

# Flow Calibration Test Bench for Flow Elements



## Flow Calibration bench for Orifice and Valves:

**General Instruments Consortium** enters into a new age of flow calibration bench. The unit is now ready for:

**Table 9.1**

<b>Flow Calibration</b>	Orifice assembly upto 12"	Upto 8" from beta value 0.15 till 0.9 and 10" and 12" till beta 0.15 to beta = 0.5	Accuracy, max upto 0.5%	Hysteresis is max upto 0.2%	Repeatability = 0.25%	For 10" and 12" for beta = 0.55 till 0.8, the accuracy shall be max upto 1.5%	Standard being followed is under ISO 5167 and IEC 60534-2, also conforming to the basic BS code 1042	Conditions applicable for volumetric designing and provisions under gravimetric conditions available on demand
<b>Flow Calibration</b>	Valves with size upto 12"	For kv value equal to 1440 m3/hr	Accuracy, max upto 0.5%	Hysteresis is max upto 0.2%	Repeatability = 0.25%	No restrictions till 12" size	Under strictly to IEC 60534-2	Strictly to volumetric conditions as per required IEC 60534-2

The orifice assembly or the flow control element, valve, is calibrated under fluid mechanics standards of ISO 5167 and IEC 60534 standards. The process and the procedure of the measuring flow calibration of the device and the design is as per the international standards applicable for volumetric and gravimetric conditions

The flow calibration bench for upto 12" size, is applicable for pressure rating upto 3 kg/cm<sup>2</sup>g and for all ambient conditions. The testing media is water. The calibration unit is under free length or straight length as per the ISO standards for mounting in such conditions applicable for orifice assemblies with water as media and with calculated beta value to decide the free length for calibration of sensors. For valves, the condition is kept at ambient conditions with water and based on IEC 60534 standard the flow coefficient value of the valve is matched with desired flow rate applicable under differential pressure conditions, under applicable and available free or straight lengths

The bench gets the water from an underground tank with an overall capacity of (7500mmX1500mmX2000mm)...m<sup>3</sup> which is having a magnetic level gauge mounted to check the level of water. The level in turn helps to clear the pressure applicable under the centrifugal pump which is mounted to the side to generate the desired and the requisite pressure for the flow assembly, either valve or orifice.

The differential pressure in the assembly is created by either manually adjusting the input pressure, with adjustable valves at the input line to the device for calibration or by pneumatically adjusting the variations thru control pneumatic actuators adjusting to set points .

The differential pressure is maintained and fixed for the assembly under measurement, by adjusting the downstream valve and is adjusted at



**Table 9.2**

Adjustment of pressure at downstream of assembly	Differential pressure at the assembly maintained
2.5 kg/cm <sup>2</sup> g	5000mmwc
2.55 kg/cm <sup>2</sup> g	4500mmwc
2.6 kg/cm <sup>2</sup> g	4000mmwc
2.65 kg/cm <sup>2</sup> g	3500mmwc
2.7 kg/cm <sup>2</sup> g	3000mmwc
2.75 kg/cm <sup>2</sup> g	2500mmwc
2.8 kg/cm <sup>2</sup> g	2000mmwc
2.85 kg/cm <sup>2</sup> g	1500mmwc
2.9 kg/cm <sup>2</sup> g	1000mmwc
2.95 kg/cm <sup>2</sup> g	500mmwc