POWERTEC INDUSTRIAL MOTORS

MOTORS FOR PLASTIC INDUSTRY

Why Brushless?

Brushless motor/drive systems are the most efficient variable speed drive technology available. Power factor and harmonic currents from the AC line are virtually identical in a vector induction drive and a brushless drive. Additionally, brushless motors have much lower inertia than induction motors (or DC motors for that matter), making the system much more able to track the machine flow requirements without wasteful early acceleration and late deceleration to new flow rates.

***WE** support you, the customer. We believe in long-term relationships and will provide the on going service to maintain it.*

WE CAN:
Build motors for Injection Molding, Blow Molding, Extrusion, Material Handling and Packaging Machines

WE CAN:
Engineer a new design, or build it to your print. We have excellent manufacturing and engineering capability for any job.

MTBF For Powertec Industrial Motors

From **POWERTEC** history files, a review of the motor failures, motors shipped, and total operating time (EST) along with calculating the MTBF using MIL-HDBK-217E and NEMA information, and methods developed by the U.S. Navy; the following value appears reasonable at this point:

MTBF ≅ 363,000. Hours (41.4 Years)
Failure Rate (λ) = 1/MTBF = 2.75 x 10^{-6} Motor / Hours
Or
2.75 Failures / 10^{-6} Hours
L_{10} Life = MTBF = 72,600. Hours (8.28 Years)

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Energy Savings:

The reasons to convert a pure hydraulic machine to variable speed are based on energy savings. Where do these savings come from? They come from having the hydraulic pump run only fast enough to produce just the flow required by the machine at each point in the cycle of making a part. For this example, it is assumed there is no accumulator on the machine and that the pump is constant displacement rather than variable displacement. The constant speed motor typically used on the older machines, of course, runs the pump at the same speed (therefore same flow) ALL the time, not just some of the time. As a result, the system runs at too great a flow and the extra pressure that results is valved back off to the oil reservoir and this all represents lost energy.

WHAT ARE THE DRIVE REQUIREMENTS?

Most variable speed drives can be used, but the secret to the greatest energy savings is the ability of the drive to accelerate/decelerate quickly to make the flow keep up very closely with the actual demand and the ability of the controller system used to characterize the machine operation.

POWERTEC Industrial Motors provides the "Flexmax" controller for motor operation. ABB (ACS 800), Allen Bradley (Powerflex 700), Control Techniques (Uni-drive), Gefran, SSD Drives (890+), Siemens, Unico, sell motor controllers approved by Powertec Industrial Motors.

GENERAL: Brushless Drives are uniquely suited to two specific applications in injection molding machines. Number one of these is the hybrid modification to the basic hydraulic machine, where a brushless drive replaces the original constant speed AC motor. The second is the total electrification of the machine where all axes are controlled directly by variable speed motors rather than hydraulic actuators. The purpose is twofold. The all-electric machine can make more parts in less time at less energy cost, but the initial capital cost is substantially higher. The hybrid machine maintains the hydraulic system and changes the speed of the motor to flow only the hydraulic fluid needed for each cycle rather than bypass the extra flow through a pressure relief valve.

WORLD WIDE SALES

For more information, contact:

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