Automated Multi-Range Capillary Viscometer







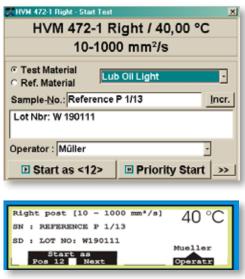
The Advanced Solution for Unattended, Continuous Viscosity Testing Precise and accurate analysis results Easy and safe operation with advanced system automation Flexible and modular design for fast adaptation to both current & future analysis needs In compliance with ASTM D445, IP 71 Section 1, ISO 3104 and EN ISO 3104

AUTOMATED MULTI-RANGE CAPILLARY VISCOMETER

The Herzog Multi-Range Viscometer (HVM 472) determines kinematic viscosity of transparent and opaque liquids. The easy to operate HVM 472 includes 2 multi-range capillaries with 100 fold measuring range, requires only 18 ml, and delivers precise results. A revolutionary auto sampler offers truly continuous operation, spent sample vials automatically discharge, allowing new samples to be added at any time, even mid-test! For rapid analysis within viscosity range of 0.5 to 600mm2/s, the HVM 472 offers the smart alternative to run samples using 20-fold range Fast Run ("FR") capillaries.



1. Insert sample beaker into feeder



2. Enter sample number in software and indicate it either priority sample or added as next in line at the end of the sample order list



3. After the analysis is run, the used sample is collected in the discharger tray.

ADVANCED SYSTEM AUTOMATION AND DESIGN FOR HIGH LEVEL OF STABILITY, SAFETY AND EASE OF USE

Smart bath design

- Capillary tubes are visible from 360° direction
- Effective circulation system ensures bathes temperature uniformity
- Double cover glass wall to avoid direct contact with hot surface

Reduced VOC emissions Allows connection to ventilation system



High quality and robust configuration

- Automated cleaning station, using 2 differents solvents (up to 4 as option
- Seal & valve system made of robust and corrosion resistant material
- · No direct contact from operators

Maximized sample throughput

- Two integrated sample changers for 7-8 hours unattended operation
- Capability to run 2x26 samples at two differents temperatures
- Compatible with very viscous products, (option of individual sample preheating up to 120°C)

USER-FRIENDLY SYSTEM CONTROL AND ANALYSIS SOFTWARE

The HVM 472 software includes a range of features for user-friendly control and optimzed system operation:

DIRECT ACCESS TO CRITICAL INFORMATION

- Continuous monitoring of test progress for both baths: Bath T°C, sample ID, measuring range of installed capillary, unit status and order no. in the sampler changer tray
- Comprehensive results display:

Upto 400 results (local memory), sample ID, flow times (+ deviation to previous flow time) Status also available through PC software and print output

RANGE OF ANALYSIS OPTIONS

- · Common result database for several instruments
- Individual measuring program for each sample
- Automatic gravity and energy correction
- · Automatic viscocity index calculation
- SUS-, dynamic viscosity- and M- value calculations
- Statistical flow times analysis (outlier detection)
- Repeatability and reproducibility calculation

TOTAL QUALITY ASSURANCE

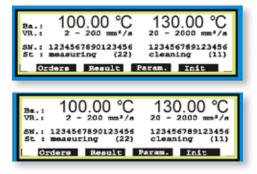
- Factory calibration at both 40°C (104°F) and 100°C (212°F):
- Ready for immediate determination of VI
- Up to 10 temeprature points available per bath
- Easy Calibration Procedure within 3 steps:
- Measure bath real temperature with a Certified Reference Thermometer
- Enter the temperature reading into the instrument calibration table
- The system automatically calculates the correction offset history information

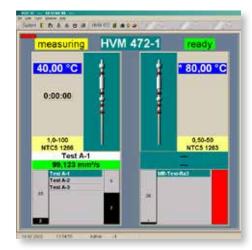
MULTIPLE UNITS NETWORK OPERATION

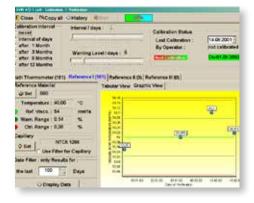
Users can choose to have the HVM 472 operate as a stand-alone unit or benefit from using it in a PC-controlled network with PAC IRIS Software. This advanced lab instrument data integration software is designed specifically for PAC instruments to gather and analyze test data and communicate results so customers can make informed decisions.

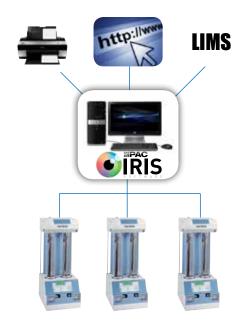
PAC IRIS offers:

- Improved laboratory efficiency
- · Simplified knowledge sharing and decision making
- · Designed to promote Good Laboratory Practices











solidpartners provensolutions

U.S.A. PAC, LP 8824 Fallbrook Drive Houston, Texas 77064	SPECIFICATIONS	
T: +1 800.444.TEST O: +1 281.940.1803 F: +1 281.580.0719 sales.usa@paclp.com service.usa@paclp.com	GENERAL INFORMATION	
FRANCE BP 70285 Verson 14653 CARPIQUET Cedex T: +33 231 264 300 F: +33 321 266 293 sales.france@paclp.com PACServiceFrance@paclp.com	Ordering Information	HVM472 Automated Multi-Range Capillary Viscometer. Stand-Alone configuration with two bathes, integrated auto samplers and automatic dual solvents cleaning system for continuous operation.
	Standard Test Methods	ASTM D445, IP 71 Section 1, ISO 3104, EN ISO 3104
GERMANY Badstrasse 3-5 P.O.Box 1241 D-97912 Lauda-Königshofen, T: +49 9343 6400 F: +49 9343 640 101 sales.germany@paclp.com service.germany@paclp.com	OPERATION	
	Performance	
SINGAPORE 61 Science Park Road #03-09/10 The Galen Singapore Science Park III Singapore 117525 T: +65 6412 0890 F: +65 6412 0899 sales.singapore@paclp.com service.singapore@paclp.com	Viscosity range Bath temperature control	0.5 - 5000mm2/s (Dual 100-fold atlantic capillaries) 20–150°C (68 to 302°F), user programmable ≤100°C: better than ± 0.01°C (±0.02°F) >100°C: better than ±0.03°C (±0.05°F) Proportional heat control resolution 0.001°C, high velocity bath media circulation
NETHERLANDS P.O.Box 10.054 3004 AB Rotterdam Innsbruckweg 35 3047 AG Rotterdam I: +31 10 462 4811 F: +31 10 462 6330	Sample induction	Via integrated 26 position auto samplers (one sampler per bath), which automatically draw sample directly from 18ml / 4 ml vial. Programming window automatically opens when samples are placed, allowing user to key in sample ID and start testing.
sales.netherlands@paclp.com service.netherlands@paclp.com	Detection	Two multi-range tubes (see viscosity range above) Thermal NTC meniscus detection/timing
CHINA CHINA Room 1003, Sunjoy Mansion No. 6 RiTan Rd. Chay District Beijing 100020 T: +86 10 650 72236 F: +86 10 650 72454 sales.china@paclp.com	Documentation	Numeric display; output to printer by parallel Centronics interface; output to LIMS or HLIS vial serial standard port
	Auto Cleaning	Dual solvent system with programmable cycle parameters; low solvent usage (no external vacuum pump required) Built-in automatic detection of cleaning solvent availability, Kalrez seals compatible with various solvents, including acetone; 4- solvent cleaning available as an option
	Diagnostics & Calibrations	Real time status display and control for all mechanical and electrical systems locally or with optional network
INDIA 403, Sentinel, Central Avenue, Hiranandani Gardens Powai, Mumbai - 400 076 INDIA T : +91-22-2570 3636	Utility requirements	230/115/100 VAC, 50-60 Hz configurable/selectable
	Dimensions & Weight	49 cm W x 75 cm D x 127 cm H; 90 kg (99 kg with bath liquid) 19.3 in W x 29.6 in D x 50 in H; 199 lbs (219 lbs with bath liquid)
sales.india@paclp.com service.india@paclp.com	ACCESSORIES	
MIDDLE EAST A1 Quds Street, A1 Tawar road LIU#H13 Dubai Airport Freezone Near Dubai Airport (terminal 2) P.O.Box #54781 Dubai, UAE T: +971 04 2947 995 F: +971 04 2395 465	PAC IRIS Software features for HVM 472	 Run Control Results Calibration Reports Quality Control Diagnostics Method Definition Instrument Parameters
sales.middleeast@paclp.com service.middleeast@paclp.com	Ticket Printer	For stand-alone use or with option PC; 40 columns endless paper
SOUTH KOREA #621 World Vision Building 24-2, Youido-dong Seoul 150-010 T: +82 2785 3900 F: +82 2785 3977 sales.southkorea@paclp.com service.southkorea@paclp.com	Cooling Accessories	External circulation cooler: obtains bath temperatures from 20° to 40°C Cooling control system: recommended if external cooler is used; prevents bath cooling when a temperature above 40°C is selected; one required for each measuring position
THAILAND 26th Floor, M. Thai Tower All Seasons Place 87 Wireless Road Lumpini, Phatumwan Bangkok 10330 T: +66 2627 9410 F: +662627 9401 sales.thailand@paclp.com service.thailand@paclp.com	Slop Accessories	Sensor: detects a full slop container and prevents overflow Container: for waste solvent (according to safety regulations)
	Sample Beakers	Standard or 4ml: - Plastic disposable beaker (100°C max) - Glass disposable beaker (150°C max)
PAC Authorized Representatives are also located in most countries worldwide. For more information visit www.paclp.com	Adapter and Filling Support	Adapter for low volume option; Filling support for single vial filling; Tray 20 positions for low volume vial with filling support Tray 20 positions for standard beaker with filling support for FR capillary
HERZOG BY PAC	Multi-Range Capillary	Standard: 100 fold range; 12 gradings Fast Run: 20 fold range; 10 gradings: 0.5–10; 1–20 up to 30–600 mm2/s
Herzog, originally established in 1937, is a long-established comprehensive line of laboratory	PC and Printer	Contact your PAC representative for details
instruments for testing distillation, flash point, vapor pressure, bitumen testing, cold flow	Continuing research and devel	opment may result in specifications or appearance changes at any time
properties, viscosity and other physical properties of materials.		

herzod

Mac

Copyright 2014/1 PAC L.P. All rights reserved 820-671

ANTEK

Cambridge Viscosity

PSP

Petrespec

USA · FRANCE · GERMANY · NETHERLANDS · UAE · RUSSIA · CHINA · SINGAPORE · SOUTH KOREA · THAILAND · INDIA

www.paclp.com