

Application Profile



Parker Torque Motors Cut Energy Costs In New Generation Of Direct Drive Extruders

The latest high performance torque motors and variable speed drives, from Parker Hannifin, the global leader in motion and control technologies, are playing an important role in a new and innovative range of extruders.

The new extruders use Parker direct drive technology to offer significant reductions in energy consumption and also to minimize vibrations that can affect the quality of finished parts. To date, plastic extrusion machines used for producing profiles, pipes, tracks and tubes for sectors such as construction, automotive and medical, have used a traditional AC induction or DC motor and gearbox arrangement. These can be expensive to maintain and are relatively inefficient in terms of energy consumption. In addition,



they can cause excessive vibration, which can be a particular problem in applications where colored plastics are produced using different resins, as vibration can cause the heavier plastic granules to settle faster in feed hoppers leading to uneven distribution and changes in color. To overcome these problems manufacturers have developed a new generation of extrusion machines where the motor and gearbox units are replaced by direct drive systems, using Parker torque motors controlled by variable speed drives. Using direct drive technology on extruders of up to 320kW (400 HP) has provided extruder OEM's and their customers a number of advantages. In particular, the new systems are easier to produce and assemble, which in turn makes them easier to maintain; they have a smaller footprint and use less energy in operation; there is almost no vibration, which also helps to make them far quieter and run below the 80dB threshold, above which machine operators are required to wear hearing protection. Efficiency gains from elimination of mechanical gearing can result in a payback of under 2 years. The Parker torque motors are based on a proven design of permanent magnet, brushless servo motor, which produces high levels of torque at low operating

speeds. Parker offers a range of specialized bearings to enable each motor to be connected directly to an extruder screw, with the motor then being controlled by the variable speed drive. This allows both torque and speed to be varied infinitely, within the performance envelope of the motor, making each extruder far easier to setup and providing a far more accurate and repeatable method of controlling process parameters, compared with a conventional motor and gearbox arrangement. With the capability to run PMAC servo motors, the AC890PX drive is the perfect match for these torque motors.

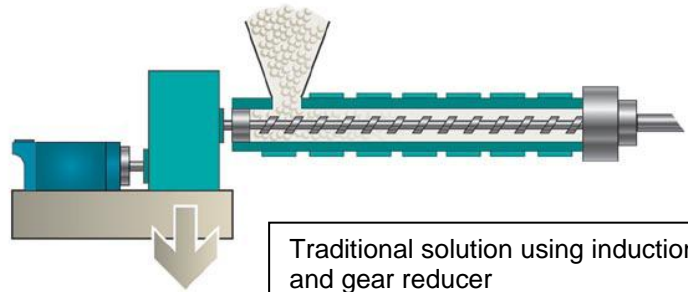
- ***Saves Energy***
- ***Compact Design***
- ***Fewer Moving Parts***
- ***Higher Reliability***

The AC890PX features an integrated industrial enclosure with standard AC line disconnect, fusing, and 3% AC line reactor for reduced harmonics. Installation time and expense are minimized, since all of these items are included, pre-wired, and contained within the enclosure. Downtime is

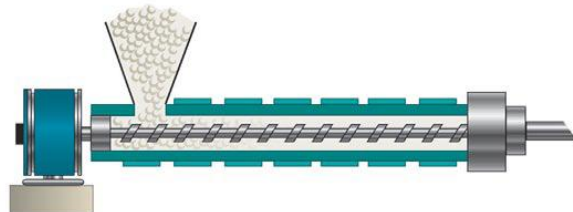


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minimized by virtue of a user serviceable modular design using plug-in power modules for quick and easy field repairs. These modules are lightweight, can be handled easily by one person, and can be expeditiously shipped anywhere in the world and changed out by anyone who can use an Allen wrench! The AC890PX also has the smallest footprint in the industry.



Traditional solution using induction motor and gear reducer



Parker energy-saving solution using direct drive torque motor

Parker SSD Drives is a long standing supplier to extruder OEM's and users, and can provide complete drive systems for entire production lines. Contact your local territory manager for more information.



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