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> [Ace Instruments High Pressure Hydraulic Hand Pump Calibrator Model AI-DPI-2300 User Manual](#)

Ace Instruments AI-DPI-2300

Ace Instruments High Pressure Hydraulic Hand Pump Calibrator

MODEL: AI-DPI-2300

User Manual

1. Introduction and Product Overview

The Ace Instruments Model AI-DPI-2300 is a versatile high-pressure hydraulic hand pump calibrator designed for precise generation of both pressure and vacuum. This robust instrument is suitable for calibrating various pressure instruments in both laboratory and field environments.

Key features include:

- **Dual Functionality:** Capable of generating pressure up to 600 Kg/cm² (8500 psi) and vacuum up to 28.5 in Hg.
- **Precision Control:** Equipped with a fine vernier control and a needle valve for stable and accurate adjustments.
- **Durable Construction:** Made from SS 304 stainless steel for corrosion resistance and longevity.
- **Ergonomic Design:** Features molded handles for comfortable operation and an adjustable stroke mechanism for efficient pressure generation with minimal effort.

Hydraulic High Pressure Hand Pump Calibrator

Manual Operation with Compound Value From **-1 to 600 kg/cm²**



Figure 1: Overview of the Hydraulic High Pressure Hand Pump Calibrator.

2. Components and Scope of Supply

The standard package for the AI-DPI-2300 includes the following items:

- 1 unit of Hydraulic Hand Pump Calibrator (Model AI-DPI-2300)
- 1 unit of Master Gauge (Range: 0-700 bar)
- 3 Nos. Reducers (1/4", 1/2", 3/4")
- Instruction Manual (this document)
- Calibration Certificate Traceable to National Standards (NABL)



Figure 2: The AI-DPI-2300 calibrator shown with its included accessories, including the hose and various reducers.

3. Setup and Connection

1. **Preparation:** Ensure the calibrator is placed on a stable, level surface. Verify all connections are clean and free from debris.
2. **Connect Master Gauge:** Attach the provided master gauge to the designated port on the calibrator. Use appropriate thread sealant if necessary to ensure a leak-free connection.
3. **Connect Unit Under Calibration (UUC):** Connect the instrument to be calibrated (UUC) to the other port on the calibrator. Use one of the supplied reducers (1/4", 1/2", 3/4") if the UUC's port size differs

from the calibrator's connection. Ensure a secure and leak-free connection.

4. **Fluid Filling (Hydraulic Mode):** For hydraulic pressure generation, ensure the reservoir is filled with the appropriate calibration fluid. Refer to the fluid specifications for compatibility.



Figure 3: The calibrator connected to a pressure gauge, demonstrating a typical setup for calibration.

4. Operating Instructions

4.1. Pressure Generation

1. **Select Pressure Mode:** Use the manual selector valve to switch the calibrator to pressure generation mode.
2. **Initial Pressure Build-up:** Operate the hand pump handles to build up initial pressure. The adjustable stroke mechanism allows for efficient pressure generation with reduced effort.
3. **Fine Adjustment:** Once near the desired pressure, use the fine vernier control for precise and stable pressure adjustments. The needle valve can be used for minor pressure release or stabilization.
4. **Reading:** Compare the reading on the UUC with the master gauge.
5. **Pressure Release:** To release pressure, slowly open the needle valve or the dedicated pressure release knob.

Adjusting the knobs for accurate pressure & vacuum values

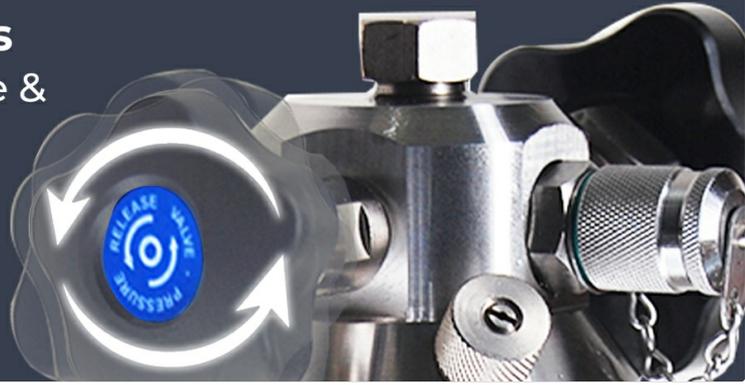


Figure 4: Illustration of adjusting the knobs for accurate pressure and vacuum values.

4.2. Vacuum Generation

1. **Select Vacuum Mode:** Use the manual selector valve to switch the calibrator to vacuum generation mode.
2. **Generate Vacuum:** Operate the hand pump handles to generate the desired vacuum level.
3. **Fine Adjustment:** Use the fine vernier control for precise vacuum adjustments.
4. **Reading:** Compare the reading on the UUC with the master gauge.
5. **Vacuum Release:** To release vacuum, slowly open the dedicated vacuum release valve.



Achieve Precision with
Built-in Fine **Adjust Vernier**

Figure 5: Detail of the built-in fine adjust vernier, allowing for precise pressure and vacuum control.

5. Maintenance

- **Cleaning:** Regularly clean the exterior of the calibrator with a soft, damp cloth. Avoid abrasive cleaners or solvents.
- **Fluid Management:** For hydraulic operation, periodically check the calibration fluid level and quality. Replace fluid as recommended by manufacturer guidelines or if contamination is suspected.
- **Seal Inspection:** Inspect all seals and O-rings for wear or damage. Replace any compromised seals to maintain pressure integrity.
- **Storage:** Store the calibrator in a clean, dry environment, away from extreme temperatures and direct sunlight. Ensure all valves are closed and pressure is released before storage.

- Corrosion Resistant
- High Strength and Durability
- Smooth Finish for Easy Maintenance



Figure 6: The robust SS 304 stainless steel construction ensures corrosion resistance and durability, simplifying maintenance.

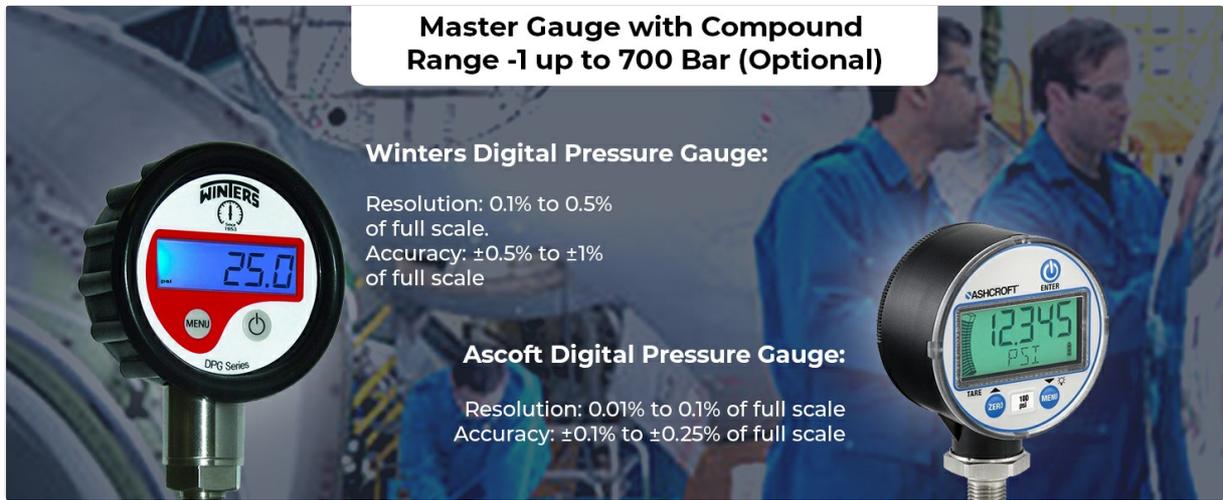
6. Troubleshooting

Problem	Possible Cause	Solution
Cannot build pressure/vacuum	Loose connections, worn seals, insufficient fluid (hydraulic mode), selector valve in wrong position.	Check all connections for tightness. Inspect and replace seals if necessary. Ensure fluid reservoir is adequately filled. Verify selector valve is set to the correct mode (pressure or vacuum).
Pressure/Vacuum drifts	Minor leaks, faulty needle valve, temperature fluctuations.	Check for small leaks at connections. Inspect needle valve for proper seating. Allow system to stabilize at ambient temperature.
Difficulty in fine adjustment	Vernier control mechanism obstruction or damage.	Clean the vernier mechanism. If damage is suspected, contact customer support.

7. Specifications

Feature	Detail
Model	AI-DPI-2300
Pressure Range	0 to 600 Kg/Cm ² (8500 psi)
Vacuum Range	Up to 28.5 in Hg
Material	SS 304 Stainless Steel
Weight (Approx.)	2.5 kg (5.51 lbs)
Package Dimensions	11 x 3 x 2 inches
Included Master Gauge Range	0-700 bar
Included Reducers	1/4", 1/2", 3/4"

Master Gauge with Compound Range -1 up to 700 Bar (Optional)



Winters Digital Pressure Gauge:

Resolution: 0.1% to 0.5% of full scale.
Accuracy: $\pm 0.5\%$ to $\pm 1\%$ of full scale

Ashcroft Digital Pressure Gauge:

Resolution: 0.01% to 0.1% of full scale
Accuracy: $\pm 0.1\%$ to $\pm 0.25\%$ of full scale

Figure 7: Example of master gauges that can be used with the calibrator, showing different resolutions and accuracies.

8. Applications

The AI-DPI-2300 calibrator is designed for a wide range of industrial and laboratory applications, including:

- Calibration Laboratories
- Oil and Gas Industry
- Aerospace and Defense
- Manufacturing and Production
- Filter Monitoring
- Room Pressure Monitoring
- Vacuum Gauge Calibration



Figure 8: Visual representation of various industrial and laboratory applications for the calibrator.

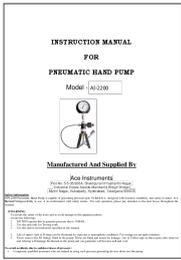
9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact Ace Instruments customer service. Refer to your purchase documentation for specific warranty terms and contact details.

Contact Information: Please visit the official Ace Instruments website or refer to the contact details provided with your product packaging.

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Related Documents - AI-DPI-2300



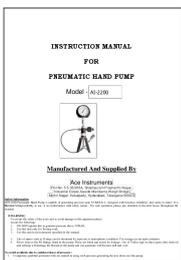
[Pneumatic Hand Pump Model AI-2200 Instruction Manual - Ace Instruments](#)

Instruction manual for the Ace Instruments Pneumatic Hand Pump Model AI-2200. This manual provides specifications, guidelines for safe use, unpacking instructions, principles of operation, calibration procedures, and troubleshooting for the DPI-2200 hand pump.



[Druck DPI 611 Hand-Held Pressure Calibrator: Features, Specifications, and Accessories](#)

Detailed information on the Druck DPI 611 hand-held pressure calibrator, including its precision engineering, pressure generation capabilities, electrical functions, user interface, advanced features, specifications, and available accessories. Learn about its compact design, accuracy, and integration with 4Sight2 calibration software.



[Pneumatic Hand Pump Model AI-2200 Instruction Manual - Ace Instruments](#)

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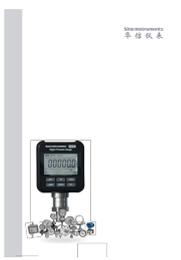
[DPI 612 Portable Pressure Calibrator Safety and Quick Start Guide](#)

A comprehensive guide to the safe operation and setup of the DPI 612 Portable Pressure Calibrator, covering its various models (PFX, PFP, HFP), features, and essential safety precautions.



[Druck DPI 800 / 802 Pressure Indicator and Loop Calibrator Instruction Manual](#)

Instruction manual for the Druck DPI 800 and DPI 802 Pressure Indicator and Pressure Loop Calibrator, detailing operation, safety, calibration, and specifications.



[Sino Instruments HS108 Digital Pressure Gauge User Manual](#)

Comprehensive user manual for the Sino Instruments HS108 Digital Pressure Gauge, detailing specifications, operation, calibration, maintenance, and safety information.

