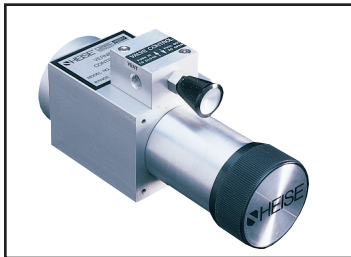


**PRODUCT INFORMATION****BUILDING A SIMPLE CALIBRATION SYSTEM**

Generation of a specific pressure for use in calibration and test of pressure measurement and control devices can be a complex task. Increased accuracy of pressure instrumentation used in day to day applications has resulted in a need for calibration standards of increased accuracy. In addition, with the increasing number of pressure devices in use it is essential that pressure calibration equipment be easy to use quickly, efficiently and with minimal training.



Calibration of pressure measurement and control devices is accomplished through the generation of a series of known pressures. These known pressures are derived from a pressure standard which must be of unquestionable accuracy. Once the test pressure has been generated it is “fed” into the pressure port of the device being calibrated. The applied pressure and the pressure read on the device being calibrated are tabulated. Typically, the full scale range of the device being calibrated is broken down into equal segments. Most commonly, this is done through the generation of 5, 10 or 20 standard calibration points to yield pressure intervals of 20, 10 or 5%, respectively. The number of calibration points used is a function of the performance characteristics and the accuracy to be achieved by the instrument being calibrated.

For most calibration and test applications, the Heise® Series 9 is an ideal means for measuring the applied pressure. Standard accuracies of 0.035 and 0.07% of span provide sufficient capability to perform most calibration and test applications. In addition, the Series 9 provides rapid, direct engineering unit information on the applied pressure. Multiple engineering unit readout, available as an option, increases the flexibility of the Series 9 as a calibration standard.

The Series 9, when combined with the Heise® HVC-1000 or HVC-3000, can provide an easy means for calibration and test of most pressure measurement and control devices. The HVC unit provides a means of finely adjusting the pressure that is applied to the unit under test. The applied pressure is read on the Series 9, which serves as the pressure standard. Fine adjustment of the applied pressure is accomplished through rotation of the adjustment knob on the HVC unit. Rotation of the adjust knob on the HVC serves to increase or decrease the volume of the closed calibration system, thereby increasing or decreasing pressure.

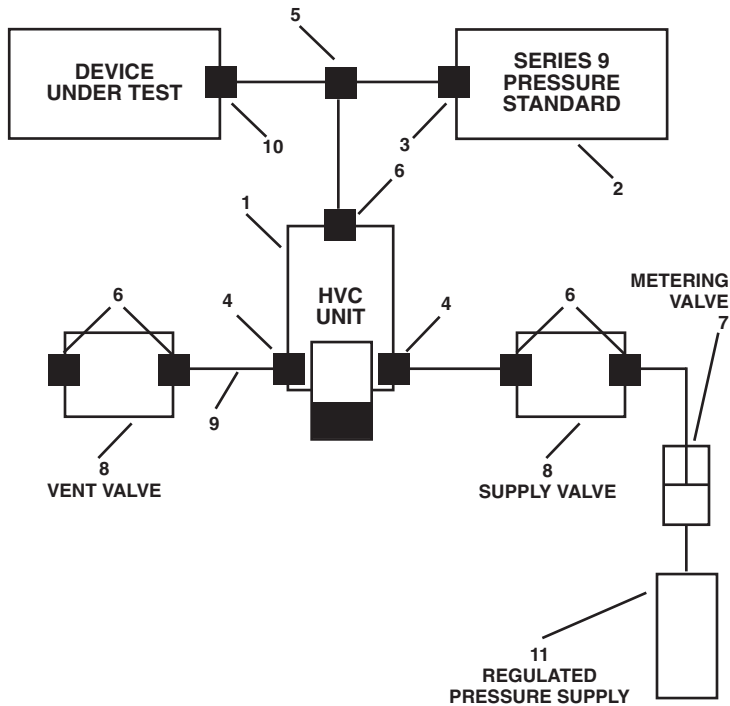
This type of system can be used for pneumatic calibration of any pressure range from 0-2 through 0-3000 psi or equivalent. With an HVC unit precise generation of the desired applied pressure can easily be attained. The HVC units provide control resolution to 0.00025 psi. Actual resolution of the applied pressure is dependent upon the Series 9 model selected and the volume of the calibration system. Consult the Heise® Series 9 price sheet for information on the resolution provided by different Series 9 models and pressure ranges.

A single calibration system can be used with multiple Series 9 units. This approach is particularly useful in cases where a diverse set of pressure range instruments are to be calibrated. Using multiple Series 9 units allows the system accuracy to be optimized for the primary pressure ranges to be worked with. The Series 9 units can be interchanged via a quick connect type fitting. If it is expected that the need to change range will occur on a frequent basis, then the Series 9 units can be manifolded together with a selector valve. In this way, range change can be accomplished in an even more expedient manner.

The HVC unit to be used should be selected to provide pressure adjustability over the maximum range to be worked with. Two models of the HVC unit are available. The HVC-1000 can be used for precision pressure setting of any range up to 1000 psi. The HVC-3000 can be used for any range up to 3000 psi. Both HVC models are for use with pneumatic pressure generation.

This type of calibration system can be built in a panel or bench mount configuration. Components should be selected to support the desired configuration. The Series 9 and the HVC unit are available for either panel or bench mount applications. This precision pressure calibration system, with the Series 9 and HVC unit as the primary components, can be assembled with a minimal investment in additional hardware. Instructions on how to build your own calibration system follow.

## SYSTEM SET-UP WITH HVC-1000 OR HVC-3000



## SYSTEM COMPONENTS

Item	Quantity	Description
1	1	HVC-1000 or HVC-3000
2	1	Series 9 digital indicator
3	1	½ inch NPT male to 114 inch fitting
4	3	⅛ inch NPT male to 114 inch fitting
5	1	⅛ inch NPT male Tee to ¼ inch connection
6	4	Connections compatible with valves selected
7	1	Metering valve compatible with above fittings
8	2	Shut off valve compatible with above fittings
9	1 Lot	¼ inch tubing rated for the intended use pressure range
10	1	Quick connect fitting for test port
11	1	Regulated pressure source
12	10	10 end nuts ¼ inch (not shown)
13	1	Roll Teflon tape (not shown)