

# Why The 405P Compact Orifice Plate Will Not Plug

## KEY POINTS

- Sensor ports are exposed to a low velocity and stagnation pressure
- Volume of fluid at the sensing taps is stagnant



Many people first look at the small holes on a 405P meter and suggest they might plug. In reality, the small sensor holes are an advantage. Large holes all for circulation in the taps, which allows dirt particles to become entrained inside the sensing taps.

The highest velocities of flow are closest to the middle of the pipe (center line) and sensor ports near the pipe wall are exposed to a lower velocity and lower stagnation pressure. Particles suspended in the fluid follow the contour created by the fluid stream, therefore the particles in the fluid become entrained in the higher velocities.

Since an orifice plate acts like a bluff body in the flow stream, the volume of fluid at the sensing taps is stagnant. The sensing taps are filled with the process fluid one time (during installation). While operating, there is no flow occurring in this area, which means that any dirt particles entrained in the system will not collect at the sensing taps.

