

# SPEED CONTROL CONCEPT FOR LONG PRODUCT ROLLING MILLS

## Benefits:

- Switch - over retrofit for existing systems
- Powerful and reliable PLC based control system
- Easy to understand and maintain program
- User friendly and functional HMI screens
- Low cost
- Fully tested prior to commissioning on a virtual mill simulation system
- Flexible configuration of working stands
- Short commissioning period
- Rolling schedules server
- Fast data acquisition system
- Installation engineering included
- Training included
- Remote support via direct communication link to Quad's offices

## Features:

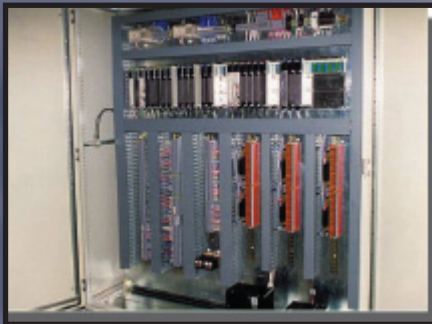
- Mill configuration
  - Mill preparation and start-up
    - Cascade speed control
- Inter-stand tension control utilizing neuro-fuzzy algorithm
- Loop control
- Crop shear head and tail cut length control
- Divide shear cut length control and optimization
- Process monitoring
- Diagnostics, alarms and e-mail paging system
  - Delay logging



# QMCS Technical details

The Basic system includes the following:

Quantum (Modicon) PLC including the IEC1131 programming software with extensive use of engineered function blocks and online documentation. Windows NT workstations and dual screen displays for setup, control, monitoring and maintenance. The system is designed to control mill stands via any of the popular networks or through hardwired I/O's, (including Profibus, Modbus Plus, Devicenet, Interbus-S).



## Typical drive interface for a hardwired system:

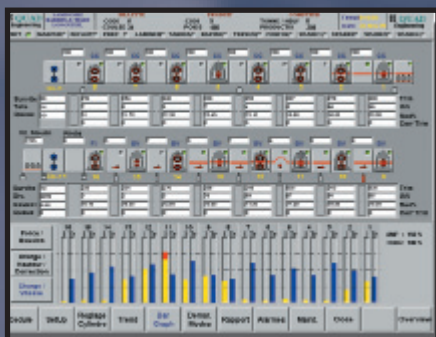
Drive ready, Drive on, Drive fault, Motor speed, Motor current

Drive Start, Stop, E.Stop, Jog Fwd, Jog Rev., Speed reference

In a network configuration all data is transferred via the network, including drive diagnostics.

## Typical hardwired functions of mill operator controls:

- Mill speed "raise " and "lower"
- Individual stand speed "raise" and "lower"
- Manual "cut" command for each shear
- Shear "Cobble cut" command
- A "fast/slow" cascade rate selection
- An E-stop per zone/mill
- All other set-up and configuration functions are managed through the HMI units



## Options:

- Pulpits and operator consoles
- Control of auxiliary systems
- Loop scanners and HMD's
- System installation
- Seamless transfer from existing system
- QMOS - Quad Mill Operating System -MRP