Type PVS6E

PORTABLE VACUUM CALIBRATION SYSTEM

The PVS6E consists of up to three MKS Baratron® Type 690 High Accuracy Absolute capacitance manometers as transfer standards and a high vacuum pumping system, mounted in a sturdy transportable cart. The PVS6E provides NIST traceable calibrations over the pressure range from 10^{-5} to 1000 mmHg and can be used to calibrate MKS Baratron® Capacitance Manometers, thermocouple gauges, Pirani gauges, convection enhanced Pirani gauges, other capacitance manometers and transmitters, and mechanical/dial gauges. Hot or cold cathode ionization gauges can be calibrated over the upper end of their range.

The PVS6E is a completely re-engineered version of the popular PVS6D. Standard features include a narrow chassis for ease of movement through confined areas, clean room compatibility, dry pumping system, and two-channel display/readout.

Features & Benefits

- Wide 10^{-5} to 1000 mmHg calibration range for many different types of vacuum gauges
- Calibrates instruments in situ to keep process up and running and to reduce maintenance
- Simple, easy to use system encourages regular instrument calibration resulting in higher process quality and yields
- Uninterruptible power supply keeps standards ready to use
- Can be used as a process or instrument diagnostic tool to eliminate unnecessary replacement of functioning instruments
- Manual operation to meet your requirements
- NIST traceable calibration helps comply with government regulations, ISO 9000 and other QA program requirements

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The PVS6E pumping system consists of an air-cooled hybrid turbomolecular pump, backed by a two stage diaphragm pump. A high vacuum gauge is provided to monitor system performance and base pressure to ensure pressure is low enough for proper zeroing of the transfer standards. The PVS6E is available with manual pressure control capability. The PVS6E has an uninterruptible power supply with sufficient storage to keep the transfer standards warmed up and ready to use for up to 60 minutes, allowing ample time to transport the PVS6E to the process system.

The PVS6E can perform off-line as well as *in situ* calibrations (see Figures 1 and 2).

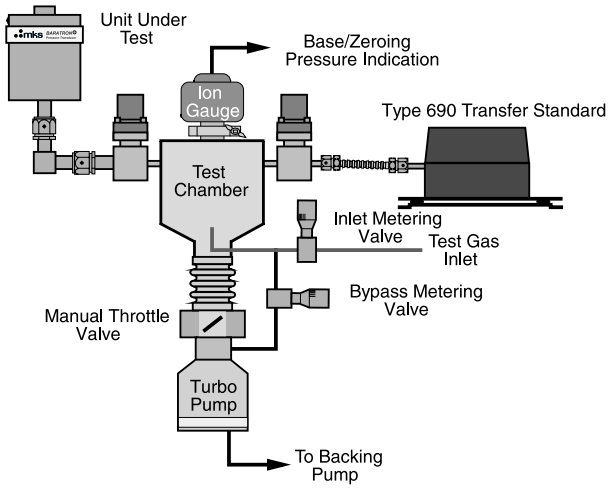


Figure 1 —
Configuration for off-line calibration

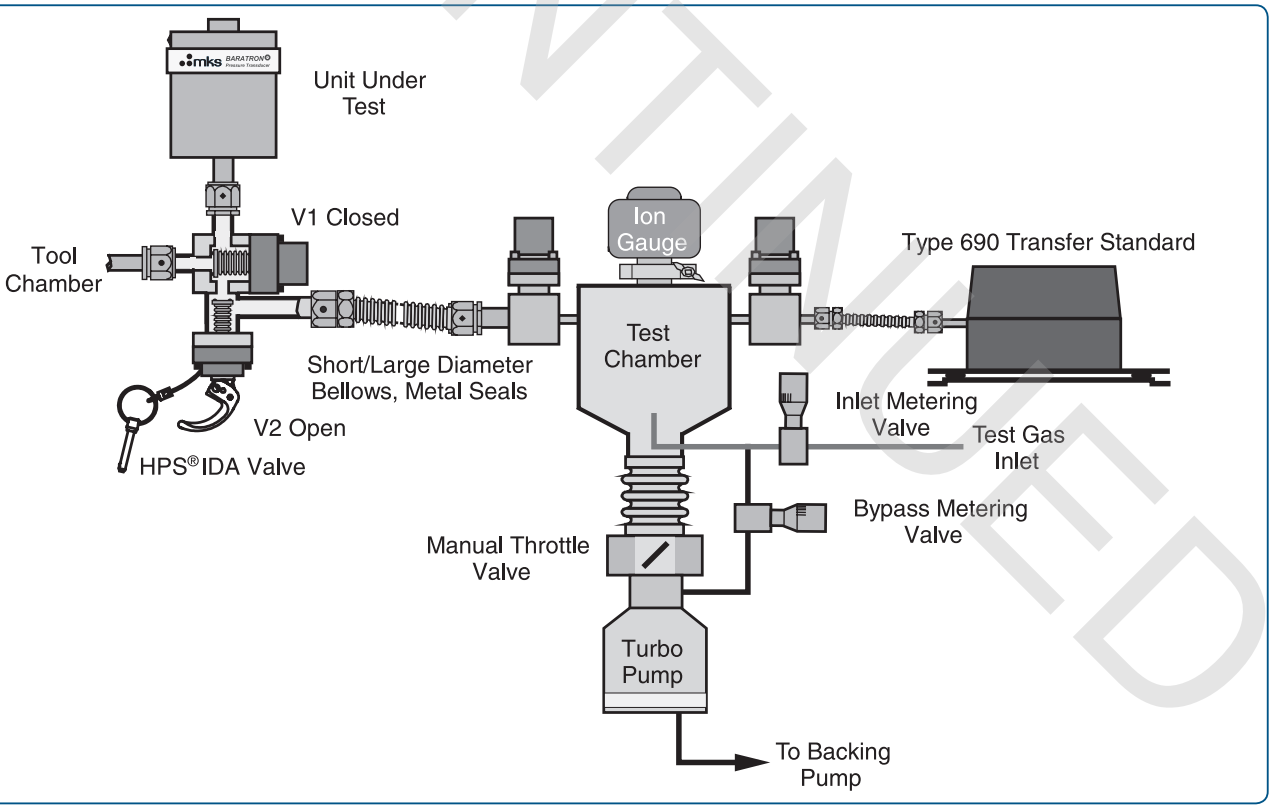
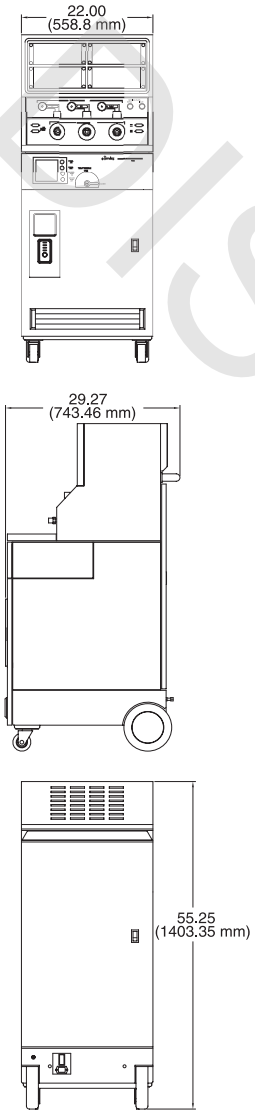


Figure 2 —
Configuration for in situ calibration with the process gauge mounted on the tool's chamber

Specifications

Transfer Standard	MKS Type 690 Absolute Sensor (NIST traceable); see 690 data sheet for other specifications
Baratron® Pressure Sensor Accuracy (non-linearity, hysteresis, and non-repeatability)	0.08% of Reading (± temp. coefficients), 0.05% of Reading (± temp. coefficients) or optional for 1-1000 range
Resolution (of F.S.)	1×10^{-6}
Unit Port Fittings	8 VCR® (3 each)
Operating Temperature Range	15° to 40°C
Readout Electronics	MKS Type 670, 5½-digit LCD
Power Required	110 VAC, 60 Hz; 220 VAC, 50 Hz; 15 Amps
Warm-up Time/Start Time	4 hours. However, use of the internal 500 VA UPS will keep the Transfer Standard warmed up and ready for immediate use for at least 60 minutes.
Pressure Control	Manual needle valve to control gas inlet; manual isolation valve and metering bypass valve to control pump speed
Vacuum Pumping System	Mechanical pump: 18 Liters/min diaphragm High vacuum pump: hybrid turbo/drag air-cooled Normal base pressure: $<5 \times 10^{-7}$ mmHg
Vacuum Pump Discharge Fitting	NW 16 KF
High Vacuum Gauge	IMAG ionization gauge and controller provides 1×10^{-3} to 1×10^{-9} mmHg measurement
Test/Calibration Gas	5-10 psig dry filtered N_2
Test Gas Inlet Fitting	¼" Swagelok® bulkhead
Test Port Fitting (3)	Swagelok® 8 VCR® male (3)
Standby Power	500 V.A. uninterruptible power supply keeps three Transfer Standards warmed up and ready to use for up to 60 min.
Weight	Approximately 250 lbs (110 kg)

Ordering Information



Dimensional Drawing —

Note: Unless otherwise specified, dimensions are nominal values in inches (mm referenced).

Ordering Code Example: PVS6EXXXYZ

Type PVS6E Portable Vacuum Calibration System	Code	Configuration
Type Number	PVS6E	PVS6E
Flow Scale Pressure Ranges in mmHG (XXX)		
0.1	A	CDO
1	B	
10	C	
100	D	
1000	E	
Vacant channel	O	
Input Power (Y)		
Standard USA & Canada input power 110 VAC, 60 Hz	U	U
220 VAC, 50 Hz	F	
Accuracy (Z)		
Best Available	A	A
±0.08% of Reading	B	

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