



HVU Series Automated Viscometers

- **HVU 481:**
20° to 150°C (68 to 302°F)
- **HVU 482:**
-40° to +100°C (-40 to +212°F)

Automate kinematic viscosity testing while meeting or exceeding ASTM D 445 requirements. Herzog's HVU Series offers truly stand-alone operation with **exceptional bath temperature range and stability**. It simultaneously tests up to two samples using standard Ubbelohde-style capillary tubes. Near-infrared (NIR) or NTC thermal meniscus detection systems **precisely measure flow properties of even the most challenging sample types**, while an automatic tube cleaning system incorporates Kalrez™ seals to withstand use of aggressive solvents such as toluene or acetone. **Complete cycle time, including automated cleaning, is 30 to 40 minutes**. Results can be exported immediately or on-demand to a printer or LIMS. Add the powerful Herzog Laboratory Information System (HLIS®) **Windows-based software** for enhanced operation and data management.

ADVANTAGES:

- **Economical, automated dual-capillary viscosity measurements**
- **Strict accordance to standard methods**
- **Ultra precise NIR or NTC meniscus detection**
- **Stand alone operation**
- **Multi-instrument networking & enhanced PC-based operation with HLIS**



APPLICATIONS:

Viscosity

LIQUID PETROLEUM PRODUCTS
AVIATION TURBINE FUELS
WATER-CONTAINING EMULSIONS
LUBRICANTS
USED OILS
POLYMERS
RESIDUES

METHODS:

ASTM D 445
ASTM D 446
ASTM D 2270
IP 71 Sections 1 & 2
ISO 3104
ISO 3105

HERZOG HVU SERIES VISCOMETERS



MODEL HVU 481

- > **Temperature Range:** 20 to 150°C (68 to 302°F)
- > Economical, automated viscosity measurements
- > Stand alone operation
- > Performs two tests simultaneously
- > Automatic, multi-solvent cleaning system; withstands aggressive solvents
- > PC-based instrument control and multi-instrument networking capabilities using HLIS®
- > Upgradeable for automated sampling

As your testing needs expand, Herzog's HVU 481 grows along with you. Upgrade the 481 at any time to enable fully automated high-throughput testing using Herzog's MP 491 Automatic 48- or 96-Position Sample Changers.



MODEL HVU 482

- > **Temperature Range:** -40 to +100°C (-40 to +212°F)
- > Ideal for low temperature aviation turbine fuel and for high and low temperature lubricant testing
- > Stand alone operation
- > Performs two tests simultaneously
- > Automatic, multi-solvent cleaning system; withstands aggressive solvents
- > PC-based instrument control and multi-instrument networking capabilities using HLIS®

Get definitive data with true viscosity measurements to -40°C... don't base your product's quality on assumption! Low temperature performance calculated by viscosity index alone (as shown at right) could be misleading:

- **Actual A** : Substandard product delivered to customer — a potential danger for the end user
- **Actual B** : Missed opportunity for product blending, resulting in lost revenue



QUICK, ULTRA-PRECISE ANALYSES

- Initiate tests with only a few clicks and keystrokes
- Ubbelohde capillary tubes protect sample from external ambient conditions until 2 determinations are made within user-set repeatability limits
- Dynamic/static sample tempering quickly achieves equilibrium sample temperature
- Highly precise near infrared (NIR) 2-point meniscus detection unaffected by surface tension effects, sample conductivity, or water content
- Programmable, multi-solvent cleaning cycles clean, rinse and dry tubes according to user preferences
- Results immediately display on local digital read-out and can be output automatically or on-demand to an optional printer or computer system

RUGGED, RELIABLE OPERATION

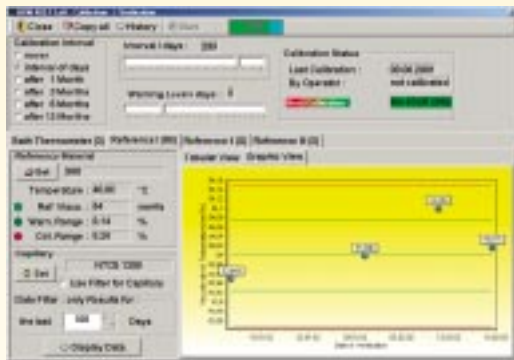
- Withstands extensive operation
- Quick tube changes in under 2 minutes minimize routine maintenance downtime
- Expert sales and service from PAC's worldwide network of factory trained authorized representatives
- Quality construction and reliable operation backed by limited parts, service warranties
- Customer training at your site or ours

PC-DRIVEN CONVENIENCE WITH HLIS®

- Controls and monitors up to 16 HLIS-compatible viscometers from a single computer, enabling quick view of operation status and measurement values
- Built-in calibration, self-test and system diagnostics
- Sophisticated Windows-based data management organizes test parameters, capillaries and results for easy retrieval



CALIBRATION



System calibration is quickly performed with keystrokes, rather than electro-mechanical adjustments.

OVERVIEW



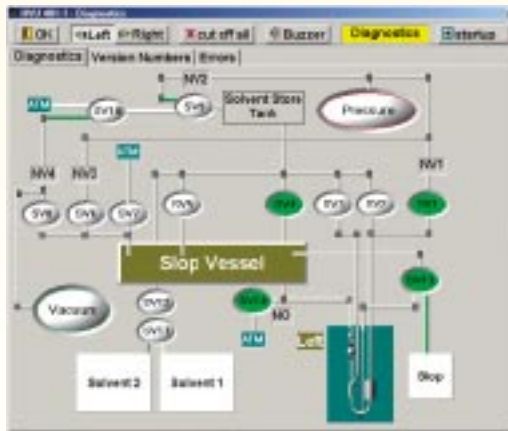
At a glance, view status of all instruments on the network. Operating status, sample ID, bath temperature and viscosity are all displayed. Color codes make it easy for a single operator to manage many tests in process.

MEASUREMENT



From the Summary screen, simply click on the capillary symbol to open its measurement window. Here, sample number and description are entered. A Test Material is selected from a drop down list, and the *Start Test* button begins the test cycle.

DIAGNOSTICS



Provides real-time status display and control of all mechanical and electrical systems, identifying active functions in green. While instrument is in stand-by, easily activate solenoid valves, pressure and/or vacuum by clicking the corresponding on-screen button.


HVU 481 & 482 Automated Viscometers

SPECIFICATIONS

Ordering Information	<p>HVU 481 Automated Viscosity Analyzer: 20 to 150°C (68 to 302°F) testing range Enables stand-alone, simultaneous testing of two samples using standard Ubbelohde-style capillary tubes. Includes programmable benchtop constant-temperature bath, local keypad and display, near-infrared or thermal timing of efflux flow, and an automatic tube cleaning system. May be upgraded at any time for use with Herzog MP 491 Automatic Sample Changers; please contact your PAC representative for details.</p> <p>HVU 482 Automated Viscosity Analyzer: -40 to +100°C (-40 to +212°F) testing range Enables stand-alone, simultaneous testing of two samples using Ubbelohde-style capillary tubes for low temperature testing. Includes programmable benchtop constant-temperature bath, local keypad and display, near-infrared or thermal timing of efflux flow, and an automatic tube cleaning system.</p>
Standard Test Methods	ASTM D 445, D 446, D 2270; IP 71 Sections 1&2; DIN 51 562; ISO 3104 and 3105
Performance Bath Temperature Stability Bath Temperature Control	±0.01°C (±0.02°F) Proportional heat control, high velocity bath media circulation, sleeved capillary tubes, pressurized sample agitation
Sample Induction	Manually with syringe; HVU 481 is upgradeable for use with MP 491 Autosamplers (48- or 96-position)
Meniscus Detection/Timing	<p>Near-Infrared (NIR): High precision technique for clean, black, water-containing, and/or conductive samples</p> <p>Thermal (NTC): For high carbon or stable emulsion (dark samples); Adapter Set 108-332 required for NTC detection (20 to 100°C detection range) on Model 482</p>
Documentation	Local 2-line LCD; parallel and RS-232 serial output ports; compatible with optional HLIS® for Windows
Auto Cleaning	Dual solvent system with programmable cycle parameters; low solvent usage (40 ml minimum). Gravity intake and discharge; no external vacuum pump required. Built-in automatic detection of cleaning solvent availability. Kalrez™ seals compatible with various solvents, including acetone. No viton seals.
Diagnostics & Calibration	Real time status display and control for all mechanical and electrical systems locally or with optional PC network
Utility Requirements Electrical Cooling Water Solvent(s)	230 VAC 50/60 Hz 1200 W; 110 VAC available with transformer Standard tap water for testing temperatures between 25° and 60°C (77° to 140°F); external cooling bath for temperatures down to -40°C (-40°F) External solvent supply; up to 2 solvents may be used
Dimensions & Weight HVU 481 HVU 482	350 x 500 x 900 mm (13.7 x 19.7 x 35.4 inches); 88 kg (194 lbs) 350 x 515 x 900 mm (13.7 x 20.3 x 35.4 inches); 88 kg (194 lbs)

ACCESSORIES

HLIS for Windows®	Herzog Laboratory Information System. Windows-based software for networking of up to 16 HLIS-compatible viscometers. Enables centralized operation control and enhanced result management.
Cooling Accessories for HVU 481 for HVU 482	<p>Circulation Cooler: stabilizing 20 to 40°C (68 to 104°F) — 08283-000-00</p> <p>Circulation Cooler with cooler isolating valve adapter: down to -20°C (-4°F) — 08301-000-00</p> <p>Circulation Cooler with cooler isolating valve adapter: down to -40°C (-40°F) — 08284-000-00</p> <p>Cooler Isolating Valve, prevents bath cooling when temperature above 40°C (104°F) is selected — 101-173</p>
Miscellaneous Accessories	<p>NTC Detection Capillary Adapter for Model HVU 482 — 108-332</p> <p>Waste Level Sensor for waste container — 638-031</p> <p>Waste Level Sensor Holder — 380-213</p>
PC and Printer	Contact your PAC representative for details

Due to continuing product development, specifications subject to change at any time without notice. All Herzog products are  compliant.

FOR ADDITIONAL INFORMATION:

AMERICAS:

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