

Servo vs. Mechanical Presses: Press Maintenance



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1 How do primary motor-maintenance requirements differ for a mechanical press compared to various servo-motor designs?

A question I often hear: What is the anticipated life expectancy for high-torque/low-RPM servo motors, and what maintenance is required compared to the relatively simple EC or VF motors on a mechanical press? This, of course, can vary depending on the manufacturer and the number of motors utilized. What we now can say is that, with more than 20 years of service in the field, the life expectancy of DSF servo motors will exceed 25 years before requiring rebuild/replacement, with only minimal maintenance over their lifespan, such as replacing blower fans and air filters.

2 What maintenance requirements can stampers expect for a mechanical press with a flywheel, compared to a servo press with energy management via a capacitor bank or external flywheel motors?

A mechanical press equipped with a flywheel drive requires minimal maintenance, except for the potential failure of the flywheel bearings, which can be a long-lead-time item. Flywheel systems also require regular inspection and replacement of wear items such as drive belts. Servo presses either are equipped with secondary flywheel motor(s), resulting in maintenance for motors and bearings, or they utilize capacitor banks to store the required energy. Capacitor banks have been used in servo presses for more than 20 years with no replacements to date. This confirms an anticipated life expectancy averaging 25+ years before replacement.

3 What are the differences in drivetrain maintenance?

With a direct-drive servo system, the drivetrain is the same on a servo press as on a mechanical-press equivalent. Therefore, the maintenance requirements are basically the same. One key difference: A servo press does not utilize a clutch/brake, eliminating the associated periodic maintenance of those components. The servo-motor



Aida manufactures a wide range of high-torque/low-speed servo motors designed specifically for stamping presses.

safety brake does require monthly stopping-time tests but should not require any maintenance for many years.

4 What are the differences in electrical-control maintenance?

A servo-press control is more complex than that of a standard mechanical press, and there are additional drive requirements, along with other components. Servo-press control systems that utilize off-the-shelf components may still have slightly higher average replacement costs. Local availability and distribution networks of replacement components also may impact costs.

5 How will Internet of Things (IoT) systems be utilized differently in terms of maintenance?

IoT systems have begun to be employed on stamping presses to monitor many critical items during production. These systems help to improve productivity, uptime and predictive maintenance. One major difference with servo presses vs. mechanical presses: Information from the IoT system can be proactively utilized to improve servo-motion programming to minimize reverse loading, vibration, nuisance stoppages, etc. This can improve uptime and minimize future maintenance requirements.