

**Diameter of conduit
Ratio of diameters
Reynolds number**

Each type of differential pressure instrument is subject to specific limiting values for the internal diameter of the conduit (see column 1 in the selection table), for the diameter ratio β (for a specific orifice plate) exceeds the permissible limit, it is preferable to choose a nozzle which, under the same conditions, will require a lower diameter ratio β .

Pressure losses

For a given differential pressure D_p , the pressure losses are 4 to 6 times less in classic Venturi tubes and Venturi nozzles, than in orifice plates and nozzles

**Length of straight pipe to be provided
upstream and downstream of the instrument**

For reliable measurement to be guaranteed, the fluid must enter the primary element free of turbulence. This can be achieved by providing suitable lengths of straight pipe.

Type of fluid

When abrasive or corrosive fluid are measured, the flowrate may vary over time, due to wearing of the edge. Deposits left in the nozzle and in Venturi tube can have a considerable influence on the flowrate coefficient α . These modifications to the flowrate over time are usually pronounced at first, afterwards they attenuate until stabilization.

Accuracy

The error tolerance for the flowrate coefficient are defined individually for each differential pressure instrument (see columns 7 and 8 in the selection table).

Cost and manufacture

Orifice plates are less expensive and more simple than all other types of differential pressure flowrate measurement devices.