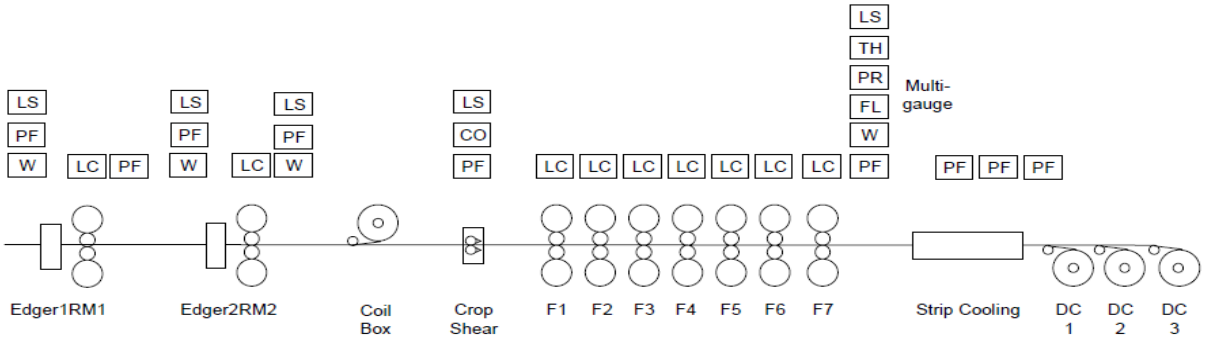
Industrial Process Support Services

Case Study

Project Description: Process Models for a new Hot Strip Mill Shagang Steel - China

This project was for a greenfield mill that was to be built in China. The mill was designed with the capacity for 1.45 meter wide strip and 3.5 megatonnes/year having 7 finishing stands, a coil box, and 2 roughing mills. The mechanical contractor was Danieli and ABB was the electrical supplier for which IPSS acted as the “technology provider”.



CO: Crop Optimisation System
FL: Flatness Gauge
LC: Load Cells
LS: Laser Speed Gauge
PF: Fixed Type Pyrometer
PR: Profile Gauge
TH: Centerline Thickness Gauge
W: Width Gauge

Project Deliverables:

IPSS was selected to provide the rolling mill models server with functions of roughing mill setup, finishing mill setup and strip cooling control. The IPSS models server is based on the HP Itanium platform with OpenVMS. The server needed to interact with the Level 2 and MES functionality of an ABB design and IPSS testing 3D methods and field commissioning services were included to tune the models optimally to this mill. This mill had the latest in looper and AGC control the so references for this equipment were calculated by the model to provide excellent profile and flatness control.

Benefits:

The customer required performance guarantees on the final product and these were achieved. The accelerated project schedule was met thereby permitting this mill to make sellable product to fit Shagang's Business plan and help satisfy demands in this developing market. Operation began in 2009 with the order for electrics and automation having been placed in 2007.

Key Learning and Technology Developments:

The model server used a primary and backup server arrangement to maximize mill uptime and support software development activities. The HP 2660 product was used with a storage shelf and hot swappable disks to facilitate disk management activities. OpenVMS being a true multi-user multi-tasking operating system provides a very robust development environment to facilitate providing remote support for troubleshooting and performance improvement.

IPSS provided its most modern models completely integrated so that RM, FM and coiling temperature functions were optimized. This included the optimization of finishing mill strip shape and temperature control, as well as strip cooling. Looper and roll bending setups were calculated and transferred to the L1 system for control.

Mill pacing is important to high volume strip mills and a function was provided to help optimize the mill operation.