



## PC-CNC in reliable use



SATO Elektronik in Mönchengladbach manufactures CNC-controlled cutting systems. The extensive machine range embraces blow-torch cutting systems with oxyacetylene and/or plasma cutting equipment as well as water jet systems. Innovative use of technology and the highest of quality demands when selecting and processing all system elements further guarantee the high performance level of SATO products. This also applies to the integrated control systems. For its latest machine series, SATO Elektronik relies on the experience and the know-how of ECKELMANN AG. For SATO's engineers, the proven E•PNC20 offers the ideal platform for customer-oriented further development of their control and operating components.

With the SATRONIK FB/DS, SATO Elektronik is currently launching a new product in the high end of modern cutting technology on the market. Optionally conventional plasma systems, Plasma HyDefinition or water jet systems are used on this gantry machine. Depending on customers' wishes, different cutting processes can be run in parallel on one and the same machine.



SATRONIK FB/DS with 2 Plasma  
HyDefinition cutting components

Thanks to the above-average sturdy and stable structure and the use of high-quality digital drives and alpha precision gears, the SATRONIK FB/DS is distinguished by particularly good running characteristics. In conjunction with the ECKELMANN control system, the machine achieves cutting qualities that stand up to comparison with those of a laser system. Process accuracy during water jet cutting amounts to < 0.1mm, or < 0.5 mm when using conventional plasma equipment. The maximum feed rate is 35,000 mm/min, and the cutting rate ranges up to 8,000 mm/min. The cutting range is designed for 1500 mm x 6000 mm. Other SATO Elektronik product series are available for larger work areas.



## The ECKELMANN E•PNC20 as the control system of the SATRONIK FB/DS



The CNC3000, which controls the SATRONIK FB/DS, is an enhancement by SATO's engineers on the basis of the ECKELMANN E•PNC20, a powerful CNC controller in pc board format.

Thanks to its realisation as a 32-bit real time processor board, the E•PNC20 operates independently of the PC application in the NC and PLC areas. Therefore, the full computing capacity is available on the PC end for the CNC user interface and for third-party software.

At the same time, a guarantee is provided that a malfunction in the PC's operating system will not lead to uncontrolled crashing of the NC machining process. Reliability during use is an absolute prerequisite for CNC operation of cutting systems.

E•PNC20

### Special CNC functions

For use in the SATRONIK FB/DS, ECKELMANN added special features to the standard CNC functionality. Thus, the control system features five-axis transformation and particularly convenient graphical display functions. All controllers from ECKELMANN support the CAN bus (CANopen). And this also holds true for the E•PNC20. This permits a decentralised control system structure with intelligent machine stations, and was an important aspect for SATO in the decision in favour of ECKELMANN as the control system partner.

It was therefore possible to consistently structure the control system of the SATRONIK FB/DS on a decentralised basis. This strategy affords a variety of advantages: cabling complexity is clearly reduced, susceptibility to noise is reduced and process speed is increased. In total, maintenance of the machine is simplified greatly, which shortens possible down times, and availability is increased. For the machine manufacturer and owner, the decentralised control system structure signifies a lasting cost reduction. To ensure that the considerable electromagnetic interference would not lead to malfunctions of the control system, parts of the data transfer links were designed as fibre-optic conductor lines.

### Partnership with a future

In view of the good experience gathered in the joint development of the control system for the SATRONIK FB/DS, SATO's and ECKELMANN's engineers are already planning the next projects. Among other things, this will involve integration of the new, even more powerful, E•PNC55 technology.