



PROFILEMETER

MONITORING THE LEVEL, SURFACE PROFILE AND RATE OF DESCENT OF THE BURDEN MATERIAL

BENEFITS

The Profilemeter forms part of an in-house suite of furnace monitoring probes which is available as a standard or customized solution adapted to suit the customers' existing plant. When installed a level above the stockline inside the blast furnace, and in combination with the VAIron expert system, the probe can provide the means to optimize furnace charging models.

FIELD OF APPLICATION

Blast furnace - burden descent monitoring

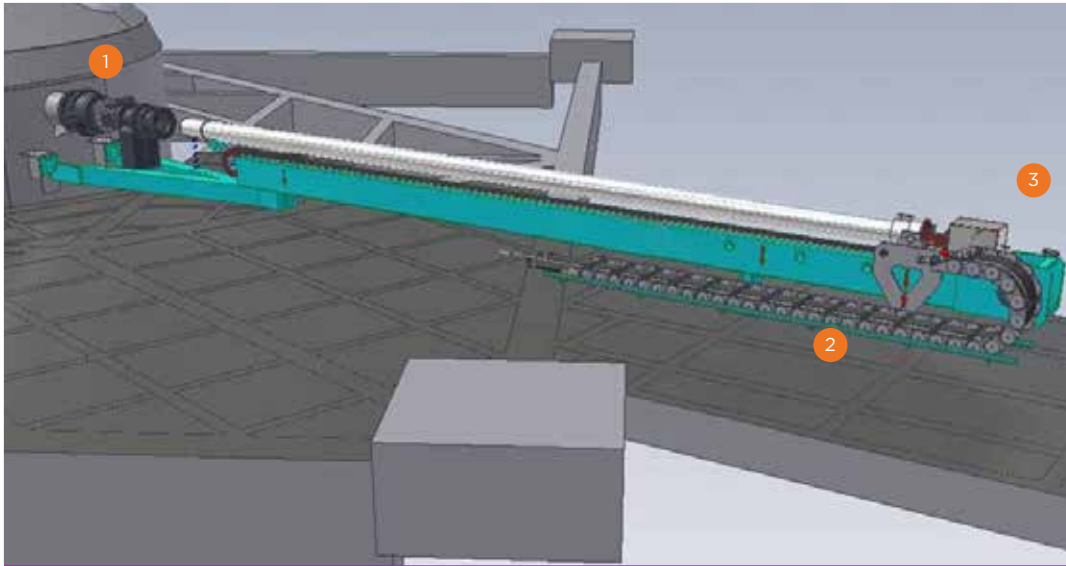
FUNCTION

The radar profilemeter is used to monitor the level, surface profile and rate of descent of the burden material within the blast furnace. The probe is typically located just below the top cone knuckle, at a level approximately 600 mm above the maximum stockline level. This unit allows the level of the burden surface to be accurately displayed on the furnace HMI. When combined with regularly timed scanning runs, the rate of descent and layers of the burden can be determined and displayed. When utilising VAIron expert models, the profilemeter can provide the blast furnace operator with closed loop burden distribution control as part of a fully automated blast furnace operating system.

The profilemeter consists of a water-cooled travelling lance that enters the furnace horizontally through an actuated isolation valve. The lance travels from furnace wall to furnace centreline, and takes a series of readings with its microwave sensing head whilst in continuous motion. The Primetals Technologies radar instrument, supplied in conjunction with Siemens CT, is mounted in a discrete panel at the rear of the travelling carriage. To maintain gas tightness whilst in the furnace, the lance passes through a stuffing box with a series of lubricated seals, and a hydraulically-actuated isolation valve mounted on the furnace branch. A bellows unit at the furnace allows differential movement between the furnace shell and the tower structure (on which the rear of the frame is mounted).

PRODUCT STRUCTURE

- Profilemeter
- Hydraulic or electric drive



1 | Dome isolation valve

2 | Flexible hose / Cable carrier

3 | Hydraulic drive

Technical data

Modular microwave sensing assembly

Hydraulic drive motor via planetary gearbox and chain drive

Lance position monitoring by encoder throughout the extent of its travel

Gas sampling, cabling and services via a flexible cable / hose carrier

Positive isolation by a hydraulically-operated dome valve with inflatable seal and emergency manual operation

SERVICES

- Integration engineering
- Erection advisory
- Commissioning advisory
- Logistics
- Spare parts

OTHER CUSTOMERS BOUGHT ADDITIONALLY

- Radar Stockline Recorder
- Mechanical Stockline Recorder
- Above Burden Temperature Probe
- Sub Burden Probe
- Ignition Lance
- Dome type isolation valve and stuffing box

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