

Telsonic and China Tools Partnership Drives Success on Binnacle Moulding Assembly

The buoyant automotive market in the UK means that there is always a new model or a facelift version of an existing model under way. This is of course good news for the industry as a whole, but it is also good for the companies supplying the technology and manufacturing solutions needed by the OEM's and Tier 1 suppliers to produce the wide range of components. Telsonic UK has a strong foothold within the UK automotive sector and a recent collaborative project with China Tools, resulted in the company applying its ultrasonic welding technology to components for the new Nissan Infinity.

The components for this application are the 3 items that make up the moulded binnacle which fits under the steering wheel on the vehicle and provides adjustability for steering wheel height. The components are produced in 2 stages with the first step being the welding of a sub-assembly comprising of fabric and a retainer moulding.

The first stage assembly is carried out on a floor-standing machine which incorporates 3 angled, long stroke 20 kHz actuators, sequenced and switched using a Telsonic MAG 2036E generator. These operations are also complemented by a hand held ultrasonic system which the machine operator uses to pre-weld horizontally located lugs on the part prior to the automatic weld sequence. The machine incorporates sensing to verify that these pre-welds have actually been completed before the automatic machine cycle can be initiated. The sonotrodes used within the machine to complete the welds are profiled and made in Titanium to suit the component part. The components produced in this machine are not handed and are used to manufacture both RH and LD drive variants.



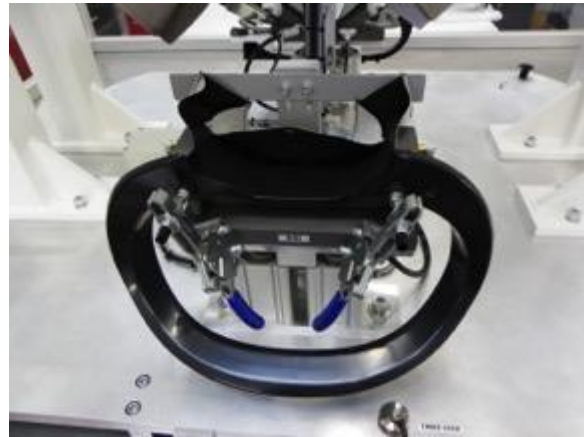
(The first stage sub-assembly is carried out using long stroke 20 kHz actuators, sequenced and switched using a MAG2036E generator)

The retainer sub-assemblies from this first machine are then presented to a second machine, used to marry the sub-assembly to a plastic moulded binnacle. This machine produces both LH and RD Drive variants, using an innovative design to manufacture both part types. Three 20kHz long stroke ultrasonic actuators are mounted to each side of a robust central framework arrangement. This framework is in turn mounted to a rotating table, which can be positioned as required to produce which-ever variant is required at the time.

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Once again part present sensors are used to verify both parts are in the machine nests, which in this case use vacuum to position the fabric correctly on the moulding lip. Profiled Titanium sonotrodes are used to complete the welding operations, and bond the fabric securely and precisely to the substrate to meet pull off specifications. Both machines benefit from simple and intuitive HMI screens that display the set up and weld input menus for the operator.



(Vacuum is used in the nests on the final assembly machine to ensure correct positioning of the fabric prior to welding)



(The first sub assembly is produced in the machine shown here on the left and the final assembly machine – right, incorporates 6 long stroke 20 kHz actuators to enable the production of LH and RH variants)

Telsonic's ultrasonic technology provided an ideal solution to this application given its already established reputation within the automotive supply chain for precision and reliability. Telsonic UK offer a comprehensive range of ultrasonic modules and systems for a variety of plastic welding, sealing, food cutting, textile cutting, metal welding and cleaning applications.

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