



## LENZE SMV AND POSITIONSERVO 940 PROVIDE BOLT-ON INDEXING SOLUTION.

As part of an ongoing contract engineers at MS Aerospace needed to drill a series of very small pilot holes in the heads of several thousand aerospace bolts. The task was to convert eight pillar drills they had designed, to a semi-automated process in order to speed-up the drilling process whilst ensuring precision and repeatability.

A fixture was developed that could be adjusted to hold a wide variety of bolt sizes and lengths, the fixture then had to be rotated to allow the drill to drill tiny holes in the sides of the heads of the bolts. Lenze PositionServo 940 provided the answer for precise indexing, using a precision cogged drive belt and an encoder built into the indexing spindle for position feedback.

As with most aerospace applications, precision is high and the indexing had to be able to adapt to different bolt dimensions and retain accuracy on every index. The process was speeded up by combining the servo indexing system with an SMV inverter used to drive the main drill spindle motor.

The drill spindle presents a variable load but spindle speed has to be maintained very precisely in order to optimize the drill bit cutting performance, too slow and the bit will stick, too fast and heat damage can be caused to the drill bit and the work piece.

Precise positioning and indexing have been achieved with a low-cost system, making the project viable to make and adapt the drilling machines. Control is still initiated using analogue push buttons because this makes the process simple for the operator. The analogue signal is then processed by the PositionServo 940 which acts as the machine controller.

### Features:

- PositionServo 940
- SMV used for vector control
- Comms option module
- Cost effective
- Fast solution
- Easy programming



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