electric motors, they found, would be cost-prohibitive when modified to withstand the 100% caustic washdown environment of the meat packaging line. In addition, minimizing electronic components was important in this extreme environment.

"The Dynatork is a nice compact unit that fits in a snug space under the machine," Newman said. "Bags are opened with a puff of air from the pneumatic system, so to have an air motor was the ideal situation."

The GTBL-1000, Newman explained, advances the bags by winding up a leader tape

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and pulling the bags up from under the table. Plant air is used via an air amplifier to blow open the bags for manual filling by the operator who simultaneously breaks the bag away from the tape. Either bag-in-box or bag-on-a-roll can be used in sizes up to 20-in. wide by 36-in. long.

The machine, connected to conveyors on both ends, matches up well to vacuum chamber machines and various sealers, according to Newman.

"It totally revolutionizes the way in which bags are presented to the operator for loading product," Newman said. "The air motor is able to advance the bags quickly and stop them precisely in the exact same location for opening and printing."

Key to the selection of the motor was its washdown capability. The Bagaire is designed for the sanitary conditions required in the meat, dairy and medical industries and is constructed mostly of stainless steel and other washdown approved materials.

Because the Dynatork air motor is available with an acetyl housing, it is able to withstand the most caustic acids and chlorinated sanitizers used in the most extreme washdowns.

The operating principle of the Huco Dynatork air motor is simple. Via an integral rotary valve, air up to 100 psi is supplied to each of three pistons in turn. The free-floating pistons transmit torque on start-up that can be adjusted via a pressure regulator. This results in high torque at variable low speed and low noise.

Energy & cost savings

Because the Dynatork air motor traps the compressed air within the piston/cylinder allowing for maximum energy conversion, the unit is easier to seal than a vane motor cylinder. Thus, the air motor consumes up to 80% less air than a vane motor, providing significant cost savings even at maximum torque.

The motor was recently redesigned with internal air passages that replace the previously external tube structure to further improve its long-life and performance in high-pressure washdowns and other harsh environments where the external tubes might be damaged.

David Lockett, Joint Managing Director of Huco Dynatork explained the motor excels in constant start-stop applications under load, displaying similar characteristics to those of a stepper motor. By comparison, an electric motor will often burn out and a vane motor will stall out when subjected to these conditions, he said.

"The re-design of the air motor provides costs savings by minimizing air consumption, and thus, adds to a plant's energy efficiency," Lockett said.

Dynatork air motors are available with maximum torques up to 16Nm (12 lb./ft.), or up to 550Nm (405 lb./ft.) with a gearbox.

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For more information on the Bagaire, visit www.greydon.com [1] or email info@greydon.com [2]. For more information on the Dynatork air motor, visit www.huco.com [3], email laura.bawinkel@altramotion.com [4] or call 815-389-6336.

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