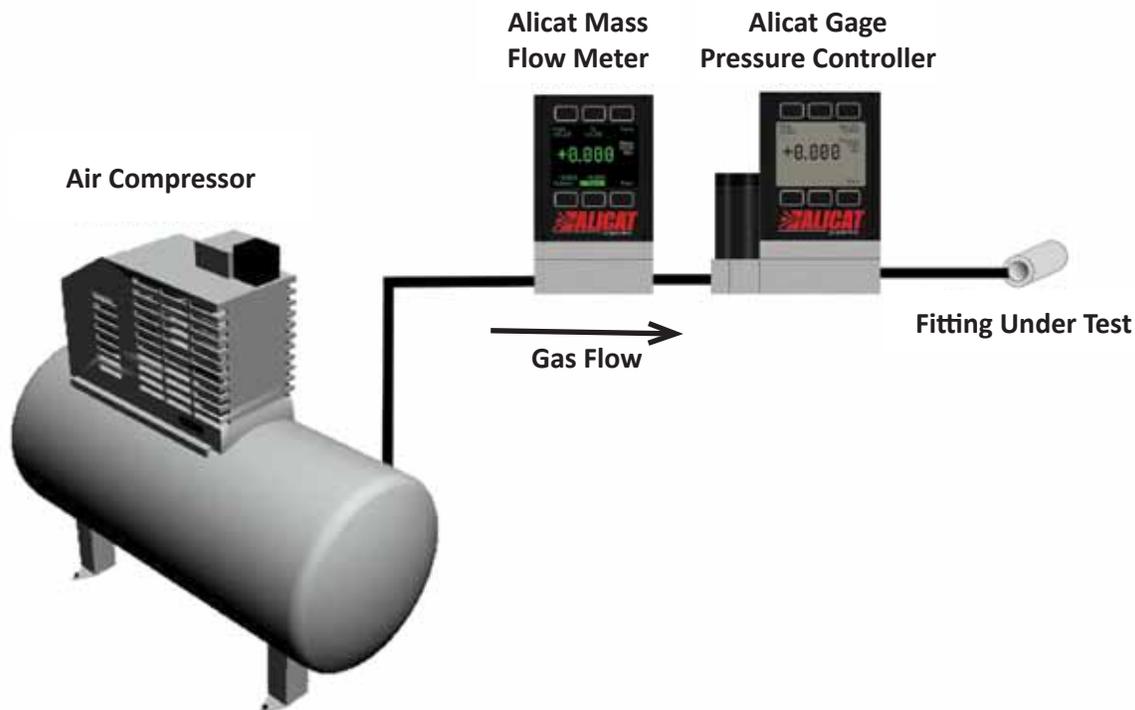


Using Mass Flow Rate To Replace Pin Gauge Testing

Companies continually seek ways to cut costs and improve cycle times. Alicat routinely receives inquiries from customers looking to leverage our technology to accomplish those goals. A customer recently contacted us hoping to improve the speed and reliability of his go/no-go test.

The test required that he check the diameter of a female fitting to insure proper engagement of the male counterpart. At the time he was using a pin gauge to measure the diameter of the test part. This was both time consuming and error prone. He called us to see if we could devise a test using mass flow rate to replace his pin gauge.



The Alicat applications engineering team determined that a **PC Series Gage Pressure Controller** in conjunction with an **M Series Mass Flow Meter** would accomplish this goal.

Alicat engineers chose these components because at a fixed pressure the mass flow rate of gas going through the fitting under test would change in direct relation to changes in the internal area of the fitting. Therefore, at this fixed pressure, if the internal area of the customer's fitting increased by 10% the corresponding flow rate would increase by 10% and vice versa. The Alicat PC Series Gage Pressure Controller was chosen to maintain a constant pressure during the test and the Alicat M Series Mass Flow Controller would deliver accurate mass flow rates during the test.

After receiving the Alicat pressure controller and mass meter the customer ran a few tests to determine the flow rates corresponding to the no-go tolerances of his parts. Once those were documented he ran additional tests with the pressure controller and mass flow meter to confirm that his parts were in spec. After logging his results he verified that his pin gauge agreed with the pass/fail criteria of the mass flow meter and he was very happy to find that it did.

The result of using mass flow measurement and pressure control to test his parts has allowed our customer to test a considerably larger number of parts in the same period of time versus using his pin gauge. And he does not have to worry about the pressure controller or mass flow meter wearing out as a pin gauge would.

In the end, the customer has a faster, more reliable, and cost saving way to test his parts.