MetalVision

Manufacturing Canada LTD.

MV20/20

In-line Measurement of Molten Metal Quality

MV20/20

IN-LINE MEASUREMENT OF
MOLTEN METAL QUALITY

MV20/20 Portable System

✔ Overall Metal Cleanliness Measurement

✔ Inclusion Detection to Industry Accepted Size Ranges

MV20/20 Basic System

✔ In-Line Continuous Measurement in Real Time

✔ Sample Size ≥ 40%

✔ Designed for Casthouses and Foundries

MV20/20 Advanced System

Operating System

The MV-20/20 molten metal ultrasonic scanning system provides continuous, real-time information on the cleanliness quality, and specific particle content of liquid metals.

1 The MV20/20 measures directly or indirectly all inclusions present in its detection zone, no matter how large or small. Its Cleanliness Index (CI), provides an all-inclusive particle size distribution of the metal tested.

The CI is generated through sound attenuation (loss), a function of particle concentration. It was developed for applications in process evaluation, process control and quality assurance.

2 The MV20/20 targets the largest particles detected given their potential impact on cast material quality. Most inclusions provide an ideal reflective surface for ultrasound, and hence accurate measurement. Inclusion sizes range from 20µm to ≥160µm.

3 The MV20/20 can sample at least 40% of metal tested due to its unique ability to measure continuously, and unique capability of measuring liquid metal depths of 6 inches or more (depending on equipment set-up).

4 The MV20/20's unique "top to bottom" depth measurement capability, detects inclusion size distributions at different metal depths. These can vary significantly, since large inclusions [≥90µm] are typically present at or near the bottom of most launders, and generally go undetected.

5 The MV20/20 is designed for straightforward set-up and operation. It can be deployed in most testing/process areas difficult to access.

Equipment
Configuration

- The MV-20/20 system consists of a computer, pulser-receiver unit, oscilloscope, probe and cables.

- The probe consists of two transducers, two metal guide rods, reflector plate and rectangular tube.

- The system produces pulses of high-frequency sound energy. The sound pulses are transmitted into and received from the liquid metal through a pair of metal guide rods.

- The bottom ends of the guide rods and the reflector plate are immersed below the surface of the liquid metal

- The sound pulses travel into the liquid metal where they are reflected by the particles and reflector plate. The sound reflections from the particles and reflector plate are received and processed by the system.
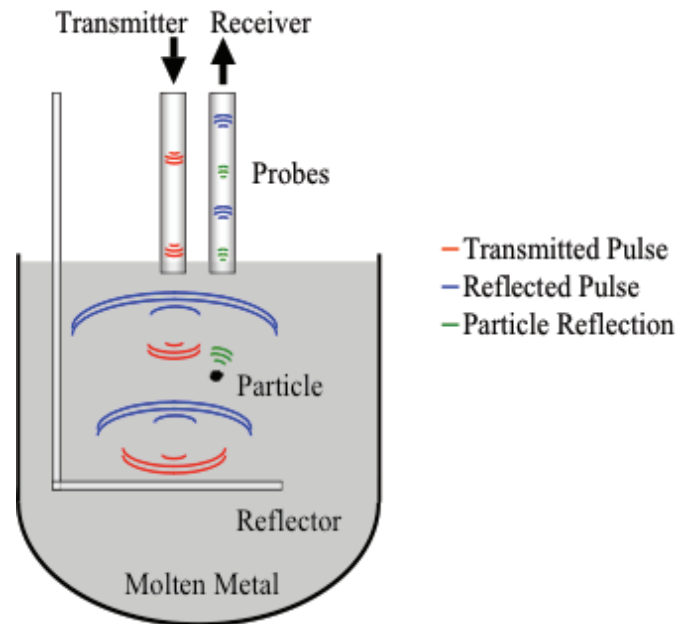
The MV-20/20 liquid metal scanning system is an ultrasonic device that provides continuous, real-time information on the cleanliness quality (particle content) of liquid metals

MV20/20

| COMPUTER	⇄	PULSE-RECEIVER	⇄	PROBES	⇄	MOLTEN METAL

More than 50 years of research and development

THE ONLY REAL TIME, IN-LINE, CONTINUOUS
INCLUSION MEASUREMENT TECHNOLOGY
FOR MOLTEN METAL IN THE WORLD

Data output
Display

The MV20-160 Software Generates the following display of test results

● **Cleanliness Index** – overall cleanliness measurement

● **Mean Largest Particle Size** detected - 20µm- ≥160µm

● **Peak Largest Particle Size** detected - 160+µm

● **Particle Signal per 1000 Measurements**

● **MV Grade** – overall index of melt quality (optional)
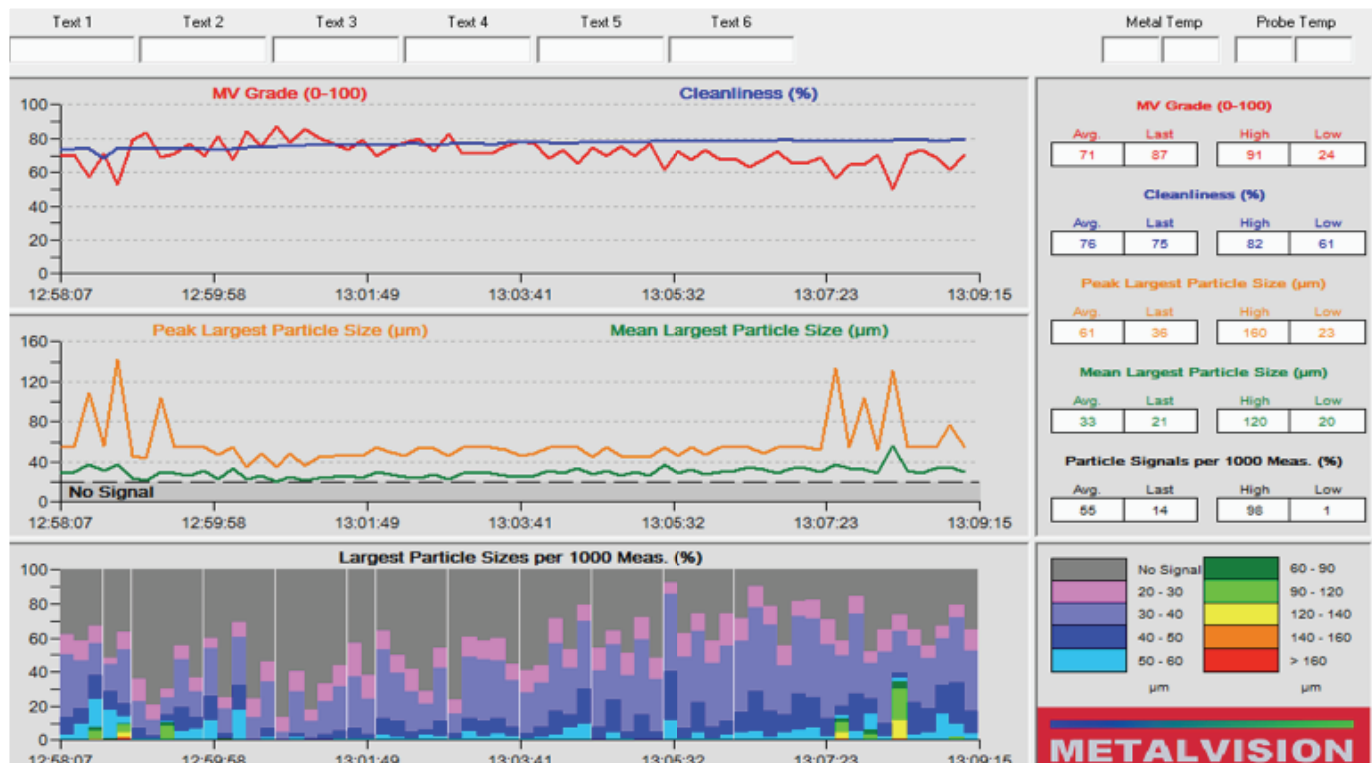
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