

## Tube Bending Machine



### *Introduction:*

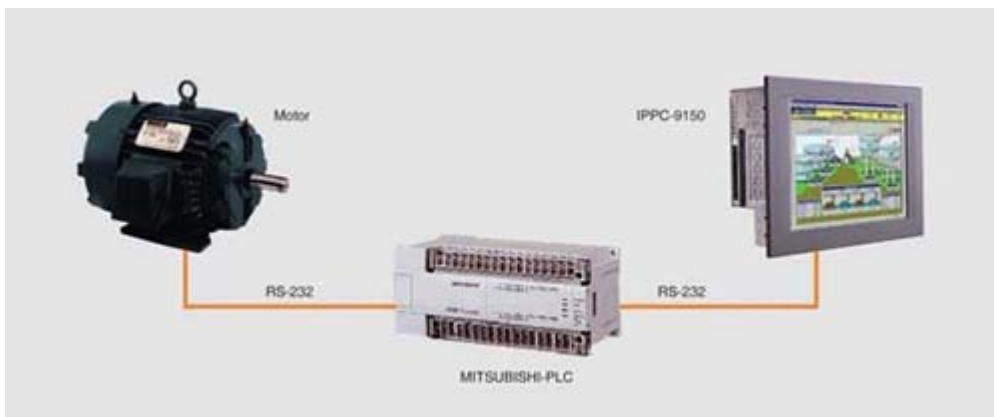
A significant factor behind Taiwan's recent successes in high technology is government managed research institutes, which research and transfer cutting-edge technology to companies in Taiwan. This project is a technology transfer from such an institute to a large manufacturer of tube bending machinery in southern Taiwan. The research institute was in charge of the entire software development, while the hardware was provided by Advantech. The end-result is an industry-leading tube bending machine.

### *System Requirements:*

- The machine needed a visual interface with a touch screen, and an industrial computer.
- Aiming to cut costs, the customer did a structural redesign of the machine, but also required very cost-effective components.
- Integration with HMI should be easy.
- The HMI had to be of good quality to minimize support requirements.
- With exports to the whole world, all components of the machine needed

### *Project Implementation:*

- IPPC-9150 Rugged Pentium® III/Celeron® industrial Panel PC with 15"LCD  
IPPC-9150 was chosen because of its quality, all-in-one design and appealing industrial design.



### ***System Description:***

The system consists of a tube-bending machine controlled by an operator interface via an RS-232 connection. IPPC-9150 is used for the operator interface which runs software where tube bends can be simulated with three-dimensional models. Once the operator is satisfied with the model, it can be sent to the machine, which will make identically bent tubes.

The 3D modeling software was developed by the research institute and runs smoothly with the Pentium processor of IPPC-9150. The research institute also created a PCI card that communicates with the tube-bending machine. The PCI card is fitted in one of IPPC-9150's PCI slots.

With a LAN port, IPPC-9150 can be connected to the company's Ethernet network and be accessible from other computers. This facilitates remote maintenance and management.

### ***Conclusion:***

- Part programs can be stored on a floppy disk or on the hard disk, which makes storage simpler.
- IPPC-9150 has proved to be a reliable interface and is now a standard component in the production of the latest series of tube-bending machines from this rapidly growing company.