The smart powder distribution mechanism consists of:
- **PDM300 - Powder Distribution** to precisely adjust and deliver granulated casting powder at the desired rate into the mould.
- With its key elements:
  - **Powder Level Sensor** to measure the top level of granulated powder in the mould.
  - **Powder Level Control** to optimize the thickness of granulated powder in the mould.

Smart Powder Distribution Mechanism

Vesuvius offers a global solution for automatic distribution of granulated casting powder into the mould.

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Smart Powder Distribution Mechanism

**PDM300**

- **POWDER DISTRIBUTION**
- **POWDER LEVEL SENSOR**
- **POWDER LEVEL CONTROL**
- Data storage and image analysis

**FLOW CONTROL SYSTEMS**

- **FLUXES**
- **PURGING PLUGS**
- **SLIDE GATE REFRACTORIES**
- **VAPEX PRODUCTS**
- **VISO PRODUCTS**
PDM300 – Powder Distribution Mechanism

The new PDM300 is a state of the art Mould Powder Distribution Mechanism to precisely adjust and deliver granulated powder at the desired rate into the mould.

**Main features**
- Designed for up to 4 independently controlled discharge lines
- Adapted for slab and bloom moulds
- Continuous delivery of granulated powder in the mould
- Adjustable mass flow rate control
- Provides real-time powder consumption for each discharge line
- Anticipatory buffer draining for fast powder change
- Automatic unclogging of the discharge lines

**PDM300 - Vacuum version**

- **Powder Level Sensor**
  - Measures the top level of granulated powder in the mould.
  - Main features
    - Mounted on discharge nozzle, tundish car or dedicated support
    - Signal accuracy not affected by dust or flame
  - Sensor mounted on a dedicated support
  - Powder thickness calculation as difference between powder level sensor signal and real steel level
  - Example of installation
  - Avoidance of hot spots at the surface of the steel bath

**Powder Level Control**

- It is a PLC based controller, designed to control and optimize the granulated powder thickness in the mould.
- Uses DASCO computer to provide data storage and analysis of mould powder control parameters.
  - Main features
    - Powder thickness control
    - Remote control via ethernet and communication with level 2 computer
    - Data storage and analysis
  - DASCO screenshot: Smart Powder Distribution Control during one sequence (4 hours)

**Typical installation layout**

- Power supply lines to the discharge nozzles
- Discharge nozzles
- Powder Level Sensor
- Powder Level Control
- Control
- Display screen
- PLC Control
- Touchscreen HMI
- Data storage and analysis
- Wireframe HMI for parameters setting
- Wireless remote pendant for setting of powder discharge rate
- Operator not paying attention
- Operator taking corrective actions
- Calculated powder thickness (left and right side of the mould)
**PDM300 – Powder Distribution Mechanism**

The new PDM300 is a state of the art Mould Powder Distribution Mechanism to precisely adjust and deliver granulated powder at the desired rate into the mould.

**Main features**
- Designed for up to 6 independently controlled discharge lines
- Adapted for slab and bloom moulds
- Continuous delivery of granulated powder in the mould
- Adjustable mass flow rate control
- Provides real-time powder consumption for each discharge line
- Anticipated buffer draining for fast powder change
- Automatic unclogging of the discharge lines

**PDM300 - Vacuum version**

Powder Level Sensor

It measures the top level of granulated powder in the mould.

**Main features**
- Mounted on discharge nozzle, tundish car or dedicated support
- Signal accuracy not affected by dust or flame
- Sensor mounted on a dedicated support
- Powder thickness calculation as difference between powder level sensor signal and real steel level

**Powder Level Control**

It is a PLC based controller, designed to control and optimise the granulated powder thickness in the mould. It uses DASCO computer to provide data storage and analysis of mould powder control parameters.

**Main features**
- Powder thickness control
- Remote control via ethernet and communication with level 2 computer
- Data storage and analysis

**DASCO screenshot: Smart Powder Distribution Control during one sequence (4 hours)**

**Manual mode**
- Operator not paying attention
- Operator taking corrective actions

**Automatic mode**
- Calculated powder thickness (left and right side of the mould)
- Measured powder level (2 sensors)
- Powder distribution command (2 supply lines)
- Meniscus position

**Example of installation**

Typical installation layout

Typical installation layout

Typical installation layout

**PDM300 - Vacuum version**

The PDM300-vacuum version uses a vacuum system to aspirate the granulated powder from a remotely located bulk source (bulk bag or silo).

**Control**

- Touchscreen HMI for parameters setting
- Wireless remote pendant for setting of powder discharge rate
- PLC Control
- Data storage and image analysis
The new PDM300 is a state of the art Powder Distribution Mechanism to precisely adjust and deliver granulated powder at the desired rate into the mould.

**Main features**
- Designed for up to 6 independently controlled discharge lines
- Adapted for slab and bloom moulds
- Continuous delivery of granulated powder in the mould
- Adjustable mass flow rate control
- Provides real-time powder consumption for each discharge line
- Anticipated buffer draining for fast powder change
- Automatic unclogging of the discharge lines

**PDM300 - Vacuum version**

- Powder Level Sensor
  - It measures the top level of granulated powder in the mould.
  - Mounted on discharge nozzle, tundish car or dedicated support
  - Signal accuracy not affected by dust or flame
  - Powder thickness calculation as difference between powder level sensor signal and real steel level

**Powder Level Control**

- It is a PLC based controller, designed to control and optimise the granulated powder thickness in the mould.
- Interfaces PLC/PC to provide data storage and analysis of mould powder control parameters.

- Main features
  - Powder thickness control
  - Remote control via ethernet and communication with level 2 computer
  - Data storage and analysis

**Example of installation**

- Control
  - Touchscreen HMI for parameters setting
  - Wireless remote pendant for setting of powder discharge rate
  - PLC Control
  - Data storage and image analysis

**Typical installation layout**

- Vacuum unit
- Powder bulk bag
- Supply lines
- Dosing unit
- Discharge nozzles

- Powder Level Control
  - Manual mode
  - Automatic mode
  - Powder distribution command (2 supply lines)
  - Meniscus position
  - Calculated powder thickness (left and right side of the mould)
  - Measured powder level (2 sensors)
The smart powder distribution mechanism consists of:

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