

# Model 2482

## Ruska Differential Piston Gauge

## Technical Data



### Features

- Differential Pressure Standard
- Accuracy 40 ppm of reading + 0.0013 psi
- Static pressure range to 2 900 psi (200 bar)
- Differential pressure range to 850 inH<sub>2</sub>O (2 100 mbar)
- Hydraulic and pneumatic operation
- Software provided for operation and data management
- Extremely fast and easy to operate

The Model 2482 is a high precision standard that provides unsurpassed performance in the field of differential pressure metrology at high static line pressures. The Model 2482 continues GE's standard of excellence and innovation building on over 50 years of piston gauge manufacturing expertise. Designed to calibrate virtually any pressure device at high static line pressures the 2482 is a revolutionary breakthrough providing a fast, easy and accurate solution to what has historically been a time consuming and technique dependent process.

At the heart of the Model 2482 is a patented large cross-sectional area triple-axis differential piston assembly with axial symmetry less than one millionth of a meter. This unique assembly eliminates the need for a second deadweight piston and provides identification of the differential pressure as it is directly proportional to the mass load.

In traditional twin-post and divider systems minute load adjustments are required to establish zero differential at each line pressure. This results in a process that is both technique dependent and time consuming. This elaborate zeroing process is eliminated in the Model 2482

through the use of a precision load cell, actually a digital force balance. The load cell supports the weight of the differential piston and serves as a null detector to ensure the line pressure balance point.

Establishing a differential pressure is then as simple as loading the weights determined by the supplied WinPrompt® software and activating the control function. Once the control system restores the balance reading to zero the desired differential pressure is applied to the test instrument.

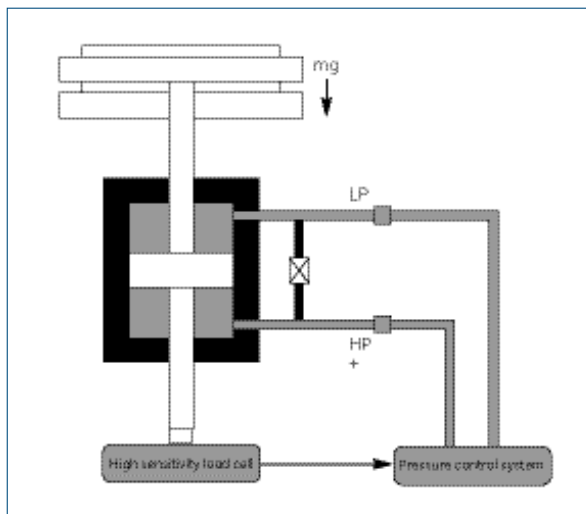
The differential piston assembly is manufactured from tungsten carbide which provides high strength, durability and long-term stability. This material also provides a very low dependence on temperature, low distortion from pressure and undetectable hysteresis.

The Model 2482 is supplied with a precision mass set in a sturdy wooden storage case. The mass set contains various denominations that are trimmed to provide precise output pressures with standard increments to 0.5 inH<sub>2</sub>O (1.0 mbar). The Winprompt® software performs pressure-to-mass and mass-to-pressure calculations for the Model 2482 along with the

corrections for environmental influences. The operator is also provided with a display of the pressure being generated by a mass load. The environmental conditions for humidity, barometric pressure and ambient temperature can be entered manually or the values can be acquired from a Model 2456-LEM Laboratory Environmental Monitor.

Included with the 2482 is the Controller software package that provides set up information, tared and line pressure displays, power settings for the temperature controllers, a graphic display of the tared readings as well as the control buttons for the major operations of the instrument.

The Model 2482 is a hydraulically operated piston gauge that allows for gas calibrations through two gas/oil interface chambers. A manual hand pump is provided for line pressure generation of either hydraulic or pneumatic pressures. For pneumatic operation a regulated gas supply is required.



## Specifications

General	
Differential pressure range	0 inH <sub>2</sub> O to 850 inH <sub>2</sub> O (0 mbar to 2100 mbar, 0 kPa to 210 kPa)
Static pressure range	0 psi to 2 900 psi (0 bar to 200 bar, 20 000 kPa)
Electrical power requirements	12 V dc 5 A max 120/240 V ac 50/60 Hz Universal power supply included
Temperature	Operating temperature: 18 °C to 28 °C (64 °F to 82 °F) Storage temperature: 0 °C to 50 °C (32 °F to 122 °F)
Humidity	Operating humidity: 20 % to 75 % RH, non-condensing Storage humidity : 0 % to 90 % RH, non-condensing
Pressure medium	Operating medium for Piston/Cylinder, test pump and hydraulic test port: Dioctyl Sebacate (DOS) Operating medium for pneumatic test port: clean, dry, instrument grade gas (nitrogen recommended)
Dimensions (H x W x D)	480 mm x 380 mm x 480 mm (18 in x 15 in x 18 in) Test Pump: 280 mm x 280 mm x 250 mm (11 in x 11 in x 10 in)
Weight	2482: 40 kg (88 lb) Test Pump: 5.5 kg (12 lb)
Performance	
Accuracy	40 ppm of reading + 0.0013 psi Note: Accuracy is defined as the expanded uncertainty in pressure determined using the method described in the ISO "Guide to the Expression of Uncertainty in Measurement" and represents an approximate 95% level of confidence.
Static pressure accuracy	0.25% full scale
Long term stability	Better than 10 ppm per year
Piston and cylinder	
Materials	Tungsten carbide
Thermal coefficient	9.2 x 10 <sup>-6</sup> °C <sup>-1</sup>
Mass set	
Total mass	13.5 kg (30 lbs)
Max platter mass	4 kg (9 lbs)
Minimal pressure increment	0.5 inH <sub>2</sub> O (1.0 mbar)

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**Fluke Calibration**  
PO Box 9090, Everett, WA 98206 U.S.A.

**Fluke Europe B.V.**  
PO Box 1186, 5602 BD  
Eindhoven, The Netherlands

**For more information call:**  
In the U.S.A. (800) 443-5853 or  
Fax (425) 446-5116  
In Europe/M-East/Africa +31 (0) 40 2675 200 or  
Fax +31 (0) 40 2675 222  
In Canada (800)-36-FLUKE or  
Fax (905) 890-6866  
From other countries +1 (425) 446-5500 or  
Fax +1 (425) 446-5116  
Web access: <http://www.fluke.com>

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