Tianjin Pipe Co., Ltd.

6-5/8" Seamless Steel Pipe Production Line (PQF Mandrel Mill)

General Information
- Mechanical Supplier: SMS MEER
- Capacity: 350,000 t/a
- Initial Material: Billet
  - d = 200mm
  - Weight max. 645 kg
- Final Product: Tube d = 48(32) .. 168 cm
- Commissioned in: June/Oct. 2003
- Start Up: Sept. 2003
Medium Voltage Main Drive System

- Piercing Mill: 2X4000 kW; 750 min⁻¹
- Based on ABB ACS6000 Medium Voltage Drive System
  - IGCT semiconductor
  - Direct Torque Control (DTC)
    - Unique Torque Control performance
  - Active Front End (IGCT)
    - Network Power factor approx. 1.0
  - Common DC-Bus
  - Synchronous and Induction machines
  - Modular Design

Low Voltage Main Drive System

- PQF: 9X400 kW+6X600 kW
- Retainer: 4X300+1X75
- VRS: 3X70 kW
- Extracting Mill: 9X70 kW
- Stretch Reducing Mill: 3X900 kW; 2X280 kW; 1X630 kW

- Based on ABB ACS600 MultiDrive System
  - Common DC-Bus
  - Direct Torque Control (DTC)
  - Modular Design
  - Various Supply Unit
    - 6 or 12 pulse diode
    - Regenerative Thyristor Bridge
    - Active Front End (IGBT)
Automation System

- ABB OperateIT Operator Station
- Advant Control System with AC450 RMC
- Main Function List
  - Material tracking
  - Drives Reference Generation
  - Drive Control - Direct Torque Control
  - Positioning Control
  - Sequence
- Design, Engineering and Commissioning
The demanding requirements of tube rolling production are taken into consideration, based on ABB's practical experience in tube rolling mills:

- Special selection and arrangement of the bearings of the 15° and 45° installed CTP main motors
- Lower inertia design of the fast controlled retainer motors
- Backlash Compensation to reduce noise and wear caused by torque step