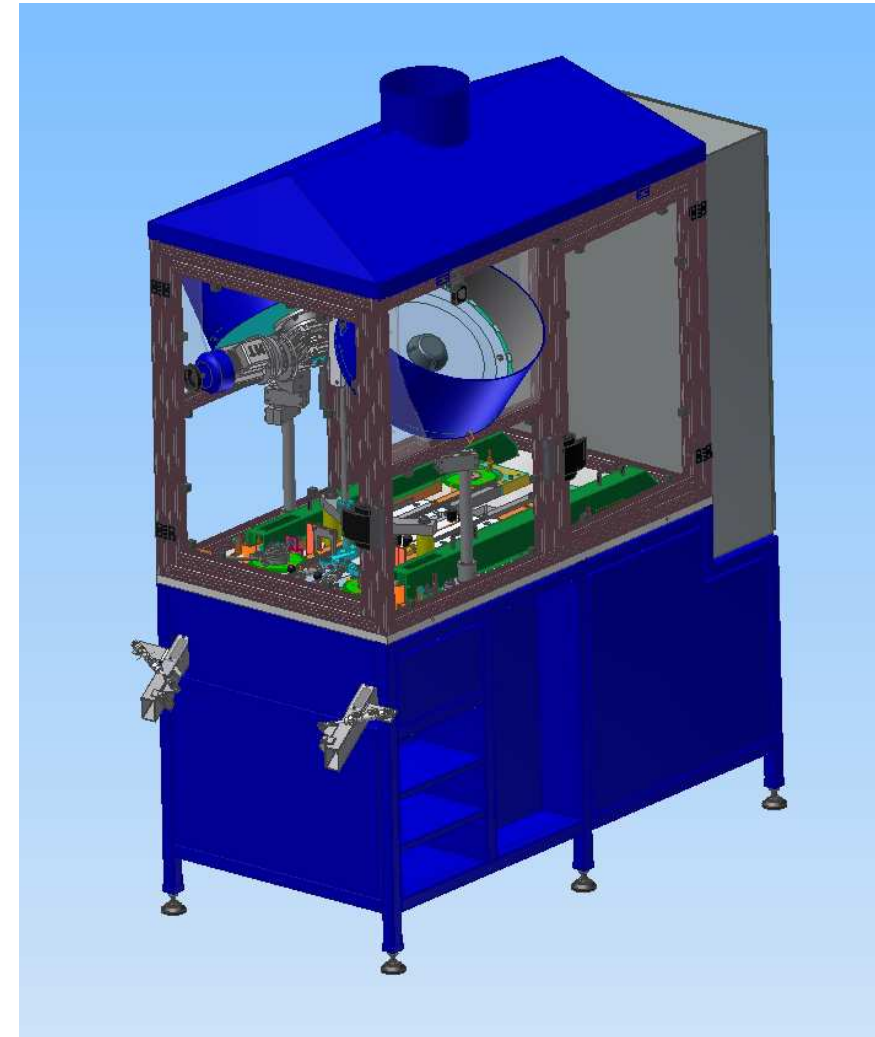


Small Arms Ammunition Induction Annealing Machine

Mecelec Design has developed a fully automatic high speed Induction Annealing Machine for Small Arms Ammunition. The machine is capable of a feed rate of up to 280 rounds per minute based on 5.56mm ball. Each lane is fed from its own hopper that orientates and feeds the case to an escapement mechanism and purpose designed feed chain.

Cases are rotated to ensure an even temperature distribution as they are transferred through the induction coil where the correct annealing temperature of 450°C is reached in just over a second.

A simple tooling and induction coil change enables the machine to be easily switched between calibres and also blank and ball rounds.



Technical Data	
Electrical Supply	3 phase 400Vac @ 63A
Pneumatic Supply	6 Bar @ 10lt/min
Dimensions	2000mm x 1000mm x 2000mm
Control System	Siemens
Control Software	Step 7 V5.5
Induction Generator	15KW @ 50–150KHz
Induction Cooling System	6KW Water Chiller

Reciprocating bowl feeders align and orientate the cases before being fed into the induction coil chain feed

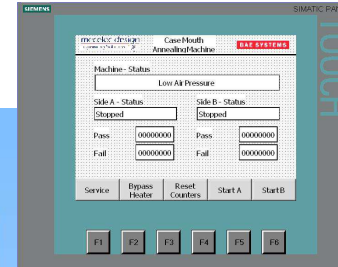
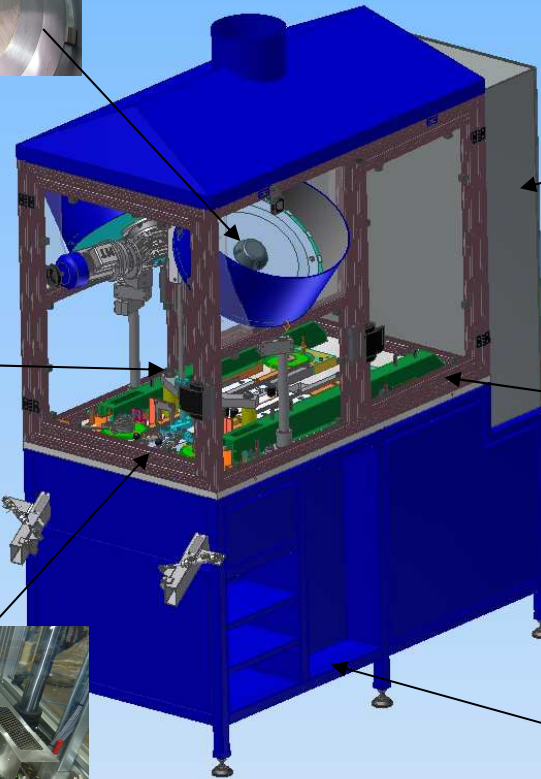
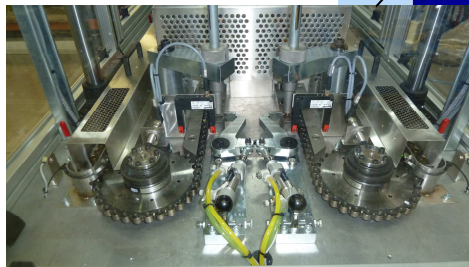


The machine can easily handle multi calibre and ball and blank rounds with simple tooling change.



The machine has 2 lanes which can each process up to 140 cases a minute.

Each lane has a built in air blast cooling tunnel which cools the temperature of the cases to ambient before they are ejected from the machine

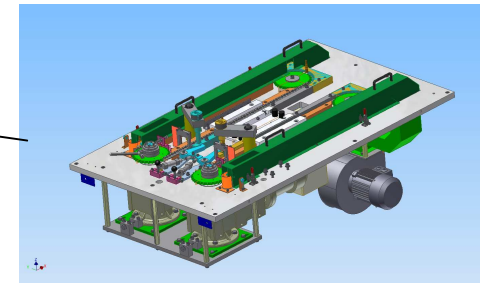


The test rig is controlled by a Siemens S7-300 PLC with a 8" touchscreen HMI.

Communication is via Profinet and Profibus to the associated equipment. This means all setup is carried through the HMI.

A comprehensive setup and maintenance interface allows the operator to tune the process without the need to connect a programming computer.

The control system also has the functionality to connect to a factory SCADA system.



All tooling is mounted to a substantial aluminium base plate, this provides an excellent stable platform for the high speed operation.

The lower frame is constructed from welded box section with easily removable panels for maintenance access. Shelving is provided for interchangeable tooling sets.

The upper guard structure is constructed from extruded aluminium section and is in filled with polycarbonate sheets. 3 guard interlocked access doors provide access to the tooling area.