



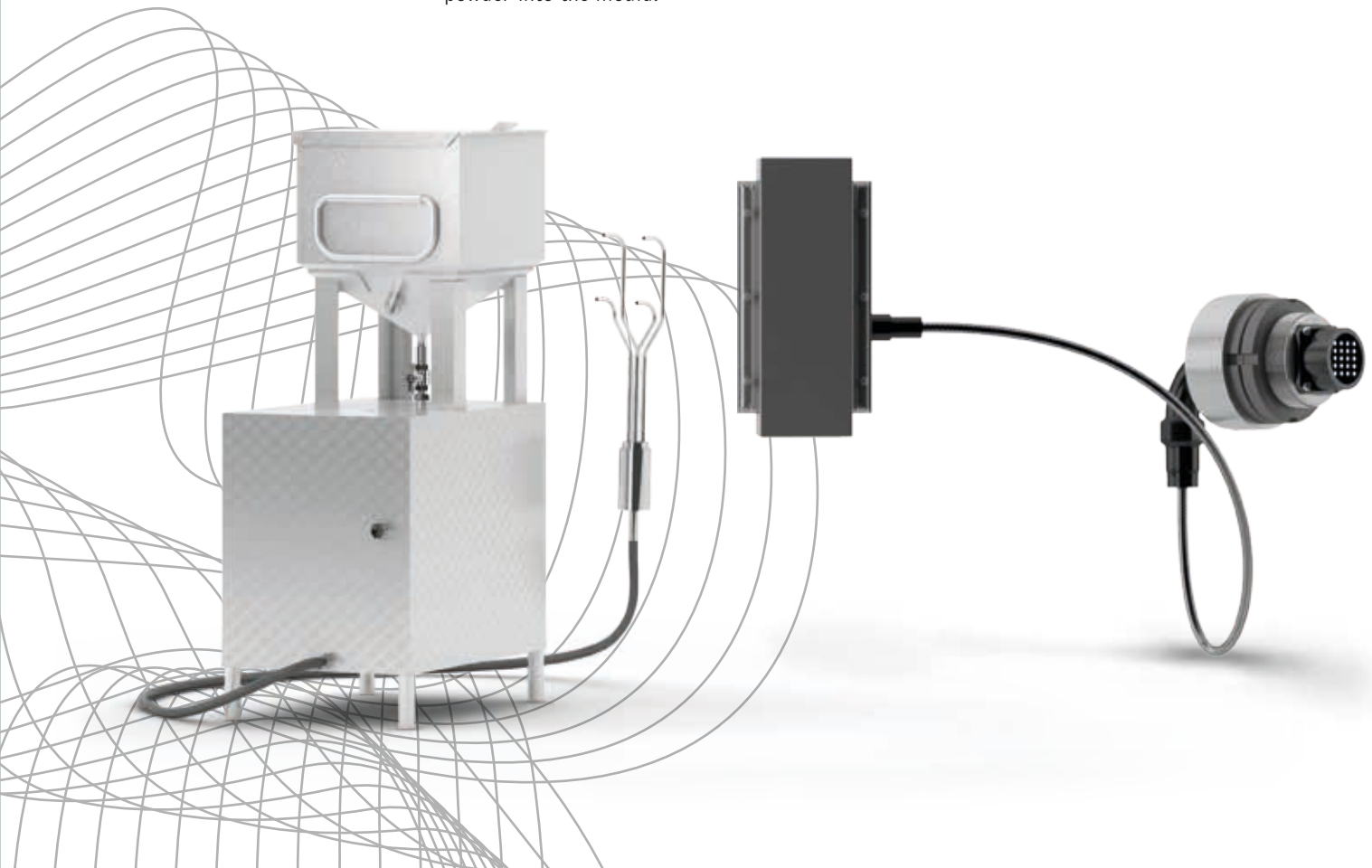
ergolines
INNOVATION PARTNER

PTC – POWDER THICKNESS MEASUREMENT AND CONTROL SYSTEM FOR BILLET AND BLOOM CASTERS.

Powder feeding is a priority to ensure the stability of the powder level and steel quality. The first step in implementing this automatism is real-time measurement of powder thickness in the liquid bath.

PTC is a system made up of a radioactive or optical sensor to read the total level in the mould (steel + powder), an electromagnetic sensor to read the position of the steel level and an automatic powder feeder for adding the casting powder into the mould.

The PTC system makes it possible to keep powder thickness constant, and therefore also the meniscus in the mould. The graph below shows variation in the steel level in the mould. The level signal given by the radioactive sensor is shown in blue, while the signal from the electromagnetic sensor of the PCT system is shown in red. The difference between the two signals gives the thickness of the powder.



INSTRUMENT MAIN FEATURES

The main advantages of the powder measurement and control system are:

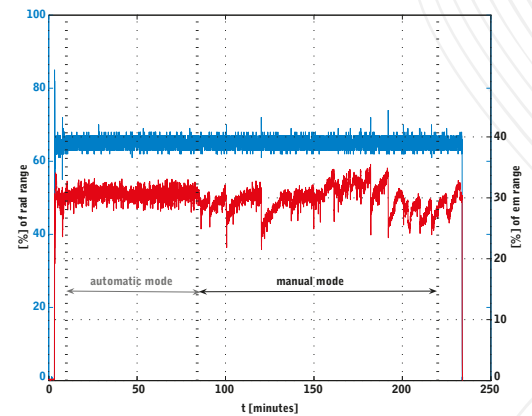
- › it enables constant powder level
 - › it enables constant steel level in the mould
 - › optimised lubrication in the mould
 - › it reduces inclusions
 - › it evens out heat exchange in the mould
 - › it ensures constant product quality during casting
 - › it is no longer necessary to have a dedicated operator for checking the powder level in the mould.
-

HOW IT WORKS

Powder thickness is measured through combination of two sensors:

- › a radioactive or optical sensor, already installed in the mould or, alternatively, supplied by Ergolines (this sensor detects the total steel + powder level)
- › an inductive sensor – ILD 200-07, (which detects the liquid steel level only), developed by Ergolines

By processing the signals from the respective sensors, the Ergolines Logic Module calculates the difference between the actual value of the powder level and the setting, and controls the powder feeder system which, in turn, regulates the powder flow, keeping the powder thickness in the mould at a constant value.



SYSTEM COMPONENTS

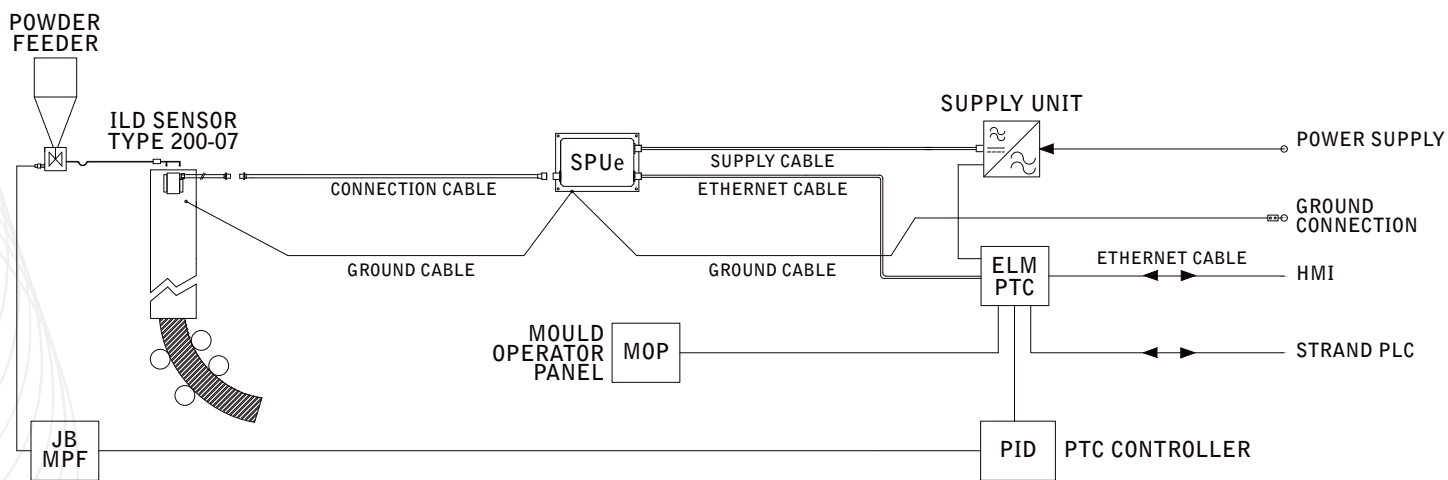
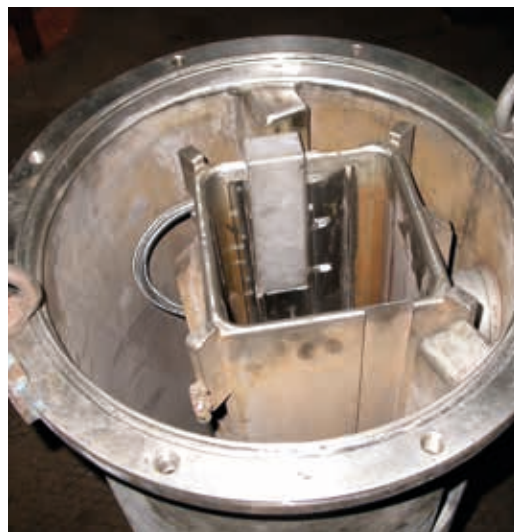
The system is made up of the following components:

- › ILD sensor (model 200-07)
 - › Flexible cable, 5 or 10 m
 - › Signal processing unit, which pre-processes the level signal
 - › Ergolines logic unit for Mould Level Control
 - › PC-HMI unit for data acquisition and analysis, data recording and graph viewing
 - › Operator panel (on request)
-



INSTALLATION

The electromagnetic sensor ILD 200-07 is installed inside the mould body, on the conveyor, which should be suitably machined to house the transducer.



TECHNICAL DATA

Operating frequency	200 Hz
Reading range	80 or 160 mm
Accuracy	± 4mm
Response time	50 msec
Also works with mould stirrer	YES



ergolines lab s.r.l.

in Area Science Park, Bldg. R3
Padriciano 99, 34149
Trieste, Italy
C.F./P.IVA 00955410329

P +39 040 375 5422
F +39 040 375 5421
infosteel@ergolines.it
www.ergolines.it