

Vacuum, when applied to die casting, helps to reduce porosity and increase yield in components - especially parts that:

- *Must contain a minimum amount of porosity*
- *Thin wall appearance requirements*
- *Structural applications*

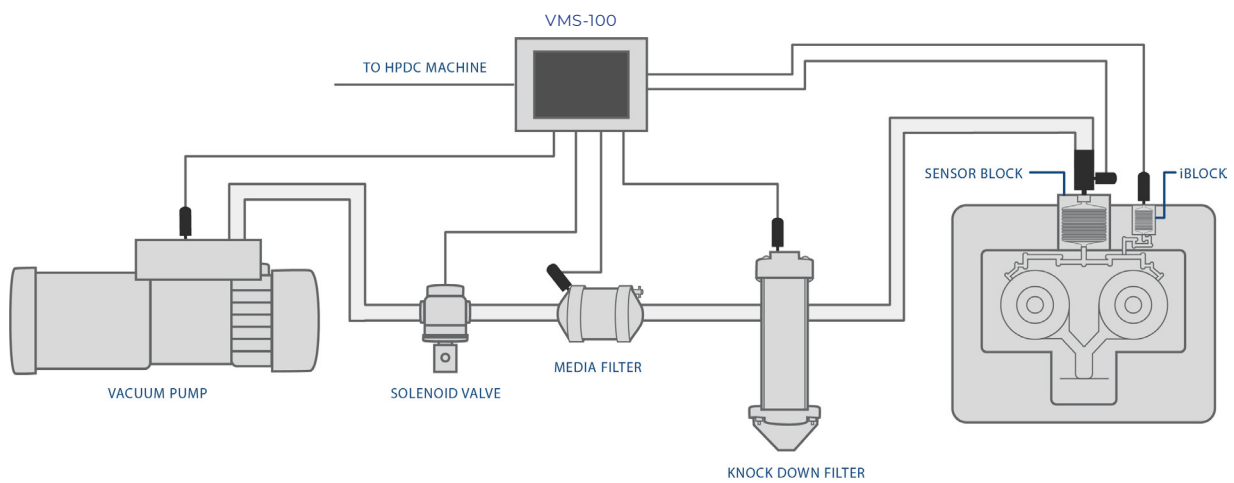
Over the course of hours or days, residue from spray, carbon, and plunger lube will build up that can impact the performance of the vacuum system. As the clogging continues, part-quality will eventually be impacted. The question is, how do you know when this is happening?



## Vac-Alert

Vac-Alert's patent-pending technology provides real-time vacuum level inside the die cavity, through measurements taken by Midland's 'iBlock'. iBlock alerts users when the vacuum level falls below a programmed level in Inches of Mercury ("Hg), Kilopascals (kPa), Torr or PSI. When the pre-determined level is reached, the user can select to have the machine shut down to prevent more unacceptable parts from being made.

Vacuum sensors, installed at critical locations in the vacuum system, also detect performance degradation and notify the user of those issues, via the VMS-100 touch screen interface. Data capture begins just before the solenoid valve opens, through the end of fast shot.



Provisional Patent #: 62/864,212



VMS-100



iFilters & Solenoid Valve

## What's Included?

**VMS-100** – The heart of the system is the VMS-100, which collects and analyzes data transmitted from the sensors. Through the onboard touch screen, the user can program, as well as review each shot and download data onto a USB flash drive for further analysis.

**iFilters** – Vac-Alert utilizes Midland's well-known filtration system comprised of both a large particulate 'knock-down' filter and a fine particulate 'media' filter. Each filter includes a Midland sensor to measure and confirm that vacuum levels are maintained.

**Solenoid Valve** – Vac-Alert comes standard with a low-voltage, 24 VDC powered solenoid valve. As the signaling from the die casting machine is received via contact-closure, the VMS-100 sends signaling to the valve to open and begin the vacuum cycle, removing air from the die cavity.

**Wire Harness** – All cabling for the iFilters, as well as a cable harness, run out to the high pressure die cast machine to make installation easy and allow for easy disconnect when a tool is removed.



Sensor Blocks



iBlock

## Accessories:

**Mounting Brackets** – A variety of mounting brackets are available for installation of the VMS-100 control panel on vertical or horizontal surfaces.

**Sensor Blocks** – Our Sensor Blocks come in a set of standard sizes and include the vacuum sensor imbedded in the vacuum block for accurately reading the vacuum level. Sizes include our 'Mini' all the way up to an 8" block and we can create custom blocks of any size for your application.

**iBlock** – Our intelligent Block monitors vacuum level in the die cavity. Each die requires one to two iBlocks and will alarm once the level falls outside the safe parameters to cast a part with minimal porosity levels.

\* Midland's Engineering team can help size the appropriate blocks for your tool and application.

## Support:

iBlock and Runner Design – We offer support to help design the addition of iBlocks and their runners needed into dies, to help our customers achieve lower porosity in their casting process.