

■ **Gnutti Transfer S.P.A., Italy**

# Maximum Speed

With control and drive technology from Siemens, a rotary transfer machine achieves record-breaking cycle time.



An annual delivery volume of approximately 35 machines makes Gnutti Transfer S.P.A., based in the northern Italian city of Ospitaletto, one of the largest manufacturers of rotary transfer machines in the world. Extensive vertical integration has enabled the company to specialize primarily in highly-productive and reliable special machines for high-volume serial production.

The current rotary transfer machine for union nuts from Gnutti processes a pre-pressed brass union nut in a cycle time of just 0.6 seconds. To guarantee this extremely high level of productivity, each and every component needed to be optimized. Ultimately, the deciding factors were the control system and drive technology.

## Flexible scalability

Working closely with a team of specialists from Siemens, the machine manufacturer drew up a drive concept designed to maximize dynamics. One of the key factors in making this possible was the high level of flexibility and scalability provided by the Sinumerik 840D sl control system. Wear-free direct drives boost acceleration, for example, on the rotary table with its horizontal axis, which is directly con-

nected to, and driven by, a Siemens 1FW6 torque motor. A 1FN3 linear motor in the loading system moves the workpieces. However, the machine manufacturer only succeeded in achieving the decisive tenths of a second by linking the drives with the control technology. Combined with the Sinamics S120 drive system, the Sinumerik 840D sl is suitable for up to 31 axes, which means it can be used for virtually every imaginable machine tool configuration. Operators can scale the hardware and software independently of each other and adjust them to their individual machine features.

## Working together towards the best solution

The breakthrough at Gnutti was primarily brought about through cooperation with the project specialists and software developers at Siemens. The team was successful in dramatically reducing the transfer times for signals and data between the control system, sensors and actuators thanks to the digital drive bus. What's more, the processing cycles for time-critical data and signals in the control system were optimized for minimum cycle times. This means that the loading system can check the position of the brass nuts to be fed, tension them and insert them, too.

The innovative Drive-ClIQ bus system for the control components located on rails in the switch cabinet plays a key role in achieving the minimal signal processing times. The drives were also configured to maximize dynamics. As Stefano Coraglia, who is responsible for technical development at Gnutti, so succinctly summarizes: "Siemens currently provides the best complete package for highly dynamic machine tools." ■



The productivity and process reliability of Gnutti's machine tools for union nuts are yet to be beaten

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