PS = stagnation (or total) pressure  PO = static pressure. This relationship is useful for determining the flow velocity in a variety of applications. Rearranging the equation gives: (11). Fluid flow velocity may be measured with the Pitot tube assembly shown in Figure 5. The tube facing the flow measures total pressure and the tube normal to the flow measures static pressure. Types of Pressure Measurements Absolute pressure is measured relative to a perfect vacuum. An example is atmospheric pressure. A common unit of measure is pounds per square inch absolute (psia). Differential pressure is the difference in pressure between two points of measurement. This is commonly measured in units of pounds per square inch differential (psid). The pressure gradient in vertically upward flow is significantly greater than that for horizontal pipeline, as was illustrated earlier A colleague of the author undertook research into the influence of pipeline inclination and some of his data on this issue is presented in Fig. 16.26 [1]. The work was undertaken with a 100 m long pipeline of 81 mm bore, having a central section 8 m long that could be conveniently adjusted to provide inclinations ranging from −20 to +90 degrees. Abnormally high hydrostatic pressure gradients of 21.5 kPa per meter (0.95 psi/ft) have been encountered in a geopressure/geothermal zone along the Gulf Coast of the United States extending from New Orleans into Mexico, the Niger delta and the North Sea [6,21]. Pressure–Rate-of-Strain, Pressure Diffusion, and Velocity–Pressure-Gradient Tensor Measurements in a Cavity Flow. AIAA Journal, Vol. 56, Issue. 10, p. 3897. Effects of pressure gradient on the evolution of velocity-gradient tensor invariant dynamics on a controlled-diffusion aerofoil at . Journal of Fluid Mechanics, Vol. 868, Issue. , p. 584. CrossRef.