Coal Flow Measurement
for pulverized coal injection

Capacitive measurement of mass density

Capacitive - correlative measurement of velocity

CAN - Bus for transmission of all measured values
Significance of PCI is vastly rising in pig iron business:

AIM

- Replace as much coke as possible by injection of coal dust into the blast furnace.

Reasons

- Increasing market price for coke
- Pressure from overseas competitors
- Environmental concerns on coke production

Highest PCI rates combined with smooth BF operation can only be accomplished with individual flow control of the injection lines:

- Negligible deviation among injection lines
- Full control on repartition of coal in the BF at any time
- No overload of individual tuyères with powder coal

Solution

- **Cabloc** flow meters in every single injection line to close the control loop
- Existing PCI installations can be retrofitted with **Cabloc** flow meters and individual flow control

Controlled PCI system with **Cabloc** flow meters
Static distribution vs. individual control with **Cabloc**

**Function**

- Dust concentration in the transportation line is measured capacitively
- Velocity of the particles is determined capacitive-correlatively
- From concentration, velocity and geometric properties of the line the mass flow is calculated
- Multiple logical systems are all integrated in the **Cabloc** for complete processing
- Velocity and pressure of the conveying gas have no influence on the result

**Calibration and configuration**

- Centralized from a single control PC with CAN-Bus adapter
- **Cabloc** flow meters come calibrated for equal flow reading from the factory
- Automatic recalibration to hopper weights available as an option

**Output of measured values**

- 4 -20 mA current loop(s):
  - Mass flow
  - Material velocity (optional)
  - Material concentration (optional)
- CAN-Bus connection to the PC
- Graphic evaluation of the data with **Cabloc** / Graph (PC software)
Retrofitting of different PCI layouts with Cabloc flow meters

**Mechanical construction**
- Built for heavy duty usage
- Protective tube made of steel
- Electronics case made of cast aluminum offering protection class IP6
- Stand alone: No additional electronic cabinets or racks are required

**Electrical requirements**
- Operation voltage: 24 V DC (± 20 %)
- Maximum power consumption: 20 Watts

**Options and accessories**
- Additional current loops for material velocity and concentration
- Visual indication of mass flow at the flow meter
- Welding neck flanges matching the flanges on the Cabloc flow meter