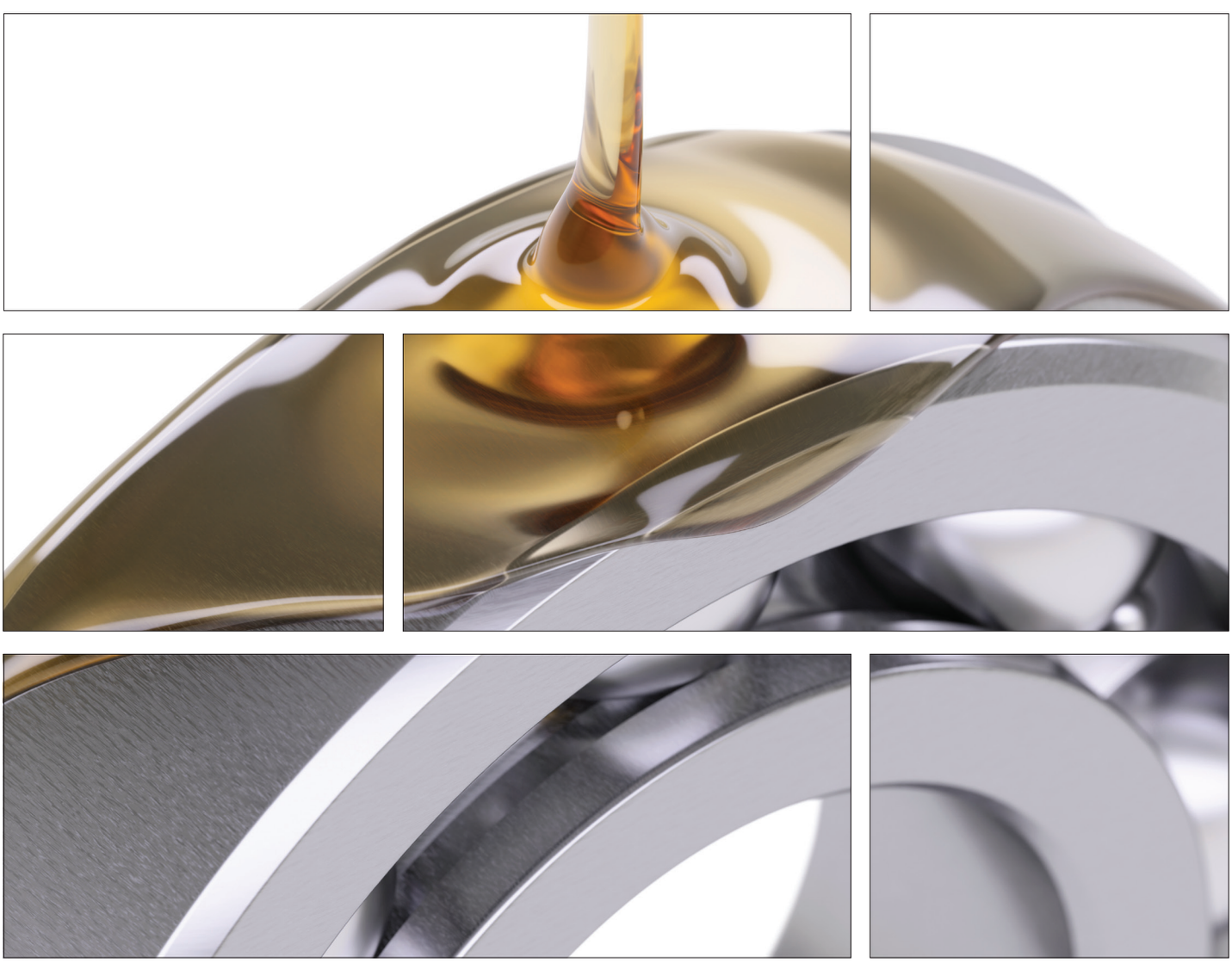
SETA STANHOPE-SETA

Lubricant Testing Solutions

Laboratory instruments for quality control, analysis and calibration



Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.stanhope-seta.co.uk

Flash Point

Flash point is a key property for lubricating oils and is included in many specifications. All petroleum products will ignite if raised to a sufficiently high temperature. It is essential that lubricating oils have flash and fire points that are well above their expected operating temperatures. Flash point is also used to determine whether lubricating oils have been contaminated with volatile materials and is a common test when assessing used lubricants.

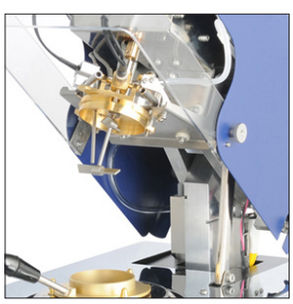
PM-93 Pensky-Martens Closed Cup Flash Point Tester (35000-0)

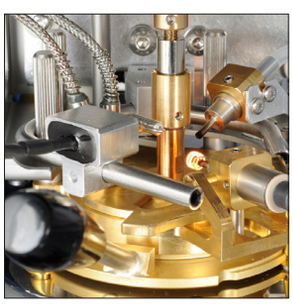
ASTM D93; IP 34; ISO 2719 Procedures A, B and C

The Seta PM-93 provides operators with high level functionality combined with class leading ease of use, robustness and safety.

- Fast, acccurate and safe
- Easy operation
- Single action lifting pod
- Unique SafeFlash fire extinguishing system
- Seta Ignite - a robust and long lasting ignitor
- 30 programmable test profiles, test methods and sample names
- Large touch screen
- Memory storage for 2000 results
- Statistical quality control software (SQC)

Cooling	Forced air (integral fan)
Ignition system	Electric hot-wire or gas flame
Flash detection	Thermocouple
Heating rate	Fast heating mode (>15 °C/min) and standard rate; 5.5 °C/min; 3 °C/min; 1.3 °C/min; 1 °C/min
Temperature range	Ambient +5 to 400 °C (Ambient +41 to 752 °F)
Barometric pressure correction	Automatic correction with built-in pressure sensor
Fire detection	Thermal. Optional integral inert gas Fire Extinguisher (35002-0)
Size (HxWxD) / Weight	39x24x50 cm / 25 kg



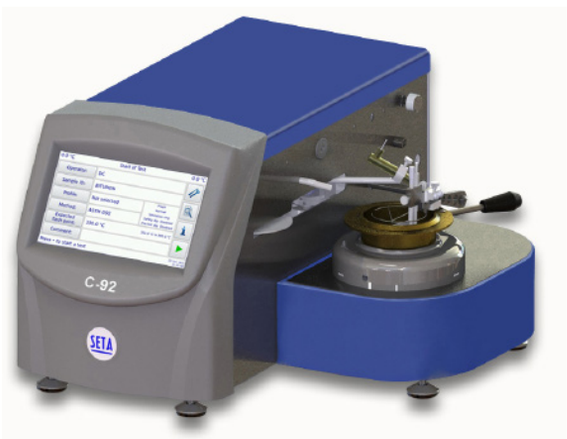


Seta C-92 (35300-0)

ASTM D92; ASTM D8254; IP 36; IP 403 (obs); ISO 2592; DIN 51 376; NF T60-118; JIS K 2265-4; AASHTO T48

The Seta C-92 is an automated Cleveland open cup flash and fire point tester. Featuring the most advanced, built in modern software it is both flexible and easy to use.

- Easy operation
- Electric hot-wire or gas flame
- Real time display of test progress
- Custom methods and profiles
- Full touch screen display
- Automatic correction for atmospheric pressure
- Rapid cooling system
- Automatic snuffer
- Internal result storage
- LIMS, network and USB connectivity
- Statistical quality control software (SQC)



Lubricating Oil Multi-Test Verification Material (99853-2)

Manufactured and certified in strict accordance with ISO Guide 34, for full details see page 15.

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Small Scale Flash Point in Oil Condition Monitoring

Flash point as part of an oil condition monitoring program can assist in reliably identifying degradation and contamination of the oils from fuel dilution. It complements other tests such as viscosity measurement, and can be used to confirm whether a low viscosity result is due to improper blending, lubricant breakdown or fuel dilution. Fuel contamination of under 1% can be detected with the Setaflash small scale instruments.

The safest choice. Approved in over 1000 international product specifications and regulations.

ASTM D3278; ASTM D3828; ASTM D4206; ASTM D7236; ASTM D8174; E502; IP 523; IP 534; IP 602; ISO 3679; ISO 3680 (obs); ISO 9038; EPA 1020 B; CLP Regulations

Setaflash® Series 3 Small Scale Flash Point Testing

The versatile range of Setaflash® Series 3 instruments are ideal for use in the laboratory, production line or for portable test applications.

- Test time of under 2 minutes
- Small sample size, 2 or 4 ml
- Portable, lightweight, compact design
- Suitable for unknown samples using ramp mode
- Automatic flash detection
- Automatic barometric correction
- Full touch screen display

	Series 3 Closed Cup (30000-3)	Series 3e High Temperature (30020-0)
Temperature range	Ambient to 300 °C	Ambient to 300 °C
Ignitor	Gas	Electric
Cup material	Aluminium	Aluminium
Ramp rate	up to 6 °C/min	up to 6 °C/min
Heating/cooling method	Cartridge	Cartridge
Results download	USB	USB
Size (HxWxD) / Weight	19.5x29.5x14 cm / 3 kg	19.5x29.5x14 cm / 3 kg

Setaflash® Series 8 Small Scale Flash Point Testing

The Setaflash® Series 8 is an automated closed cup flash point tester with enhanced functionality over a wide temperature range.

- Automatic dipping and flash detection
- Electric ignitor (gas option available)
- Test time of under 2 minutes
- Small sample size, 2 or 4 ml
- Suitable for unknown samples using ramp mode
- Automatic barometric pressure correction
- Full touch screen display

Series 8 High Temperature (82000-2)	
Temperature range	Ambient to 300 °C
Cup material	Aluminium
Ramp rate	up to 10 °C/min
Heating/cooling method	Ceramic hot plate and fan
Results download	USB/RJ45
Size (HxWxD) / Weight	30x34x38 cm / 8 kg

Small Scale Certified Flash Point Material (99878-3), nominal flash point value of 75 °C

Small Scale Certified Flash Point Material (99879-0), nominal flash point value of 192 °C

Viscosity

A key property which determines the ability of the lubricating oil to form a film that protects moving machinery components from wear during operation. Kinematic viscosity forms an integral part of lubricating oil specifications.

KV-6 Viscometer Bath (84200-3)

ASTM D2170; ASTM D2270; ASTM D445; ASTM D446; IP 71; IP 226; IP 319; BS 188; BS 2000-71; ISO 3105; BS EN 12595; BS 2000-319; EN 3104; DIN 51 366; DIN 51 562

The KV-6 Viscometer Bath precisely maintains the temperature of viscometer tubes, which are used to measure the viscosity of liquid petroleum products.

- Up to 6 viscometer tubes
- 50 litre oil/water bath
- Temperature range ambient to 150 °C
- Temperature stability ±0.01 up to and including 100 °C, ±0.03 above 100 °C
- Digital display with 0.01 °C resolution
- Oil, silicone fluid or water filled depending on temperature of use
- Double wall glass front panel ensures optimum insulation and reduce heat loss
- Toughened glass front panel and integral back lighting
- Two positions for reference thermometers

Calibrated Cannon-Fenske Viscometers

ASTM D445; ASTM D446; IP 71; ISO 3105

Viscosity Range (mm2/s)	Nominal Constant	Size Code	Viscosity Std A	Viscosity Std B	Seta Part Number Routine	Seta Part Number Opaque
0.5 to 2	0.002	25	N.08	N1	11634/01	11641/01
0.8 to 4	0.004	50	N1	N2	11634/02	11641/02
1.6 to 8	0.008	75	S3	S6	11634/03	11641/03
3 to 15	0.015	100	D5	D10	11634/04	11641/04
7 to 35	0.035	150	N10	S20	11634/05	11641/05
20 to 100	0.1	200	N35	S60	11634/06	11641/06
50 to 250	0.25	300	N100	S200	11634/07	11641/07

Cannon Fenske Routine Viscometer Testing Kit (84211-0)

Cannon-Fenske Opaque Viscometer Testing Kit (84210-0)

Viscometer Tube Holder for Cannon Fenske (23154-0)

Universal Viscometer Holder (23150-2)

Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.stanhope-seta.co.uk

4-Ball and Shear Stability

Shear stability is a measure of a lubricants resistance to viscosity loss when it is passed through narrow passageways such as bearings or gears. A common test for this property is the Taper Roller Bearing Rig (KRL) test CEC-L-45-99.

Seta-Shell Four Ball Lubricant Testers

ASTM D2266; D2596; D2783; D4172; IP 239; BS ISO 26422; BS EN ISO 20623; DIN 51350; CEC-L-45-99

Seta-Shell 4-Ball lubricant testers are used to determine the effectiveness of lubricants and greases at preventing component wear under extreme loads.

- Applied loads range up to 800 kgf
- Drive speed from 1200 to 1760 rpm
- Digital timer and display with selectable range 0.1s to 9999hr
- Digital displays and microprocessor control of Applied Load and Torque (19900-4)
- Automatic torque limiting and cut-off
- Interlocked guards for maximum safety
- Optional heating pad and controller

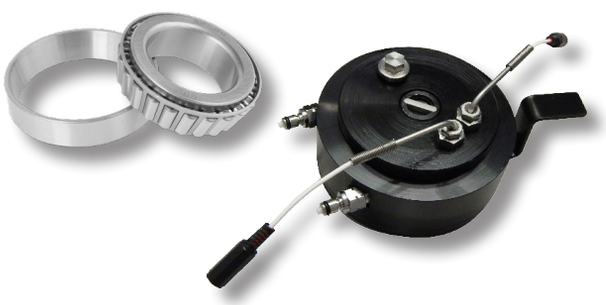
Seta-Shell Four Ball Autoload (19900-4)
Seta-Shell Four Ball Manual Load (19800-7)

	Autoload 19900-4	Manual Load 19800-7
Speed range	1200 to 1760 rev/min	1200 to 1760 rev/min
Load range	40 to 800 kgf	0 to 800 kgf
Timing	0.1s to 9999hr	0.1s to 9999hr
Power supply	220/240 V, 50/60 Hz, 32 A (single phase), 2.6 kW	220/240 V, 50/60 Hz, 32 A (single phase) 2.6 kW
Size (HxWxD) / Weight	169x63x62 cm / 150 kg	169x82x62 cm / 161 kg

Viscosity Shear Stability Head (19820-3)

CEC L-45-99; ISO 26422

- Temperature control via an external chiller
- PC connectivity for temperature data logging
- Secondary over temperature monitoring with automatic shutdown
- Quick release mounting system for easy bearing access



Microscope with Digital Camera (19750-3)

The Microscope is used for x/y linear measurement and allows direct viewing of the ball scar with x30 magnification. The 1.3 Megapixel CCD camera fits any Seta microscope to allow image capture of the scars and on-screen measurement of the size.

Foaming Characteristics

The performance of a lubricant depends upon its ability to resist foaming and air entrapment. Foaming causes the protective film on the operating surfaces to be broken down and the effectiveness of the lubricant to reduce. This quickly leads to component wear. Foaming can also cause increased lubricant loss and premature oxidation.

Setafoam Dual Twin Foam Test Baths (14020-8)

ASTM D892; IP 146; ISO 6247

Setafoam Dual Twin Foam Test Baths are a pair of highly transparent water baths for detecting foaming characteristics in lubricating oils.

- High and low temperature baths
- Temperature range ambient to 100 °C
- Up to two simultaneous tests per bath
- Two pre-heating stations per bath
- Two integral normalising coils
- Digital or Analogue flow meter options available
- LED back lighting

Tests for Maximum Pore Diameter and Permeability of Gas Diffusers

ASTM D892 mandates the regular verification of foam stones prior to use to ensure that the pore diameter and permeability meets the requirements of the test method.

Seta Verification Kit (14028-5)

ASTM D892 ANNEX X1; ASTM D6082 ANNEX A1; IP 446; ISO 6247

- Verifies maximum pore diameter and permeability of diffusers
- Suitable for Mott Diffusers and Norton Stones

Automatic Diffuser Washing

Appendix X1 in ASTM D892 provides guidance on a procedure for cleaning the diffusers. This includes a flush with toluene, heptane and dry air sequence which is repeated 5 times.

Seta Autowash (14024-2)

ASTM D892; D6082; IP 146

- Automatic and unattended cleaning of diffusers
- Consistent cleaning everytime
- Up to 10 washing programs available
- Low solvent use
- No operator exposure to solvents
- Quick and simple operation

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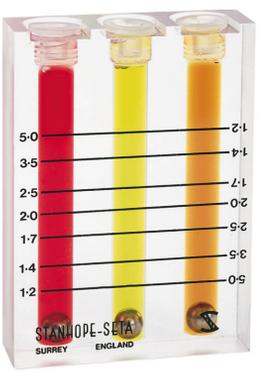
Go-No-Go Viscosity Checks for In-Service Testing

Seta Tri-Gauge Viscosity Comparator (22950-2)



A transparent perspex block with three tube and ball testers that allow a simple comparison of a sample to reference oils of higher and lower viscosity.

- Ideal for in-service lubricant oil testing
- Rapid and easy Go/No-Go viscosity test
- 10 ml sample and reference oil size
- Suitable for clear and opaque liquids

Distillation

Provides information on volatility and residues. Typically this parameter is included in mineral oil specifications where a high degree of purity is required.

Setastill Distillation (11860-3)

ASTM D86; IP 232; ISO 3405

The Setastill Distillation unit is a bench-top instrument used to carry out atmospheric distillation of petroleum products and liquid fuels to determine boiling range characteristics.

- Ambient to 400 °C distillation range
- Adjustable height heater/flask platform
- Toughened glass window
- Cooling fan

Colour

Colour can be indicative of the condition of an oil. Within the pharmaceutical industry white mineral is typically required to be colourless and is measured using ASTM D156. Automotive products are generally measured using the ASTM D1500 test method.

Seta Multi-Colour Automatic Colorimeter (15260-4)

ASTM D156; ASTM D1500; IP 196; ISO 2049

An automated spectrometric colorimeter designed for rapid colour analysis of petrochemical products. Selectable for Saybolt, ASTM, Pt-Co/Hazen/APHA, spectral data and CIE colour determinations.

- Automatic operation
- Multiple colour scales including ASTM and Saybolt
- Rapid measurement < 25 seconds

Oxidation Characteristics

Oxidation stability provides an indication of the service life of the oil. ASTM D943 covers the Oxidation Characteristics of inhibited mineral oils. ASTM D4310 covers the sludging and corrosion tendencies of the oil in the presence of a metal catalyst.

Seta Oxidation Bath (16900-7)

ASTM D943; ISO 4263; ASTM D4310

The Seta Oxidation Bath comprises of a 35 litre oil bath which can accept up to six sets of glassware. A Seta Oxflo control unit includes a gas inlet pressure regulator, pressure gauge and six precision flowmeters calibrated for oxygen at 3 litres/hour, 20 °C and 0.4 bar pressure.

- Ambient +5 to 100 °C temperature range
- 6 position oil bath
- Digital thermostir unit
- Seta Oxflo Controller and 6 flowmeters included
- Low liquid protection and over temperature cut out

Temperature range	Ambient +5 °C to 150 °C
Stability	±0.05 °C
Bath type	Oil filled
Bath capacity	35 litres
Power requirement	110/120 V, 220/240 V, 50/60 Hz / 1.5 kW
Size (HxWxD) / Weight	Bath: 64x36x33 cm, 15 kg Oxflo Controller Unit: 44x35x26 cm, 11 kg

Pre-Formed Copper and Steel Catalyst Coil (16921-0)

Pre-Formed Copper and Steel Catalyst Coil (16921-0)

Oxidation Stability for Steam Turbine, Automotive and Mineral Insulating Transformer Oils

A range of test methods are covered by RŏBOT bath, these methods are designed to provide a more rapid assessment of the oxidation characteristics of steam turbine, automotive and mineral insulating oils.

Seta RoBot Bath (15200-5)

ASTM D2272; ASTM D4742; IP 229

The Seta RoBot Bath is a floor standing 72 litres oil bath with digital temperature control. Two oxidation test vessels can be accommodated which are supported at an angle of 30° and rotated at 100 rev/min.

- Ambient 160 °C
- 2 test stations
- Fume extraction
- Gear drive
- Real time automatic pressure monitoring

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Corrosion

Corrosion testing was introduced to automotive lubricating oil specifications in response to concerns over corrosion damage to engine components. The ASTM D130 test utilises Copper tokens that are exposed to the sample in the presence of heat and the resulting change in token colour is compared to an ASTM colour standard.

Copper Corrosion Baths

ASTM D130; IP 154; ISO 2160

A range of solid block stainless steel water or oil baths which are digitally temperature controlled to ±0.1 °C over a temperature range of ambient +5 °C to 150 °C.

6 Station Bath (11405-0)

4 Station Solid Block Bath (11310-0)

Rust Preventing Characteristics

A test that is included in most lubricating and hydraulic oil specifications and is frequently used as part of an oil condition monitoring program. In use water can become entrained in the oil and the test provides a guide on how well the oil will protect metal surfaces from rusting due to the water content, it also indicates whether rust inhibitors are required.

Seta Rust Prevention Bath (11200-8)

ASTM D665; IP 135; NACE TM0172-2001

The Seta Rust Prevention Bath is a 31 litre oil bath with a temperature range of ambient +5 °C to 120 °C. The top panel of the bath accepts up to 7 test beakers with stirrers.

- Ambient +5 to 120 °C temperature range
- 7 test stations
- Quick release stirrers
- Digital temperature controller
- Bath viewing window and door

Cloud and Pour Point

Cloud and pour point tests are called up in most lubricating oil specifications. These parameters provide an indication of the expected physical condition of an oil when operated at low temperatures.

	Seta Cloud and Pour Point Cryostat 93531-8	Seta Compact Cloud and Pour Point Cryostat 94100-4	Seta Cloud, Pour Point and CFPP 94160-0
Temperature range	Ambient to -35 °C (x3) -35 to -51 °C (x1)	Ambient to -34 °C	0 to -69 °C
Test positions	16	12	4
Cool down time	Approx 2 hrs (from 32 °C to -51 °C)	Approx 1 hr (from 32 °C to -34 °C)	Approx 1 °C per 1.5 minutes
Power supply	1.8 kW 110/220 Vac, 50/60 Hz	750 W 220/240 Vac, 50 Hz	150 W 100/240 Vac, 50/60 Hz
Size (HxWxD) / Weight	95x63x62 cm / 115 kg	60x60x85 cm / 115 kg	28x24x50 cm / 20 kg

Water Separability

A test that is included in most lubricating and hydraulic oil specifications and used as part of an oil condition monitoring program. Water in oil can form emulsions and sludges. The water separability test assesses the effectiveness of the oil to separate from the water.

Herschel Emulsifier (96700-2)

ASTM D1401; IP 412; ISO 6614

The Herschel Emulsifier is a bench top, automated instrument, used to measure the ability of petroleum oils or synthetic fluids to separate from water.

- 4 independently controlled test stations
- Multiple operator safety features, including emergency stop button
- Motorised raising and lowering
- Automated test sequence
- Intermediate scraping position
- Integrated timing
- Easy handling and removal of sample
- No removal of the paddles required
- Guaranteed paddle rotation speed
- Non-reflective enhanced LED lighting

Insolubles and Trace Sediment

Lubricating oils should be clear of sediment and insoluble contamination. The presence of sediment can lead to wear and premature machinery failure, and insoluble material can be indicative of oil or additive breakdown.

Seta Oil Test Centrifuge

ASTM D91; D893; D1290; D1796; D2273; D2709; D2711; D4007; ISO 3734; ISO 9030

The Seta Oil Test Centrifuge is a heating centrifuge fitted with a rotor head with four or six universal pivoting buckets, used to determine water and sediment in oils.

- Heated chamber, ambient to 80 °C
- Static, near vertical bucket positioning
- 4 or 6 place swing out rotor
- Pre-heat facility to ensure bowl is at test temperature
- Conforms to IEC 1010-1 & 1010-2-D
- Optional vapour extraction system

4-Place Centrifuge (90000-3)
6-Place Centrifuge (90100-0)

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Carbon Residue

Typically called up in base oil specifications this test provides an indication of carbon deposits that may remain after an oils exposure to high temperatures. Two tests cover this property, ASTM D4530 – Micro Carbon Residue and ASTM D189 Conradson Carbon residue. The tests require different volume of sample, ASTM D4530 is accepted as the referee test.

Micro Carbon Residue Tester (97400-3)

ASTM D4530; ASTM D189; IP 13; IP 398; ISO 10370

The Seta MCRT is an automatic instrument designed to determine the carbon residue formed after evaporation and pyrolysis of petroleum products.

- Carbon residue range 0.1% to 30.0% (m/m)
- Fully automatic, load and go
- 12 sample capacity
- Automatic temperature ramp and gas flow control
- Digital display flowmeter
- Equivalent to ASTM D189; IP 13
- Temperature range ambient to 500 °C
- User friendly interface
- Calibrated for precise temperature ramp rate
- Integrated fan for cooling
- Low pressure and over temperature cut out

Conradson Carbon Residue (10600-0 & 10610-0)

ASTM D189; IP 13; ISO 6615; FTM 791 5001

Comprises of a cast iron tripod stand, Skidmore iron crucible with cover, spun sheet iron crucible with cover, spun steel circular hood with chimney, spun steel circular insulation block and Nichrome wire support.

Available as a single test unit (10610-0) or a 4-way test unit (10600-0).

Single Test Unit (10610-0)
4-Way Test Unit (10600-0)

Seta Ash Furnace (99220-2)

ASTM D482, ASTM D874, BS EN ISO 6245 & BS 2000-4, IP 163, IP 4

The Seta Ash Furnace and accessories are suitable for ASTM D482. The furnace comes with pre-heated airflow system and extended chimney. Maximum temperature 1100°C with over-temperature cut-out and door safety power cut off switch.

Air Release Properties

Lubricant and oils containing excess amounts of entrained air can lead to serious disruptions of equipment in operation, increased oxidation tendency and shortened lubricating efficiency. The Air Release Value test determines the time taken for hydraulic fluids and lubricating oils to release entrained air and gases.

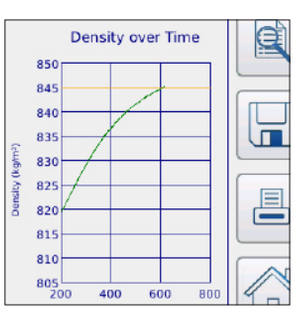
Air Release Value System (15840-0)

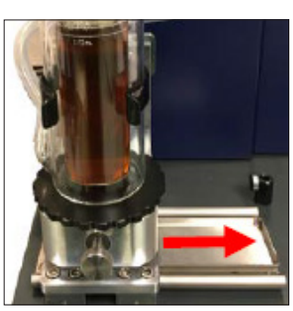
ASTM D3427; IP 313; BS 2000-313; ISO 9120

Seta Air Release Value (ARV) System is a benchtop, automated instrument, used to evaluate the ability of turbine, hydraulic and gear oils to release entrained air.

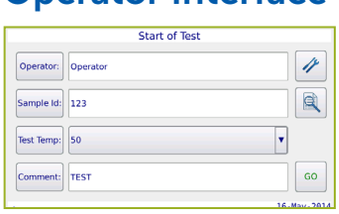
- Integrated solution
- Multi-station sample management platform
- Simple test menu
- Automated density monitoring
- Circulated sample heating
- Quick connectors for ease of sample handling
- Integral sinker warmer
- Automatic result calculation
- Results storage for over 10,000 tests
- Full LIMS connectivity

Sample size	200 ml
Test temperature range	Ambient to 75 °C (air to 85 °C)
Set temperatures	25 °C, 50 °C, 75 °C (custom temp available in software)
Sample temperature stability	±0.1 °C
Air temperature stability	±0.2 °C
Water supply	10 l/min, adjustable from 25 °C to 80 °C
Density	0.0001 g/ml (0.1 kg/m³)
Size (HxWxD) / Weight	82x44x50 cm / 29 kg



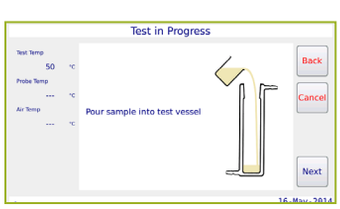


Operator Interface

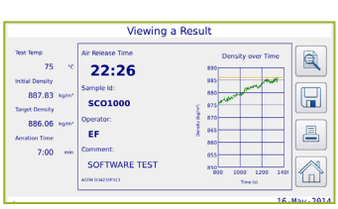


Quickly and easily start test

Complete test preparation



Follow simple test method guide



View results with key parameters highlighted and a graphical representation

ARV Reference Oil (15842-0)

Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.stanhope-seta.co.uk

Particle Counting

The understanding of particle contamination in lubricating and hydraulic oils is the single most important parameter when evaluating the cleanliness of new and used lubricating and hydraulic oils. Laser particle counting offers a quick and quantitative way of evaluating the particulate contamination or cleanliness of oil, allowing an operator to determine whether the oil is suitable for operation. Particle counting methods are written into many specifications and the instruments report particle count and size distribution in industry standard formats such as ISO 4406 and NAS 1638.

Seta AvCount Lite (SA1800-2)

ASTM D7619; IP 565; ASTM D975; Defence Standard 91-86; Defence Standard 91-091; ISO 4406

The AvCount Lite particle counter provides reliable results for determining the particle concentration in liquid fuels and oils.

- ISO 11171 calibration
- Cumulative Particles/ml
- ISO 4406 Cleanliness Codes
- Simple operation
- Portable, compact instrument
- Under 3 minute test time
- Bottle samples or on-line (high and low pressure with ProTrend)
- Stand alone or PC controlled
- Programmable via PC
- Integrated printer
- Battery power optional

Seta AvCount3 (SA1100-0)

ASTM D7619; ASTM D7647; ASTM D975; IP 565; Defence Standard 91-86; Defence Standard 91-091; IP 630; GOST 17216; ISO 4406; ISO 60970; NAS 1638; SAE 4059; JIS B 9932:2012; JIS B 9933;2021; JIS B 9934;2012

The AvCount3 is a compact bench-top automatic particle counter, used to measure the size and distribution of particles and water droplets in light and middle distillate fuels, including aviation fuel and kerosine, biodiesel, low viscosity oils and hydraulic oils.

- ISO 11171 calibration
- Cumulative counts/ml
- ISO 4406 Cleanliness Codes
- Colour touch screen
- Dilution ratio calculation
- Real time display of test progress
- User programmable
- Under 3 minute test time (IP 565)
- LIMS, network and VNC connectivity
- Programmable alarm limits
- User and sample identification
- 14 embedded test methods
- Integrated printer
- 500,000 test memory
- In-field verification and calibration

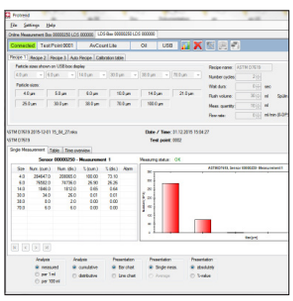
Seta AvCount Lube (SA1900-0)

ASTM D7647*; ISO 4406*; ISO 60970*; ASTM D678; NAS 1638; AS 4059F; ISO 11500; SAE A6D; SAE 749D; GOST 17216; GB 5930; GJB 420-A-1996; GJB 4208-2006
*Does not require connection to a computer

The AvCount Lube is a fully configured particle counter and sample delivery system suitable for testing higher viscosity samples such as lubricating oils.

- ISO 11171 calibration
- Up to 200 mm^2/s viscosity
- FFKM seals resistant to many synthetic oils
- PC controlled via ProTrend software
- User friendly software
- Integral compressor
- Programmable via PC
- Under 3 minute test time

Counts per measurement (max)	600,000
Sample viscosity (max)	200 mm^2/s with integral Sample Delivery System
Total sample volume used	80 ml
Number of measuring channels	6 and 15 (programmable)
Results	600 measurements internal, unlimited on PC
Sample temperature range	0 to 70 °C
Connectivity	USB connection for PC
Power supply	100 – 240 Vac, 50/60 Hz
Size (HxWxD) / Weight	640x320x280 mm / 16 kg



AvCount Verification Material (SA1006-0)

- Manufactured in accordance with ISO 11171 Annex F
- Supplied in 250 ml bottles with a Certificate of Measurement

Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.stanhope-seta.co.uk

Multi Test Verification Materials (MTVM)

- Highly cost effective solution to laboratory verification requirements
- Verification to ASTM/CEN/ISO/IP
- Certified values
- 2 year shelf life from manufacture
- 500 ml

Seta MTVM Lubricating Oil 500 ml (99853-2)

Manufactured and certified in accordance with ISO 17034 and ISO Guide 35

Test Parameter	ASTM / Method	Range	Amount/test
Flash Point	D93 Procedure A	196 to 225 °C	80 ml
Pour Point	D97; IP 15	-49.1 to 33 °C	50 ml
Kin Vis 40 °C	D445	53 to 165 mm^2/s	30 ml
Kin Vis 100 °C	D445	9 to 22 mm^2/s	30 ml
Viscosity Index	D2270	139 to 180	60 ml
Density	D4052	0.85 to 0.88 g/mL	10 ml
Zinc	D5185	800 to 1300 mg/kg	5 ml
Calcium	D5185	30000 to 5000 mg/kg	5 ml
Phosphorus	D5185	800 to 1600 mg/kg	5 ml
Acid Number	D664	1 to 5 KOH/g	2 ml

Small Scale Certified Flash Point Material 50 ml (99879-0)

- For closed cup test methodsCertified according to ISO 17025/ISO Guide 35
- Nominal certified flash point value of 192°C
- Supplied with full certification including MSDS
- 2 year shelf life from manufacture

Cleveland Standard 80 ml (99882-0)

- Certified according to ISO 17025/ ISO Guide 34
- Tested and certified in accordance with ASTM D92/IP 36
- 259 °C nominal value
- 2 year shelf life from manufacture

ARV Reference Oil (15842-0)

SETA STANHOPE-SETA

Lubricant Testing Solutions

Test Method:					Mineral Oils:	Base oils:	Lubricating Oils:	Hydraulic Oils:	Instrument:	Seta Part No:
ASTM D86	IP 123	ISO 3405	FTM 791 1001	Distillation of Petroleum Products at Atmospheric Pressure	●				Manual Distillation	11860-3
ASTM D93	IP 34	ISO 2719	FTM 791 1102	Flash Point by Pensky-Martens Closed Cup Tester	●	●	●	●	Automatic / Multiflash / Manual	35000-0 / 35300-0/ 13661-4
ASTM D92	IP 36	ISO 2592	FTM 791 1103	Flash and Fire Points by Cleveland Open Cup Tester	●	●	●	●	Automatic / Multiflash / Manual	35300-0 or 13811-3
ASTM D95	IP 74	ISO 3733	FTM 791 3001	Water in Petroleum Products and Bituminous Materials by Distillation			●		Dean and Stark Apparatus	24410-5
ASTM D97	IP 15	ISO 3016	FTM 791 201	Pour Point of Petroleum Products	●	●	●		Cloud & Pour Point Compact Cloud & Pour Point SetaCool	93531-8 94100-4 94160-0
ASTM D130	IP 154	ISO 2160	FTM 791 5325	Corrosiveness to Copper from Petroleum Products by Copper Strip Test			●		6 position bath – Liquid 4 position bath – Solid Block	11405-0 11310-0
ASTM D156			FTM 791 101	Saybolt Color of Petroleum Products	●				Automatic Colorimeter	15260-4
ASTM D189	IP 13	ISO 6615	FTM 791 5001	Conradson Carbon Residue of Petroleum Products		●			Conradson Carbon Residue unit	10610-0
ASTM D445	IP 71	ISO 3104	FTM 791 305	Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)	●	●	●		KV6 Viscometer Bath	84200-3
ASTM D482	IP 4	ISO 6245	FTM 791 5421	Ash from Petroleum Products			●		Ash Furnace	99220-2
ASTM D665	IP 135		FTM 791 4011	Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water			●	●	Rust Prevention Test Bath	11200-8
ASTM D892	IP 146		FTM 791 3211	Foaming Characteristics of Lubricating Oils		●	●	●	Dual-Twin Foam Baths	14020-8
ASTM D893			FTM 791 3121	Insolubles in Used Lubricating Oils			●		4 or 6 place Oil Test Centrifuge	90000-3 90100-0
ASTM D943		ISO 4263		Oxidation Characteristics of Inhibited Mineral Oils		●	●	●	Solid block bath 12 or 6 position Liquid bath 6 position	16640-2 16645-2 16900-7
ASTM D1401	IP 412	ISO 6614		Water Separability of Petroleum Oils and Synthetic Fluids				●	Herschel Emulsifier	96700-2
ASTM D1500	IP 196	ISO 2049	FTM 791 102	ASTM Color of Petroleum Products		●	●		Colour Comparator Automatic Colorimeter	15250-4 15260-4
ASTM D2112				Oxidation Stability of Inhibited Mineral Insulating Oil by Pressure Vessel	●				RŏBOT Bath	15200-5
ASTM D2272				Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel		●			RŏBOT Bath	15200-5
ASTM D2500	IP 219	ISO 3015		Cloud Point of Petroleum Products	●	●	●		Cloud & Pour Point Compact Cloud & Pour Point SetaCool	93531-8 94100-4 94160-0
ASTM D2273			FTM 791 3004	Trace Sediment in Lubricating Oils			●		4 or 6 place Oil Test Centrifuge	90000-3 90100-0
ASTM D2783			FTM 791 6503	Measurement of Extreme-Pressure Properties of Lubricating Fluids			●		Seta-Shell 4-Ball Lubricant Tester	19900-4 19800-7
ASTM D3427	IP 313			Air Release Properties of Petroleum Oils			●	●	Air Release Apparatus	15840-0
ASTM D3278	IP 523	ISO 3679		Flash Point by Small Scale Closed Cup Tester	●	●	●	●	Series '3' Manual Series '8' Auto'	30000-3 30020-0 82000-2
ASTM D3828	IP 524	ISO 3680		Flash Point by Small Scale Closed Cup Tester	●	●	●	●	Series '3' Manual Series '8' Auto'	30000-3 30020-0 82000-2
ASTM D4172				Wear Preventive Characteristics of Lubricating Fluid (Four-Ball Method)			●		Seta-Shell 4-Ball Lubricant Tester	19900-3 19800-7
ASTM D4310				Determination of Sludging and Corrosion Tendencies of Inhibited Mineral Oils			●		Liquid bath 6 way	16900-7
ASTM D4530	IP 398	ISO 10370		Determination of Carbon Residue (Micro Method)			●		Micro Carbon Residue Tester	97400-3
ASTM D4742				Oxidation Stability of Gasoline Automotive Engine Oils by Thin-Film Oxygen Uptake (TFOUT)		●			RŏBOT Bath	15200-5
ASTM D6786				Particle Count in Mineral Insulating Oil Using Automatic Optical Particle Counters	●	●		●	Particle Counter	SA1100-0 SA1800-2 SA1900-0
ASTM D7236	IP 534			Flash Point by Small Scale Closed Cup Tester (Ramp Method)	*	●	●	●	Series '3' Manual or Series '8' Auto'	30000-3 82000-2
ASTM D7647				Automatic Particle Counting of Lubricating and Hydraulic Fluids	●	●	●	●	Particle Counter	SA1100-0 SA1800-2 SA1900-0
CEC-L-45-99		ISO 26422		Viscosity Shear Stability of Transmission Lubricants (Taper Roller Bearing Rig)			●		Shear Stability (KRL) Head	19820-3

Stanhope-Seta, London Street, Chertsey, Surrey, KT16 8AP, UK
t: +44 (0) 1932 564391 | e: sales@stanhope-seta.co.uk | www.stanhope-seta.co.uk | Issue 5