



Installation Manual
FC-VLP-599 Hybrid
FC Shot Flow Control
VLP MagnaValve
599-4.0 Flow Sensor



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Abrasive blast cleaning or shot peening machines must have some type of media flow regulating device. MagnaValves® offer an efficient low maintenance way of regulating the media flow. Typically the Model 250 MagnaValve for 700 pounds per minute flow or Model 500 MagnaValve for 1200 pounds per minute flow rate are used. These valves have built-in shot flow sensors.

The hybrid arrangement offers an advantage in that abrasive grit does not contact the sensor since it is placed over a rubber hose immediately below the valve.

Model LP or Model VLP MagnaValves do not have a built-in sensor. They can still be used for closed loop regulation with the FC shot flow controller if an external sensor is also used. The 599 series of sensors are used external to the MagnaValve to provide the shot flow rate feedback signal to the FC Shot Flow Controller.

The sensor is an inductive (coil type) oscillator circuit which produces a voltage output proportional to the amount of steel shot or grit within the sensor. The sensor is placed over the outside of the abrasive blast hose located below the MagnaValve. The blast hose should not have any metallic reinforcement as this will affect the sensor signal. The sensor should be secured to the blast hose with wood screws using the three mounting holes at the top and bottom of the sensor.

The location of the sensor relative to the MagnaValve is not critical but should be maintained once it has been established as this affects the calibration results you will get. Moving the sensor further down the blast hose will diminish the signal and the sensor "Span" adjustment will have to be increased to re-calibrate the output signal.

The sensor is factory tested and the span is set for a typical installation of six inch gap between the MagnaValve and the sensor. It is always necessary for the customer to set the span calibration after the sensor has been installed onto the machine.

Note: The sensor must be re-calibrated to match the machine settings. See the calibration section below.

The calibration consists of running shot for a timed period, such as 15 seconds, into a catch container and weighing the results. This is a catch-and-weigh test. The "Span" adjustment on the 599 sensor is used to calibrate your results. Do not change the "Span" adjustment at the FC Controller, it has been factory set and sealed. Be sure the full scale range of the FC Controller is set to match the size MagnaValve you are using.

Model FC Control Full Scale Range Settings Model VLP MagnaValve - 1,000 pounds per minute Model LP MagnaValve - 1,999 pounds per minute

Installation Procedure

1. Mount the flow sensor below the MagnaValve
Be sure the sensor is attached securely to the abrasive blast hose
Connect wires per the data sheet or AN-154 Wiring Guide
Be sure the green led's are on for ± 12 Vdc power from the FC Controller
2. Check the FC Shot Flow Controller full scale range - adjust controller range if necessary
Model VLP MagnaValve - 1000 pounds/minute
Model LP MagnaValve - 1999 pounds/minute
3. Run catch-and-weigh test
Adjust sensor span if necessary
Do not adjust the span at the FC Shot Flow Controller
4. Refer to Instruction Manual IM0056C for information on the FC Controller
5. Refer to Application Note AN-154 for wiring information on FC-599-VLP Hybrid applications
6. For factory assistance call 1-800-832-5653 or visit our web site at

www.magnavalve.com

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