ANOTHER DIMENSION

Automated Viscometer Houillon Method

VH1 SINGLE SOLVENT
VH2 DUAL SOLVENT

Using a "Houillon" capillary tube, ISL's VH Series Viscometers automatically determine kinematic viscosity of lubricating oils, used oils, fuels, polymers and similar materials over a **wide viscosity range**. Initially developed for lubricant blending facilities, research laboratories and used oil monitoring where small sample size and quick results were required, the ISL VH viscometer offers exceptional performance, providing **results in 60 seconds using less than 1 ml of sample**.

The Model VH1 integrates a single solvent capacity for tube cleaning, while the Model VH2 accommodates two solvents, offering added flexibility in solvent selection for efficient tube cleaning and drying. Furthermore, the VH2 **withstands the use of aggressive solvents**.

In both models, ISL's custom Windows-based management software enables **central monitoring of up to 16 capillaries spanning up to 4 baths**. Results are displayed, saved to the database, and printed or **sent directly to a LIMS following user-defined protocols**. With 40°C and 100°C bath temperatures programmed, **viscosity index** can be performed, calculated and printed within minutes.

ADVANTAGES

- ***High throughput with complete results in minutes; up to 75 tests per hour***
- ***Sample size: <1 ml***
- ***Easy to use & maintain***
- ***Automated cleaning and drying programs with minimal solvent usage***
- ***Multi-instrument networking; PC-based data management***

APPLICATIONS

Viscosity

USED OIL ANALYSIS

LUBRICANT BLENDING

METALWORKING FLUIDS

PHARMACEUTICALS

RESEARCH & DEVELOPMENT

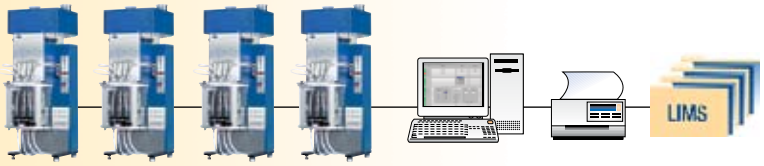
METHODS

ASTM D 7279
ASTM D 445
ASTM D 2270
ASTM D 341
IP 71
IP 226
EN3104

A PAC COMPANY

Houillon Viscosity Method

The term "Houillon" refers to the capillary tube used to measure viscosity in ISL's VH systems. The principle is simple. By using a small volume of sample—less than 1 ml,—sample warm-up and test time are drastically reduced. And because the sample crosses the detection points only one time, this method is ideal for transparent and opaque samples. Houillon's straight flow tube design further enables fast, efficient automatic cleaning using very little solvent.



Simultaneously monitor and control up to 4 baths with ISL's Windows-based VH Software.

SPECIFICATIONS

Ordering Information	**ISL's Automatic Houillon Viscometers** are delivered ready for operation with main cables, spirit level, funnel, bath draining tube, bath tube cap, dust proof cover, four Houillon tubes* and four detection clamps. Select from 115 or 230 VAC. – VH1: single solvent – VH2: dual solvent ** Contact your PAC representative for list of tube constant choices.*
Standard Test Methods	ASTM D 7279, D 445, D 2270, D 341 IP 71, IP 226; EN3104
Performance Viscosity Range Temperature Range Bath Temperature Stability	 2 to 2000 cst (mm^2/s) at 40ºC User programmable: 20ºC to 120ºC ±0.01ºC
Documentation	On-screen and printed reports: – date & time – viscosity – sample ID – average viscosity – bath & tube number – viscosity index Unlimited results storage LIMS export following user-defined protocols
Utility Requirements	115V 50/60 Hz *or* 230V 50/60 Hz Vacuum Kit (available from ISL, see Optional Equipment)
Dimensions & Weight VH1 VH2 Vacuum Kit	 30cm (12") W x 45cm (18") D x 82cm (33") H; 28 kg (62 lb) 30cm (12") W x 45cm (18") D x 87cm (35") H; 35 kg (77 lb) 50cm (20") W x 27cm (11") D x 76cm (31") H; 27 kg (59 lb)
Safety	Adjustable over-temperature protection
Options & Accessories	**PC Kit** includes Windows-based software and hardware to control up to 4 baths (16 tubes). PC and printer not included. Contact your PAC representative for computer requirements. 115 or 230 VAC **Vacuum Kit** facilitates solvent removal. 115 or 230 VAC Varied selection of ASTM control thermometers, bath medias and calibration reference materials available.

Due to continuing product development, specifications subject to change at any time without notice. CE

SMART, VERSATILE TESTING

- Modular design with ultimate configuration flexibility
  - grows to accommodate increasing workload demands
  - enables up to 16 simultaneous test runs
- Easy constant calibration with reference fluids
- ± 0.01°C bath temperature stability
- Built-in cooling coil for perfect stability at sub-ambient temperatures
- Rapid bath temperature adjustment and stabilization
- Informative on-screen and printed reports; unlimited results storage; LIMS export following user-defined protocols
- Easy tube replacement in minutes; no need to drain bath media

EFFICIENT CLEANING PROCESS

- Automated cleaning system, individually programmable for each tube
- Minimal solvent consumption for cleaning cycle
- All solvent removed under vacuum, not under pressure
- Enhanced cleaning options with Model VH2:
  - dual-solvent washing option for hard-to-clean samples and fast drying
  - withstands use of aggressive solvents

POWERFUL PC-BASED DATA MANAGEMENT

- Standard and/or averaged viscosity measurements
- Viscosity Index computation in minutes when 40°C and 100°C bath temperatures are programmed
- Tags outlier results according to user preferences
- Informative evaluation reports:
  - viscosity for a given temperature
  - temperature for a given viscosity
  - blends
  - viscosity index
- Saves calibration parameters for multiple bath temperature settings, making bath immediately ready for use following a temperature change (i.e. no need to recalibrate)
- Diagnostic menus for service

FOR ADDITIONAL INFORMATION

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