

# CC-Link In Action

OPEN NETWORKS

## CC-Link helps Becatron reduce energy costs

**Becatron Mechatronica B.V. of Apeldorn have been a specialist in the mechatronics industry for 15 years. Based on their huge technical experiences they decided to install a CC-Link system to manage energy saving and machine safety for ITS, Europe's largest rewinder of aluminium foils and cling films.**

ITS make over 7,000 tonnes of foils per year, produced on over 40 machines in their factory in Apeldorn. Production at ITS has increased by over 20 fold in the last 15 years but they have managed to keep staffing levels the same and overheads to a minimum by investing in the latest automation technologies.

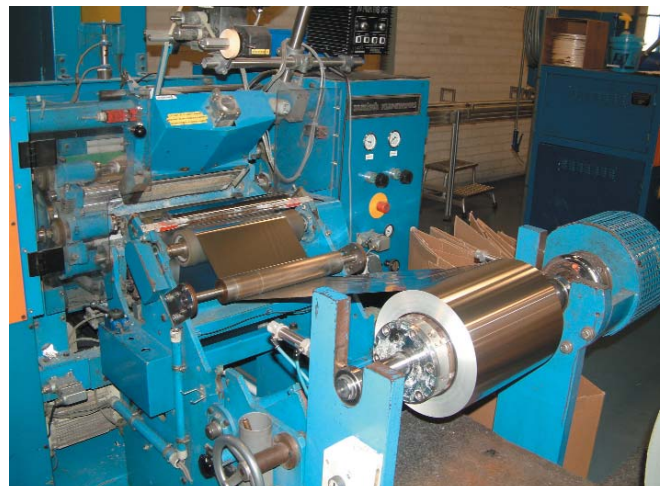
Before the new energy saving system was installed all the machines were stand alone, and every machine needed an operator to start and stop them. With the new CC-Link control system ITS can utilise staff more effectively and now one member of staff looks after a production process, rather than an individual machine.

Before starting production the rewinding machines need to build up to their operating temperature. This can take up to 5 minutes per machine. To prevent energy demand peaks the machines must be started consecutively.

The start up sequencing of all the machines in the factory was quite complicated, but with a totally automated procedure any operator errors are now prevented. The machines work 24 hours a day, 5 days a week, and when production targets are met they shut down to save energy.

The purpose of the new installation is the integration of all the machines into one homogenous system. As a bonus, the new CC-link system also oversees the monitoring of the production machines, and can shut down a machine if it is idle too long. A powered up machine that is not producing can also be a potential fire risk, as material can sometimes be stopped halfway through the heating elements of the machines when temperature build up occurs; the new CC-Link system ensures this will never happen.

Machines on the factory floor also need to be periodically shut down for scheduled maintenance, and the CC-link system is flexible enough to incorporate this into the control philosophy by using its unique station offline facility.



Production areas are divided into seven areas of control. Each area has a specific action. The CC-Link system is very simple in concept. Each machine in ITS's factory is connected to a CC-Link I/O module. The CC-Link system then starts and stops the machines in line with production requirements.

The master for the overseeing system is a micro modular PLC, connected to a 4 line text HMI. The HMI allows the maintenance operators to alter any of the switching times of the production machines from a central location.

Over the entire factory 15 systems are connected to CC-link, using 50 I/O stations on a single 4 wire network. RS485 multi-drops were tried at first to connect the machines together, but as more stations and more data for expanded control was needed, a cleaner infrastructure was required.

CC-Link was chosen as it is very fast in its reaction compared to other fieldbus networks, and Becatron are more confident of a CC-link integrated solution than Profibus DP, due to the local noise problems which can occur from the high energy rewinding machines.

Gerrit Beking, Managing Director of Becatron says of the CC-Link system "ITS is a very special customer of ours and we wanted to install a system that would give them a trouble free solution. Since we installed CC-Link it has never stopped working and is extremely reliable. The configuration and start up of the system was very simple, with CC-Link's station auto-detect feature being very useful. We also received a great deal of support from our local automation equipment supplier Getronics, who have helped and advised us on the maximisation of the potential of the new network"

ITS is an environmentally friendly organisation, and have agreed with the local energy supply company that they will reduce peaks in demand, and also to supply a profile of their intended consumption to get better energy pricing. Using CC-link enables them to minimise energy expenditure and also monitor energy usage. Payback for the new system, based on lost production time and energy is under one year.

In the future ITS want to expand the CC-link system and Becatron will set about the task of sending and receiving production data through the CC-link system to the machines, so that ITS management have a real-time production overview. The CC-Link system will also be connected to a SCADA system to enable more management of the production processes, and allow the automatic start of the production line when an order is received by ITS.

Becatron built the new system, including all panel building, installation, and software writing. They installed the new system in only two months with the flexible cabling of CC-link allowing Becatron to make all the installation without interrupting production.