



Project Reference list – IN-HOUSE DEVELOPMENT

PRODUCT	DESCRIPTION
Mill Speed Control System	A fully developed Mill Speed Control System (QMCS) for long product mills, incorporating: set-up, cascade speed control, interstand tension control, impact speed drop compensation, loop control, operator consoles and HMI screens. Implemented in several rolling mills (from 4 to 16 stands) on Quantum and ControlLogix PLC platform.
Mill Viewing System	The QMVS software package is an analytical tool that highlights specific mill process parameters using colorful graphic displays and allows examining of the setup data for each billet rolled. Mill operators and rollers can assess causes of cobbles, improve mill setup practices (compare existing setups to actual), and predict equipment deterioration.
Cut to length system	A PLC based solution for structural, bar and rod mills with speeds up to 3000FPM. Delivers accurate head crop, divide cut, sample cut, last cut optimization, cobble cut and defect cut-out. Conceived for direct drive system with pinch roll for accurate last cut. Available also for Clutch and Brake systems. Speed matching by speed trap or synchronization with delivery stand speed. Diverter control coordinated with blade position. Phantom bar for testing.
Rolling Mill Simulator	<p>The operator is trained step-by-step on the principles of proper mill set-up. The set-up environment is generic and the emphasis is on the process and not what the screens look like.</p> <p>Dynamic rolling is simulated. The operator downloads the mill set-up, starts the mill and initiates charging billets from the reheat furnace. The simulator displays motor speeds and currents as the billet threads through the mill. The operator applies cascade speed trims to any of the stands and observes the changes to motor loads due to push-pull inter-stand forces. He is forced to react to events as if encountered in the normal operation of a mill.</p> <p>Each mill stand drive is expressed as a family of differential equations. The interstand tension/compression forces are derived by modeling the flow of steel in and out of an interstand zone. The loop formation is simulated by accounting for the accumulation of stock in the inter-stand zone and converting the material stored to loop height.</p>
AGC system	A PLC based Automatic Gauge (or Gap) control system utilizing Feedback, Feed forward and Mass Flow Controls with adaptive gain tension regulator. The system is supplied complete with HMI for set-up, controls, monitoring and data acquisition.