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Linetronic Technologies Laboratory and Process Analyzers Catalogue 2018



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NewLab 100 Cloud Point



ASTM D2500
ASTM D5771
ASTM D5772
ASTM D5773
DIN 51597
IP 219
IP 444
IP 445
IP 446
ISO 3015

Subject

Cloud Point of petroleum products and biodiesel fuels.

Measuring Cloud Point Principle

The sample is cooled down according to the methods while the clouds appearance is observed on the silver bottom of the test jar by means of an optical sensor. The measurement is done by reflection on the silver bottom of the test jar via a fast light detector. The signal from light detector is traded by the LabLink software. The dynamic measurement is performed regardless of the sample's colour.

Measuring Cloud Point Devices

Light pulsed emission on I.R spectrum through a coaxial fiber optic.

Measuring Temperature Probe

- Platinum resistance PT100 class A
- The PT100 is touching the bottom of the test jar.

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80°C ... -80°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- New LabLink software able to manage up to 6 analytical heads simultaneously (stand alone)
- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results
- Self-identification of the typology of the analysers connected

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference.
- Optional methods:
 - fast bath (to reduce the time of analysis);
 - T-sample – T-bath (Delta T constant);
 - cooling rate °C / h.
- Audible alarm and displayed messages (at the end of the analysis and in case of errors and/or malfunctions).

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs.
- Selectable value displaying: °C / Volt

Calibration Menu

- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis



NewLab 100 Cloud Point



Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark
- Small edge on the top in order to fix the glass cell to the analytical head
- Silvered bottom with anti-scratch film protection

Cooling System

Integrated gas CFC free motor compressors:

- Single stage
(for temperatures up to -40°C / 1)
 - Double stage
(for temperatures up to -80°C / 2)
- Equipped with an automatic energy power save system. After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermo-switch
for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- $220\text{V} \pm 15\%$ / 50 to 60 Hz
- $115\text{V} \pm 15\%$ / 60 Hz

Cord Cable

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 32°C
- H.R. 80%

Spare Parts

- LAB-xxx/005-03: heater + auto adhesive + insulation
- LAB-xxx/005-04: thermo switch
- LAB-xxx/005-06: PT100 bath
- LAB-xxx/007-02: static relay
- LAB-xxx/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-xxx/006-01: cooling fluid valve + fitting
- LAB-100/007-01: main electronic board Cloud Point
- LAB-100/008-06: fiber optic
- LAB-100/008-07: light board
- LAB-100/008-12: PT100 product w/connector
- LAB-100/008-04: test jar with silver bottom
- LAB-100/008-041: o-ring for test jar

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range

Dimensions and weight

- 1 test pos.: w 66 x d 60 x h 80 cm, 60 kg
- 2 test pos.: w 66 x d 60 x h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 x d 60 x h 80 cm, 130 kg
- 4 test pos.: w 134 x d 60 x h 80 cm, 160 kg
- 6 test pos.: w 130 x d 75 x h 170 cm, 280 kg



NewLab 200 CFPP – Cold Filter Plugging Point



ASTM D6371
IP 309 - IP 419
EN 116

Subject

Cold Filter Plugging Point of diesel, biodiesel and heating fuels.

Measuring CFPP Principle

The sample is cooled down according to the methods and when the preselected temperature is reached a vacuum of 20 mBar is automatically applied to the sample. The product is sucked through the filter into the calibrated aspiration pipette. If the sample takes more than 60 seconds to reach the upper barrier detector (during the aspiration phase), or it fails to return completely into the test jar before that the product has cooled by a further 1°C, the Cold Filter Plugging Point is reached.

Measuring CFPP Devices

- Aspiration pipette
- Filter assembly
- Light barrier

Measuring Temperature Probe

- Platinum resistance PT100 class A

Accessories

- OilLab 250 – external vacuum generator:
 - Vacuum pump
 - Two glass bottles
 - A glass cork with: u-tube, funnel, manual flow regulating valve
- OilLab 255 – internal vacuum generator:
 - 1 x micro-pump of 350 mBar
 - 1 x electronic pressure / vacuum regulator composed by: proportional valve, pressure / vacuum control sensor, regulator for reference vacuum generation at 20 mBar, vacuum stabilizer

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80°C ... -80°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- Able to manage up to 6 analytical heads simultaneously (stand alone)
- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results
- Self-identification of the typology of the analysers connected

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Optional methods:
 - T-sample – T-bath (Delta T constant)
 - cooling rate °C / h
 - selectable bath steps
 - fast bath with selectable temperature
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions
- The parameters displayed and updated in real time are:
 - sample temperature
 - bath temperature
 - vacuum pressure
 - low level light value
 - up level light value
 - aspiration time
 - release time
 - intertime test

- Thanks to an istogram (graph) that shows the aspiration and release times it is possible to observe the behaviour of the sample during its cooling phase
- This feature is an excellent tools for the observation and evaluation of the additivations actions and behaviour

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / Volt
- Vacuum data displayed in mBars

Calibration Menu

- Automatic calibration of each temperature probe
- Automatic calibration of vacuum sensor
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 x 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis



CFPP

Automatic Analysers: NewLab Range

NewLab 200 CFPP – Cold Filter Plugging Point



Cleaning pipette procedure

- By using a suitable cleaning liquid and pressing the relevant function button the analyser performs a cleaning sequence of 10 aspirations cycles
- Easy removing of aspiration pipette and filter assembly allows cleaning according to the methods

Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark
- Small edge on the top in order to fix the glass cell to the analytical head

Cooling System

- Integrated gas CFC free motor compressors:
 - Single stage (for temperatures up to -40°C / 1)
 - Double stage (for temperatures up to -80°C / 2)
- Equipped with an automatic energy power save system. After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermostat for 2nd stage activation
- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- 220V \pm 15% / 50 to 60 Hz
- 115V \pm 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 32 °C
- H.R. 80%

Dimensions and weight

- 1 test pos.: w 66 x d 60 x h 80 cm, 60 kg
- 2 test pos.: w 66 x d 60 x h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 x d 60 x h 80 cm, 130 kg
- 4 test pos.: w 134 x d 60 x h 80 cm, 160 kg
- 6 test pos.: w 130 x d 75 x h 170 cm, 280 kg

Spare Parts

- LAB-xxx/005-03: heater + auto adhesive + insulation
- LAB-xxx/005-04: thermo switch
- LAB-xxx/005-06: PT100 bath
- LAB-xxx/007-02: static relay
- LAB-xxx/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-xxx/006-01: cooling fluid valve + fitting
- LAB-200/002-02: vacuum valve + fitting
- LAB-200/007-01: main electronic board CFPP
- LAB-200/008-06: sensor up (orange)
- LAB-200/008-07: sensor down (yellow)
- LAB-200/008-08: emitter up (red)
- LAB-200/008-09: emitter down (blue)
- LAB-200/008-12: PT100 product w/connector
- LAB-200/008-04: CFPP calibrated glass cell
- LAB-200/008-041: o-ring for CFPP test jar
- LAB-200/008-13: calibrated aspiration pipette CFPP
- LAB-200/008-18: clamp + kness for vacuum tube
- LAB-200/013-01: filter assembly
- LAB-200/013-02: filter
- LAB-200/1288: o-ring (big) for CFPP filter
- LAB-200/1232: o-ring (small) for CFPP filter

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range

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NewLab 225 Filter Plugging Tendency



ASTM D 2068
IP 387

Subject

Determination of the filter plugging tendency (FPT) of distillate fuel oils where the end use demands an exceptional degree of cleanliness. This test method is applicable to fuels within the viscosity range of 1.50 to 6.00 mm²/s (cSt) at 40°C.

Main Features

- Bench top analyser
- Integrated cooling system equipped with Peltier module
- Working temperature up to 0°C
- Measuring device complete with support for filter, Beakers, PT100 sensor Class A, level sensor, pressure gauge, tubes and joints
- Micro Pump
- Managed by a Touch Screen Panel PC by means of the Lab-Link software running in Windows ambient.
- Bath made in aluminium

Measuring Principle

A sample of the fuel to be tested is passed at a constant rate of flow (20 mL/min) through a glass fiber filter medium. The pressure drop across the filter is monitored during the passage of a fixed volume of test fuel. If a prescribed maximum pressure drop is reached before the total volume of fuel is filtered, the actual volume of fuel filtered at the time of maximum pressure drop is recorded and used to obtain the automatic calculation result. Otherwise if the prescribe volume is filtered without reach the 105kPa pressure, the maximal pressure during the test is recorded and used to obtain the result.

Measuring Devices

- PT100 Sensors Class A
- Level sensor 0 ... 300 ml
- Pressure sensor 0 to 210 KPa

Technical Features

- Bath / Sample Temperatures: °C/°F (selectable)
- Measuring range: -50°C...+80°C
- Bath temperature: -10°C ... +40°C
- Pump flow rate: 20 ml/min

Integrated Touch Screen Panel PC

- TFT/LCD 12.1"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Software

Main features

- User friendly interface
- Real time display of all the analytical parameters
- Storage of all the analysis
- Storage of the results in Excel® format
- Display of the graphic
- Printable results

Calibration

- Automatic calibration of each temperature probe by means of the calibration decade box
- Storage of the data referred to the calibration
- Last calibration date referred to each single probe displayed

Diagnostic

- Access to all analogue and digital signals (inlet and outlet) in order to verify their functioning.

Accessories

- LAB-225/013-02: kit for ASTM D2068 method B, composed by filter support, filter 1.6 um, filter taper housing, joint for connection, kit for 150 test.
- LAB-225/013-03: kit for ASTM D2068 method C, composed by filter support, filter 5 um, filter Luer housing, joint for connection, kit for 150 test.

Spare Parts

- LAB-225/005-06: PT 100 bath
- LAB-225/008-12: PT100 product with connector for FBT
- LAB-225/008-04: FBT glass cell (sample reservoir)
- LAB-225/008-05: glass cell lid
- LAB-225/008-13: FBT glass receiver (receiver beaker)
- LAB-225/008-06: level sensor
- LAB-225/013-01: luer lock filter support

Consumables

- 1820-8013: glass fibre filters, Ø 13 mm, pack of 100 pieces for ASTM D2068 method A

Dimensions (cm)

- width 48
- depth 30
- height 52

Weight

- 27 kg



NewLab 226 LTFT – Low Temperature Flow Test



ASTM D4539

Subject

This test method covers estimating the filterability of diesel fuels in some automotive equipment at low temperatures.

The Low Temperature Flow Test results are indicative of the low temperature flow performance of the test fuel in some diesel vehicles.

The test method is especially useful for the evaluation of fuels containing flow improver additives in a range of +10°C ... -30°C.

Measuring LTFT principle

Up to 6 300 ml test vessels are cooled at a specified rate of 1°C/h and, at every °C of cooling, a vacuum of 20 kPa is applied to a filter assembly immersed in the first sample. If the sample recovered in a graduated receiver vessel reaches the 180 ml in 60 sec. the analysis continues to the further 1°C test temperature (passed). When the sample doesn't reach the 180 ml within the 60 sec. the test is failed. The temperature of the last passing result test has to be recorded as minimum LTFT pass temperature.

Main Features

- The instrument is a six places floor model
- Equipped with a built in cooling system with motor compressor CFC free for temperatures up to -45°C.
- Fully automatic, controlled by dedicated panel pc with touch screen and a large display.
- All the parameters and the current status of the analysis are shown in real time.

Measuring LTFT devices

- Aspiration pipette
- Filter assembly
- Light barrier

Measuring temperature probe

- Platinum resistance PT100 class A

Vacuum system

- Micropump 350 kPa
- Electronic control for vacuum regulation 20 kPa
- Vacuum stabilizer

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80°C...-80°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / reproducibility as per standards methods or better

Software Features

- User friendly interface
- All analytical parameters recorded
- Customisable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM D4539
- Optional methods:
 - T-sample, T-bath (Delta T constant)
 - selectable cooling rate °C / h
 - selectable bath steps temperature
 - fast bath with selectable temperature
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

- The parameters displayed and updated in real time are:
 - sample temperature
 - bath temperature
 - vacuum pressure
 - level light value
 - aspiration time
- Thanks to an histogram (graph) that shows the aspiration times it is possible to observe the behaviour of the sample during its cooling phase
- This feature is an excellent tool for the observation and evaluation of the additivations actions and behaviour
- [Diagnostic Menu](#)
- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / °F / Volt
- Vacuum data displayed in mBars
- [Calibration Menu](#)
- Automatic calibration of each temperature probe
- Automatic calibration of vacuum sensor
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes
- [Data Utilities](#)
- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible



NewLab 226 LTFT – Low Temperature Flow Test



Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Cooling System

- Integrated gas CFC free motor compressors single stage (for temperatures up to -45°C)

Safety Devices

- Pressure controller for 1st stage motor compressor
- Thermo-switch for cooling / heating jacket
- Motor compressors with internal overload devices

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- max 32 °C
- H.R. 80%

Dimensions (cm)

- width 98
- depth 60
- height 130

Weight

- 80 kg

Spare Parts

- LAB-220/005-03: heater + auto adhesive + insulation
- LAB-220/005-04: thermo switch
- LAB-220/005-06: PT100 bath
- LAB-220/008-12: PT100 sample
- LAB-220/007-02: static relay
- LAB-220/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-220/006-01: cooling fluid valve + fitting
- LAB-220/002-02: vacuum valve + fitting
- LAB-220/007-01: main electronic board LTFT
- LAB-220/008-04: 300 ml glass specimen vessel
- LAB-220/008-05: 400 ml glass receiver vessel
- LAB-220/009-07: rubber stopper for receiver
- LAB-220/009-08: lid for specimen vessel
- LAB-220/008-13: glass aspiration tubing "s"
- LAB-220/008-14: glass receiver tubing "l"
- LAB-220/008-15: glass vacuum tubing "xs"
- LAB-220/008-18: joints vinyl tubes (pack of 12 pcs.)
- LAB-220/013-01: filter assembly
- LAB-220/013-02: filter
- LAB-220/013-021: o-ring for filter

Calibration Tools

- OilLab 80: calibration decade box PT100 simulator
- OilLab 81: set of connectors and cables for cold range



NewLab 300 Pour Point



ASTM D97
ASTM D5853
ASTM D5950
IP 15
IP 441
ISO 3016

Subject

Pour Point of petroleum products,
crude oils, motor and engine oils, additives,
lubricating oils, ...

Measuring Pour Point Principle

According to the methods, the sample is cooled down at a specified rate and, at the prescribed temperature intervals, the mechanical arm of the analyser lifts the test jar from the cooling jacket and tilts it in order to bring it in horizontal position to test the flow of the product.

The sample movement is detected by the thermal probes (PT100 detection) placed above the sample surface which react if touched by the cooled sample.

Measuring Pour Point Devices

- Two PT100 detection probes placed on the surface of the product
- Mechanical moving arm bringing the test jar in horizontal position

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80°C ... -80°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- New LabLink software able to manage up to 6 analytical heads simultaneously (stand alone)
- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results
- Self-identification of the typology of the analysers connected

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference:
 - (internal) with sample pre-heating
 - (external) without sample pre-heating
- Optional methods:
 - T-sample – T-bath (Delta T constant)
 - cooling rate °C / h
 - selectable bath steps
 - fast bath
 - selectable tilt out test temperature
- Audible alarm and displayed messages (at the end of the analysis and in case of errors and/or malfunctions)

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
 - Selectable value displaying: °C / Volt
- ### Calibration Menu
- Automatic calibration of each temperature probe
 - Last calibration date referred to each single probe displayed and relative data printable
 - Display of calibration diagram
 - Insertion of offset values
 - Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible





NewLab 300 Pour Point



Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark
- Small edge on the top in order to fix the glass cell to the analytical head

Cooling System

- Integrated gas CFC free motor compressors:
 - Single stage
(for temperatures up to -40°C / 1)
 - Double stage
(for temperatures up to -80°C / 2)
- Equipped with an automatic energy power save system. After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermostat for 2nd stage activation
- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 32 °C
- H.R. 80%

Dimensions and weight

- 1 test pos.: w 66 × d 60 × h 80 cm, 60 kg
- 2 test pos.: w 66 × d 60 × h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 × d 60 × h 80 cm, 130 kg
- 4 test pos.: w 134 × d 60 × h 80 cm, 160 kg
- 6 test pos.: w 130 × d 75 × h 170 cm, 280 kg

Spare Parts

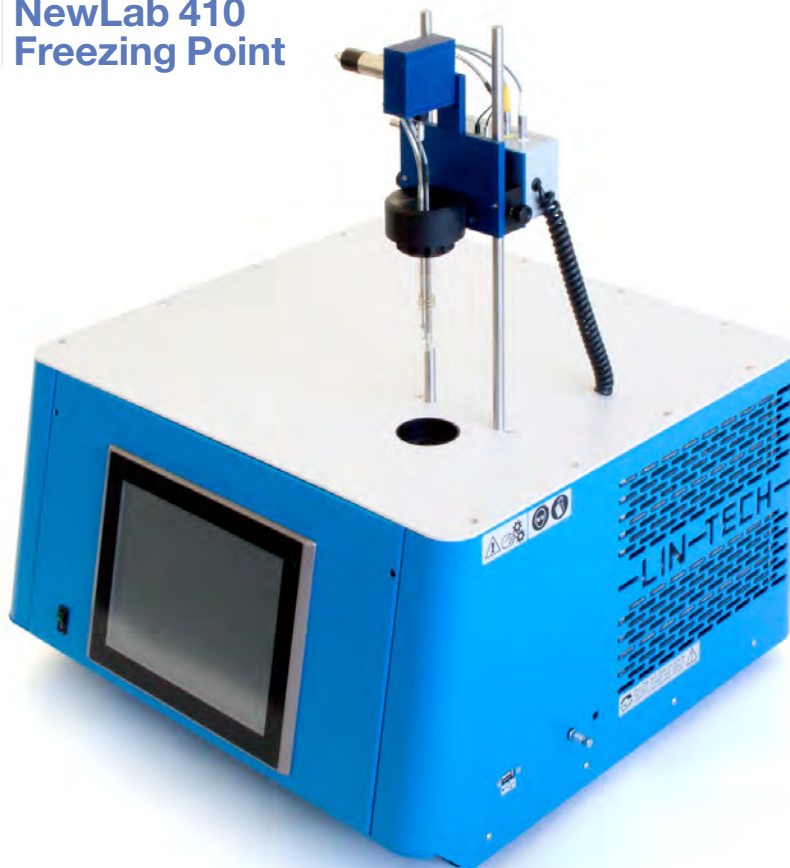
- LAB-xxx/005-03: heater + auto adhesive + insulation
- LAB-xxx/005-04: thermo switch
- LAB-xxx/005-06: PT100 bath
- LAB-xxx/007-02: static relay
- LAB-xxx/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-xxx/006-01: cooling fluid valve + fitting
- LAB-300/007-01: main electronic board Pour Point
- LAB-300/002-16: precision potentiometer
- LAB-300/008-12: PT100 product w/connector
- LAB-300/008-13: PT100 detection
- LAB-300/008-04: calibrated test jar
- LAB-300/008-041: o-ring for test jar

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



NewLab 410 Freezing Point



ASTM D852
ASTM D1177
ASTM D1493
ASTM D1655
ASTM D2386
ASTM D5901
ASTM D5972
ASTM D7154

IP 16
IP 435
IP 528
IP 529
ISO 3013

Subject

Freezing Point of aviation fuels,
aviation gasoline, aviation turbine fuels,
engine coolants, antifreeze products,
brake fluids, ...

Solidification Point of Benzene.

Solidification Point of Industrial Organic
Chemicals.

Measuring Freezing Point Principle

According to the methods, the sample is cooled down and stirred. The solid hydrocarbon crystals formation are detected by means of a light beam through fiber optic reflected thanks to a mirror. As soon as crystals are detected, the sample is warmed up until their complete disappearance.

Measuring Freezing Point Devices

- Light pulsed emission on I.R spectrum through a coaxial fiber optic
- Coaxial fiber optic equipped with a mirror

Measuring Temperature Probe

- Platinum resistance PT100 class A

Stirrer

- A micro-motor drives all the mechanical system
- 3 coils stirrer made of brass

Measuring Parameters

- Temperatures: in °C / °F
- Measuring range: +80°C ... -100°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

New LabLink software able to manage up to 6 analytical heads simultaneously (stand alone)

- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Results report
- Printable graphs and results - any Windows® compatible printer can be used

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Optional methods:
 - special detection of contaminants
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

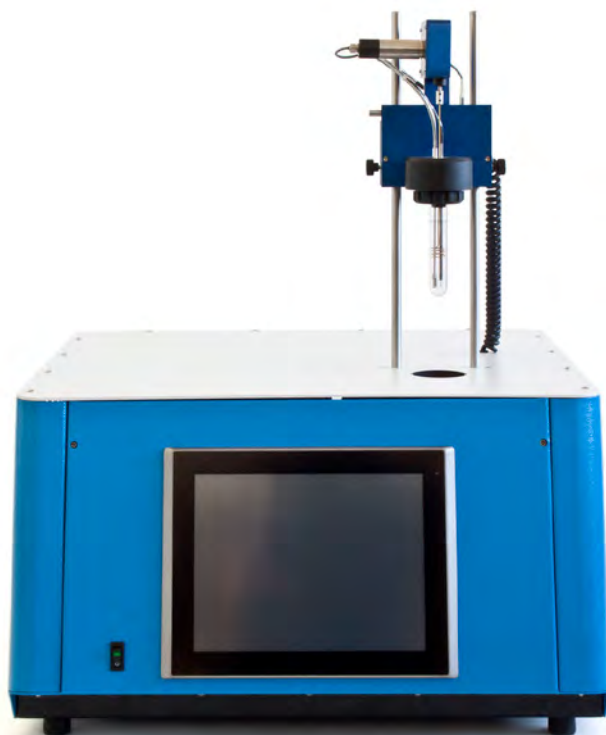
- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / °F / Volt
- Calibration Menu
- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes up to 100 calibration points
- Data Utilities
- Fields for operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format and JPG image
- Storage capacity for more than 60'000 analysis
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis



NewLab 410 Freezing Point



Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark at 25 ml
- Small edge on the top in order to fix the glass cell to the analytical head

Cooling System

- Insulated cooling jackets
- Integrated gas CFC free motor compressors:
 - Double stage (for temperatures up to -80°C / 2)
- Equipped with an automatic energy power save system. After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermostat for 2nd stage activation
- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- $220\text{V} \pm 15\%$ / 50 to 60 Hz
- $115\text{V} \pm 15\%$ / 60 Hz

Cord Cable:

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat

Ambient Temperature

- Max 32°C
- H.R. 80%

Dimensions and weight

- 1 test pos.: w 66 x d 60 x h 80 cm, 60 kg
- 2 test pos.: w 66 x d 60 x h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 x d 60 x h 80 cm, 130 kg
- 4 test pos.: w 134 x d 60 x h 80 cm, 160 kg
- 6 test pos.: w 130 x d 75 x h 170 cm, 280 kg

Spare Parts

- LAB-xxx/005-03: heater + auto adhesive + insulation
- LAB-xxx/005-04: thermo switch
- LAB-xxx/005-06: PT100 bath
- LAB-xxx/007-02: static relay
- LAB-xxx/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-xxx/006-01: cooling fluid valve + fitting
- LAB-400/007-01: main electronic board Freezing Point
- LAB-400/008-04: PT100 product w/connector
- LAB-400/008-05: stirrer
- LAB-400/008-08: mirror for Freezing Point
- LAB-400/008-06: motor for stirrer
- LAB-400/008-07: fiber optic for Freezing Point
- LAB-400/008-09: electronic board for detection
- LAB-410/008-12: removable glass cell for Freezing Point
- LAB-410/008-041: o-ring for Freezing Point test jar

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range





NewLab 800 Low-temperature Torque



Newlab 800: Low-temperature Torque, testing chamber.
Best raw materials and simplicity in construction, strong points that make it appreciated.

ASTM D1478
ASTM D4693
ASTM D4950

Subject

ASTM D1478: Low-temperature Torque of Ball Bearing Grease.

This test method covers the determination of the extent to which a grease retards the rotation of a slow-speed ball bearing by measuring starting and running torques at low temperatures, below -20°C (0°F).

ASTM D4693: Low-temperature Torque of Grease Lubricated Wheel Bearings.

This test method determines the extent to which a test grease retards the rotation of a specially-manufactured, spring-loaded, automotive-type wheel bearing assembly when subjected to low temperatures. Torque values, calculated from restraining-force determinations, are a measure of the viscous resistance of the grease. This test method was developed with greases giving torques of less than 35 N·m at 40°C.

ASTM D4950: Classification and Specification of Automotive Service Greases.

This specification covers lubricating greases suitable for the periodic relubrication of chassis systems and wheel bearings of passenger cars, trucks, and other vehicles.

- Steel structure painted with epoxy material
- Test cabin able to grant a working temperature of -75 °C
- Geared motor and Ball-cage rotating at 1 rpm
- Inspection door made in stainless steel with high insulation material
- Internal double cabin made in stainless steel with high diffusion and homogeneity cooling system
- Double stage refrigerating unit without CFC gases located in the bottom part of the structure
- Digital dynamometer
- Set for analysis available in accessories list
- Managed by a touch screen panel pc using LabLink operating software running on Windows basis with following characteristic:
 - TFT/LCD 12"
 - 40 Gb HD
 - 1024 × 768 resolution and 16 M colors
 - 2 × USB ports
 - Able to store more than 60'000 analysis
- Power cable and user manual
- Power supply available 220 Vac 50/60 Hz or 115 Vac 50/60 Hz to be specified in case of PO

Accessories

- LAB-214500/4693: mechanical mounting kit for performing analyzes according to ASTM D4693 standard including bearings for running tests
- LAB-214500/1478: mechanical mounting kit for performing analyzes according to ASTM D1478 standard including bearings for running tests

Consumables

- LAB-102-140/1478: ball bearing ASTM D1478
- LAB-102-140/4693: ASTM D4693 tapered bearings, pack of 2 pieces

Spare Parts

- LAB-140-001: PT100 stainless steel
- LAB-102-145: torque sensor
- LAB-102-146: toothed belt
- LAB-102-147: heating elements, pack of 2 pieces
- LAB-102-144: torque wire

Dimensions

- width 70 cm
- depth 65 cm
- height 150 cm

Weight

- 240 kg



NewLab 1300 Cloud and Pour Point



Cloud Point:

ASTM D2500
ASTM D5771
ASTM D5772
ASTM D5773
DIN 51597
IP 219
IP 444
IP 445
IP 446
ISO 3015

Pour Point:

ASTM D97
ASTM D5853
ASTM D5950
IP 15
IP 441
ISO 3016

Subject

Cloud Point of petroleum products and biodiesel fuels.
Pour Point of petroleum products, crude oils, motor and engine oils, additives, lubricating oils, ...

Measuring Principle

Cloud Point

The sample is cooled down according to the methods while the clouds appearance is observed on the silver bottom of the test jar by means of an optical sensor. The measurement is done by reflection on the silver bottom of the test jar via a fast light detector. The signal from light detector is traded by the LabLink software. The dynamic measurement is performed regardless of the sample's colour.

Pour Point

According to the methods, the sample is cooled down at a specified rate and, at the prescribed temperature intervals, the mechanical arm of the analyser lifts the test jar from the cooling jacket and tilts it in order to bring it in horizontal position to test the flow of the product. The sample movement is detected by the thermal probes (PT100 detection) placed above the sample surface which react if touched by the cooled sample.

Measuring Cloud and Pour Point Devices

- Cloud: light pulsed emission on I.R spectrum through a coaxial fibber optic
- Pour: platinum resistance PT100 class A
- Pour: mechanical moving arm bringing the test jar in horizontal position

Measuring Temperature Probe

- Platinum resistance PT100 class A
- The Cloud Point PT100 is touching the bottom of the test jar

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80°C ... -80°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- New LabLink software able to manage up to 6 analytical heads simultaneously (stand alone)
- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results
- Self-identification of the typology of the analysers connected

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference:
 - internal, with sample pre-heating, for Pour Point only
 - external, without sample pre-heating, for Pour Point only
- Optional methods:
 - fast bath, to reduce the time of analysis
 - T-sample – T-bath (delta T constant)
 - cooling rate °C / h

- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / Volt

Calibration Menu

- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes
- Data Utilities
- Fields for operator and product name



NewLab 1300 Cloud and Pour Point



- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 12"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark
- Small edge on the top in order to fix the glass cell to the analytical head
- Silvered bottom with anti-scratch film protection

Cooling System

- Integrated gas CFC free motor compressors:
 - Single stage
(for temperatures up to -40°C / 1)
 - Double stage
(for temperatures up to -80°C / 2)
- Equipped with an automatic energy power save system.
After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermostat for 2nd stage activation

- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 32 °C
- H.R. 80%

Dimensions and weight

- 1 test pos.: w 66 × d 60 × h 80 cm, 60 kg
- 2 test pos.: w 66 × d 60 × h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 × d 60 × h 80 cm, 130 kg
- 4 test pos.: w 134 × d 60 × h 80 cm, 160 kg
- 6 test pos.: w 130 × d 75 × h 170 cm, 280 kg

Spare Parts

- LAB-xxx/005-03: heater + auto adhesive + insulation
- LAB-xxx/005-04: thermo switch
- LAB-xxx/005-06: PT100 bath
- LAB-xxx/007-02: static relay
- LAB-xxx/007-04: PCB fuse 1 AT (box of 10 pcs)
- LAB-xxx/006-01: cooling fluid valve + fitting
- LAB-1300/007-01: main electronic board Cloud and Pour Point
- LAB-100/008-06: fibber optic
- LAB-100/008-07: light board
- LAB-1300/008-12: PT100 product w/connector Cloud Point
- LAB-100/008-04: test jar with silver bottom
- LAB-100/008-041: o-ring for test jar
- LAB-300/002-16: precision potentiometer
- LAB-300/008-12: PT100 product w/connector Pour Point
- LAB-300/008-13: PT100 detection Pour Point

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 500 Ring and Ball



ASTM D36
ASTM E28
EN 1427
IP 58
ISO 4625
DIN 52011
NF T 66-008
AASHTO T53
JIS K2207

Subject

Softening point of bitumen, bituminous binders, hot coatings, tar, tall oil rosins, waxes, polymeric resins.

Measuring Ring-and-Ball Principle

The sample is heated in a liquid bath respecting the heating rate prescribed by the standards test methods. During this procedure the product gradually become softer and when the test ball fall a distance of 25 mm the softening point is determined.

Measuring Ring-and-Ball Devices

- Testing unit equipped with 2 steel balls Ø 9.5 mm 3.5 gr
- Mechanical ring holder and assembly, made of brass, support for 2 test rings, centering guide
- Heating plate
- Heat resistant glass Beaker, 800 ml capacity
- Automatic falling ball detection system by video camera

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: 0°C ... +250°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results
- Self-identification of the typology of the analysers connected

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / Volt

Calibration Menu

- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes

Data Utilities

- Fields for operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Heating

- Electrical heater
- Equipped with over temperature cut-out

Cooling System

- Air forced ventilation fan

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord cable

3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions (cm)

- Width 48, depth 30, height 52

Weight

- 25 kg

Accessories

- LAB-500/005-06: PT100 bath
- LAB-500/008-05: protective shields
- LAB-500/008-18: forceps
- LAB-500/171-01: steels balls, pack of 50 pcs.

Spare Parts

- LAB-500/005-13: heater
- LAB-500/005-26: PT100 bath
- LAB-500/009-05: Pyrex jar
- LAB-500/171-06: ring ASTM, pack of 2 pcs.
- LAB-500/171-07: collar ASTM, pack of 2 pcs.
- LAB-500/011-02: magnetic stirring bars

Tools Required for Routine Calibration

- OilLab 80: calibration decade box PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 510 Foaming Tester



ASTM D892
ASTM D6082
DIN 51566
IP 146

Subject

Foaming characteristics of lubricating oils: this test method covers the determination of the foaming characteristics of lubricating oils at 24°C and 93.5°C.

Means of empirically rating the foaming tendency and the stability of the foam are described.

Main Features

- Four test position heated air bath for measuring the foaming tendencies of lubricating oils in the temperature range of +20 to +150°C.
- Compact and robust analyzer painted with epoxy paint.
- Automatic analyser as for ASTM D892 and ASTM D6082.
- The electronic board grant the digital display of the signals with a resolution of 0.01 and a bath temperature stability of +/- 0.5°C.
- Long temperature probe is positioned for digital control and test sample temperature and precise temperature control during the foaming process.
- 4 independent micro pump and 4 independent digital airflow meter indicating mass air flow with automatic flow controllers are used for precisely measuring and controlling the amount of air delivered to the air diffuser.
- The airflow is controlled at either a rate of 94 or 200 ±5 mL/min, depending if testing by ASTM D892 or D6082, respectively.

- The parameters are displayed during the test on the touch screen allows the operator selection and full adjustment of all test parameters.
- The labLink software include operator name , filename, 4 independent analysis, diagnostic and calibration menu.
- A multi-pane insulated window allows full view of the test cylinder for observation of the foam.
- The unit is supplied with the built in cooling system made by integrated Peltier modules (LAB-510-18-01) able to maintain the chamber temperature below +24°C.
- Internal rack able to accommodate 4 test cylinder with warm light
- The 7" PC with resolution of 480 x 800, 1 x USB port, equipped with the Lablink software with both ASTM D892 and D6092 test methods, for automatic start /stop soak time, audible alarm after completing soak time.

Integrated Touch Screen Panel PC

- TFT/LCD 7"
- Resolution 480 x 800
- 1 USB port

Software

- Real time display of all the analytical parameters
- Automatic calibration of each temperature probe by means of the calibration decade box
- Storage of the data referred to the calibration
- Last calibration date referred to each single probe displayed
- Access to all analogue and digital signals (inlet and outlet) in order to verify their functioning.

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Dimensions

- width 75 cm
- depth 61 cm
- height 61 cm

Weight

- 50 kg

Accessories

- LAB-101-883: diffuser stone (not certified)
- LAB-101-887: Mott metal cylindrical diffuser (tested and verified) – ASTM D6082

Spare Parts

- LAB-101-883: diffuser stone (not certified)
- LAB-101-880: graduated cylinder 1000 ml
- LAB-101-882: rubber stopper, pack of 2 pcs.
- LAB-140-002: PT100 probe
- LAB-150-015: static relay
- LAB-101/08-66: thermal fuses



OilLab 525

Oxidation Stability of Gasoline and Aviation Fuels



LT/OPV-200000/AUT



OilLab 525



ASTM D525
ASTM D873
IP 40
EN ISO 7536

ASTM D525 - IP 40 - EN ISO 7536
Oxidation Stability of Gasoline
(Induction Period Method)

This test method covers the determination of the stability of gasoline in finished form only, under accelerated oxidation conditions.

ASTM D873
Standard Test Method for Oxidation Stability of Aviation Fuels (Potential Residue Method).
This test method covers the determination of the tendency of aviation reciprocating, turbine, and jet engine fuels to form gum and deposits under accelerated aging conditions.

OilLab 525/L

- Liquid bath made in stainless steel with capacity approx. 45 liters, suitable for the accommodation of up to four (4) oxidation cylinders according to ASTM specifications
- Bath temperature range from ambient to 200°C ±0.1°
- 2 × electric heater controlled by PID system
- Secure handle cover for open bath
- Bath equipped with a touch screen panel PC
 - TFT/LCD 12"
 - 40 Gb HD
 - Resolution 1024 × 768 and 16M colours
 - 2 × USB ports for connecting pen drive and printer
- The dedicated software manages: the bath temperatures by means of a PT100 sensor class A that can be displayed in °C / °F, including

the overtemperature safety alarm

- Cables and connectors
- Oxygen sampling system with manometer and needle valve
- Lid with 4 holes for vessel accommodation and 1 hole for thermometer
- Dedicated software for real time monitoring and recording that includes:
 - Display of the pressure in bar / psi / Kpa
 - Graph creation in real time during the test
 - Invalid test indication
 - Export of files in xls/pdf/jpg format
 - Calibration up to 100 points
- Power supply: 220 Vac 50/60 Hz

OilLab 525/D

- Dry bath made in stainless steel suitable for the accommodation of up to four (4) oxidation cylinders according to ASTM specifications
- Bath temperature range from ambient to 150°C ±0.1°
- 2 × electric heater controlled by PID system
- Secure handle cover for open bath
- Bath equipped with a touch screen panel PC
 - TFT/LCD 12"
 - 40 Gb HD
 - Resolution 1024 × 768 and 16M colours
 - 2 × USB ports for connecting pen drive and printer
- The dedicated software manages: the bath temperatures by means of a PT100 sensor class A that can be displayed in °C / °F, including the overtemperature safety alarm
- Cables and connectors
- Oxygen sampling system with manometer and needle valve
- Lid with 4 holes for vessel accommodation and 1 hole for thermometer
- Dedicated software for real time monitoring

and recording that includes:

- Display of the pressure in bar / psi / Kpa
- Graph creation in real time during the test
- Invalid test indication
- Export of files in xls/pdf/jpg format
- Calibration up to 100 points
- Power supply: 220 Vac 50/60 Hz

Dimensions

- width 66 cm
- depth 60 cm
- height 45 cm

Weight

- 45 kg

Accessories

- LT/OPV-200000/AUT
Oxidation Pressure Vessel ASTM D525/D873 made in stainless steel with threaded body:
 - Stem with filler rod and mounting flange
 - Needle valve for purging, pressurizing and exhausting pressure vessel with oxygen
 - Glass sample container with cover
 - Burst disc assembly
 - Pressure sensor
 - Interior of the pressure vessel can be easily cleaned to prevent corrosion
 - Threaded lid and vessel allow a tight closure
 - Pressure test certificate included

Spare Parts

- LAB-102-002: glass sample container with cover pack of 2
- LAB-102-003: gasket for vessel pack of 10 pcs.

Calibration Tools

- OilLab 80: calibration decade box PT100 simulator
- OilLab 84: kit of connectors and cables for hot range



OilLab 560 Evaporation Bath



LT/B-2470/BCA200



LAB-102-423



LT/DO-248000/N/50

ASTM D381
DIN 51784
IP 131
EN ISO 6246

Gum Content in Fuels by Jet Evaporation. This test method covers the determination of the existent gum content of aviation fuels, and the gum content of motor gasolines or other volatile distillates in their finished form (including those containing alcohol and ether type oxygenates and deposit control additives) at the time of test.

OilLab 560 Automatic Evaporation Bath Air and Steam Jet ASTM D381

- New concept for the ASTM D381 / IP131 / DIN 51784 / EN ISO 6246 analyser with safe space bench top design
- Up to 8 test place positions in a small compact cabinet painted with resistant epoxy powders
- Able to work with air and steam

Main features:

- Heating Aluminium block, 8 test places
- Stainless steel cover for fast and easy cleaning
- Automatic selection of air or steam mode
- 2 independent inlets, 1 for air - 1 for steam
- Compact dimensions
- 8 x removable blowing devices
- 8 x built-in air flow sensor
- 1 super heater for steam automatically controlled by the software
- Independent heaters assure correct bath temperature stability and fast heating
- Working temperature: ambient to +280°C
- Programmable over-temperature cut off up to +280°C
- Temperature probe: PT100 class A with stainless steel
- Integrated Touch Screen Panel PC:
 - TFT/LCD 8"
 - Resolution 1024 x 768, 16 M colours
 - 2 x USB ports for connection to an external printer, mouse, keyboard
 - Storage capacity for more than 60'000 analysis
- Lin-Tech operating software Lab-Link running in Windows® ambient with analysis methods, calibration and diagnostic menu
- Cord cable with shuko plug
- Power consumption 3500 Watt
- 2 x 12 A fuses

Dimensions

- 60 x 60 x 65 cm

Weight

- 45 kg

Power Supply

- 230 VAC - 50/60 Hz
- 115 VAC - 60 Hz

Spare Parts

- LAB-140-003/SS: PT100 probe, 100 mm
- LAB-150-015/25: static relay
- LAB-140-0031: PT100 probe superheater
- LAB-112-412: heating cartridge 100 mm
- LAB-112-412/C: heating collar for superheater

General Accessories

- LT/B-2470/BCA200: analytical balance
- LT/DO-248000/N/50: natural ventilation oven
- LAB-102-421: Pyrex® beaker
- T-AS3C: thermometer ASTM 3C IP 73C
- LAB-102-421/T: tongs made in stainless steel

Air Accessories

- LT/FA-246000: flow apparatus
- LAB-2410-FILKT: air filter for flow apparatus
- LAB-2410-286190: filter cartridge (spare part)
- LAB-2410-CAL GFM67A: flow indicator calibrating device

Steam Accessories

- LAB-102-423: steam generator



OilLab 570 Automatic Oxidation Stability RBOT and TFOUT Liquid Bath



ASTM D2112
ASTM D2272
ASTM D4742
IP 229

ASTM D2112

Oxidation Stability of Inhibited Mineral Insulating Oil by Pressure Vessel

This test method is intended as a rapid method for the evaluation of the oxidation stability of new mineral insulating oils containing a synthetic oxidation inhibitor.

ASTM D2272

Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel (RBOT)

This test method utilizes an oxygen-pressured vessel to evaluate the oxidation stability of new and in-service Turbine oils having the same composition (base stock and additives) in the presence of water and a copper catalyst coil at 150°C.

ASTM D4742

Oxidation Stability of Gasoline Automotive Engine Oils by Thin-film Oxygen Uptake (TFOUT)

This test method evaluates the oxidation stability of engine oils for gasoline automotive engines. This test, run at 160°C, utilizes a high pressure reactor pressurized with oxygen along with a metal catalyst package, a fuel catalyst, and water in a partial simulation of the conditions to which an oil may be subjected in a gasoline combustion engine.

IP 229 - Relative Oxidation Stability by Rotating Bomb of Mineral Turbine Oil (RBOT)

This method covers a rapid means for estimating the oxidation stability of new turbine oils having the same composition.

OilLab 570-SA

4 places RBOT & TFOUT liquid bath

- His compact dimensions 70 × 85 × 60 cm and relative light weight only 60 Kg (without oil) can assure an easy handling and find space above each table.

Automatic Monitoring system

- Automatic Monitoring system included TFT 12" panel pc and 4 pressure sensor with elevate precision combined with an electronic board dedicated for reach the incredible performance that this instrument can perform.
- With a resolution of 1024 × 768 and 16M colours for granting the maximum visibility of all parameters, equipped with 2 USB port.
- New generation end-user friendly software developed by our software technical engineers with a step-by-step procedure for perform analysis.
- Internal database can be contain over than 60'000 analysis that can be printed out or exported with an Usb key that accompanied the main instrument.
- Able to manage independently the 4 test cylinders, the software can be switch temperature from °C in °F, calibration of the bath up to 100 points for grant the maximum precision.

Other features

- Display pressure in bar/psi/Kpa
- Real time graph creation
- Export file in xls, jpg and pdf format
- 5 pre-charged methods (12 / 24 / 48 / 96 and 192 hours)

Internal tank and mechanical parts

- The mechanical parts designed and made in Switzerland assure a perfect matching, only the best raw materials are used for assure quality and durability.
- The internal tank with a capacity of approximately 60 Liter of oil mixed with 2 independent heating element assure a perfect stability of temperature during the analysis.
- PT100 class A probe are used for control the temperature and prevent overheating.
- New accessories complete this instrument like the new slide for easily accommodate the vessel into the bath and simplify the matching with the motor coupling.
- New Drip for vessel for not waste oil outside the bath.
- Bath temperature range from ambient to 199°C ±0.1°



OilLab 570 Automatic Oxidation Stability RBOT and TFOOT Dry Bath



OilLab 570-D-SA

4 places RBOT & TFOOT dry bath

- His compact dimensions 70 × 85 × 60 cm and relative light weight only 50 Kg can assure an easy handling and find space above each table.

Automatic Monitoring system

- Automatic Monitoring system included TFT 12" panel pc and 4 pressure sensor with elevate precision combined with an electronic board dedicated for reach the incredible performance that this instrument can perform.
- With a resolution of 1024 × 768 and 16M colours for granting the maximum visibility of all parameters, equipped with 2 USB port.
- New generation end-user friendly software developed by our software technical engineers with a step-by-step procedure for perform analysis.
- Internal database can be contain over than 60'000 analysis that can be printed out or exported with an Usb key that accompanied the main instrument.
- Able to manage independently the 4 test cylinders, the software can be switch temperature from °C in °F, calibration of the bath up to 100 points for grant the maximum precision.

Other features

- Display pressure in bar/psi/Kpa
- Real time graph creation
- Export file in xls, jpg and pdf format
- 5 pre-charged methods (12 / 24 / 48 / 96 and 192 hours)

Internal tank and mechanical parts

- The mechanical parts designed and made in Switzerland assure a perfect matching, only the best raw materials are used for assure quality and durability.
- The internal dry bath block made in aluminium with 6 indipendent heathing element assure a perfect stability of temperature during the analysis.
- PT100 class A probe are used for control the temperature and prevent overheating.
- New accessories complete this instrument like the new slide for easily accommodate the vessel into the bath and simplify the matching with the motor coupling.
- Bath temperature range from ambient to 199°C ±0.1°

Accessories

- LAB-101-971: oxidation pressure vessel RBOT/RPOVT

Accessories D2112

- LAB-101-974/A: glass container 175 ml
- LAB-101-922/CU: copper wire catalyst 3 meters , pack of 5.
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100
- T-AS96C: thermometer ASTM 96C

Accessories D2272

- LAB-101-974/A: glass container 175 ml
- LAB-101-974/B: cover in Teflon®
- LAB-101-974/D: spring made in stainless steel as per ASTM D2272
- LAB-101-922/CU: copper wire catalyst 3 meters , pack of 5.
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100
- T-IP37C: thermometer IP 37C

Accessories D4742

- LAB-101-978/A: glass container
- LAB-101-978/B: cover in Teflon®
- LAB-101-978/D: spring made in stainless steel as per ASTM D4742
- LAB-101-978/E: aluminum insert made of 2024
- T-AS102C: thermometer ASTM 102C

Optional Accessories

- LT/WM-227200: electric winding mandrel for copper wire catalyst coiling, mounted on solid base whit possibility to fix to bench, 220 Vac 50/60 Hz



OilLab 571 RPVOT



ASTM D2272

ASTM D2272

Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel (RPVOT)

This test method utilizes an oxygen-pressured vessel to evaluate the oxidation stability of new and in-service Turbine oils having the same composition (base stock and additives) in the presence of water and a copper catalyst coil at 150°C.

- His compact dimensions 35 × 38 × 41 cm and relative light weight only 25 Kg can assure an easy handling and find space above each table.

Automatic Monitoring System

- Automatic monitoring system included TFT 8" panel PC with an electronic board dedicated for reach the incredible performance for which this instrument is designed.
- With a resolution of 1024 × 768 and 16 M colours for granting the maximum visibility of all parameters, equipped with 2 USB ports and RJ45 for Ethernet connection.
- New generation end-user friendly software developed by our software technical engineers with a step-by-step procedure for perform analysis.
- Internal database can be contain over than 60'000 analysis that can be printed out or exported with an USB key that accompanied the main instrument.
- The software can be switch temperature from °C in °F, calibration of the bath up to 100 points for grant the maximum precision.

Other features

- Display pressure in bar/psi/Kpa
- Real time graph creation
- Export file in xls, jpg and pdf format
- 5 pre-charged methods (12 / 24 / 48 / 96 and 192 hours)

Internal tank and mechanical parts

- Internal stainless steel chamber with high-tech insulation
- Magnetic rotation of internal cylinder with no-contact system
- Automatic oxygen charge-discharge line
- PT100 class A probe are used for control the temperature and prevent overheating

Accessories

- LAB-101-922/CU: copper wire catalyst 3 meters, pack of 5.
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100

Spare Part

- LAB-101-974/571-A: glass container 175 ml pack of 3 pcs.
- LAB-101-974/571-B: cover in PTFE for glass, pack of 5 pcs.
- LAB-101-974/571-C: beaker centering made in PTFE, pack of 3 pcs.
- LAB-101-974/571-D: spherical cone, pack of 5 pcs.
- LAB-101-974/D: compensation spring made in stainless steel
- LAB-101-974/571-E: o-ring for cell cover, pack of 5 pcs.

Optional Accessories

- LT/WM-227200: electric winding mandrel for copper wire catalyst coiling, mounted on solid base whit possibility to fix to bench, 220 Vac 50/60 Hz
- LAB-101-922/CU500: copper wire 500 gr, 1.6 mm diameter / approx. 28 mt
- ALINK: software network connection for remote control of OilLab 571; it permit the control and monitoring of up to 10 OilLab 571



OilLab 580 Noack



ASTM D5800
IP 421

Subject

Determination of the evaporation loss of lubricating oils (particularly engine oils). Procedure A uses the Noack evaporative tester equipment. Procedure B uses the automated non-Woods metal Noack evaporative apparatus.

Measuring Noack Principle

A quantity of 65 grams of sample is heated to a specific temperature and maintained for 1 hour while it is enclosed in a crucible, the crucible's cover is shaped to allow a constant vacuum of -2 mbar to remove from the crucible the evaporating portion of the sample. At the end of the test, the sample is cooled and then reweighed: the difference, reported in percentage, represent the sample's Evaporation Loss by the Noack Method.

Method A: bath is controlled at 250°C;
Method B: the sample is controlled at 245.2°C.

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Testing range: +225°C to +275°C
- Measuring range: 0°C ... +320°C
- Resolution: 0.01 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: according ASTM D5800 or better

Electronic regulator for automatic control of differential pressure

- Differential pressure 20 mm H₂O, accuracy 1%

Crucible, Crucible Cover and Heating Block

- Same dimensions and volume as ASTM D5800
- Electrically heated new designed aluminium block, no Woods metal needing

Heating unit

- Electrical resistance, 500 W

Vacuum Pump

- Equipped with high resistant Kalrez valve, inlet filter to remove product residuals
- Automatic electronic control system able to maintain the -2mB during the analysis
- Low voltage power supply

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 x 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis
- Lin-Tech operating software Lab-Link running in Windows ambient
- Automatic reading of the weight suggested balance LT/B-2470/BCA500 INT- CAL

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Direct access to all analog, digital, inputs and outputs

- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions
- [Diagnostic Menu](#)
- Selectable value displaying: °C / Volt
- [Calibration Menu](#)
- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- [Data Utilities](#)
- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- Storage capacity for more than 60'000 analysis
- LIMS compatible

Dimensions

- Length 400 mm
- Width 450 mm
- Max. height: 450 mm

Weight

- 22 Kg

Electrical Supply

- 220V $\pm 15\%$ / 50 to 60 Hz
- 115V $\pm 15\%$ / 60 Hz

Cord cable

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 35°C
- H.R. 80%



OilLab 580 Noack



Particular attention has been paid to the integrated vacuum pump that is also protected by an inlet filter for residual recovery.



Crucible holder made in stainless steel keeps the cup assembly ready to use.



Protection gloves and hook wrench, high quality materials for safety operations.



With the pliers the nut of the crucible cover is accurately and easily fixed.



Noack Tester ASTM D5800 Stand Alone includes:

- integrated vacuum pump with inlet filter
- evaporation crucible for procedure B
- 10 test balls
- nozzle cleaner
- crucible holder
- protection gloves
- hook wrench
- pliers

Accessories

- LAB-580-1001: glassware acc. CEC L40-A-93, 1 complete set comprising 2 glass bottles 2 litres capacity, with the necessary rubber bungs, glass delivery tubes (internal Ø 4 mm) and silicone tubings
- LAB-580-1002: stand for glass bottles, including inclined manometer 0 to 50 mm water and Fresenius column
- LAB-580-1003: evaporation crucible
- LAB-580-1009: Noack reference oil, 1 Ltr
- LAB-580-0010: Noack software evaluation tools

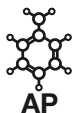
Spare parts

- LAB-580/008-12: PT100 sample
- LAB-580/11-01: silicon tubing 2 m
- LAB-580/013-02: air filter
- LAB-580/007-01: main electronic board Noack
- LAB-580-1003: evaporation crucible
- LAB-580-0011: hook wrench
- LAB-580-0012: pliers
- LAB-580-0013: crucible holder
- LAB-580-0014: test balls (pack of 10 pcs.)
- LAB-580-0015: nozzle cleaner
- LAB-580-0016: gloves
- LAB-580/006-03: main electronic board
- LAB-580/05-23: heater
- LAB-580/08-14: PT100 bath

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range





OilLab 611 Aniline Point



ASTM D611-A-B-E IP 2-A-B-E

Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents

Method A is suitable for transparent samples with an initial boiling point above room temperature and where the aniline point is below the bubble point and above the solidification point of the aniline-sample mixture.

Method B, a thin-film method, is suitable for samples too dark for testing by Method A.

- Automatic unit.
- Automatic movement of the head up and down.
- Built in cooling system up to -15°C : not need external chiller, not need liquid medium.
- High temperature up to 160°C .
- Heating /cooling dry bath for more safety.
- Removable glass cell for cleaning.
- Not aniline is touched by the operator.
- A small hole on the head support is used for the introduction of the aniline by syringe with luer lock (10 ml) when the glass cell with sample is already installed.
- Wide 8" touch panel pc is installed with dedicated managing software Aniline programs as for standard heating and cooling profile and costumes procedure available.
- Temperature probe fiber optic and mirror are inside the sample and not outside the glassware.
- Automatic stirrer made of brass, 3 coils.
- Solid structure painted with epoxy products
- Double detection system able to detect dark and clear samples
- Gently motorized stirrer system
- Electric heater controlled by PID system
- On-board cooling system with liquid peltier exchanger
- Managed by a touch screen panel PC
 - TFT/LCD 8"
 - 40 Gb HD
 - Resolution 1024×768 and 16 M colours
 - $2 \times$ USB Ports for connecting pen drive and printer

- The dedicated software manages:
 - The bath temperatures by means of a PT100 sensor class A that can be displayed in $^{\circ}\text{C}$ / $^{\circ}\text{F}$, including the over temperature safety alarm
- Dedicated software for real time monitoring and recording that includes:
 - Graph creation in real time during the test
 - Invalid test indication
 - Export of files in xls / pdf / jpg format
 - Calibration up to 100 points

Power supply

- 220 Vac 50/60 Hz

Dimensions

- $53 \times 31 \times 75$ cm

Weight

- 30 kg

Spare Parts

- LAB-611-001: glass test cell
- LAB-611-002: o-ring for test cell
- LAB-611-003: PT100 sample temperature
- LAB-611-004: fiber optic
- LAB-611-005: detection mirror
- LAB-611-006: stirrer made in stainless steel
- LAB-611-007: heaters, pack of 2 pcs.
- LAB-611-008: PT100 bath
- LAB-611-009: HT Peltier
- LAB-611-010: insulation material for dry bath



OilLab 600 Pensky Martens



ASTM D93 procedures A, B, C
ASTM D3941 - ASTM E502
DIN EN 22719
EN 22719
IP 34
ISO 2719

Subject

Flash Point on petroleum products, gas oils, fuel oils, lubricants, biodiesel. Suitable for flash point detection on different substances, waste materials, solvents...

Measuring Pensky Martens Principle

The sample is heated and stirred at specified rates, using one of three defined procedures (A, B, or C). An ignition source is directed into the test cup at regular intervals with simultaneous interruption of the stirring, until a flash is detected.

Measuring Parameters

- Temperatures: in °C
- Measuring range: +35°C ... +370°C
- Resolution: 0.01 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Ignition system

Gas with flame exposure device and / or electric lighter with electrical ignitor

Measuring Temperature Devices

- Sample temperature is measured with a platinum resistance PT100 Class A with SS sheath and high temperature resistant silicone cable
- Bath temperature is measured with a PT100 sensor

Dual flash point detection system

- By ionisation ring
- By thermal sensor

Ionisation ring

- Barometric sensor
- Built-in sensor with automatic correction of results to a barometric pressure of 101.3 kPa automatically performed by the software at the end of analysis

Heating

- Electrical heater with heating rates as per procedures A, B, C

Cooling

- Built-in forced air fan

Test Cup

- Made of brass and provided with an high temperature resistant handle
- With sample level mark

Stirrer

- An electric motor drives a flexible transmission coil allowing the stirring of the product. Stirring speed as per selected procedures A, B, C

Shutter

- Automatic mechanism opening the shutter for the dip-in of the ignition device

Safety features

- Gas valve for closing the gas supply (max 30 mBar), at the end of the test
- Overheating protection with auto shut off during the test
- Auto fire detection by means of thermal fuse with acoustic alarm

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

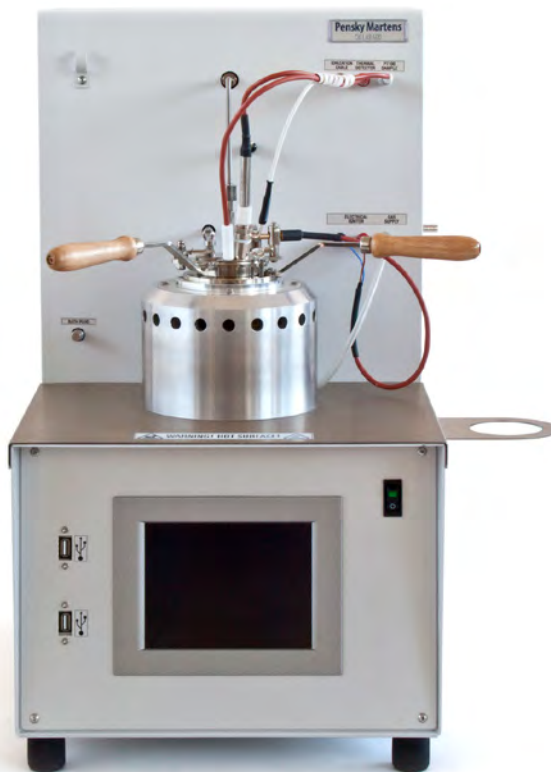
The software includes:

Analysis Menu

- Automatic execution of the analysis in accordance to the selected procedure (Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference as well as customized procedures)
- Automatic handling of samples with unknown flash point
- Display in real time of all the analysis parameters and status
- Fields for introduction of operator and product name



OilLab 600 Pensky Martens



Electric lighter
with electrical ignitor.



Gas with flame exposure device.



Dual flash point detection
system: by ionisation ring,
by thermal sensor.

- Expected flash point temperature programmable
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions
- Configuration menu with up to 20 preset samples and expected flash point
- Automatic barometric correction of results
- [Diagnostic Menu](#)
- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying:
°C / Volt
- [Calibration Menu](#)
- Automatic calibration of each temperature probe
- Up to 100 calibration points (standard with 5 and dynamic with up to 100 points)
- Programmable calibration frequency with selectable validity period and notice/lock-down at expiration date
- Last calibration date referred to each single probe displayed and relevant data printable
- Display of calibration diagram
- [Data Utilities](#)
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 48 cm
- depth 30 cm
- height 52 cm

Weight

- 27 Kg

Accessories

- LAB-600/05-23: heater collar
- LAB-600/06-21: gas valve
- LAB-600/07-01: electrical ignitor
- LAB-600/07-03: micro switch
- LAB-600/07-04: handle
- LAB-600/07-05: gas ignitor
- LAB-600/09-07: cover cup movement only
- LAB-600/10-04: PCB fuses, box of 10
- LAB-600/10-05: main electronic board
- LAB-600/11-01: silicon tubing, 1 meter
- LAB-600/11-02: stirrer / flexible
- LAB-600/12-01: voltage transformer for ignitor
- LAB-600/20-01: support PT100 Teflon

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 6000 - Leonardo Pensky Martens



ASTM D93 procedures A, B, C
DIN EN 22719
IP 34
ISO 2719

Subject

Flash Point on petroleum products, gas oils, fuel oils, lubricants, biodiesel. Suitable for flash point detection on different substances, waste materials, solvents...

Measuring Pensky Martens Principle

The sample is heated and stirred at specified rates, using one of three defined procedures (A, B, or C). An ignition source is directed into the test cup at regular intervals with simultaneous interruption of the stirring, until a flash is detected.

Measuring Parameters

- Temperatures: in °C / °F
- Measuring range: 0°C ... +420°C
- Resolution: 0.01 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Measuring Temperature Devices

- Sample temperature: PT100 sensor completely made in stainless steel resistant to corrosion and shock resistant
- Bath temperature: PT100 sensor

Pressure sensor

- Built-in sensor with automatic correction of results to a barometric pressure of 101.3 kPa automatically performed by the software at the end of analysis

Detection system

- A single multi-detector combines the ionization detector and the thermal detector

Double ignition system

- Gas
- Electrical ignitor

Heater

- Electrical heating with heating rates as per procedures A, B, C

Stirrer

- An electric motor drives the stirring of the product
- Stirring speed as per selected procedures A, B, C

Cooling system

- Built-in forced air fan

Safety Devices

- Automatic diagnostic in case of breakage of the sample temperature probe and thermal sensors
- Automatic fire detection system
- Overheating protection with auto shut off during the test
- Gas valve for closing the gas supply (max 30 mBar), at the end of the test

Fire Extinguisher

- Automatic fire detection and extinguisher system

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Automatic execution of the analysis in accordance to the selected procedure (Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference as well as customized procedures)
- Automatic handling of samples with unknown flash point
- Display in real time of all the analysis parameters and status



OilLab 6000 - Leonardo Pensky Martens



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- Fields for introduction of operator and product name
- Expected flash point temperature programmable
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions
- Configuration menu with up to 20 preset samples and expected flash point
- Automatic barometric correction of results
[Diagnostic Menu](#)
- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying:
°C / Volt
[Calibration Menu](#)
- Automatic calibration of each temperature probe
- Up to 100 calibration points (standard with 5 and dynamic with up to 100 points)
- Programmable calibration frequency with selectable validity period and notice/lock-down at expiration date
- Last calibration date referred to each single probe displayed and relevant data printable
- Display of calibration diagram
[Data Utilities](#)
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8.4"
- Resolution 1024 × 768, 16.2 M colours
- 2 × USB ports for connection to an external printer
- 1 × ethernet port for LAN and LIMS network
- Storage capacity for more than 65'000 analysis

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 37 cm
- depth 52 cm
- height 32 cm

Weight

- 30 Kg

Accessories / Spare Parts

- LAB-6000/05-23: heater collar
- LAB-6000/06-21: gas valve
- LAB-6000/07-01: electrical ignitor
- LAB-6000/07-03: micro switch
- LAB-6000/07-04: handle
- LAB-6000/07-05: gas ignitor
- LAB-6000/08-12: PT100 product
- LAB-6000/08-13: detection / ionisation cable
- LAB-6000/08-14: PT100 Bath
- LAB-6000/09-04: gas reducer
- LAB-6000/09-05: calibrated brass crucible
- LAB-6000/10-04: PCB fuses, box of 10
- LAB-6000/11-02: stirrer belt
- LAB-6000-118: fire extinguisher system

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 91: set of connectors and cables for OilLab 6000



OilLab 620 RECC - Rapid Equilibrium Closed Cup



ASTM D3828
IP 303
EN ISO NF 3679

Subject

These test methods cover procedures for the determination of the flash point by a small scale closed tester.

The procedures may be used to determine the actual flash point temperature of a sample or whether a product will or will not flash at a specified temperature (flash/no flash).

Measuring R.E.C.C. Principle

A specimen of a sample is introduced by means of a syringe into the cup of the selected apparatus that is set and maintained at the specific temperature/expected flash point. After a specified time a test flame is applied and the observation made whether or not a flash occurred.

Measuring R.E.C.C. Devices

- Testing unit equipped with two ignition systems
- Electrical system or flame exposure device
- Flash point detected by a ionization system

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: -50°C ... +350°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / Volt
- Calibration Menu
- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes
- Data Utilities
- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Cup

- The cup is made of aluminium and equipped with high temperature resistant o-ring

Heating

- Electrical heating cartridges
- Equipped with over temperature cut-out

Cooling System

- Air fan

Warning light and acoustic signal

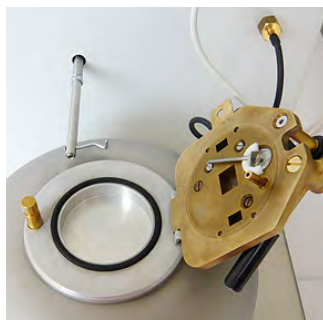
- When the test temperature is reached, the light blink and an acoustic signal is emitted to inform the operator that the sample must be injected. If the injection of the sample is not performed and confirmed the signal will be repeated after 30 seconds.



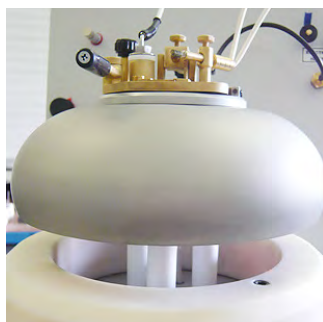
OilLab 620 RECC - Rapid Equilibrium Closed Cup



Automatic opening, closing and positioning of the sliding shutter.



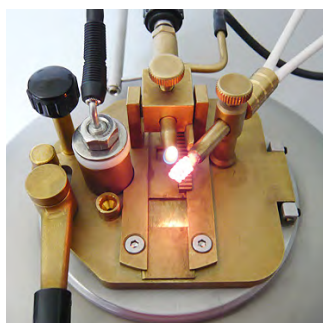
The test cup is completely made of aluminium and is equipped with a high temperature resistant o-ring, allowing an uniform sealing of the closing cover.



Particular attention has been paid to the heating system allowing the best heat's transmission without dispersion on air. The power of the heater is therefore of only 420W but allows to obtain a temperature higher than 370°C.



The ionisation components are the essential flash point detection system that grants excellent results and high repeatability. The quantity of sample (2 ml / 4 ml) is injected into the cup through the filling orifice.



The instrument is equipped with two ignition systems. An electric pilot that ignites the test flame 30 seconds before the test.



Shutter

- Automatic mechanism opening the shutter conform to the methods

Electrical Supply

- 220V \pm 15% / 50 to 60 Hz
- 115V \pm 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 31 cm
- depth 47 cm
- height 52 cm

weight

- 27 Kg

Spare Parts

- LAB-620/05-13: heating cartridges
- LAB-620/06-21: gas valve
- LAB-620/07-01: electrical ignitor
- LAB-620/07-03: micro switch
- LAB-620/07-05: gas ignitor
- LAB-620/08-12: PT100 sensor
- LAB-620/08-13: detection / Ionisation cable
- LAB-620/09-04: gas reducer
- LAB-620/10-04: PCB fuses, box of 10
- LAB-620/10-05: main electronic board
- LAB-620/11-01: silicon tubing, 1 meter
- LAB-620/12-01: voltage transformer for ignitor
- LAB-620/13-01: high temperature resistant o-ring for cup

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 650 Abel



EN 924
EN 13736
IP 170
IP 491
IP 492
ISO 1516
ISO 3679
ISO 13736

Subject

Flash point on petroleum products having a flash point between -18°C and 71°C (kerosene and solvents). Suitable for flash point detection on different substances and waste materials, solvents...

Measuring Abel Principle

The sample is warmed up according to the methods. When the sample reaches the selected test temperature, the shutter is opened and the ignition system introduces itself automatically. If the flash point is reached, the detection is done by an ionisation detector. If not, the shutter closes again and the sample continues to warm up until the next test temperature.

Measuring Abel Devices

- Measurement of the Flash Point detected by an ionisation detector
- Testing unit equipped with two ignition systems
- Electrical system or flame exposure device

Measuring Temperature Probe

- Platinum resistance PT100 class A
- Temperatures: in °C
- Measuring range: -50°C ... +100°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
 - Selectable value displaying: °C / Volt
- #### Calibration Menu
- Automatic calibration of each temperature probe
 - Last calibration date referred to each single probe displayed and relative data printable
 - Display of calibration diagram
 - Insertion of offset values
 - Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Cup

- The cup is made of brass provided with high temperature resistant handle
- Sample level mark

Heating

- Electrical heater
- Equipped with over temperature cut-out.

Cooling System

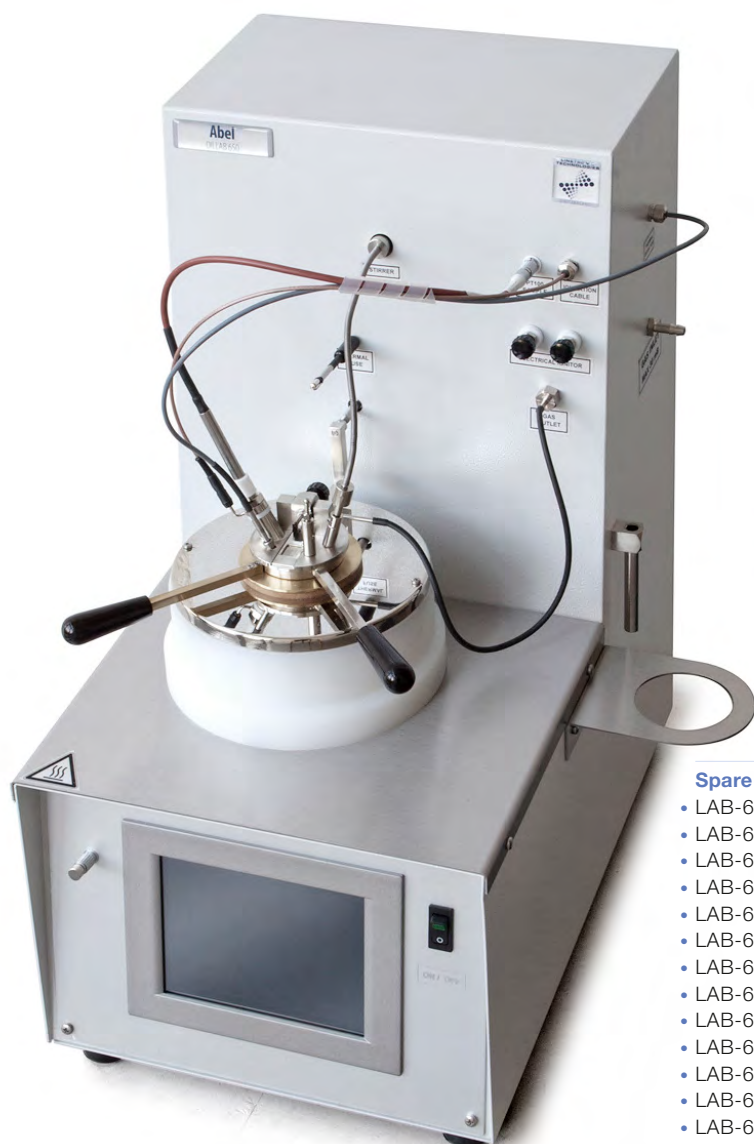
- Liquid refrigerant controlled by internal solenoid valve

Stirrer

- An electric motor drives a flexible transmission coil allowing the stirring of the product



OilLab 650 Abel



Shutter

- Automatic mechanism opening the shutter conform to the methods

Accessories

External Cryostat:

- LT-900/35/3, single stage, up to -40°C
- LT-900/80/3, double stage, up to -80°C

Electrical Supply

- 220V \pm 15% / 50 to 60 Hz
- 115V \pm 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 31 cm
- depth 47 cm
- height 52 cm

weight

- 27 Kg

Spare Parts

- LAB-650/05-13: heater
- LAB-650/05-16: PT100 bath
- LAB-650/06-11: cooling valve
- LAB-650/06-12: insulated tube for connection to external cryostat
- LAB-650/06-21: gas valve
- LAB-650/07-01: electrical ignitor
- LAB-650/07-03: micro switch
- LAB-650/07-04: handle
- LAB-650/07-05: gas ignitor
- LAB-650/08-12: PT100 product
- LAB-650/08-13: detection / ionisation cable
- LAB-650/09-04: gas reducer
- LAB-650/09-05: calibrated brass crucible
- LAB-650/09-06: calibrated brass crucible complete with movement
- LAB-650/09-07: cover cup movement only
- LAB-650/10-04: PCB fuses, box of 10
- LAB-650/10-05: main electronic board
- LAB-650/11-01: silicon tubing, 1 meter
- LAB-650/11-02: stirrer / flexible
- LAB-650/12-01: voltage transformer for ignitor
- LAB-650/20-01: support PT100 Teflon

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 670 Cleveland



ASTM D92
DIN 51376
EN 22592 (obs.)
IP 36
ISO 2592

Subject

Flash and Fire Point on petroleum products, gas oils, fuel oils, lubricants. Suitable for flash and fire point detection on different substances and waste materials, having a flash point over 79°C.

Measuring Cleveland Principle

The sample is warmed up according to the methods. When the sample reaches the selected test temperature, the flame is passed automatically above the sample. When the flash point is reached, the detection is done by an ionisation detector. For fire point detection, the sample continues to be heated until permanent flame is detected by the second PT100 probe, then the auto extinguisher will be placed on the top of the test cup.

Measuring Cleveland Devices

- Analyser equipped with automatic flame exposure device
- Measurement of the Flash Point detected by an ionisation detector
- Analyser equipped with 2 electrical ignitors and a pilot flame
- Measurement of the Fire Point detected by PT100 detector

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: +79°C ... +400°C
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunction

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
- Selectable value displaying: °C / Volt
- Calibration Menu
- Automatic calibration of each temperature probe
- Last calibration date referred to each single probe displayed and relative data printable
- Display of calibration diagram
- Insertion of offset values
- Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Cup

- The cup is made of chromium plated brass provided with high temperature resistant handle
- Sample level mark

Heating

- Electrical heater
- Equipped with over temperature cut-out

Electrical Supply

- 220V $\pm 15\%$ / 50 to 60 Hz
- 115V $\pm 15\%$ / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 48 cm
- depth 37 cm
- height 61 cm

Weight

- 32 Kg



OilLab 670 Cleveland



The Flash Point detection system, which is composed by a ring sensor for the ionization's determination, constitutes the essential component granting high repeatability and excellent results. Furthermore, a sensor detects the presence of the flame for fire point determination. The device are mounted on a mechanical arm with automatic positioning during analysis.

The test cup closing system is totally automatic and grant the maximal security as well as the two electrical ignitors which grant the continuous presence of the test flame.

The test flame pilot is equipped with a flame size regulator as well as a position and direction device for a fine adjustment.

Accessories

- LAB-670-12-03: tools kit for bitumen made up of electric drive, support for the PTFE blade flexible transmission with joint and switch.

Spare Parts

- LAB-670/05-13: heater (heating plate)
- LAB-670/05-26: PT100 for fire point detection
- LAB-670/06-21: gas valve
- LAB-670/07-01: electrical ignitor, pack of 2 pcs
- LAB-670/07-02: gas ignitor
- LAB-670/07-03: micro switch
- LAB-670/07-04: handle
- LAB-670/08-12: PT100 for flash point detection
- LAB-670/08-13: detection / ionisation cable
- LAB-670/09-04: gas reducer
- LAB-670/09-05: calibrated chromium plated brass crucible
- LAB-670/10-04: PCB fuses, box of 10
- LAB-670/10-05: main electronic board
- LAB-670/11-01: silicon tubing, 1 meter
- LAB-670/12-01: voltage transformer for ignitor

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range

The head can also be equipped with a paddle used to move the surface and perform tests on bitumen: LAB-670-12-03.





OilLab 690 Tag



ASTM D56
ASTM D3278
ASTM D3934
ASTM D3941
IP 304
IP 491
IP 492
ISO 1516
ISO 1523
ISO 3679

Subject

Flash point on petroleum products having a flash point between ambient temperature and +93°C. Suitable for flash point detection on different substances and (NO) waste materials, solvents...

Measuring Tag Principle

The sample is warmed up according to the methods. When the sample reaches the selected test temperature, the shutter is opened and the ignition system introduces itself automatically. If the flash point is reached, the detection is done by an ionisation detector. If not, the shutter closes again and the sample continues to warm up until the next test temperature.

Measuring Tag Devices

- Measurement of the Flash Point detected by an ionisation detector
- Testing unit equipped with two ignition systems
- Electrical system or flame exposure device
- Built-in barometric sensor with automatic barometric correction of results executed by the software

Measuring Temperature Probe

- Platinum resistance PT100 class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: -50°C ... +100°C
- Testing range: +9°C ... +93°C as per test methods
- Resolution: 0.06 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunction

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
 - Selectable value displaying: °C / Volt
- #### Calibration Menu
- Automatic calibration of each temperature probe
 - Last calibration date referred to each single probe displayed and relative data printable
 - Display of calibration diagram
 - Insertion of offset values
 - Standard and advanced calibration modes
- #### Data Utilities
- Fields for introduction of operator and product name
 - Archive viewer for files recall
 - All analysis stored in Excel® compatible format
 - LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity for more than 60'000 analysis

Test Cup

- The cup is made of chromium plated brass provided with high temperature resistant handle
- Sample level mark



OilLab 690 Tag



Heating

- Electrical heater
- Equipped with over temperature cut-out

Cooling System

- Integrated high-tech Peltier cooling system

Ignition system

- Gas or electric lighter

Shutter

- Automatic mechanism opening the shutter conform to the methods

Electrical Supply

- 220V \pm 15% / 50 to 60 Hz
- 115V \pm 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 48 cm
- depth 37 cm
- height 61 cm

Weight

- 32 Kg

Spare Parts

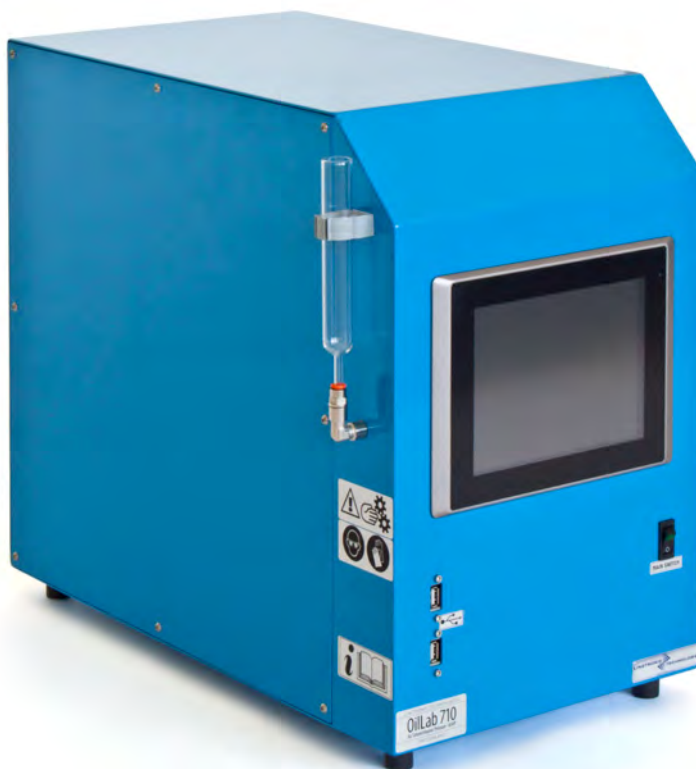
- LAB-690/05-13: heater
- LAB-690/05-16: PT100 bath
- LAB-690/06-21: gas valve
- LAB-690/07-01: electrical ignitor
- LAB-690/07-03: micro switch
- LAB-690/07-04: handle
- LAB-690/07-05: gas ignitor
- LAB-690/08-12: PT100 product
- LAB-690/08-13: detection / ionisation cable
- LAB-690/09-04: gas reducer
- LAB-690/09-05: calibrated brass crucible
- LAB-690/09-06: calibrated brass crucible complete with movement
- LAB-690/09-07: cover cup movement only
- LAB-690/10-04: PCB fuses, box of 10
- LAB-690/10-05: main electronic board
- LAB-690/11-01: silicon tubing, 1 meter
- LAB-690/12-01: voltage transformer for ignitor
- LAB-690/20-01: support PT100 Teflon

Calibration Tools

- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 710 ASVP – Air Saturated Vapour Pressure



ASTM D5191a
IP 394

Subject: Gasoline

Automatic analyser for determination of Air Saturated Vapour Pressure - DVPE.

Principle of detection

A chamber of 15 ml is maintained at 0.1 kPa and 37.8°C. A quantity of 3 ml of sample, with a temperature of 0 °C, after the air saturation procedure, is automatically injected by means of a pneumatic injector inside the cell of 15 ml. Due to the temperature a certain volume of sample changes from the liquid phase to the gas phase. This mutation modifies the absolute pressure inside the chamber. When the stabilisation of the pressure is reached, the volume of the absolute pressure obtained will be considered as the total vapour pressure.

Main Features

- Automatic system for sample conditioning in order to maintain the product at 0 °C
- Automatic system for air saturation
- Sample injection system
- Integrated sample cell, maintained at a temperature of 37.8 °C
- High quality pressure sensor
- Pressure range: 0 ... 2000 mBar / 0...177kPa
- Resolution: 0.01 kPa
- Max applicable pressure: 5 Bar
- Precision: <2 mBar / 0.2 kPa
- Vacuum pump efficiency 0.01 kPa as per standards methods or better

Software Features

- All analytical parameters recorded
- Customizable analysis parameters and methods
- Customizable results report
- Printable graphs and results

The software includes:

Analysis Menu

- Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference
- Unknown sample
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunction

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
 - Selectable value displaying: °C / Volt
- #### Calibration Menu
- Automatic calibration of each temperature probe
 - Last calibration date referred to each single probe displayed and relative data printable
 - Display of calibration diagram
 - Insertion of offset values
 - Standard and advanced calibration modes

Data Utilities

- Fields for introduction of operator and product name
- Archive viewer for files recall
- All analysis stored in Excel® compatible format
- LIMS compatible

Integrated Touch Screen Panel PC

- TFT/LCD 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC
- Storage capacity: more than 60'000 analysis

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable:

- 3 conductors flexible cable with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

- width 48 cm
- depth 30 cm
- height 52 cm

Weight

- 27 Kg

Spare Parts

- LAB-700-018: PT100 cell
- LAB-700-019: pressure sensor 0...177 kPa
- LAB-700-210: PT100 conditioning
- LAB-700-022: set of o-ring for conditioning
- LAB-700-123: o-rings set for cell
- LAB-700-202: solenoid valve
- LAB-700-204: heater
- LAB-700-210: Teflon syringe
- LAB-700-255: vacuum pump
- LAB-xxx/003-04: fuse 6.3 AT, box of 10 pcs.
- LAB-xxx/007-04: fuse PCB 1.6 AT, box of 10 pcs.

Calibration Tools

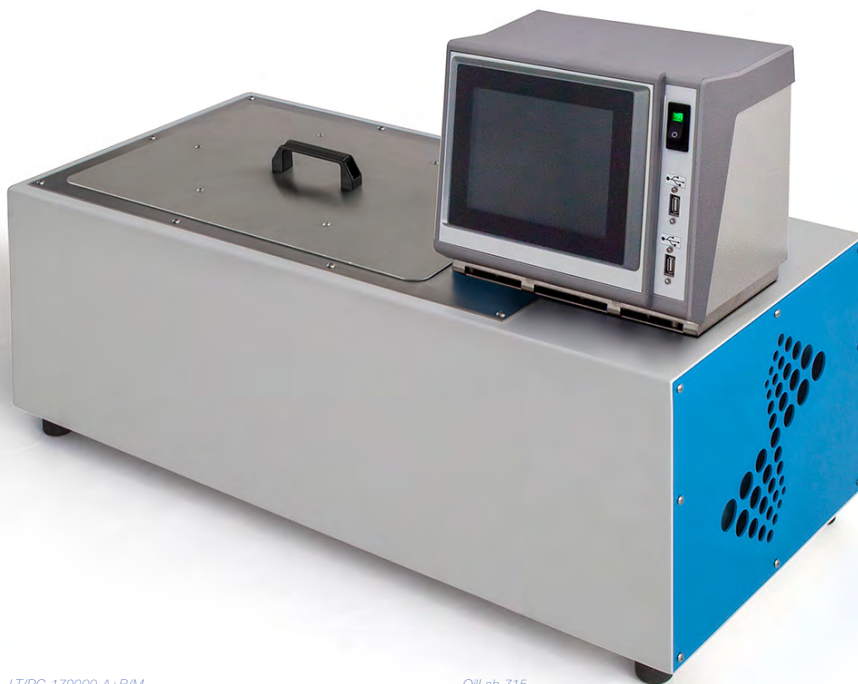
- OilLab 80: calibration decade box – PT100 simulator
- OilLab 81: set of connectors and cables for cold range



OilLab 715 Reid Vapour Pressure



LT/RC-179000-A+B/M



OilLab 715



ASTM D323
IP 69
ISO 3007

ASTM D323 - IP 69 - ISO 3007
Vapour Pressure of Petroleum Products
(Reid Method) Procedure B

The test method covers the determination of vapour pressure of gasoline, volatile crude oil, by means of three procedures: A, B and C.

The OilLab 715 grant the determination in conformity with the procedure B (horizontal bath) on petroleum products having Reid Vapour Pressures below 180 kPa (26 psi).

- Bath made in stainless steel suitable for the accommodation of up to two (2) vapour pressure cylinders according to ASTM specifications
- Bath temperature range from ambient to +80°C ±0.1°, filling level 20 liters.
- Motorized stirrer with shaft, drain tap
- Electric immersion Heater controlled by PID system
- Drive system for swing gently the vessel in horizontal position
- Secure handle cover for open bath
- Bath equipped with a Touch screen panel PC
 - TFT/LCD 8"
 - 40 Gb HD
 - Resolution 1024 × 768 and 16M colours
 - 2 × USB Ports for connecting pen drive and printer
- The dedicated software manages:
 - The bath temperatures by means of a PT100 sensor class
 - A that can be displayed in °C / °F, including the over temperature safety alarm
- 2 (two) electronic sensors, pressure transducers / electronic pressure gauges supplied for the coupling to the test vessels
- Cables and connectors
- Dedicated software for real time monitoring and recording that includes:
 - Display of the pressure in bar / psi / Kpa
 - Graph creation in real time during the test
 - Invalid test indication
 - Export of files in xls / pdf / jpg format
 - Calibration up to 100 points
- Power supply: 220Vac 50/60Hz

Accessories

- LAB-100-371/50: silicone oil, can of 25 litres
- T-AS18C: thermometer ASTM 18C
- LAB-102-013: flexible Junction for O₂
- LT/RC-179000/M:
 - Reid Cylinder - Liquid Chamber - One Opening LT/RC-179000-A/M - ASTM D323
 - made in stainless steel
 - in one end of the liquid chamber an opening of approximately ½" shall be provided for coupling with the vapour chamber
 - the inner surface of the coupling end shall be sloped to provide complete drainage when inverted
 - the other end of the chamber shall be completely closed
- Reid Cylinder - Vapour Chamber LT/RC-179000-B/M - ASTM D323
 - made in stainless steel
 - lower coupling
 - upper ½" groove with a ¼" reducing cap for pressure gauge



OilLab 880 Saybolt Viscometer



ASTM D88
ASTM D7496
ASTM E102
IP 55
FTM 791-0304
JIS K 2207

ASTM D88 Saybolt Viscosity

Covers the measurement of viscosities of petroleum products at temperature between 21° and 99°C (70° ÷ 210°F)

ASTM D7496

This test method utilizes the Saybolt Furol viscometer to measure the consistency of emulsified asphalt.
It is applicable to all the emulsified asphalts specified in Specifications D977 and D2397.

ASTM E 102 Saybolt Viscosity

Covers the measurement of viscosities of petroleum products at temperature between 121° and 232°C (250° ÷ 450°F)

Measuring Temperature Devices

- Bath temperature: PT100 sensor stainless and steel

Detection system

- Integrate CMOS sensor high definition
- Integrate LED backlight

Heater

- Electrical heating

Safety Devices

- Safety thermostat over-temperature cut-out

Software Features

- User friendly interface
- All analytical parameters recorded
- Customizable analysis parameters and methods
- Printable graphs and results
- Orifices calibration procedure with reference sample

- Centering procedure of the level mark of the receiver flask
- Automatic open/close valves
- Automatic viscosity calculation
- Audible chimie alarm for over-temperature
- Selectable temperature displaying: °C / °F

The software includes:

Analysis Menu

- Automatic execution of the analysis in accordance to the selected procedure (Standard method as per ASTM / IP / ISO / EN / DIN... norms of reference)
- Display in real time of all the analysis parameters and status
- Fields for operator and product name
- Audible alarm and displayed messages at the end of the analysis and in case of errors and/or malfunctions

Diagnostic Menu

- Direct access to all analog, digital, inputs and outputs
 - Selectable value displaying: °C / Volt
- #### Calibration Menu
- Up to 100 calibration points (standard with 5 and dynamic with up to 100 points)
 - Last calibration date referred to each single probe displayed and relevant data printable
 - Display of calibration diagram
 - Comparative with reference thermometer
 - Selection calibration due date
- #### Data Utilities

- Archive viewer for files recall
- All analysis stored in Excel® compatible format

Analysis storage

- Storage capacity for more than 65.000 analysis
- Export of test results files in the most common formats Excel and PDF
- Reading interval of PT100 bath from 0 to 450 °C with resolution 0.1 °C

Integrated Touch Screen Panel PC

- TFT/LCD 8.4"
- Resolution 1024 × 768, 16.2 M colours
- 1 × USB ports for connection to an external printer

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Ambient Temperature

- Max 35 °C
- H.R. 80%

Dimensions

- width 43 cm
- depth 38 cm
- height 60 cm

Weight

- 45 Kg

Accessories

- LAB-100-161: filter funnel with stainless steel wire mesh
- LAB-100-162: Saybolt flask 60 ml
- LAB-100-163: thermometer support
- LAB-100-164: withdrawal tube
- LAB-100-167: movement ring ASTM E 102
- LAB-100-168: suction pipette

Spare Parts

- LAB-100-161: filter funnel with stainless steel wire mesh
- LAB-100-162: Saybolt flask
- LAB-100-164: withdrawal tube
- LAB-100-165: universal orifice
- LAB-100-166: furol orifice
- LAB-100-168: suction pipette
- LAB-100-371: silicone oil 25 litres
- LAB-140-001/A: PT100 probe
- LAB-11-0012: heater



Thermo Twin Thermo Four



Thermo Twin



Thermo Four



Application

Determination of the Crystallization Point.

Main Features

- The analyser is managed by an integrated touch screen panel PC by means of the dedicated software running in Windows® ambient.
- Bench top analysers with two test positions.
- Bath made in aluminium with integrated cooling system.
- The cooling of the sample happens inside the dry cooling jacket.
- The instrument is equipped with high-tech peltier with liquid exchanger.

Dimensions

- width: 34 cm
- depth: 50 cm
- height: 50 cm

Weight:

- 30 kg

Main characteristics

- Automatic Analysers for the determination of the Shukoff and Tempering curves
- Determination of min T - max T
- Automatic calculation of the slope ($Q = 'T/'t$)
- User friendly
- Easy sample preparation: with glass bottles and / or disposable plastic cups
- Rapidity in analysis execution
- Excellent repeatability of the analysis
- No particular maintenance required

Measuring devices

- PT100 sensors class A

Measuring Parameters

- Temperatures: in °C
- Measuring range: +80 °C ... -50 °C
- Bath temperatures: -10 °C ... +60 °C
- Heating curve: 3°C/min
- Cooling curve: 1°C/min

Software

Main features

- User friendly interface
- Real time display of all the analytical parameters
- Independent managing of the two / six test positions
- Storage of all the analysis
- Storage of the results in Excel® format
- Display of the graphic
- Execution of recipes
- Curves comparison
- Printable results

Calibration

- Automatic calibration of each temperature probe by means of the calibration decade box (Art. OilLab 80-T)
- Storage of the data referred to the calibration
- Last calibration date referred to each single probe displayed

Diagnostic

- Access to all analogue and digital signals (inlet and outlet) in order to verify their functioning.
- Thermofat Screenshot

Accessories

- Calibration decade box – PT100 simulator with cable and connector for Thermofat range (Art. OilLab 80-T)

Spare Parts

- Thermo 206: PT100 sensor (color)
- Thermo 220: Shukoff bottle 19/26
- Thermo 221: Shukoff bottle 24/29
- LT-1412: Teflon stopper 19/26 with hole for PT100 sensor
- LT-1422: Teflon stopper 24/29 with hole for PT100 sensor

Manual and Semi-automatic Analysers





Aniline Point



LT/AP-215000-A/M



LT/AP-215000-B/M

ASTM D611-A-B-C-D IP 2-A-B-C-D

Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents

Method A is suitable for transparent samples with an initial boiling point above room temperature and where the aniline point is below the bubble point and above the solidification point of the aniline-sample mixture.

Method B, a thin-film method, is suitable for samples too dark for testing by Method A. Methods C is for samples that may vaporize appreciably at the aniline point.

Method D is for samples that may vaporize appreciably at the aniline point, particularly suitable where only small quantities of sample are available.

Art. LT/AP-215000-A/M

Aniline Point ASTM D611-A

- Electric heater device
- Pyrex® jacket Ø 40 × 175 mm height
- Pyrex® test tube Ø 25 × 150 mm height
- Manual stirrer
- Caps
- Support

Art. LT/AP-215000-B/M

Aniline Point "Thin-film" ASTM D611-B

- Electric heater device
- 600 ml Pyrex® jar
- Adjustable support for pumping motor
- Gauged body pump made in Pyrex®
- Control box with speed variator for pumping and sample stirring also controlling the intensity of a low voltage lamp
- Blocking cover
- Manual bath stirrer
- Pyrex® cell
- Stainless steel pump
- Cooling coil

Art. LT/AP-215000-C/M

Aniline Point "Tube" ASTM D611-C

- Electric heater device
- Test tube 22 mm Ø × 150 mm height
- Caps
- Support

Art. LT/AP-215000-D/M

Aniline Point ASTM D611-D

- Electric heater device
- Test tube Ø 22 mm
- Caps
- Support

Power Supply

- 220Vac 50/60 Hz

Dimensions & Weight

- cm 40 × 50 × 60
- kg 8

Spare Parts for LT/AP-215000-A/M

- LAB-102-151: external jacket
- LAB-102-152: test tube
- LAB-102-153: manual stirrer
- LAB-102-153/S: glass sleeve for metal stirrer
- LAB-102-154/G: cork for external jacketed tube
- LAB-102-154/P: cork for test tube

Spare Parts for LT/AP-215000-B/M

- LAB-102-155: external jar
- LAB-102-156: internal test cell
- LAB-102-157: manual stirrer
- LAB-102-158: pump body
- LAB-102-159: pump rotor
- LAB-150-033: lamps

Spare Parts for LT/AP-215000-C/M

- LAB-102-160: test tube
- LAB-102-161: thermometer tube
- LAB-102-162: cork stopper
- LAB-102-163: metal guard

Spare Parts for LT/AP-215000-D/M

- LAB-102-163: metal guard
- LAB-102-164: test bulb
- LAB-102-165: sampling pipette

Thermometers

- T-AS33C: thermometer ASTM 33C IP 20C
- T-AS33F: thermometer ASTM 33F
- T-AS34C: thermometer ASTM 34C IP 21C
- T-AS34F: thermometer ASTM 34F
- T-AS35C: thermometer ASTM 35C IP 59C
- T-AS35F: thermometer ASTM 35F

General Accessories

- LT/B-2470/BCA200: analytical balance
- LT/DO-248000/N: natural ventilation oven



Ductilometer



ASTM D113 IP 32 (obs.)

Ductility of Bituminous Materials.

The ductility of a bituminous material is measured by the distance to which it will elongate before breaking when two ends of a briquet specimen of the material are pulled apart at a specified speed and at a specified temperature.

Unless otherwise specified, the test shall be made at a temperature of $77 \pm 0.9^{\circ}\text{F}$ ($25 \pm 0.5^{\circ}\text{C}$) and with a speed of 5 cm/min $\pm 5.0\%$.

At other temperatures the speed should be specified.

Art. LT/DU-73000/M Ductilometer - ASTM D113

- Three-place stainless steel structure with a 1.500 mm stroke
- Transmission of 10 revolutions on square-thread traction rod
- Speed 5 cm/min
- One-phase Geared motor $\frac{1}{4}$ Hp
- Stainless steel tank with white bottom
- Insulated walls
- Armoured stainless steel heater controlled by a digital thermoregulator with over-temperature alarm and probe PT100A
- Cooling coil
- Traction brass carriage holding moulds
- Circulation pump for stirring the liquids

Art. LT/DU-73000-R/M Ductilometer - ASTM D113

- Three-place stainless steel structure with a motion of 1500 mm
- Refrigerating system for 5°C tests temperatures
- Transmission of 10 revolutions on square-thread traction rod, speed of 5 cm/min
- One-phase geared motor $\frac{1}{4}$ Hp
- Stainless steel tank with white bottom
- Insulated walls
- Armoured stainless steel heater controlled by a digital thermoregulator with over-temperature alarm and probe PT100A
- Safety thermostat
- Cooling coil
- Traction brass carriage holding moulds
- Circulation pump for stirring the liquids

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- cm $180 \times 45 \times 65$

Weight

- kg 60

Accessories

- T-AS63C: thermometer ASTM 63C

Spare Parts

- LAB-100-731: ductility form
- LAB-100-732: form storage
- LAB-100-733: elastic recovery mould form

**DIN 52012
IP 80****Breaking Point of Bitumen
Fraass Method.**

This test method covers the determination of the temperature at which a bitumen tends to break rather than to flow when stressed. The Fraass Breaking Point is the temperature at which the first cracks appear the coating. It can be applied by any homogeneous road or industrial bitumen.

**Art. LT/FA-252000/M
Fraass Apparatus IP 80**

- 2 concentric resin tubes topped by two clamps for the plate
- Flexing brass system
- Harmonic steel plate 41 × 20 × 0.15 mm
- Cooling system with 3 concentric glass tubes and funnel
- Cork stopper

**Art. LT/FA-252000-BIS/M
Fraass Apparatus IP 80**

- 2 concentric resin tubes topped by two clamps for the plate
- Flexing brass system
- Harmonic steel plate 41 × 20 × 0.15 mm
- Cooling system with 3 concentric glass tubes and funnel
- Cork stopper
- Dewar jar

Accessories

- LT/HD-1280/S6: heating device unit - 600 W
- LAB-102-529: support
- T-IP42C: thermometer IP 42C

Spare Parts

- LAB-102-521: Fraass plate, pack of 25
- LAB-102-522: external glass tube
- LAB-102-523: median glass tube
- LAB-102-524: internal glass tube
- LAB-102-526: cork stopper, pack of 3
- LAB-102-527: flexing brass system
- LAB-102-528: dewar jar (only for 252000-BIS)



Loss on Heating



ASTM D6
ASTM D1754
IP 45

Loss on Heating of Oil and Asphaltic Compounds.

This test method covers the determination of the loss in mass (exclusive of water) of oil and asphaltic compounds when heated.

Art. LT/LH-256000/M

Loss on Heating Oven Test ASTM

- Outer body in steel coated in epoxy anti-acid paint
- Inner structure in stainless steel AISI 304 with rounded corners
- Internal dimensions:
w 403 × d 370 × h 458 mm approx.
- Internal axle Rotating at 5-6 rpm controlled by a geared motor located on the oven top for the relevant container support (to be ordered separately)
- Double insulation door with silicone seal to prevent heat loss
- Door equipped with toughened glass window having a size of 200 × 200 mm
- Thermal insulation with mineral fibre
- Digital display P.I.D. Thermostat to ensure good stability
- Temperature range from +5°C above ambient to +280°C
- Resolution 1°C
- Equipped with security thermostat
- Forced ventilation with manual flow control opening

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 60 × 80 × 80

Weight

- kg 30

Accessories

- LAB-100-005: h.r. gloves
- LAB-102-56: support for ASTM D6
- LAB-102-562: container ASTM D6
- LAB-102-571: support for ASTM D1754
- LAB-102-572: container ASTM D1754
- T-AS13C: thermometer ASTM 13C

Optional Accessories

- LT/AB-200/M: analytical balance 200 gr.

Spare Parts

- LAB-102-562: container made in brass ASTM D6
- LAB-102-561: support for ASTM D6 (9 places)
- T-AS13C: thermometer ASTM 13C IP 47C
- LAB-160-015: digital thermoregulator
- LAB-140-001/A: probe PT100



Ring and Ball



ASTM D36
IP 58-B

Softening Point of Bitumen (Ring and Ball Apparatus)

This test method covers the determination of the softening point of bitumen in the range from 30 to 157°C (86 to 315°F) using the ring and ball apparatus immersed in distilled water (30 to 80°C), USP glycerine (above 80 to 157°C), or ethylene glycol (30 to 110°C).

Art. LT/RB-217000-B/M Ring and Ball Apparatus ASTM D36

- Pyrex® jar Ø 85 x 130 mm
- Two-places brass cage adjustable in height
- 2 hardened steel balls Ø 9.5 mm
- 2 rings with collar for centring the balls
- Heating device unit and motor stirrer

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 40 x 40 x 60

Weight

- kg 5

Accessories

- LAB-100-005: h.r. gloves
- LAB-102-170/1: ring and collar IP-1
- LAB-102-170/2: ring and collar IP-2
- LAB-102-170/3: rings IP-3
- T-AS15C: thermometer ASTM 15C - IP 60C
- T-AS15F: thermometer ASTM 15F
- T-AS16C: thermometer ASTM 16C - IP 61C
- T-AS16F: thermometer ASTM 16F

Spare Parts

- LAB-102-170/B: ring and ball set
- LAB-102-171: test balls
- LAB-102-172: Pyrex® jar
- LAB-102-173: cage
- LAB-102-174: rings ASTM
- LAB-102-175: collar ASTM





Rolling Thin-Film



ASTM D2872 EN 12607

ASTM D2872 - Effect of Heat and Air on a Moving Film of Asphalt (Rolling Thin-Film Oven Test).

This test method is intended to measure the effect of heat and air on a moving film of semi-solid asphaltic materials. The effects of this treatment are determined from measurements of the selected properties of the asphalt before and after the test.

EN 12607 - Determination of the Resistance to Hardening under the Influence of Heat and Air.

Art. LT/RT-255000-ASTM/M Rolling Thin-Film Oven Test ASTM D2872

- Completely made in stainless steel
- Forced ventilation
- Aluminium carriage rotating at 15 rpm (circular and vertical) with 8 places for glass containers
- Internal fan controlled by a 1,725 rpm motor
- Copper coil with nozzle pre-heating the air
- Flowmeter with regulating valve
- Digital thermoregulator PID with over-temperature alarm and probe PT100A
- Double wall locking door with toughened glass window
- Inside dimensions:
381 × 483 × 445 mm ± 13 mm

Art. LT/RT-255000-EN/M Rolling Thin-Film Oven Test EN 12607

- Completely made in stainless steel
- Forced ventilation
- Aluminium carriage rotating at 15 rpm (circular and vertical) with 8 places for glass containers
- Internal fan controlled by a 1,725 rpm motor
- Copper coil with nozzle pre-heating the air
- Flowmeter with regulating valve
- Digital thermoregulator PID with over-temperature alarm and probe PT100A
- Double wall locking door with toughened glass window
- Inside dimensions:
340 × 405 × 445 mm ± 15 mm

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 60 × 80 × 60

Weight

- kg 30

Accessories

- LAB-100-005: h.r. gloves
- LAB-102-550: tongs
- LAB-102-551: container
- LAB-102-553: cooling rack
- LT/VP-8618/K: diaphragm pump
- T-AS13C: thermometer ASTM 13C IP 47C

Spare Parts

- LAB-102-552: v-type belt
- LAB-102-554: warning lamp set



Boiling Point of Engine Coolants



ASTM D1120

Boiling point of engine coolants.
Covers the determination
of the equilibrium boiling point
of engine coolants.

Art. LT/BP-232000/M

Boiling Point ASTM D1120

- 100 ml round-bottom short-neck, heat resistant glass flask with standard taper, female ground-glass joint and side-entering tube for the introduction of the thermometer
- Condenser: water-cooled reflux glass-tube type
- Heating mantle with rod, clamp and pliers
- Thermometer ASTM 2C

Spare Parts

- LAB-102-321: flask
- LAB-102-322: condenser
- T-AS2C: thermometer ASTM 2C



Heat of Combustion



ASTM D240
ASTM D2382 (obs.)
ASTM D3286 (obs.)
ASTM D4809
ASTM D5865
IP 12
ISO 1716

ASTM D240 - IP 12 Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter.

This test method covers the determination of the heat of combustion of liquid hydrocarbon fuels ranging in volatility from that of light distillates to that of residual fuels.

ASTM D4809 - ASTM D2382 (obs.) Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method).

This test method covers the determination of the heat of combustion of hydrocarbon fuels. It is designed specifically for use with aviation turbine fuels when the permissible difference between duplicate determinations is of the order of 0.2 %. It can be used for a wide range of volatile and nonvolatile materials where slightly greater differences in precision can be tolerated.

ASTM D5865 - ASTM D3286 (obs.) Standard Test Method for Gross Calorific Value of Coal and Coke.

This test method pertains to the determination of the gross calorific value of coal and coke by either an adiabatic bomb calorimeter

ISO 1716 Reaction to Fire Test for Building Products. This method covers the determination of the heat of combustion at constant volume in a bomb calorimeter.

Art. LT/MB-206000/M Mahler Bomb (Oxygen Bomb) ASTM D240 - D4809 - D5865

- Capacity 300 ml
- Completely made in stainless steel included the two electrodes
- Cover with threaded displacing ring
- Gasket around the cover edge
- Automatic inlet valve
- Pin exhaust valve
- Tested at 210 bar

Art. LT/CV-207000/M Calorimeter Vessel

- Tank with double jacket made in stainless steel 18/8
- Capacity 3 litres
- Handle for extraction
- 2 sectors polycarbonate cover with holes for the passing of stirrer
- Blade stirrer
- Motor stirrer 100 rpm 24 V with support
- Double pliers for thermometer
- Connection for Mahler bomb electrodes
- Vessel fitted with ignition device including: low voltage outlet, start pushbutton, 24 V socket for motor stirrer, ammeter

Art. LT/CV-207000-S/M Calorimeter Vessel, without Ignition Device

- Tank with double jacket made in stainless steel 18/8
- Capacity 3 litres
- Handle for extraction
- 2 sectors polycarbonate cover with holes for the passing of stirrer
- Blade stirrer
- Motor stirrer 100 rpm 24 V with support
- Double pliers for thermometer
- Connection for Mahler bomb electrodes

Accessories

- LAB-101-928: reducer manometer
- LAB-102-013: hy-flex junction O₂
- LAB-102-061/A: quartz crucible
- LAB-102-061/B: stainless steel crucible
- LAB-102-061/C: crucible IP12
- LAB-102-061/D: platinum crucible
- LAB-102-062: ignition device
- LAB-102-064: support for cover
- LAB-102-071/A: ignition wire - cr
- LAB-102-071/B: ignition wire - pt
- LAB-102-071/D: cotton wick
- T-AS116C: thermometer ASTM 116C

Spare Parts

- LAB-102-066: gasket

Optional Accessories

- LT/AB-200/M: analytical balance 200 gr.
- LT/CV-207000/M: calorimeter vessel



Centrifuge

ASTM D91 - ASTM D96 (obs.) - ASTM D893 - ASTM D1290 - ASTM D1796 - ASTM D1966 -
ASTM D2273 - ASTM D2709 - ASTM D2711 - ASTM D4007
IP 75 (obs.) - IP 359
DIN 51793

ASTM D91**Precipitation Number of Lubricating Oils.**

This test method covers the determination of the precipitation number of steam cylinder stocks and black oils, and can be used for other lubricating oils.

ASTM D96 (obs.)**Water And Sediment In Crude Oil.**

This test method covers the centrifuge method for determining sediment and water in crude oil during field custody transfers.

ASTM D893**Insolubles in Used Lubricating Oils.**

This test method covers the determination of pentane and toluene insoluble in used lubricating oils.

ASTM D1290**Sediment in Water-emulsion Polishes.**

This test method covers the determination of sediment in water-emulsion polishes by means of a centrifuge.

ASTM D1796**Water And Sediment in Fuel Oils.**

This test method covers the laboratory test for determination of water and sediment in fuel oils by using the centrifuge method in the range from 0 to 30 % volume.

ASTM D1966**Foos in Raw Linseed Oil.**

This method covers the determination of foos in raw linseed oil by the gravimetric method.

ASTM D2273**Trace Sediment in Lubricating Oils.**

This test method covers the determination of trace amounts (less than 0.05 volume %) of sediment in lubricating oils.

ASTM D2709**Water And Sediment in Middle Distillate Fuels.**

This test method covers the determination of the volume of free water and sediment in middle distillate fuels having viscosities at 40°C (104°F) in the range of 1.0 to 4.1 mm/s (1.0 to 4.1 cSt) and densities in the range of 770 to 900 kg/m.

ASTM D2711**Demulsibility Characteristics of Lubricating Oils.**

This test method covers the measurement of the ability of oil and water to separate from each other. It is intended for use in testing medium and high-viscosity lubricating oils.

ASTM D4007**Water and Sediment in Crude Oil.**

This test method describes the laboratory determination of water and sediment in crude oils by means of the centrifuge procedure.

IP 75 (obs.)**IP 359****DIN 51793****Water and Sediment in Fuel Oils****Art. LT/CF-122000-R/M Heated Centrifuge**

- Touch screen easy to read Rotor and adapters list on memory.
- Timer count up/down, from 0 or at "set RPM/RCF".
- Progressive acceleration and braking selectable.
- Lid locking and holding and lid dropping protection.
- Microprocessor controlled.
- Program data protection through password selectable.
- Induction motor maintenance free.
- Max. speed 3.000 RPM / 2.425 RCF.
- Quiet: noise level low than 60 dB.
- 15 memories + pre-heating program & Overheating protection.

Power Supply

220Vac 50/60 Hz

Dimensions

65 × 65 × 70 cm

Weight

70 kg

Accessories and Spare parts

	Article	Description	ASTM D91	ASTM D96	ASTM D893	ASTM D1796	ASTM D2273	ASTM D2709	ASTM D2711	ASTM D4007
optional accessories	LT/WB-123000/M	water bath	●	●		●	●	●		●
	LT/DO-248000/F	drying oven			●					
	LT/B-2470/BC150	analytical balance			●					
bucket	LAB-101-221	bucket, for 101-224, pack of 4		●				●	●	
	LAB-101-222	bucket, for 101-225 & 101-226, pack of 4	●	●	●	●	●	●	●	●
	LAB-101-223	bucket, for 101-227 & 101-228, pack of 4		●				●	●	
glassware	LAB-101-224	pear-shaped tube 100 ml, graduated to 0.1 ml, pack of 4		●				●	●	
	LAB-101-225	cone-shaped tube 100 ml, 203 mm, graduated to 0.05 ml, pack of 4	●	●	●	●			●	●
	LAB-101-226	trace sediment tube 100 ml, graduated to 0.005 ml, pack of 4					●	●	●	
	LAB-101-227	cone-shaped tube 100 ml, 152 mm, graduated to 0.05 ml, pack of 4		●					●	
	LAB-101-228	trace sediment pear-shaped tube Goetz 100 ml, with stopper, pack of 4						●		
rack	LAB-101-224/W4	water bath rack for 101-224, 4 places		●				●	●	
	LAB-101-224/W8	water bath rack for 101-224, 8 places		●				●	●	
	LAB-101-225/W4	water bath rack for 101-225, 4 places	●	●	●	●			●	●
	LAB-101-225/W8	water bath rack for 101-225, 8 places	●	●	●	●			●	●
	LAB-101-226/W4	water bath rack for 101-226, 4 places					●	●	●	
	LAB-101-227/W4	water bath rack for 101-227, 4 places		●						
	LAB-101-228/W4	water bath rack for 101-228, 4 places						●		



Cloud and Pour Point Refrigerator



LT/RB-50000/M



LT/RB-53100/M

ASTM D97
ASTM D2500
ASTM D5853
DIN 51428
DIN 51597
IP 15
IP 219
IP 309
ISO 3015
ISO 3016

Pour Point of Petroleum Products

This test method is intended for use on any petroleum product. Suitable for black specimens, cylinder stock, and non-distillate fuel oil and for testing the fluidity of a residual fuel oil at a specified temperature is described.

Cloud Point of Petroleum Products

This test method covers only petroleum products that are transparent in layers 40 mm in thickness, and with a cloud point below 49°C.

Pour Point of Crude Oils

Art. LT/RB-53100/M Cloud and Pour Point Refrigerator 5 temperatures - Dry Bath

- Floor Model
- Structure made in light and resistant anodized aluminium with cover in PVC and 4 wheels for an easy transfer
- 20 dry-clean wells in aluminium block (4 for each temperature) with holes for the thermometers
- 20 small stand-by covers
- Working temperature: 0, -18, -33, -51, -69°C
- 5 temperature digital controllers resolution 0,1°
- 5 PT 100 probes class A
- 5 main switches
- CFC free gases

Dimensions

- width 170 cm
- depth 60 cm
- height 92 cm

Weight

- 302 kg

Art. LT/RB-50000/M Cloud and Pour Point Refrigerator 4 temperatures - Dry Bath

Art. LT/RB-50000-W/M Cloud and Pour Point Refrigerator 4 temperatures - Liquid Bath

- Floor Model
- Light an resistant structure made in die-casted aluminium covered by special plastic material
- Fitted with four wheels allowing movement
- PVC cover with 16 wells (4 for each temperature) for accommodate 16 graduated jars

- Equipped with 4 holes for thermometer accommodation (LT/RB-50000/M)
- Equipped with 4 holes where liquid is poured and thermometer is placed (LT/RB-50000-W/M)
- 16 small stand-by covers
- Working temperatures: 0, -18, -33 and -51 °C
- Temperature is controlled by 4 digital thermo regulators (one for each temperature) fitted with a probe PT100 A
- Automatic defrosting device low voltage
- CFC free refrigerant gases are used

Dimensions

- width 140 cm
- depth 60 cm
- height 92 cm

Weight

- 240 kg

Art. LT/RB-53300/M Cloud and Pour Point Refrigerator 3 temperatures - Dry Bath

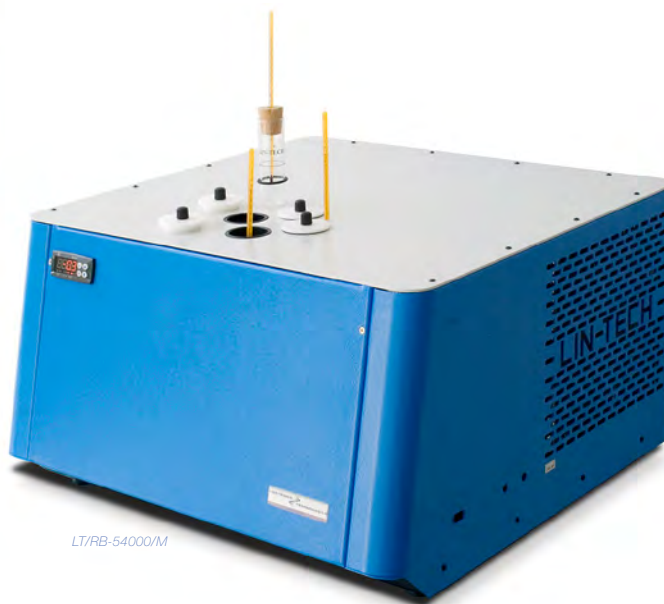
- Floor Model
- Light an resistant structure made in die-casted aluminium covered by special plastic material
- Fitted with four wheels allowing movement
- PVC cover with 12 wells (4 for each temperature) for accommodate 12 graduated jars
- Equipped with 3 holes for thermometer accommodation
- 12 small stand-by covers
- Working temperatures: 0, -17 and -33 °C
- Temperature is controlled by 3 digital thermo regulators (one for each temperature) fitted with a probe PT100 A
- Automatic defrosting device low voltage
- CFC free refrigerant gases are used



Cloud and Pour Point Refrigerator



LT/RB-50000-W/M



LT/RB-54000/M

Dimensions

- width 110 cm
- depth 60 cm
- height 92 cm

Weight

- 170 kg

Art. LT/RB-54000/M

Cloud and Pour Point Refrigerator 1 temperature - Dry Bath

- Bench top model made in aluminium with epoxy anti-acid paint
- 4 dry clean wells of test with thermometer hole
- 4 small stand-by covers
- Working temperature: up to -69°C
- 1 temperature digital controllers resolution 0,1°
- 1 PT 100 probes class A
- 1 main switches
- CFC free gases

Dimensions

- width 66 cm
- depth 60 cm
- height 42 cm

Weight

- 90 kg

Accessories

- LAB-100-332: digital stopwatch
- LAB-100-491: test jar
- LAB-100-492: cork cover
- LAB-100-493: cork disk
- LAB-100-494: insulating gasket
- LAB-200-254: manual CFPP EN116 / IP309
- SP-302-SA: air pump
- T-AS5C: thermometer ASTM 5C - IP 1C
- T-AS6C: thermometer ASTM 6C - IP 2C

Spare Parts

- LAB-160-001: digital thermoregulator

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable

- 3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant as per CENELEC directives

Ambient Temperature

- Max 32 °C
- H.R. 80%



Cold Filter Plugging Point CFPP



ASTM D6371
DIN 51428
EN 116
IP 309
JIS K 2288

Cold Filter Plugging Point of diesel and heating fuels

Determination of the Cold Filter Plugging Point (CFPP) temperature of diesel and domestic heating fuels by measuring the temperature at which the sample ceases to flow through a wire mesh filter.

Art. LT/CF-254000/M

Cold Filter Plugging Point - CFPP

- 31 × 125 mm test tube with a set of neoprene gasket
- 3-hole with Teflon cap
- Jacket Ø 46 mm
- 20 ml Pyrex pipette
- Wire filter equipped with filtering disc 325 M
- U-shaped glass pressure gauge
- 3-way cock
- Junction glass tubes
- Cap, bottle

Accessories

- LT/RB-54000/M: Cold Filter Plugging Point refrigerator up to -69°C
- LAB-2460-250: vacuum pump
- LAB-100-332: digital stopwatch
- T-AS5C: thermometer ASTM 5C IP 1C
- T-AS6C: thermometer ASTM 6C IP 2C

Spare Parts

- LAB-200/008-04: CFPP calibrated glass cell
- LAB-200/008-13: calibrated aspiration pipette CFPP
- LAB-200/013-01: filter assembly
- LAB-200/013-02: filter



Freezing Point of Aviation Fuels Freezing Point of Antifreeze and Coolants



LT/FP-238500/M



LT/FP-237000/M

ASTM D2386
DIN 51421
IP 16
ISO 3013

Freezing point of aviation fuels

Covers the determination of the temperature below which solid hydrocarbon crystals may form in aviation turbine fuels and aviation gasoline.

ASTM D1177
NF T78-102

Freezing point of aqueous antifreeze and engine coolants.

Covers the determination of the freezing point of an aqueous engine coolant solution in the laboratory.

Art. LT/FP-237000/M Manual Freezing Point - ASTM D2386

- Double tube 30 × 240 mm fitted with cap with a stopper supporting the thermometer and moisture-proof collar through which the stirrer passes
- Dewar jar 75 × 280 mm mount-based
- Stirrer made of 1.6 mm brass rod bent into a smooth three-loop spiral at the bottom

Art. LT/FP-237500/M Electric Freezing Point - ASTM D2386

- Double tube 30 × 240 mm fitted with cap
- Dewar jar 75 × 280 mm mount-based
- Geared motor for stirring at 80 rpm with wire stirrer
- PT100 sensor
- Mounted on a plate structure painted with anti-acid epoxy products
- Power supply 220 Vac 50/60 Hz

Dimensions

- 40 × 50 × 80 cm

Weight

- kg 10

Accessories

- T-AS114C: thermometer
ASTM 114C IP 14C

Spare Parts

- LAB-102-371: double tube
- LAB-102-372: wire stirrer
- LAB-102-373: Dewar jar 75 × 280 mm
- LAB-102-374: cap
- LAB-102-375: PT100 sensor,
only for LT/FP-237500/M

Art. LT/FP-238000/M Manual Freezing Point ASTM D1177 - NF T78-102

- Double tube Ø 48 × 220 mm fitted with cap
- Silvered Dewar jar Ø 95 × 295 mm
- Brass wire stirrer and cork cap
- Support with rod and clamp

Art. LT/FP-238500/M Electric Freezing Point ASTM D1177 - NF T78-102

- Double tube Ø 48 × 220 mm fitted with cap
- Silvered Dewar jar Ø 95 × 295 mm
- Geared motor for stirring at 80 rpm with wire stirrer
- PT100 sensor
- Mounted on a plate structure painted with anti-acid epoxy products
- Power supply 220 Vac 50/60 Hz

Dimensions

- 40 × 50 × 80 cm

Weight

- kg 10

Spare Parts

- LAB-102-381: test tube
- LAB-102-382: wire stirrer
- LAB-102-383: Dewar jar Ø 95 × 295 mm
- LAB-102-384: stopper
- LAB-102-385: PT100 sensor,
only for LT/FP-238500/M



Freezing Point Refrigerator



ASTM D1655
ASTM D2386
ASTM D5901
ASTM D5972
ASTM D7154
IP 16
IP 435
IP 529
ISO 3013

Subject

Freezing Point of aviation fuels, aviation gasoline, aviation turbine fuels, engine coolants, antifreeze products, brake fluids,...

Measuring Freezing Point Principle

According to the methods, the sample is cooled down and stirred.

The solid hydrocarbon crystals formation are observed by the operator.

As soon as crystals are detected, the sample is warmed up until their complete disappearance.

Measuring Temperature Probe

- Thermometer

LT/RB-55004/M

Freezing Point Refrigerator

- Bench top model made in aluminium with epoxid anti-acid paint
- 4 dry clean wells of test
- 4 small stand-by covers
- Working temperatures: +60° ... -80° C
- 1 temperature digital controllers resolution 0,1°
- 1 PT 100 probes class A
- 1 main switches
- CFC free gases
- 4 start/stop button for stirrer

Stirrer

- A micro-motor drives all the mechanical system
- 3 coils stirrer made of brass

Measuring Parameters

- Temperatures: in °C/°F
- Measuring range: +80°C ... -100°C
- Resolution: 0.1 °C
- Accuracy: ± 0.1 °C
- Repeatability / reproducibility as per standards methods or better

Test Jar

- Same dimensions and volume as described by the standard test methods
- Product level mark at 25 ml
- Small edge on the top in order to fix the glass cell to the analytical head

Cooling System

- Insulated cooling jackets.
- Integrated gas CFC free motor compressors: double stage, for temperatures up to -85°C / 2.
- Equipped with an automatic energy power save system. After 15 minutes from the end of the analysis the cooling system goes in stand-by mode.

Safety Devices

- Pressure controller for 1st stage motor compressor
- Pressure controller for 2nd stage motor compressor
- Thermostat for 2nd stage activation
- Thermo-switch for each cooling / heating jacket
- Motor compressors equipped with internal overload devices

Electrical Supply

- 220V ± 15% / 50 to 60 Hz
- 115V ± 15% / 60 Hz

Cord Cable:

3 conductors flexible cable 2 m (7 feet) length with PVC sheath oil and heat resistant.

Ambient Temperature

- Max 32 °C
- H.R. 80%

Dimensions

- width 100 cm
- depth 60 cm
- height 80 cm

Weight

- 110 kg

Spare Parts

- LAB-400/005-03: heater + auto adhesive+ insulation
- LAB-400/005-04: thermo switch
- LAB-400/005-06: PT100 bath
- LAB-400/007-02: static relay
- LAB-400/006-01: cooling fluid valve + fitting
- LAB-400/008-05: stirrer
- LAB-400/008-06: motor for stirrer
- LAB-410/008-12: removable glass cell Freezing Point
- LAB-410/008-041: o-ring for Freezing Point test jar
- LAB-410-556-M: freezing point module



Solidification Point of Benzene



ASTM D852

Solidification Point of Benzene

This test method covers the determination of the solidification point of benzene.

Art. LT/SP-237100/M

Solidification Point According to ASTM D852

- Dewar made in glass
- Jacket tube
- Test tube (Benzene container)
- Cover for jacket tube with opening for dry ice
- Stopper for test tube
- Stopper for thermometer and stirrer
- Stirrer: stainless steel wire

Accessories

- T-AS112C: thermometer ASTM 112 C +4°C ... +6°C

Spare Parts

- LAB-182-341: dewar
- LAB-152-342: jacket tube 25 × 150 mm
- LAB-152-343: test tube 15 × 125 mm, pack 10 pcs.
- LAB-152-344: cover for jacket tube
- LAB-152-345: stopper for test tube
- LAB-152-346: stopper for thermometer
- LAB-152-347: stainless steel wire



Saybolt Chromometer



ASTM D156
DIN 51411

Saybolt Colour of Petroleum Products (Saybolt Chromometer Method)

This test method covers the determination of the colour of refined oils such as undyed motor and aviation gasoline, jet propulsion fuels, naphthas and kerosine, and, in addition, petroleum waxes and pharmaceutical white oils.

Art. LT/SC-208000/M

Saybolt Chromometer ASTM D156

- Black structure supporting two glass tubes 17 x 22 mm, one of which graduated
- Optical glass disc
- 3 whole colour disc
- 1 half colour disc
- Cock
- Mirror located on a base
- Prismatic eyepiece

Art. LT/SC-208000/PAR/M

Saybolt Heated Chromometer ASTM D156

- Black structure supporting two glass tubes 17 x 22 mm, one of which graduated
- Optical glass disc
- 3 whole colour disc
- 1 half colour disc
- Cock
- Mirror located on a base
- Prismatic eyepiece
- Device and element heater

Accessories

- LAB-102-080: daylight lamp fitted with original blue filter and bed plated with support that can be orientated, with prismatic eyepiece

Spare Parts

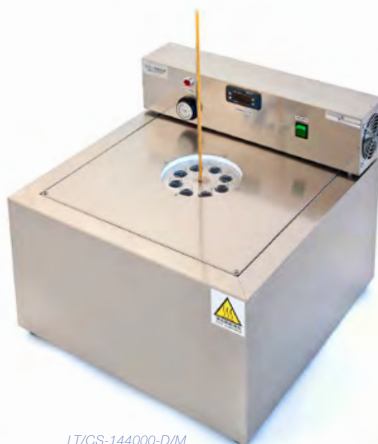
- LAB-102-083: mirror
- LAB-102-083/O: prismatic eyepiece
- LAB-102-084: graduated tube
- LAB-102-084/M: graduated tube mounted on metallic support
- LAB-102-085: valve
- LAB-102-086: plain tube
- LAB-102-086/M: plain tube mounted on metallic support
- LAB-102-088: half colour disc
- LAB-102-089: whole colour disc, pack of 3
- LAB-102-081: original blue glass
- LAB-102-082: lamp 60W - 220V, pack of 3



Copper and Silver Corrosion



LT/CS-144000/M



LT/CS-144000-D/M



LT/CS-144000/M-HT



ASTM D130
DIN 51759
IP 154 - IP 227
ISO 2160

Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test.

This test method covers the detection of the corrosiveness to copper of aviation gasoline, aviation turbine fuel, automotive gasoline, natural gasoline or other hydrocarbons having a Reid vapour pressure no greater than 18 psi (124 kPa), cleaners (Stoddard) solvent, kerosene, diesel fuel, distillate fuel oil, lubricating oil, and certain other petroleum products.

Silver Corrosion Aviation Fuels.

This method describes a procedure for the detection of the corrosiveness of aviation turbine fuels towards silver.

Art. LT/CS-144000/M Copper / Silver Corrosion Liquid Bath

- Fully made in stainless steel
- Capacity about 46 litres
- Digital thermoregulator PID
- Temperature range from ambient to 150°C
- Over-temperature device with alarm and probe PT100A
- Bath cover
- Motor stirrer
- Cooling coil

Art. LT/CS-144000-D/M Copper / Silver Corrosion Dry Bath

- Fully made in stainless steel
- Dry bath suitable for the accommodation of up to 8 test tube D130
- Digital thermoregulator PID
- Temperature range from ambient to 150°C
- Over-temperature device with alarm and probe PT100A

Art. LT/CS-144000/M-HT High Temperature Copper Corrosion ASTM D130, Oil Bath

- Tank totally made in stainless steel
- Capacity about 45 liters
- Thermostated by a digital thermoregulator PID that controls a temperature range from ambient to 250°C
- Over-temperature device with alarm and probe PT100A
- Stainless steel cover
- Motor stirrer
- Power supply: 230 Vac 50 Hz
- Power consumption: 4000 Watt
- Temperature resolution 0.1 °C
- Temperature stability +/- 0.1 °C

Main Accessories

- LAB-100-371/50: silicon oil, viscosity approx. 50 mm² / S @ 25 °C, working temperatures up to +150 °C, can of 25 litres
- LAB-100-371/350: silicon oil, viscosity approx. 350 mm² / S @ 23 °C, working temperatures up to +250 °C, can of 20 litres

Accessories ASTM D130 / EN 2160

- LAB-101-441/A4: support for 4 copper corrosion test vessel ASTM D 130, for liquid model only
- LAB-101-441/A8: support for 8 copper corrosion test vessel ASTM D 130, for liquid model only
- LAB-101-441/S: test tubes bath rack 8 places to support the glass tubes when directly immersed in the oil bath, for liquid model only
- LAB-101-441/B: copper corrosion test vessel ASTM D 130 IP 154, stainless steel, 10 bar pressure certificate, for liquid model only
- LAB-101-441/D: test tube ASTM D130, IP 154, glass, 25 mm Ø, 150 mm height, pack of 10 pcs.

- LAB-101-441/E: test tube racks, autoclavable made in polypropylene, with 12 x 25 mm Ø holes for the accommodation of 12 test tubes
- LAB-101-441/F: flat glass viewing tube to protect the strip
- LAB-101-441/G: copper test strip, pack of 10
- LAB-101-441/I: 3 places strip vice
- LAB-101-441/L240: silicon carbide paper, 240 grit, pack of 100
- LAB-101-441/M: ASTM copper strip corrosion standard
- LAB-101-441/N: hook tool, to remove the vessel from the bath, for liquid model only
- LAB-101-441/O: silicon carbide grains, 150 mesh, pack of 1 kg
- LAB-101-441/R: gasket, pack of 10 pcs.
- T-AS12C: thermometer ASTM 12C

Accessories IP 227

- LAB-101-452/A: silver test strip IP 227, pack of 5 pcs.
- LAB-101-452/G: silver corrosion test tube complete
- LAB-101-452/F: IP standard original for silver test strip IP 227
- LAB-101-452/Z: bath cover with 6 holes for silver corrosion test
- LAB-100-37: silicon oil, can of 25 liter, 50 mm²

Spare Parts IP 227

- LAB-101-452/B: silver corrosion test tube made of amber glass 350 ml capacity
- LAB-101-452/C: cover for silver corrosion B45 ground glass socket, with condenser and glass hook
- LAB-101-452/D: glass cradle for silver strip suspension
- LAB-101-452/A: silver test strip IP 227, pack of 5 pcs.

Spare Parts

- LAB-110-012: heater
- LAB-140-002: PT 100 probe
- LAB-160-014: digital thermoregulator
- LAB-150-015: static relay
- LAB-150-022: motor for stirrer



Corrosiveness and Oxidation Stability Bath



ASTM D4636

Corrosiveness and Oxidation Stability of Hydraulic Oils, Aircraft Turbine Engine Lubricants and Other Highly Refined Oils. This test method is used to test hydraulic oils, aircraft turbine engine lubricants, and other highly refined oils to determine their resistance to oxidation and corrosion degradation and their tendency to corrode various metals.

Petroleum and synthetic fluids may be evaluated using moist or dry air with or without metal test specimens.

Art. LT/CO-199000/M

Corrosiveness and Oxidation Stability Bath ASTM D4636

- Aluminium block with six holes for six pipes of test
- Heating up to 400°C controlled by a digital thermoregulator PID with over-temperature alarm and thermocouple
- 6 thermocouples for the cells with selector for the reading on the digital display
- 6 flowmeters for air 4 l/h with relevant regulating valves
- Support for glassware assemblies

Power supply

- 230 Vac 50 Hz

Accessories

- LAB-101-991: glassware set that include 1 of each of:
 - air tube of 6 mm
 - sample tube
 - sample tube head
 - Allihn condenser 300 mm
- LAB-101-992/W: washer shaped specimens ASTM D4636 (composed by 7 pcs.)
- LAB-101-992/S: square shaped specimens ASTM D4636 (composed by 5 pcs.)
- LAB-101-441/L: silicon carbide paper 240 grit, pack of 100 pcs.
- LAB-101-441/O: silicon carbide grains 150 mesh, pack of 1 kg
- LAB-101-441/Q: silicon carbide paper 400 grit, pack of 100 pcs.
- T-AS95C: thermometer ASTM 95C

Spare Parts

- LAB-101-991: glassware
- LAB-101-992: test wire Federal
- LAB-101-994: catalyst wire Federal 5321
- LAB-101-441/L: silicon carbide paper 240 grit, pack of 100 pcs.
- LAB-101-441/O: silicon carbide grains 150 mesh, pack of 1 kg
- LAB-101-441/Q: silicon carbide paper 400 grit, pack of 100 pcs.



Metals Corrosion of Engine Coolants



ASTM D1384

Corrosion Test for Engine Coolants in Glassware

This test method covers a simple beaker-type procedure for evaluating the effects of engine coolants on metal specimens under controlled laboratory conditions.

Art. LT/MC-233000/M

Metals Corrosion Apparatus

- One-place device
- Thermoregulated electric-plate heater
- Stainless steel frame
- 1-litre beakers fitted with a rubber stopper
- Condenser
- Tube for air diffusion and cold trap
- Flowmeter system complete with flowmeter 100 ml/minute air flow - with pin valves
- Bars and pliers to support the glassware

Art. LT/MC-233000-2/M

Metals Corrosion Apparatus (2 places)

Art. LT/MC-233000-4/M

Metals Corrosion Apparatus (4 places)

Accessories

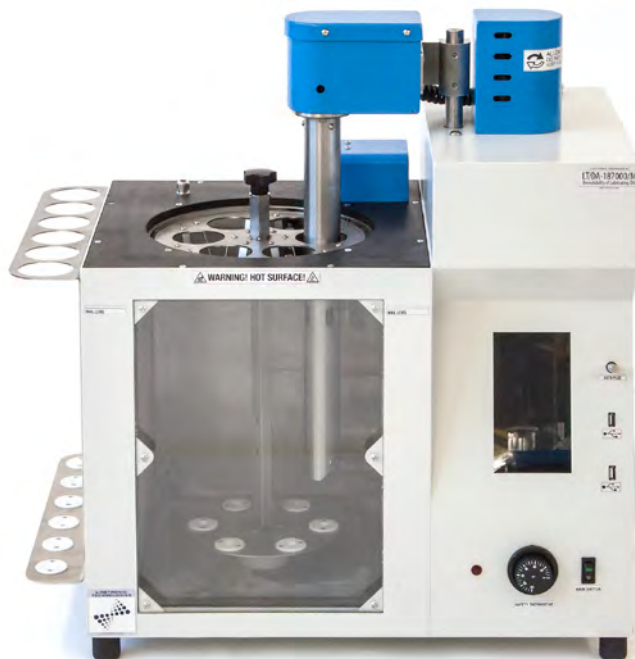
- LAB-102-340: catalyst ASTM, D1384 complete
- T-AS1C: thermometer ASTM 1C
- LT/SP-302-SA: air pump

Spare Parts

- LAB-101-929/1.6: flowmeter range 1.6 – 16 NI/h
- LAB-102-341: beaker 1 liter capacity with rubber stopper
- LAB-102-342: water condenser made in glass
- LAB-102-343: tube for air diffusion with porosity ended
- LAB-102-340/1: metal specimen Copper for LAB-102-340
- LAB-102-340/2: metal specimen Solder for LAB-102-340
- LAB-102-340/3: metal specimen Brass for LAB-102-340
- LAB-102-340/4: metal specimen Steel for LAB-102-340
- LAB-102-340/5: metal specimen Cast Iron for LAB-102-340
- LAB-102-340/6: metal specimen Cast Aluminum for LAB-102-340



Demulsibility Characteristics of Lubricating Oils



ASTM D2711

Demulsibility Characteristics of Lubricating Oils.

This test method covers the measurement of the ability of oil and water to separate from each other.

It is intended for use in testing medium and high-viscosity lubricating oils.

Art. LT/DA-187000/M

Demulsibility Apparatus ASTM D2711

- Six-place instrument with solid painted structure
- Stainless steel bath with double window for accommodation of the six places carousel
- Cover with six holes for separatory funnels with thermometer hole
- Temperature is controlled by PT100 class A and Linetronic PID System
- Motor stirrer with shaft, 2 x full immersion heaters 1600 W and digital bath liquid level sensor
- Automatic head for up and down movement
- Turbine stirrer from 300 to 5000 rpm, electronically regulated with digitally reading
- Audible beeper for end mixing procedure
- Side rack for accommodation of 6 separatory funnel
- Touch screen displayed stirring time, rpm, bath temperature, demulsivity timer

Power Supply

- 220Vac 50/60 Hz

Dimensions

- width 60 cm
- depth 42 cm
- height 70 cm

Weight

- 65 kg

Accessories

- LAB-101-871: separatory funnel Pyrex®, 500 ml graduated, Ø 54 mm

Spare Parts

- LAB-101-871: separatory funnel Pyrex®, 500 ml graduated, Ø 54 mm
- LAB-110-023: heater
- LAB-140-003: PT100 probe
- LAB-110-034: solid state relay



Foaming Characteristics of Lubricating Oils



LT/FB-191000/M



LT/FB-190000/M

ASTM D892
DIN 51566
IP 146

Foaming Characteristics of Lubricating Oils.

This test method covers the determination of the foaming characteristics of lubricating oils at 24°C and 93.5°C.

Means of empirically rating the foaming tendency and the stability of the foam are described.

Art. LT/FB-191000/M

Foaming Bath (4 places) - ASTM D892

- Compact structure painted with anti-acid epoxidy products with 2 double standby support for rubbers and air diffuser glass tubes.
- 2 independent bath insulated and equipped with 2 wide double windows equipped with illuminating LED barriers.
- 2 drain tap.
- Air coil placed into the bath at 24°C with the output placed on the left side for the air volume control.
- Cover with 4 holes for the accommodation of up to 4 foaming test cylinders.
- Cooling coil.
- On the front the 4 flowmeter with regulating knob grant the easy adjustment of the air flow as foreseen by the method.
- On the base 2 digital thermoregulator with PID (one for 24°C and one for more than 93.5°C) with over-temperature alarm and probe PT100A.
- Heating supplied by stainless steel heater.
- Main switch , 2 safety thermostat for overheating, 4 button to activate the 4 built in low voltage micro pump.
- Motor stirrer.
- Four graduated cylinders.
- 4 diffuser stones (not certified).
- 4 rubber stoppers, 4 air diffuser tubes.
- Cord cable.
- User manual.

Dimensions (cm)

- Width 71
- Depth 40
- Height 67

Power Supply

- 220Vac
- 50/60Hz

Art. LT/FB-190000/M

Manual 2 Places - Twin Foaming Bath - ASTM D 892

- Tank fitted with cover with two holes \varnothing 125 mm which allows two cylinders to get through
- Cooling coil
- Heating supplied by an armoured stainless steel heater
- Plate base painted with anti-acid epoxy products which houses a digital thermoregulator PID with over-temperature alarm and probe PT100A
- Two independent blowing pumps connected to two flowmeters
- Motor stirrer
- Two flowmeters
- Two graduated cylinders
- Two diffuser stones
- Two rubber plugs
- Diffuser tubes

Accessories

- LAB-101-883/C: certified diffuser stone
- LAB-101-886: flow indicator calibrating device, digital display readout, AA battery supply power / 230Vac power connection, flow mass up to 500 L/m
- LAB-101-887: Mott metal cylindrical diffuser (tested and verified) – ASTM D6082
- LAB-100-332: digital stopwatch
- T-AS12C: thermometer ASTM 12C

Spare Parts

- LAB-101-880: graduated cylinder 1000 ml
- LAB-101-882: rubber stoppers, pack of 2 pcs.
- LAB-101-883: diffuser stone (not certified)
- LAB-101-883/C: certified diffuser stone
- LAB-110-012: heaters, pack of 2 pcs.
- LAB-140-002: PT100 probe
- LAB-160-014: digital thermoregulator
- LAB-150-015: static relay



Foaming Tendencies of Engine Coolants



ASTM D1881

Foaming Tendencies of Engine Coolants in Glassware.

This test method covers a simple glassware test for evaluating the tendency of engine coolants to foam under laboratory-controlled conditions of aeration and temperature.

Art. LT/FT-191500/M

Coolants Foaming Apparatus ASTM D1881

- 500 ml graduated cylinder in Pyrex®
- diffuser stone

Accessories

- LAB-101-915: Pyrex® jar
- LAB-101-916: flowmeter
- LAB-101-917: compressor
- LAB-1280-S6/M: heating device unit - 600 W
- T-AS1C: thermometer ASTM 1C



Herschel Emulsifying



LT/HE-186000/M



LT/HE-185000A-/M



ASTM D1401
DIN 51599
ISO 6614

Water Separability of Petroleum Oils and Synthetic Fluids.

This test method covers measurement of the ability of petroleum oils or synthetic fluids to separate from water.

Art. LT/HE-185000-A/M

Semiautomatic Herschel Emulsifier

- Bath housed in a Pyrex® tank Ø 200 mm mounted on a painted resistance stainless steel chassis
- Stainless steel heater
- Digital thermoregulator with PID temperature control and PT100 probe A Class
- Safety thermostat for overtemperature protection and warning lamp
- Motor stirrer for temperature stability of the bath
- 6 places rotating support able to accommodate up to 6 test graduated glass cylinders
- Square bar, with safety metal block, supporting the motor stirrer with digital display for setting and reading current speed rotation (adjustable range from 50 to 2000 rpm)
- Stainless steel blade agitator 19 × 1.5 mm L = 120.6 mm with shaft
- Programmable digital timer to start and end the analysis automatically
- Double fuses for power supply protection
- Two poles main switch with operating lamp
- Power supply 220 Vac 50/60 Hz

Dimensions and Weight

- 50 × 50 × 70 cm
- 30 kg

Art. LT/HE-186000/M

Semiautomatic Herschel Emulsifier 6 places, ASTM D 1401

- Compact structure painted with anti-acid epoxidy products
- Stainless steel bath insulated and equipped with a wide double windows equipped with illuminating LED barriers
- 1 × drain tap

- Cover with 6 holes for the accommodation of up to 6 graduated cylinders
- Heating supplied by stainless steel heater
- PT100 made in stainless steel for bath temperature control
- Liquid level sensor with alarm
- Water pump for bath uniformity
- 6 × Herschel head equipped with stirring paddle, rpm sensor and up/down movement system
- Beeper for audible alarm at the end of analysis
- Integrated touch screen panel pc 6" with dedicated software:
 - 6 × independent timer management
 - Bath temperature management
 - Independent RPM setting
 - 2 × USB ports for connection to external hardware
- Power supply 220 Vac 50/60 Hz

Dimensions and Weight

- 78 × 50 × 94 cm
- 105 kg

Accessories

- T-AS19C: thermometer ASTM 19C
- T-AS21C: thermometer ASTM 21C

Spare Parts

- LAB-140-002: PT100 probe
- LAB-101-851: glass cylinder Pyrex®, 100 ml graduated
- LAB-101-852: Pyrex® jar, only for LT/HE-185000-A/M
- LAB-110-005: heater, only for LT/HE-185000-A/M
- LAB-110-006: heater, only for LT/HE-186000/M
- LAB-140-002: PT100 probe
- LAB-160-014: digital thermoregulator, only for LT/HE-185000-A/M
- LAB-150-015: static relay



Densimetry Bath



LT/DB-55112/M



LT/DB-55100/M



ASTM D70
ASTM D71
ASTM D287
ASTM D1298
ASTM D1481
ASTM E100
IP 160
IP 189
IP 190
ISO 3675
ISO 3838
JIS K 2207
JIS K 2249
JIS K 2265

ASTM D287 - Api gravity of crude petroleum and petroleum products.

Covers the determination by means of a glass hydrometer of the API gravity of crude petroleum and petroleum products normally handled as liquids and having a Reid vapour pressure (Test Method D323) of 26 psi (180 kPa) or less.

ASTM D1298 - Density, relative density (specific gravity), or API gravity of crude petroleum and petroleum products by hydrometer.

Covers the laboratory determination using a glass hydrometer, of the density, relative density (specific gravity), or API gravity of crude petroleum, petroleum products, or mixtures of petroleum and non-petroleum products normally handled as liquids, and having a Reid vapour pressure of 14.696 psi (101.325 kPa) or less.

Art. LT/DB-55112/M Digital densimetry bath

- Painted metal case with insulated double wall
- 12 test places
- Internal bath made of stainless steel
- Capacity 42 litres approx.
- Support with 12 holes Ø 51 mm for 50 × 440 mm test tubes
- Test tubes blocking system
- Digital thermoregulator PID $\pm 0.1^\circ$ with over temperature alarm and probe PT100A
- Double motor stirrer
- Safety thermostat
- 2 stainless steel heaters, total power 4000 W
- Working temperature up to 230°C
- Drain tap and overflow

Dimensions

- 35 cm × 70 cm × 60 cm

Weight

- 27 kg

Accessories

- LAB-100-552/45: protection jacket for low temperature, for tank 29 litres
- LAB-100-553: test tubes 50 × 440 mm, pack of 5
- LAB-100-555: cylinder for densimetry with foot, 450 mm height
- T-AS12C: thermometer ASTM 12C - IP 64C

Spare Parts

- LAB-100-553: test tubes 50 × 440 mm, pack of 5
- LAB-100-555: cylinder for densimetry with foot, 450 mm height
- LAB-140-002: PT100 probe
- LAB-110-012: heater
- LAB-160-014: digital thermoregulator
- LAB-150-015: static relay

Power Supply

- 220Vac 50/60 Hz
- 115Vac 60 Hz

Art. LT/DB-55100/M Digital densimetry bath with base

- Tank about 29 litres capacity
- Cover with five holes Ø 51 mm for 50 × 440 mm test tubes
- Control unit in painted sheet with digital thermoregulator PID $\pm 0.1^\circ$ with over temperature alarm and probe PT100A
- Motor stirrer
- Stainless steel heater
- Cooling coil for working ambient temperature
- Test tubes blocking system

Dimensions

- Ø 56 cm × 65 cm

Weight

- 12 kg



Schilling Effusimeter



IP 59-C (obs.)

Density and Relative Density

The methods described are for the determination of the density or relative density of petroleum products as normally handled.

Art. LT/SE-231000/M

Schilling Effusimeter - IP 59

- Glass cylinder
- Cylinder cover fitted with three sphere valves for gas charge and flow-off
- Stainless steel orifice plate with a gauged \varnothing 0.45 mm
- Internal tube fitted with two calibration weight lines

Accessory

- T-IP39C - thermometer IP 39C

Spare Parts

- LAB-102-311: external cylinder
- LAB-102-312: internal tube
- LAB-102-313: stainless steel plate with orifice
- LAB-102-314: rubber rings, pack of 10 pcs.



Distillation of Cutback Asphaltic Products



ASTM D402

Distillation of Cutback Asphaltic
(Bituminous) Products

Art. LT/CB-106000/M Electric Distillation of Cutback Asphaltic Apparatus ASTM D402

- Electric Heater 1000 W with adjustable height
- Flask 500 ml with side arm and silicon stopper
- Insulated Chimney with two halves cover
- Nozzle extensor made in glass
- Glass water cooler
- Adapter for drop the condensing sample
- Graduated receiver 100 ml
- Stand for support the glassware with rod and clamp

Accessories

- T-AS8C: Thermometer ASTM 8C - IP 6C

Spare Parts

- LAB-101-050: flask
- LAB-101-051: chimney
- LAB-101-052: cover
- LAB-101-053: set of stoppers
- LAB-101-054: receiver cylinder
- LAB-101-055: condenser
- LAB-101-056: adapter



Distillation Units



LT/HU-99000-A/M + LT/CU-99000-B/M

ASTM D86 - ASTM D216 (obs.) -
ASTM D447 (obs.) - ASTM D850 -
ASTM D1078 - ASTM E133
DIN 51751
IP 123 - IP 195
ISO 3405

ASTM D86 - Distillation of Petroleum Products at Atmospheric Pressure.

This test method covers the atmospheric distillation of petroleum products using a laboratory batch distillation unit to determine quantitatively the boiling range characteristics of such products as natural gasolines, light and middle distillates, automotive spark-ignition engine fuels, aviation gasolines, aviation turbine fuels, 1-D and 2-D regular and low sulphur diesel fuels, special petroleum spirits, naphthas, white spirits, kerosines, and grades 1 and 2 burner fuels. The test method is designed for the analysis of distillate fuels; it is not applicable to products containing appreciable quantities of residual material.

ASTM D216 (obs.), ASTM D447 (obs.) -
Distillation Test Method.

ASTM D447 (obs.) - Test Method
for Distillation of Plant Spray Oils.

ASTM D850 - Distillation of Industrial Aromatic Hydrocarbons and Related Materials.

This test method covers the distillation of industrial aromatic hydrocarbons and related materials of relatively narrow boiling ranges from 30 to 250°C.

ASTM D1078, IP 195 - Distillation Range
of Volatile Organic Liquids.

This test method covers the determination of the distillation range of liquids boiling. Between 30 and 350°C, that are chemically stable during the distillation process, by manual or automatic distillation procedures. This test method is applicable to organic liquids such as hydrocarbons, oxygenated compounds, chemical intermediates, and blends thereof.

ASTM E 133, IP 123, DIN 51751, ISO 3405
- Standard Specification for Distillation
Equipment.

This specification covers distillation equipment used in the following ASTM test methods: D86, D216, D447, D850, and D1078.

Art. LT/HU-99000-A/M

Heating Distillation Unit ASTM D86

- Completely made in stainless steel
- Wide toughened squared glass window
- Heating controlled by a heating plate electronically regulated
- Electric heater 1200 W
- Warning indicator red lamp
- Cooling fan with main switch mounted on the front panel
- Plate supported by a base whose height is adjustable with an elevation mechanism controlled by an external handle

Power supply

- 230 Vac 50/60 Hz

Art. LT/CU-99000-B/M

Condensing Distillation Unit ASTM D86

- Completely made in stainless steel
- Condensing tube made in chromium plated brass
- Insulated cover with handle and with hole for accommodation of the thermometer with relevant support
- Plastic support for cylinder
- Connections allowing water circulation
- Drain cock
- Low liquid level indicator

Power supply

- 220 Vac 50/60 Hz



Distillation Units



LT/RDS-900/SA

Art. LT/RDS-900/SA

Semi Automatic Refrigerated Distillation Unit ASTM D86

Digital Heating Unit:

- Completely made in stainless steel
- Wide toughened glass squared window
- Recovery metal plate supported by a base whose height is adjustable with elevating system controlled by external handle
- Digital display thermo regulator with 0.1°C resolution
- 3 programmed set points for Gasoline, Kerosene, Gasoil for semiautomatic operation mode
- Sample probe PT100 made of glass with case in stainless steel high temperature protection silicone cable with connector for easy removal and calibration
- Probe Stopper made of PTFE with hook for easy removal
- Electronic regulator for manual operation
- Warming indicator lamp
- Heating elements of 1200 W composed by twin infrared halogen heater lamp
- Glass Ceramic plate flask support with hole (51 mm)
- Cooling fan with green switch panel mounted
- Fire extinguisher system composed by:
 - solenoid valve
 - red emergency push button
 - dedicated line internally placed with holes for the emission of the fire extinguisher product
 - joint for the external connection
- Main switch power supply 230 Vac 50 Hz 1400 W with double fuse protection

Digital Refrigerated Condensing Unit:

- Integrated cooling system controlled by a settable digital thermoregulator for temperature range from 0°C up to 60°C
- Resolution 0.1°C
- PTC Temperature probe
- Cooling system by motor compressor with CFC free refrigerant gases
- Heating element up to 60°C
- Safety protection system for high temperature and low liquid level
- Stainless steel liquid bath, with drain tap
- Condensing tube made in stainless steel
- Insulated cover with hole for thermometer accommodation
- Inlet / outlet joints allowing the connection to an external cryostat
- White background panel for easier reading of the receiver glass cylinder level mark
- Metal support for the positioning of the receiver glass cylinder
- Plastic cover with hole for the glass cylinder

Power supply

- 230 Vac 50 Hz 1400 W

Accessories

- LAB-100-005: h.r. gloves
- LAB-100-332: digital stopwatch
- LAB-101-176: flask type A, 100 ml
- LAB-101-177: flask type B, 125 ml
- LAB-101-187: receiver Type B 100 ml
- LAB-101-191: ceramic board Ø 25 mm
- LAB-101-192: ceramic board Ø 32 mm
- LAB-101-193: ceramic board Ø 38 mm
- LAB-101-194: ceramic board Ø 50 mm
- LAB-101-300: cap condenser
- LAB-101-301: cap flask
- LAB-101-302: cap flask Teflon
- LAB-101-303: boiling stones
- LAB-101-304: cleaning cord
- LAB-101-305: drip deflector
- LAB-101-306: evaporating disc
- T-AS7C: thermometer ASTM 7C
- T-AS8C: thermometer ASTM 8C - IP 6C

Spare Parts

- LAB-110-024: heater
- LAB-110-025: air fan ventilator
- LAB-110-026: elevating system
- LAB-150-110: electronic regulator



Residue by Distillation of Emulsified Asphalts



ASTM D244

These test methods and practices cover the examination of asphalt emulsions composed principally of a semisolid or liquid asphaltic base, water, and an emulsifying agent.

ASTM D6997

This test method covers the quantitative determination of residue and oil distillate in emulsified asphalts composed principally of a semisolid or liquid asphaltic base, water, and an emulsifying agent.

Art. LT/RD-271000/M

Residue by Distillation Apparatus for Emulsified Asphalts

ASTM D244 - D6997

- Aluminium alloy boiler with anular gas lamp for heating
- Connection glass tube with protection shield
- Glass condenser for water circulation
- Graduated cylinder 100 ml
- Thermometer ASTM 7C
- Supporting ring
- Bases with rods
- Pliers

Spare Parts

- LAB-102-711: anular gas lamp
- LAB-102-712: extraction tube
- LAB-102-713: water condenser
- LAB-102-714: receiver
- LAB-102-715: boiler vessel
- LAB-102-716: adapter
- LAB-102-717: internal tube
- LAB-102-718: stopper set



Vacuum Distillation



ASTM D1160

Distillation of Petroleum Products at Reduced Pressure

This test method covers the determination, at reduced pressures, of the range of boiling points for petroleum products that can be partially or completely vaporized at a maximum liquid temperature of 400°C.

Art. LT/VD-107000/M Distillation of Petroleum Products at Reduced Pressure Apparatus (Vacuum Distillation) ASTM D1160

- Support panel and base
- 500 ml quartz distilling flask with thermowell
- Heating mantle (bottom and top)
- Vacuum jacketed, strip silvered column with condensers and spherical joints
- Thermocouples with relevant adapters
- 200 ml water jacketed receiver
- Vacuum adapter
- Two Dewar-type cold traps with receivers, stopcock drain and adapters
- Clamps for glassware assembling
- Control unit equipped with:
 - 2 × digital display for temperatures reading
 - 1 × electronic regulator for heating mantle
 - 1 × digital display for vacuum reading
 - 1 × vacuum regulator

Accessories

- LAB-100-005: h. r. gloves
- LAB-101-073: silver chain

Spare Parts

- LAB-101-074: flask 500 ml
- LAB-101-075: distillation column
- LAB-101-077: receiver
- LAB-101-078: cold trap
- LAB-101-079: clamp set
- LAB-101-080: vacuum grease
- LAB-101-081: stopper
- LAB-101-082: glass joint
- LAB-101-083: tubes set
- LAB-140-001: PT100 probe
- LAB-160-001: digital thermoregulator

Optional Accessories

- LT/CB-40800-M/30: cryostatic bath -30°C



LT/AF-82000/M



LT/AF-82200/DC

BS 3442-2 (obs.)
EN 924

ISO 1516 - ISO 1523 - ISO 13736
IP 113 (obs.) - IP 170 (obs.) - IP 304-1
(obs.) - IP 304-2 (obs.) - IP 491 - IP 492
NF M07-011 (obs.) - NF T66-009 (obs.)

Flash Point by Abel Closed Cup Method
Determines the closed cup flash point
of petroleum products and other liquids
having flash points between -30°C
and 71°C.

Art. LT/AF-82000/M

Electric Abel Flash Point

- Electrically heated by electronic regulator
- Mounted on a case painted with anti-acid epoxidic products
- Calibrated brass crucible
- Cover with gas ignition device allowing to ignite the testing sample by a manual glide-opening
- Motor stirrer
- Air bath and water bath are made in chromium-plated copper
- Internal cooling coil
- Power supply 220Vac 50/60 Hz

Dimensions and Weight

- cm 40 × 50 × 50
- kg 10

Art. LT/AF-82200/DC

Semiautomatic Abel Flash Point

- Electrically heated by electronic regulator manually settable
- Mounted on a case painted with anti-acid epoxidic products
- Calibrated brass crucible
- Cover with ignition device for gas propane/butane
- Electrical ignitor for test flame lighting
- Automatic shutter opening and dip-in of test flame by means of an electrical motor
- Electrical motor stirrer
- Digital display for sample temperature reading
- PT100 probe Class A for sample temperature measuring
- Built in cooling valve for liquid circulation
- Power supply 220Vac 50/60 Hz

Dimensions and Weight

- cm 40 × 50 × 50
- kg 12

Accessories for all art.

- LAB-100-749: gas reducer 30 mbar
- LAB-100-750: rubber tube-joint and tube 5 m
- T-IP74C: thermometer IP 74C
- T-IP75C: thermometer IP 75C

Spare parts for art. LT/AF-82000/M

- LAB-100-752: thermometer collar, pack of 5 pcs.
- LAB-100-753: flexible stirrer drive, pack of 5 pcs.
- LAB-100-771: calibrated brass crucible
- LAB-100-772: complete movement
- LAB-110-003: heater
- LAB-150-110: electronic regulator

Spare parts for art. LT/AF-82200/DC

- LAB-150-110: electronic regulator
- LAB-160-019: digital display for sample temperature display
- LAB-650/05-13: heater
- LAB-650/07-01: electrical ignitor
- LAB-650/08-12: PT100 for sample temperature for test flame lighting
- LAB-650/09-05: calibrated brass crucible
- LAB-650/09-07: cover cup movement only
- LAB-650/11-02: stirrer / flexible
- LAB-650/20-01: support PT100 Teflon



LT/CO-89000/DC



LT/CO-88000/M

AASHTO T48 (obs.)
ASTM D92
BS 4689 (obs.)
DIN 51376 (obs.)
EN 22592 (obs.)
FTM 791-1103
ISO 2592
IP 36
JIS K 2265
NF T60-118 (obs.)

Flash and Fire Point by Cleveland Open Cup Tester.

This test method describes
the determination of the flash and
fire point of petroleum products
with flash points above 79°C (175°F)
and below 400°C (752°F) except fuel oils.

Art. LT/CO-88000/M Electric Cleveland

- Electrically heated by electronic regulator
- Mounted on a case painted with anti-acid epoxy products
- Calibrated brass cup
- Gas ignition device fitted with a pivot manually passing through the cup
- Pincers for thermometer

Art. LT/CO-89000/DC Semiautomatic Electric Cleveland

- Electrically heated by electronic regulator manually settable
- Mounted on a case painted with anti-acid epoxy products
- Calibrated brass crucible
- Safety cover for fire extinguish at end of analysis
- Lighter passage across the centre of the test cup managed by an electric motor activated by a switch button
- Electrical ignitor with gas pilot flame
- Able to work on gas and electric or only electric mode
- Digital display for sample temperature reading
- PT100 probe class A mounted on a mechanical arm with electrical motor for self positioning
- Pincers for thermometer

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 48 × 37 × 61

Weight

- kg 15

Accessories

- LAB-100-749: gas reducer 30 mbar
- LAB-100-750: rubber tube-joint and tube 5 m
- T-AS11C: thermometer ASTM 11C - IP 28C
- T-AS11F: thermometer ASTM 11F - IP 28F

Spare Parts

- LAB-670/09-05: calibrated brass cup
- LAB-670/07-02: gas ignition device
- LAB-150-110: electronic regulator
- LAB-670/05-13: heater

Spare Parts for art. LT/CO-89000/DC

- LAB-670/07-01: electrical ignitor
- LAB-670/08-12: PT100 for sample temperature
- LAB-160-014: digital thermoregulator



LT/PM-75500/M



LT/PM-75000/DC

AASHTO T73 - AASHTO T172
ASTM D93-A - ASTM D93-B - ASTM D6751
BS 684-1.17 - BS 2839 (obs.)
DIN 51758 (obs.)
EN 22719
FTM 141-4293 - FTM 791-110
IP 34-A - IP 34-B
ISO 2719-A - ISO 2719-B - ISO 15267
JIS K 2265
NF M07-019 (obs.)

Flash Point by Pensky Martens Closed Cup Tester

This test method covers the determination of the flash point of petroleum products in the temperature range from 35 to 360°C. Procedure A is applicable to distillate fuels (diesel, kerosene, heating oil, turbine fuels), new lubricating oils, and other homogeneous petroleum liquids not included in the scope of Procedure B. Procedure B is applicable to residual fuel oils, cutback residual, used lubricating oils, mixtures of petroleum liquids with solids, petroleum liquids that tend to form a surface film under test conditions, or are petroleum liquids of such kinematic viscosity that they are not uniformly heated under the stirring and heating conditions of Procedure A.

Art. LT/PM-75500/M Digital Electric Pensky Martens A and B Procedures

- Electrically heated by electronic regulator
- Mounted on a case painted with anti-acid epoxy products
- Calibrated brass crucible
- Cover with gas ignition device allowing to ignite the testing sample by a manual trip-opening
- Motor stirrer for Procedure A and B
- Air bath made in brass with external stainless steel protection cover

Art. LT/PM-75000/DC Semiautomatic Pensky Martens ASTM D93 IP 34

- Electrically heated by electronic regulator manually settable
- Mounted on a case painted with anti-acid epoxy products
- Calibrated brass crucible
- Cup / cup cover with movement stand-by support
- Cover with ignition device for gas propane/butane
- Automatic shutter opening and dip-in of test flame by means of an electrical motor
- Electrical motor stirrer with shut off during flame application
- Digital display for sample temperature reading
- PT 100 probe Class A for sample temperature measuring
- Built in cooling fan
- Measuring range from 15 to 370°C

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 30 × 46 × 52

Weight

- kg 17

Accessories

- LAB-100-749: gas reducer 30 mbar
- LAB-100-750: rubber tube-joint and tube, 5 m
- T-AS9C: thermometer ASTM 9C - IP 15C
- T-AS9F: thermometer ASTM 9F - IP 15F
- T-AS10C: thermometer ASTM 10C - IP 16C
- T-AS10F: thermometer ASTM 10F - IP 16F

Spare Parts

- LAB-100-741: calibrated brass crucible
- LAB-100-742: complete movement
- LAB-110-022: heater
- LAB-100-751: silicone tubing 5 m
- LAB-100-752: thermometer collar, pack of 5
- LAB-100-753: flexible stirrer drive, pack of 5
- LAB-120-020: electric motor (LT/PM-75500/M)
- LAB-150-110: electronic regulator
- LAB-600/08-12: PT100
- LAB-160-014: digital thermoregulator



Tag Closed



ASTM D56 - ASTM D3934 - ASTM D3941
BS 6664-3 (obs.) - BS 6664-4 (obs.)
DIN 55680 (obs.)
EN 456 (obs.) - EN 924
FTM 791-1101
IP 304-1 (obs.) - IP 304-2 (obs.) - IP 491 -
IP 492
ISO 1516 - ISO 1523 - ISO 3679 - ISO 3680
JIS K 2265
NF T60-616 (obs.) - NF T60-617 (obs.)

Flash Point by Tag Closed Tester

This test method covers the determination of the flash point of liquids with a viscosity below 5.5 mm²/s (cSt) at 40°C (104°F), or below 9.5 mm²/s (cSt) at 25°C (77°F), and a flash point below 93°C (200°F).

Flash / No Flash Test - Equilibrium Method by a Closed Cup Apparatus

This test method covers the determination of whether a liquid complies with the closed-cup flash.
This test method is limited to a temperature range between 0 and 110°C (32 and 230°F).

Flash Point by Equilibrium Method with a Closed Cup Apparatus

This test method covers the determination of the flash point of liquids in which the specimen and the air/vapour mixture above it are approximately in temperature equilibrium. This test method is limited to a temperature range between 0 and 110°C (32 and 230°F).

Art. LT/TC-93000/M

Electric Tag Closed ASTM D56 D3934 D3941

- Electrically heated by electronic regulator
- Mounted on a case painted with anti-acid epoxy products
- Test copper cup equipped with glide-device and gas-ignition
- Water bath and support-jacket made in brass
- Internal cooling coil

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 40 × 40 × 50

Weight

- 8 kg

Accessories

- LT/CB-40800-M/30: cryostatic bath -30°C
- LAB-100-749: gas reducer 30 mbar
- LAB-100-750: rubber tube-joint and tube 5 m
- T-AS57C: thermometer ASTM 57C
- T-AS57F: thermometer ASTM 57F
- T-AS9C: thermometer ASTM 9C - IP 15C
- T-AS9F: thermometer ASTM 9F - IP 15F

Spare Parts

- LAB-100-751: silicone tubing 5 m
- LAB-100-932: copper cup, pack of 2
- LAB-100-933: complete movement
- LAB-110-022: heater
- LAB-150-110: electronic regulator



Tag Open



ASTM D1310
ASTM D3143

ASTM D1310 - Flash Point and Fire Point of Liquids by Tag Open Cup Apparatus

This test method covers the determination of the flash point and fire point of liquids having flash points between -18 and 165°C (0 and 325°F) and fire points up to 165°C.

ASTM D3143 - Flash Point of Cutback Asphalt

This test method covers the determination of flash points of cutback asphalts having flash points of less than 93°C (200°F).

Art. LT/TO-95000/M

Electric Tag Open - ASTM D1310 D3143

- Mounted on a case painted with anti-acid epoxy products
- Test cup made in moulded glass
- Gas ignition device with pivot passing manually over the cup
- Water bath fitted with pincers for thermometer

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 40 × 40 × 50

Weight

- 7 kg

Accessories

- LAB-100-748: gas cylinder empty, 3 kg
- LAB-100-749: gas reducer 30 mbar
- LAB-100-750: rubber tube-joint and tube 5 m
- T-AS9C: thermometer ASTM 9C - IP 15C
- T-AS9F: thermometer ASTM 9F - IP 15F
- T-AS33C: thermometer ASTM 33C - IP 20C
- T-AS33F: thermometer ASTM 33F
- T-AS35C: thermometer ASTM 35C - IP 59C
- T-AS35F: thermometer ASTM 35F

Spare Parts

- LAB-100-751: silicone tubing 5 m
- LAB-100-951: glass cup, pack of 2
- LAB-100-952: gas ignition device, pack of 3
- LAB-110-022: heater
- LAB-150-110: electronic regulator



Evaporation Bath



ASTM D381
DIN 51784
IP 131

Gum Content in Fuels by Jet Evaporation.

This test method covers the determination of the existent gum content of aviation fuels, and the gum content of motor gasolines or other volatile distillates in their finished form (including those containing alcohol and ether type oxygenates and deposit control additives) at the time of test.

Art. LT/EB-241000/M Evaporation Bath - Air and Steam Jet ASTM D381

- Bath equipped with stainless jacket in aluminium block
- 8 concentric pre-heating coils of 8 wells connected to the central collector with socket for steam measurer (flowmetric manometer for "Steam Jet")
- By-pass valve for the exclusion of the air or steam
- 8 mobile blowing devices
- Insulated air gap
- Steam over-heater with adjustment and condensate discharge valves
- Heating and over-heater are controlled by a digital thermoregulator PID with over-temperature alarm
- The bath is fitted with a flowmeter with sheath for "Air Jet" test with connection for flow apparatus (art.LT/FA-246000/TSA210), not included and adjustment valve
- Flowmetric manometer for "Steam Jet" test

Accessories

- LT/B-2470/BCA200: analytical balance
- LT/DO-248000/N/50: natural ventilation oven
- LAB-102-421: Pyrex® beaker
- LT/FA-246000/TSA210: flow apparatus
- LAB-102-423: steam generator
- T-AS3C: thermometer ASTM 3C IP 73C

Spare Parts

- LAB-102-421: Pyrex® beaker
- LAB-140-001/A: PT100 probe
- LAB-160-014: digital thermoregulator
- LAB-150-015/40: static relay



Hydrometers / Thermo-hydrometers Specific Gravity



Hydrometers as per ASTM E100 Calibrated at 15°C

Without thermometer
Scale subdivision 0.5 kg/m³ DIN 1298,
overall length 335 mm

Art. no.	ASTM ref.	Range (kg/m ³)
600 699	311H	600 – 650
600 700	312H	650 – 700
600 701	313H	700 – 750
600 702	314H	750 – 800
600 703	315H	800 – 850
600 704	316H	850 – 900
600 705	317H	900 – 950
600 706	318H	950 – 1000
600 707	319H	1000 – 1050
600 708	320H	1050 – 1100

With thermometer -10°C ... +80°C
Scale subdivision 0.5 kg/m³ DIN 1298,
overall Length 380 mm

Art. no.	ASTM ref.	Range (kg/m ³)
601 711	300H	600 – 650
600 711	301H	650 – 700
600 712	302H	700 – 750
600 713	303H	750 – 800
600 714	304H	800 – 850
600 715	305H	850 – 900
600 716	306H	900 – 950
600 717	307H	950 – 1000
601 717	308H	1000 – 1050
602 717	309H	1050 – 1100

Hydrometers according to British Standard, Calibrated at 15°C

Serie L50 SP without thermometer
Scale subdivision 0.001,
overall length 335 mm

Art. no.	Range
600 718	0.600 – 0.650
601 718	0.650 – 0.700
602 718	0.700 – 0.750
603 718	0.750 – 0.800
604 718	0.800 – 0.850
605 718	0.850 – 0.900
606 718	0.900 – 0.950
607 718	0.950 – 1.000
608 718	1.000 – 1.050
609 718	1.050 – 1.100

Serie M50 SP without thermometer
Scale subdivision 0.001,
overall length 270 mm

Art. no.	Range
600 719	0.600 – 0.650
601 719	0.650 – 0.700
602 719	0.700 – 0.750
603 719	0.750 – 0.800
604 719	0.800 – 0.850
605 719	0.850 – 0.900
606 719	0.900 – 0.950
607 719	0.950 – 1.000
608 719	1.000 – 1.050
609 719	1.050 – 1.100

Hydrometers for general use Calibrated at 15°C

Type M100 UNI/ISO 649 serie M
without thermometer,
scale subdivision 0.001

Art. no.	Range
600 720	0.600 – 0.700
600 721	0.700 – 0.800
600 722	0.800 – 0.900
600 723	0.900 – 1.000
600 724	1.000 – 1.100
600 725	1.100 – 1.200
600 726	1.200 – 1.300
600 727	1.300 – 1.400
600 728	1.400 – 1.500
600 729	1.500 – 1.600
600 730	1.600 – 1.700
600 731	1.700 – 1.800
600 732	1.800 – 1.900
600 733	1.900 – 2.000
600 734	0.650 – 2.000

Type M100 UNI/ISO 649 serie M
with thermometer 0°C ... +45°C,
scale subdivision 0.001

Art. no.	Range
600 735	0.600 – 0.700
600 736	0.700 – 0.800
600 737	0.800 – 0.900
600 738	0.900 – 1.000
600 739	1.000 – 1.100
600 740	1.100 – 1.200
600 741	1.200 – 1.300
600 742	1.300 – 1.400
600 743	1.400 – 1.500
600 744	1.500 – 1.600
600 745	1.600 – 1.700
600 746	1.700 – 1.800
600 747	1.800 – 1.900
600 748	1.900 – 2.000



Copper Corrosion by LPG



ASTM D1838
IP 411
ISO 6251

Copper Strip Corrosion by Liquefied Petroleum (LP) Gases.

This test method detects the presence of components in liquefied petroleum gases which may be corrosive to copper.

Art. LT/LPG-169000/M LPG Corrosion Vessel ASTM D1838

- Stainless steel vessel with two needle valves in stainless steel
- Screw top closure and o-ring sealing gasket
- Tested at 70 bar

Accessories

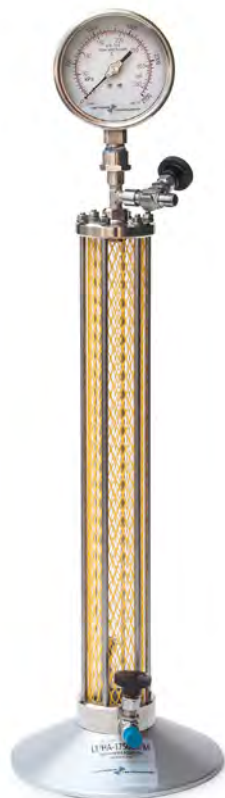
- LT/TB-177000/M: thermostatic bath
- LAB-101-441/G: copper test strip 75 x 12.5, pack of 10
- LAB-101-441/F: flat glass for protect strip
- LAB-101-441/L: silicon carbide paper 240 grit, pack of 100
- LAB-101-441/O: silicon carbide grains 150 mesh, pack of 1 kg
- LAB-101-441/I: 3 places strip vice
- LAB-101-441/M: ASTM copper strip corrosion standard, original USA
- T-AS12C: thermometer ASTM 12C - IP 64C
- T-AS12F: thermometer ASTM 12F - IP 64F

Spare Parts

- LAB-101-441/R : vessel gasket, pack of 10 pcs.



Density of LPG and of Light Hydrocarbons



ASTM D1657
IP 235
ISO 3993

ASTM D1657 - Density or Relative Density of Light Hydrocarbons by Pressure Hydrometer.

This test method covers the determination of the density or relative density of light hydrocarbons including liquefied petroleum gases (LPG) having Reid vapour pressures exceeding 101.325 kPa (14.696 psi).

IP 235 - ISO 3993 - Density or Relative Density of LPG and of Light Hydrocarbons by Pressure Hydrometer.

The prescribed apparatus shall not be used for materials having gauge vapour pressures higher than 1,4 MPa (absolute vapour pressure 1,5 MPa) at the test temperature.

Art. LT/HA-175000/M Hydrometer Apparatus ASTM D1657

- Tubular chamber made in acrylic resins $\varnothing 50 \times 36$ mm, L = 440 mm
- Metallic headers coupled with six stainless steel tie rods
- Neoprene gaskets
- Three $\frac{1}{4}$ " pin cocks
- Mesh safety guard
- Tested to 15 bar hydraulic pressure
- Double scale manometer 0-2500 kPa, 0-350 Psi
- Thermohydrometer ASTM 310H range 0.500-0.650, thermometer range -10...+35°C

Accessories

- LAB-639-710: thermohydrometer ASTM 101H 0.500-0.650
- LT/TB-177500/M thermostatic bath 3 places:
 - Completely made in 18/8 stainless steel
 - Equipped with double bottom
 - Thermostating is digitally thermoregulated PID with overtemperature alarm and probe PT100A
 - Stainless steel heater working temperature up to 80°C
 - The bath is fitted with cooling coil and motor stirrer
 - Support which allows the immersion of 3 vapour pressure cylinders or 2 density pressure hydrometer
 - Atmospheric draining
 - Power supply: 220 Vac 50/60 Hz

Spare Parts

- LAB-101-762: gasket pack of 10
- LAB-101-763: polymethylmethacrylate tube
- LAB-101-764: mesh safety guard
- LAB-600-710: thermohydrometer ASTM 310H Range 0.500-0.650, thermometer -10 ... +35°C



Gage Vapour Pressure of LPG



ASTM D1267
IP 161 - IP 410
ISO 4256

Gage Vapour Pressure of Liquefied Petroleum (LP) Gases (LP-gas Method)
This test method covers the determination of the gage vapour pressures of liquefied petroleum gas products at temperatures of 37.8°C (100°F) up to and including a test temperature of 70°C (158°F).

**Art. LT/VP-174000-A/M
Vapour Pressure Cylinder
Lower Chamber - Two Openings
ASTM D1267**

- Made in stainless steel
- In one end of the chamber an opening of approximately ½" shall be provided for coupling with the vapour chamber by means of a straight-trough valve
- Sloped inner surface
- Provided with charging / discharging valve

**Art. LT/VP-174000-B/M
Vapour Pressure Cylinder
Upper Chamber
ASTM D1267**

- Made in stainless steel
- Lower coupling ½"
- Complete with bleeder valve assembly and ½" coupling for pressure gauge

**Art. LT/VP-174000-C/M
Vapour Pressure Cylinder
Lower Chamber 33 1/3% - Two Openings
ASTM D1267**

- Made in stainless steel
- In one end of the chamber an opening of approximately ½" shall be provided for coupling with the vapour chamber by means of a straight-trough valve
- Sloped inner surface
- Provided with charging / discharging valve

Hydrostatic test

- The assembled chambers are certified by the manufacturer to withstand approx. 1000 PSI (70bar) of hydrostatic pressure without permanent deformation

Accessories

- LT/TB-177500/M thermostatic bath, 3 places
 - completely made in 18/8 stainless steel
 - equipped with double bottom
 - thermostating is digitally thermoregulated PID with overtemperature alarm and probe PT100A
 - stainless steel heater working temperature up to 80°C
 - the bath is fitted with cooling coil and motor stirrer
 - support which allows the immersion of 3 vapour pressure cylinders or 2 density pressure hydrometer
 - atmospheric draining
 - power supply: 220 Vac 50/60 Hz
- LAB-101-742/100:
pressure gauge double scale 0-700 kPa, 0-100 Psi made in stainless steel, div. 70 kPa (10 Psi) precision 3.4 kPa (0.5 Psi)
- LAB-101-742/250:
pressure gauge double scale 0-1750 kPa, 0-250 Psi, made in stainless steel, div. 172 kPa (25 Psi) precision 7 kPa (1 Psi)
- LAB-101-742/500:
pressure gauge double scale 0-3500 kPa, 0-500 Psi, made in stainless steel, div. 344 kPa (50 Psi) precision 35 kPa (5 Psi)
- LAB-101-743:
copper capillary adaptor Ø 6 mm × 4 mm

Spare Parts

- LAB-101-744: gasket, pack of 10
- LAB-101-745: total flow valve



Hydrogen Sulfide in LPG



ASTM D2420

Hydrogen Sulfide in Liquefied LPG (Lead Acetate Method).

This test method covers the detection of hydrogen sulfide in liquefied petroleum (LP) gases. The sensitivity of the test is about 4 mg/m³ (0.15 to 0.2 grain of hydrogen sulfide per 100 ft³) of gas.

Art. LT/HS-230000/M

Hydrogen Sulfide in LPG

- Stainless steel cylinder 500 ml with valve
- Stainless steel tubing with needle valve
- Water bath with temperature thermostat
- Glass cylinder
- Watch glass
- Stopper
- Lead acetate test paper
- Flow indicator

Power Supply

- 220Vac 50/60 Hz

Dimensions

- 70 × 50 × 60 cm

Weight

- 20 kg

Spare Parts

- LAB-102-301: lead acetate test paper, pack of 100 pcs.
- LAB-102-302: watch glass, pack of 3 pcs.
- LAB-102-303: glass cylinder, pack of 3 pcs.
- LAB-102-305: glass rod
- LAB-102-306: glass tube Ø 3 × 6 mm
- LAB-102-307: set of rubber stopper with hole for glass tube
- T-AS15C: thermometer ASTM 15C



LPG Relative Purity



ASTM D1837 ASTM D2158 IP 317

ASTM D1837

Volatility of Liquefied Petroleum (LP) Gases

This test method is a measure of the relative purity of the various types of liquefied petroleum (LP) gases and helps to ensure suitable volatility performance.

The test results, when properly related to vapour pressure and density of the product, can be used to indicate the presence of butane and heavier components in propane type LP-gas, and pentane and heavier components in propane-butane and butane type fuels. The presence of hydrocarbon compounds less volatile than those of which the LP-gas is primarily composed is indicated by an increase in the 95 % evaporated temperature.

ASTM D2158 - IP 317

Residues in Liquefied Petroleum (LP) Gases

This test method covers the determination of the extraneous materials weathering above 38°C that are present in liquefied petroleum gases.

Art. LT/WT-170000/M Weathering Test, Mercury Freeze Method, ASTM D1837 - D2158

- 18/8 stainless steel bath with double wall
- Copper cooling coil with two ¼" valves

Accessories for ASTM D1837:

- LAB-101-232: cone-shaped tube 100 ml, 203 mm, graduated for ASTM D1837, pack of 4 pcs.
- LT/WB-520-250-A/M: water bath with integrated rack for cone-shaped tube, 8 position, with relevant joints for the connection to the water line or an external cooling source for maintaining a temperature between 15°C and 21°C.
- T-AS99C: thermometer ASTM 99C armoured
- T-AS99F: thermometer ASTM 99F armoured
- LAB-101-225/TH: cork with hole for thermometer
- LAB-101-713: syringe 1 ml capacity div. 0.1, needle L = 200 mm
- LAB-0005-784: device for dry ice, using for produce pastils of around 50 gr. of dry ice
 - container for pastil with handle
 - tube for connection to the gas cylinder ¼ → ½
 - rubber connection
 - the apparatus is not supplied with gas for ice production
 - the apparatus must be connected to a cylinder with CO₂ liquefied, with internal siphon

Accessories for ASTM D2158-IP317:

- LAB-101-225: cone-shaped tube 100 ml, 203 mm, graduated to 0.05 ml, pack of 4
- LAB-101-713: syringe 1 ml capacity, div. 0.1, needle L = 200 mm
- T-AS5C: thermometer ASTM 5C
- T-AS6C: thermometer ASTM 6C
- T-AS57C: thermometer ASTM 57C
- LAB-101-714: filter paper medium degree, Ø 125 mm, pack of 100
- LT/WB-520-660-A/M: heating water bath 220 Vac with cooling serpentine and joint for external cooling source connection
- LAB-101-715: copper wire Ø 1.5 mm, L = 300 mm
- LAB-101-716: support with axle and clamp
- LAB-101-225/W-4: rack for cone-shaped tube, 4 position



Sampling and Gauging Tanks + Valves

LT/SC-163100/M



LT/SV-184000/M

SS Integral Bonnet Needle Valve
SS High-Pressure Proportional Relief ValveASTM D1265
GPA 2140Practice for Sampling
Liquefied Petroleum Gases
(Manual Method).

Art. LT/SC-163100/M

Sampling Cylinder - ASTM D1265

- Completely made in stainless steel AISI 304
- ½ gas tapered connection and ¼ gas charge - capacity available: 50, 100, 250, 300, 500, 1000 ml
- Fitted with 2 stainless steel AISI 316 valves and a 20% outage tube
- Certificate for pressure of 100 bar

Art. LT/CF-167000/M, Connection Filter

- Useful to connect to the cylinders
- Body in brass
- Filtering Perlon mass with ¼" connections

Art. LT/LT-168000/M, Line Trasferring Block

- Consisting of two cocks with joint

Accessories

- LAB-101-635: protection collar, protects valves and cylinder

Spare Parts

- LT/SV-184000/M: stainless steel valve
- LAB-101-801: stopper for valve 1/4"
- LAB-101-635: protection collar

Art. LT/SV-184000/M, Stainless Steel Valve for Art. LT/SC-163100/M

- AISI 316 stainless steel body and pin
- ¼ cylindrical gas charge and ½ tapered
- Right angle gas connection
- Stuffing box
- Safety stop system on the opening
- Certificate for pressure of 200 bar

Art. LT/SC-163100-500/M

LPG Sample Cylinder 500 ml Capacity

Art. LT/SC-163100-1000/M

LPG Sample Cylinder 1000 ml Capacity

- Ss Double-ended Dot-compliant Sample Cylinder, 1/4 In. Fnpt, 1800 Psig (124 Bar)
- Body Material: 304L stainless Steel

- Connection 1 Size: ¼ in
- Connection 1 Type: FNPT
- Connection 2 Size: ¼ in
- Connection 2 Type: FNPT

SS Integral Bonnet Needle Valve, 0.73 Cv, 1/4 in. MNPT x 1/4 in. FNPT, Regulating Stem

- Flow Pattern: Straight (2-way)
- Valve Material: Stainless Steel
- End Connection 1 Size: 1/4 in
- End Connection 1 Type: MNPT
- End Connection 2 Size: 1/4 in
- End Connection 2 Type: FNPT
- Handle Color: Black
- Handle Style: Phenolic Knob
- Cleaning: Standard cleaning SC-10
- Lubricant: Perf. Polyether/Tung. Disulfide (WL7)
- Stem Material: 316 Stainless Steel
- Stem Plating Material: Chrome-plated 316
- Stainless Steel
- Stem Type: Regulating
- Stem Tip Material: 316 Stainless Steel
- Max Temperature with Pressure Rating: 232°C @ 236 BAR
- Orifice: 250 in
- Room Temperature
- Pressure Rating: 344 BAR @ 37°C

SS High-Pressure Proportional Relief Valve, 1/4 in. MNPT x 1/4 in. FNPT, Buna N Seal

- Service Class High Pressure
- Size 1/8in
- Valve Material 316 Stainless Steel
- End Connection 1 Size 1/4 in
- End Connection 1 Type Male NPT
- End Connection 2 Size 1/4 in
- End Connection 2 Type Female NPT
- Max Temperature Pressure Rating 250°F @ 4910 PSIG /121°C @ 338 BAR
- Room Temperature Pressure Rating 6000 PSIG @ 100°F /413 @ BAR



Grease Worker Consistency of Lubricating Greases



LT/GW-70000-1/M



LT/GW-68000/M



LT/GW-67000/M

ASTM D217
ASTM D1403

Cone penetration of lubricating grease.
Cover four procedures for measuring the consistency of lubricating greases by the penetration of a cone of specified dimensions, mass and finish.

Art. LT/GW-67000/M Manual Grease Worker ASTM D217 - D1403

- Brass body
- Screw cover with air valve and thermometer pass
- Piston with ground-slideway brass handle allowing connection to a base with lever (art. 68000) or automatic machine (art. 69000, art. 70000)
- Disc complying with ASTM regulations and with 51 holes \varnothing 6.35 mm

Art. LT/GW-68000/M Slave Unit ASTM D217 - D1403

- For manipulating fats manually
- Adaptable to Manual Grease Worker (art. 67000)

Art. LT/GW-70000-1/M Automatic Grease Worker ASTM D217 - D1403

- 5 figure stroke counter
- Automatic preselector
- Adaptable to Manual Grease Worker (Art. 670000)

Art. LT/GW-70000-2/M Automatic Grease Worker (2 places)

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- cm 45 x 40 x 60

Weight

- kg 15

Accessories

- LAB-100-682: churn plate FTM with 270 \varnothing 1.58 mm holes
- LAB-100-710: grease cutter
- LAB-100-714: half-scale grease worker ASTM D1403, stainless steel, with 8 \varnothing 6.35 mm holes
- LAB-100-718: quarter-scale grease worker ASTM D1403, stainless steel, with 8 \varnothing 3.17 mm holes
- T-0110: thermometer 0° +110°C

Spare Parts

- LAB-100-681: disc ASTM with 51 \varnothing 6.35 mm holes



Corrosion Preventive Properties of Lubricating Greases



ASTM D1743
ASTM D4950

ASTM D1743 - Corrosion Preventive Properties of Lubricating Greases.

This test method covers the determination of the corrosion preventive properties of greases using grease-lubricated tapered roller bearings stored under wet conditions. This test method is based on CRC Technique L 41 that shows correlations between laboratory results and service for grease lubricated aircraft wheel bearings.

ASTM D4950 - Classification and Specification of Automotive Service Greases.

This specification covers lubricating greases suitable for the periodic relubrication of chassis systems and wheel bearings of passenger cars, trucks, and other vehicles.

Art. LT/CG-205800/M Corrosion Greases Apparatus ASTM D1743 - D4950

- Group rotating at 1,750 rpm mounted on a bed-plate
- Calibrated thrust device with spring for placing the bearing against the rotating support
- Mechanical device for the test grease inlet onto the bearing
- Bearing type 09074/0916.6

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- cm 60 × 60 × 50

Weight

- kg 30

Accessories

- LAB-102-058/A: syringe 100 ml, glass – luer lock metal
- LAB-102-058/C: pincers
- LAB-102-058/N: needle 16G × 4" × 150 mm, beveled – luer lock
- LAB-102-059/A: support for bearing
- LAB-100-332: digital stopwatch

Spare Parts

- LAB-102-059/C: timken bearing



Dropping Point of Lubricating Grease



LT/DP-211000/M



LT/DP-211500/M

ASTM D566
ASTM D2265
ASTM D4950
DIN 51801
DIN 51801-2
IP 132

ASTM D566 - IP 132 - DIN 51801

Dropping Point of Lubricating Grease.

This test method covers the determination of the dropping point of lubricating grease. This test method is not recommended for use at bath temperatures above 288°C.

ASTM D4950

Classification and Specification of Automotive Service Greases.

This specification covers lubricating greases suitable for the periodic relubrication of chassis systems.

ASTM D2265

Dropping Point of Lubricating Grease over Wide Temperature Range

This test method covers the determination of the dropping point of lubricating grease.

Art. LT/DP-211000/M Dropping Point Apparatus ASTM D566 - D4950

- Nickel-plated brass casing
- Test tube with projection cap
- Cork ring
- Cover in anticorodal
- Wire stirrer
- Rod Ø 1.5 × 150 mm
- Glass 400 ml
- Heating device unit
- Motor stirrer

Accessories for Art. LT/DP-211000/M

- T-AS2C: thermometer ASTM 2C IP 62C

Spare Parts for Art. LT/DP-211000/M

- LAB-101-173: beaker 400 ml
- LAB-102-111: stopper set
- LAB-102-113: grease cup
- LAB-102-114: test tube
- LAB-102-120: metal rod
- LAB-110-022: heater
- LAB-150-110: electronic regulator

Art. LT/DP-211500/M Dropping Point Apparatus ASTM D2265

- Structure in stainless steel
- Insulating thermal
- Furnace in aluminium block with 6 places
- In the block 6 vertical holes are systematized for the support of the pipes of test while in the back part there are 6 horizontal holes for the observation with a light cold lamp for the illumination of the zone in correspondence of the cap of test
- The lamp is assembled with a reflector in the superior part
- The control of the temperature effected by a digital thermoregulator PID with over-temperature alarm and probe PT100A

Accessories for Art. LT/DP-211500/M

- LAB-100-005: h.r. gloves
- LAB-102-115: grease cup
- LAB-102-116: test tube
- LAB-102-117: cup support
- LAB-102-118: thermometer clamp
- LAB-102-119/H: high bushing
- LAB-102-119/L: low bushing
- LAB-102-120: metal rod
- LAB-102-121: bushing support ring
- LAB-102-122: thermometer depth gage
- LAB-102-123: cup gage
- T-AS11C: thermometer ASTM 11C
- T-AS3C: thermometer ASTM 3C

Spare Parts for Art. LT/DP-211500/M

- LAB-160-001: digital thermoregulator
- LAB-112-115: heater
- LAB-152-115: lamp



Evaporation Loss



ASTM D972 IP 183

Evaporation Loss of Lubricating Greases and Oils.

This test method covers the determination of the loss in mass by evaporation of lubricating greases and oils for applications where evaporation loss is a factor. Evaporation loss data can be obtained at any temperature in the range from 100 to 150°C (210 to 300°F).

Art. LT/EC-205000/M

Evaporation Cell ASTM D972 - IP 183

- Stainless steel cylindrical body with neck flange and three cell connections for the tight cover closure double bottom with 3.17 mm orifice
- Brass pre-heating coil with cell connections and air inlet tube
- Stainless steel cover with neoprene gaskets fitted with 3 blocking screws
- Central air flow-off connected to a 18/8 stainless steel tube with lower threaded junction for connection with the test cup

Accessories

- LT/TB-205100/M: thermostatic bath ASTM D972 - IP 12
- LT/AB-2470/BC250: balance
- LAB-102-051: test cup for greases
- LAB-102-052/A: test cup for lubricating oil
- LAB-102-050: air pump

Accessories for ASTM D972

- AS22C: thermometer ASTM 22C
- T-AS67C: thermometer ASTM 67C

Spare Parts

- LAB-102-052/C: basket, pack of 10 pcs.

Accessories for IP 183

- T-AS40C: thermometer ASTM 40C
- T-AS35C: thermometer ASTM 35C



Leakage Tendencies of Wheel Bearing Greases



ASTM D1263

Leakage Tendencies of Automotive Wheel Bearing Greases

This test method covers the evaluation of the leakage tendencies of wheel bearing greases when tested under prescribed laboratory condition.

Art. LT/WB-205300/M Wheel Bearing Grease Apparatus ASTM D1263

- Thermostatic stainless steel cabin equipped with thermic insulator
- Rotating pivot with spindle
- Electric heating with digital control of temperature
- Motor with pulley and V-type belt controlling the hub rotation
- The hub carries bearings with a pulley suitable for 660 rpm speed
- Two taper roller bearings
- Grease collection tank

Accessories

- LAB-100-005: h.r. gloves
- LAB-102-054/A: torque wrench
- T-AS7C: thermometer ASTM 7C

Spare Parts

- LAB-102-055/A: outer bearing
- LAB-102-055/B: inner bearing
- LAB-110-003: heater
- LAB-140-001: PT100 probe
- LAB-160-001: digital thermoregulator
- LAB-170-002: drive belt



Oil Separation from Lubricating Grease



LT/GS-203128/M



LT/GS-203118/M



LT/GS-203300/M



LT/GS-203200/M

ASTM D1742 - ASTM D6184
FTM 791-321
IP 121

ASTM D1742 - Oil Separation from Lubricating Grease During Storage.

This test method covers the determination of the tendency of a lubricating grease to separate oil during storage in both normally filled and partially filled containers.

ASTM D6184 - Standard Test Method for Oil Separation from Lubricating Grease (Conical Sieve Method)

This test method covers the determination of the tendency of lubricating grease to separate oil at an elevated temperature. This test method shall be conducted at 100°C for 30 h unless other conditions are required by the grease specification.

FTM 791-321- Determination of the Tendency of Lubricating Grease to Separate Oil at an Elevated Temperature.

IP 121 - Determination of Oil Separation from Lubricating Grease - Pressure Filtration Method.

**Art. LT/GS-203118/M
Greases Separation Apparatus
ASTM D1742**

- Bed-plate with a two-outlet collector for air distribution fitted with a throttle valve for each outlet
- Stabilizing reducer for low pressures
- Control manometer
- Head of water cylinder for limiting pressure
- 4 oil separation test cell type B
- 4 beakers 20 ml
- Vacuum pump 300 Lt/h, max pressure/ vacuum 300 mBar, 230 vac, 50 Hz

**Art. LT/GS-203128/M
Oil Separation of Lubricating Grease During Storage with Climatic Chamber
ASTM D1742**

- 4 oil separation test cells type B
- Pressure gauges
- Pressure reducer
- Control valves
- Connection tubes
- 4 glass beakers 20 ml
- Support with 4 outlet collector for air distribution, 4 regulating valves, vacuum stabilizer, pressure reducer manifold, air inlet vacuum manometer up to 400 mBar, outlet vacuum manometer up to 40 mBar
- Bench top instrument suitable for the accommodation of up to 4 test cells
- Climatic chamber in painted stainless steel with polycarbonate door
- Digital P.I.D. thermostat to ensure good stability
- Temperature range from +5°C above room temperature to +50°C accuracy to $\pm 1^\circ\text{C}$ to +37°C
- Display precision $\pm 0,1^\circ\text{C}$
- Forced ventilation

- Heating elements are not in contact with internal chamber but are in an ante-chamber to guarantee uniform heating
- Power supply 230 V, 50 Hz, 1450 Watt
- Vacuum pump 230 Vac, 50 Hz

**Art. LT/GS-203200/M
Greases Separation Apparatus - IP 121**

- Couple with 240 mesh filter cone located at the bottom
- Metallic weight 100 gr
- Oil container

**Art. LT/GS-203300/M
Greases Separation Apparatus
ASTM D6184, FTM 791-321**

- Stainless steel cone with 60 mesh filter
- Glass 200 ml with levelled edge
- Cover fitted with gasket
- Crane hook for the cone

Accessories for Art. LT/GS-203118/M and Art. LT/GS-203128/M

- LAB-102-031: complete cell type A
- T-AS57C: thermometer ASTM 57C

Spare Parts for Art. LT/GS-203118/M and Art. LT/GS-203128/M

- LAB-102-032: complete cell type B
- LAB-102-031/B: beaker 20 ml

Spare Parts for Art. LT/GS-203200/M

- LAB-152-032/A: cone with mesh
- LAB-152-032/B: oil container
- LAB-152-032/C: weight 100 gr

Spare Parts for Art. LT/GS-203300/M

- LAB-102-033/A: cone with filter
- LAB-102-033/B: beaker
- LAB-102-033/C: cover



Roll Stability of Lubricating Grease



ASTM D1831

Roll Stability of Lubricating Grease

This test method covers determination of the changes in the consistency, as measured by cone penetration, of lubricating greases when worked in the roll stability test apparatus.

Art. LT/RS-205700/M

Roll Stability Apparatus ASTM D1831

- One-place model with thermostatic cabin
- Temperature controlled by a digital thermoregulator
- 160 rpm speed geared motor
- Stainless steel cylinder containing the test grease
- Fitted with stainless steel roller which rotates within the cylinder
- Base with roller supports allowing the rotation

Power Supply

- 220Vac 50/60 Hz

Dimensions

- 60 × 60 × 50 cm

Weight

- 30 kg

Spare Parts

- LAB-102-057/A: stainless steel cylinder
- LAB-102-057/B: internal roller 5 kg
- LAB-257000- 300: heaters 2 × 300 W
- LAB-257000- 301: safety thermostat 120°C
- LAB-257000- 302: static relay 16/40A
- LAB-257000- 303: o-ring for feeder, pack of 10 pcs.
- LAB-257000- 304: bearing, pack of 6 pcs.
- LAB-257000- 305: lubricating grease with PTFE
- LAB-257000- 306: motor 24 Vdc 70 W, pack of 2 pcs.
- LAB-257000- 307: power Mosfet driver 30 A
- LAB-257000- 308: temperature probe PT100
- LAB-257000- 309: cooling fan 120 × 25 mm
- LAB-257000- 310: belt
- LAB-257000- 311: pulley pack, of 3 pcs.
- LAB-257000- 312: PTFE isolating disc, pack of 8 pcs.



Oxidation Stability



LT/OX-192000/L-M



LT/OX-192000-8/DM

ASTM D943
ASTM D2274
ASTM D4310
DIN 51587
IP 388
ISO 4263

ASTM D943 - DIN 51587 - ISO 4263 Test Method for Oxidation Characteristics of Inhibited Mineral Oils

This test method is used to evaluate the oxidation stability of inhibited steam-turbine oils in the presence of oxygen, water, and copper and iron metals at an elevated temperature. The test method is also used or testing other oils such as hydraulic oils and circulating oils having a specific gravity less than that of water and containing rust and oxidation inhibitors.

ASTM D2274 - IP 388 Oxidation Stability of Distillate Fuel Oil (Accelerated Method)

This test method covers the measurement of the inherent stability of middle distillate petroleum fuels under specified oxidizing conditions at 95°C.

ASTM D4310 - Determination of the Sludging and Corrosion Tendencies of Inhibited Mineral Oils

This test method is used to evaluate the tendency of inhibited mineral oil based steam turbine lubricants and mineral oil based anti-wear hydraulic oils to corrode copper catalyst metal and to form sludge during oxidation in the presence of oxygen, water, and copper and iron metals at an elevated temperature. The test method is also used for testing circulating oils having a specific gravity less than that of water and containing rust and oxidation inhibitors.

Art. LT/OX-192000/L-M Oxidation Stability Liquid Bath 8 Places

EN ISO 12205 / ASTM D2274 / ASTM D943

- Height-place steel cover and stainless steel liquid bath with approx. 40 litres capacity
- Insulated double wall
- Stainless steel resistance
- 8-place flowmeter system fitted with 8 flowmeters, throttle valves equipped with a 8-place refrigerating system with pipelines for water inlet and outlet
- Temperature controlled by a digital thermoregulator PID with over-temperature alarm and a probe PT100A
- Range: ambient to 120°C

Power supply

- 230 Vac 50 Hz / or 115 Vac 50 Hz

Dimensions

- cm 42 × 46 × 141

Weight

- 50 Kg

Art. LT/OX-192000/D-M Oxidation Stability Dry Bath 8 Places

EN ISO 12205 / ASTM D2274 / ASTM D943

- Height-place steel block
- Insulated double wall
- Stainless steel resistance
- 8-place flowmeter system fitted with 8 flowmeters, throttle valves equipped with a 8-place refrigerating system with pipelines for water inlet and outlet
- Temperature controlled by a digital thermoregulator PID with over-temperature alarm and a probe PT100A
- Range: ambient to 130°C

Power supply

- 230 Vac 50 Hz / or 115 Vac 50 Hz

Dimensions

- cm 42 × 46 × 131

Weight

- 60 Kg



Oxidation Stability



General Accessories

- LT/VP-8618/K: vacuum pump – 220 Vac
- LAB-102-501/FC: Fresenius column made in glass filled with desiccant
- T-AS40C: thermometer ASTM 40C IP 70C
- T-AS40C/C: thermometer ASTM 40C IP 70C with DKD calibration certificate

Spare Parts

- LAB-101-929/1.6: flowmeter range 1.6 – 16 NI/h with connection and certificate of compliance

Accessories for ASTM D943

- LAB-101-921: oxidation cell
 - oil test tube
 - oxygen inlet tube
 - fungus condenser
- LAB-101-441/L100: silicon carbide paper 100 grit, pack of 100 pcs.
- LAB-101-922/CU: wire catalyst copper 1.6 mm Ø, 500 gr.
- LAB-101-922/SS: wire catalyst steel 1.59 mm Ø, 500 gr.
- LAB-101-923: thermometer bracket (for test cell)
- LAB-101-924/10: syringe luer lock 10 ml
- LAB-101-924/50: syringe luer lock 50 ml
- LAB-101-925: syringe sampling tube stainless steel L = 560 mm
- LAB-101-925/S: stopper for luer fitting
- LAB-101-926/H: sampling tube holder
- LAB-101-926/S: sampling tube spacer
- LAB-101-927: wire coiling mandrel to form spiral of steel and copper catalyst wire
- LAB-101-928: reducer manometer for O₂, primary 0-250 bar, reducer 0-1 bar
- LAB-101-929/I: oil level indicator (for test cell)
- T-AS137C: thermometer ASTM 137C

Accessories for ASTM D2274

- LAB-102-274/C: evaporating vessel, borosilicate glass beaker 200 ml capacity tall form
- LAB-101-441/L100: silicon carbide paper 100 grit, pack of 100
- T-AS40C: thermometer ASTM 40C IP 70C
- T-AS40C/C: thermometer ASTM 40C IP 70C with calibration certificate
- LAB-101-921: oxidation cell
 - oil test tube
 - oxygen inlet tube
 - fungus condenser
- LAB-102-274/A: filtration system
 - 2 vacuum flask
 - stopper
 - tubes
 - filtering crucible
- LT/HD-1280/S6: heating plate 600 W
- LAB-102-274/B-0.8: membrane filters, Ø 47 mm, 0.8 µm, pack of 100 pcs.
- LT/VP-8618/K: vacuum pump

Accessories for ASTM

- LAB-101-922/T: oil test tube, h 600 mm, with air delivery tube made in glass
- LAB-101-922/C: cork stopper with hole for air tube pack of 10 pcs.

Accessories for LT/OX-192000/L-M

- LAB-100-371/50: silicone oil can of 25 litres

Accessories for ASTM D4310

- LAB-2460-250: vacuum pump
- LT/DO-248000/F/50S: drying oven
- LAB-101-921: oxidation cell
- LAB-101-922: wire catalyst copper/steel 1.63 / 1.59 mm Ø, 3 m, pack of 5
- LAB-101-923: thermometer bracket
- LAB-101-924/50: syringe luer-lock 50 ml
- LAB-101-927: wire coiling mandrel
- LAB-101-928: reducer manometer for O₂,

primary 0-250 bar, reducer 0-1 bar

- LAB-101-929: reducer manometer for air, primary 0-250 bar, reducer 0-1 bar, direct connect to traditional vessel
- LAB-101-929/I: oil level indicator
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100
- LAB-100-371/50: silicone oil, can of 25 litres
- T-AS40C: thermometer ASTM 40 - IP 70C
- T-0943: thermometer special for cell, 80° + 100°C, div. 0.1°, immersion 76 mm, L = 250 mm

Spare Parts for ASTM D2274

(art. LT/OX-192000/M - liquid bath)

- LAB-192-001: main switch
- LAB-192-040: static relay
- LAB-192-2000W: heaters
- LAB-192-230: warning lamp
- LAB-192-200-I: 3 wire PT100 bath
- LAB-192-022K: digital controller
- LAB-192-023F: relay 2 contacts
- LAB-192-024P: safety thermostat
- LAB-192-025G: level sensor
- LAB-192-020T: motor stirrer



Oxidation Stability of Gasoline and Aviation Fuels



ASTM D525
ASTM D873
DIN 51780
DIN 51799
IP 40
IP 138
ISO 7536

ASTM D525 - IP 40 - DIN 51780 - ISO 7536
Oxidation Stability of Gasoline
(Induction Period Method)

This test method covers the determination of the stability of gasoline in finished form only, under accelerated oxidation conditions.

ASTM D873 - IP 138 - DIN 51799
Oxidation Stability of Aviation Fuels
(Potential Residue Method)

This test method covers the determination of the tendency of aviation reciprocating, turbine, and jet engine fuels to form gum and deposits under accelerated ageing conditions.

Art. LT/OS-201000-2/M Oxidation Stability Bath (2 places) ASTM D525

- Completely made in stainless steel
- About 30 litres capacity
- Heated by electric stainless steel heater controlled by a thermoregulator
- Cover serves as condenser with connections for water circulation
- Temperature range: ambient to 100°C

Art. LT/OS-201000-4/M Oxidation Stability Bath (4 places)

- Completely made in stainless steel
- About 40 litres capacity
- Heated by electric stainless steel heater controlled by a thermoregulator
- Cover serves as condenser with connections for water circulation
- Temperature range: ambient to 100°C

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 60 × 60 × 100

Weight

- kg 65

Accessories for ASTM D525 - D873

- LT/OPV-200000: oxidation pressure vessel made in stainless steel, complete with o-ring, stem needle valve, fast connection, 30 bar pressure certificate
- LAB-102-013: junction for O₂
- LAB-102-014: pressure reducer
- LAB-102-001-DPS-RF-30: digital manometer with record functions
- autonomous battery powered instrument with digital display designed to record pressure and temperature over long periods

- application: 0 ... 30 bar
- resolution: 10 mbar
- supply 3,6 V lithium battery, type SL-760
- all standard instruments are calibrated in bar; the pressure can be indicated in the following units: bar, mbar/hPa, kPa, MPa, PSI, kp/cm², (m)H₂O
- supplied with connection cable for data transfer
- LAB-102-001-K104/A: converter cable with Fischer plug
- Fischer plug for connection of RS485A/B (without supply)
- cable length: 1,8 m
- galvanic isolation of communication
- LED for indication of communication activity
- driver software also included in delivery
- LAB-102-001/2: recorder pressure gauge, Bourdon spring, range 0-50 bar, equipped with 2 pens (red+blue), and plexiglass graduated plate (double scale)
- LAB-102-001/3: recorder pressure gauge, Bourdon spring, range 0-50 bar, equipped with 3 pens (red+blue+green), and plexiglass graduated plate (triple scale)
- LAB-102-012: pressure transmitting capillary (for connection to the vessel)
- LAB-102-001/P: spare pen, colour must be specified on PO
- LAB-102-001/S: pack of 500 diagrams sheet
- LAB-100-371/50: silicone oil can of 25 litres

Spare Parts

- LAB-110-012: heater
- LAB-140-002: PT 100 probe
- LAB-160-014: digital thermoregulator
- LAB-150-015: static relay
- LAB-150-022: motor for stirrer



Oxidation Stability of Greases Oxygen Pressure Vessel Method



LT/OS-202000-B/M



LT/OS-202000/M



ASTM D942
DIN 51808
IP 142

Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method
This test method determines resistance of lubricating greases to oxidation when stored statically in an oxygen atmosphere in a sealed system at an elevated temperature under conditions of test.

Art. LT/OS-202000/M Oxidation Cylinder ASTM D942

- Polished stainless steel 18/8
- Capacity 185 ml
- Oxygen inlet stem connected to a cover through a suspension flange of the bath
- O-ring gasket
- Screw-top closure
- Tested to 180 psi
- 1/4" joint for pressure gauge connection

Art. LT/OS-202000-B/M Oxidation Stability Bath for ASTM D942 - IP 142

- Structures in stainless steel inox with double wall insulation
- Cover with two holes for the passage of the bombs
- Heater in stainless steel
- Digital thermoregulator with over-temperature alarm and probe PT100
- Safety thermostat with warning lamp
- Working temperatures: ambient ... 150°C
- Power supply 220 Vac $\pm 10\%$ 50/60 Hz

Accessories

- LT/AB-2470/BCA200: analytical balance
 - capacity: 210 g
 - readability: 0.1 mg
 - linearity: ± 0.2 mg
 - repeatability: ± 0.05 mg
 - response time: 6/10 sec.
 - pan diameter: 80 mm
 - calibration: internal
- LAB-100-371/50: silicone oil, can of 25 litres
- LAB-102-001-DPS-RF-300: digital manometer with record functions
 - autonomous battery powered instrument with digital display designed to record pressure and temperature over long periods
 - application 0 ... 300 psi
 - resolution 1 psi
 - supply 3,6 V lithium battery, type SL-760
 - all standard instruments are calibrated in bar; the pressure can be indicated in the following units: bar, mbar/hPa, kPa, MPa, PSI, kp/cm², (m)H₂O
 - supplied with UBS converter
- LAB-102-013: junction O₂
- LAB-102-021: sample dish in Pyrex®, Ø 41 mm, pack of 5 pcs.
- LAB-102-022: pressure gauge scale 0-160 psi, div. 0.5
- LAB-102-025: dish holder, 5 places in stainless steel
- T-AS22C: thermometer ASTM 22C
- T-AS22F: thermometer ASTM 22F

Spare parts for oxidation pressure vessel

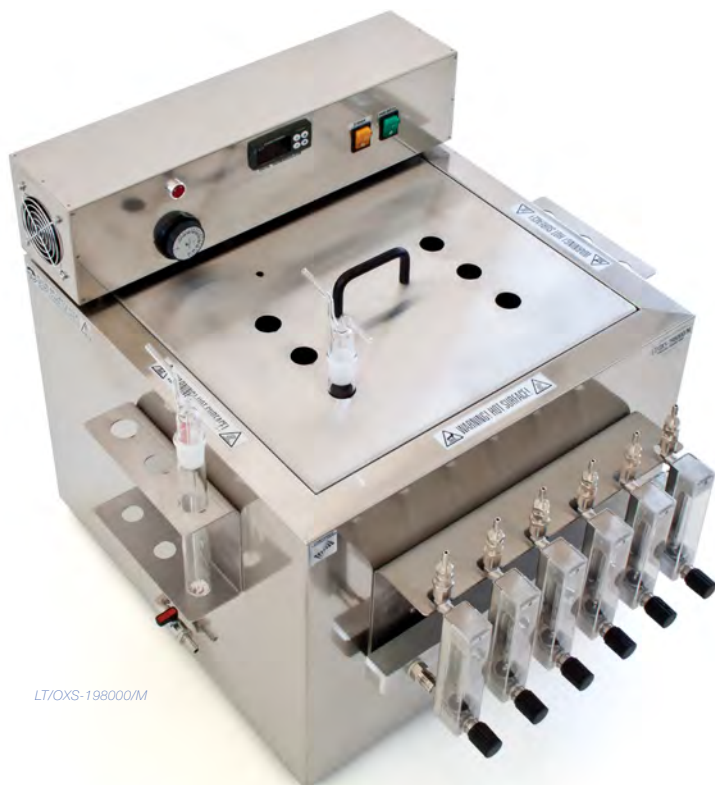
- LAB-102-021: sample dish in Pyrex®, Ø 41 mm, pack of 5

Spare parts for bath

- LAB-110-012: heater
- LAB-160-014: digital thermoregulator
- LAB-140-001: probe PT100
- LAB-150-015: static relay
- LAB-100-371/50: silicone oil can of 25 litres



Oxidation Stability of Mineral Insulating Oil



LT/OXS-198000/M



LT/OXS-198000-D/M

ASTM D2440 IP 280

Oxidation Stability of Mineral Insulating Oil.

This test method determines the resistance of mineral transformer oils to oxidation under prescribed accelerated aging conditions.

Oxidation stability is measured by the propensity of oils to form sludge and acid products during oxidation.

This test method is applicable to new oils, both uninhibited and inhibited, but is not well defined for used or reclaimed oils.

Art. LT/OXS-198000/M Oxidation Stability Bath for ASTM D2440

- Oil bath for the immersion of 6 standard test-tubes held by a double bottom
- Stainless steel structure
- Insulated double wall
- Six independent flowmeters that transfer oxygen at a 1 l/h rate
- Oil thermostatics is controlled by a digital thermoregulator PID with over-temperature alarm and probe PT100A
- Heavy duty motor stirrer
- Outlet system
- Complete of glassware

Art. LT/OXS-198000-D/M Oxidation Stability Apparatus "Dry Bath" for ASTM D2440, 6/8 test positions available

- Stainless steel structure and aluminium block with holes for the accommodation of the glass tubes
- Digital thermoregulator PID with over-temperature alarm and probe PT100A
- Collector with 6/8 flowmeters 1 L/h O₂ fitted with pin valves
- Glassware are included (one set of Oil Receptacle and Head for each test position)

Accessories

- LT/SP-302-SA: air pump
- LAB-100-332: digital stopwatch
- LAB-100-371/50: silicone oil, can of 25 litres
- LAB-102-501: drying tower
- LAB-101-922/CU10: catalyst copper coil ext Ø 16 mm, 50 mm height, pack of 10 pcs.
- LAB-101-980: glassware
- LAB-101-987/D: digital soap bubble flowmeter
- T-AS41C: thermometer ASTM 41C

Accessories for IP 280

- LAB-101-980: glassware
- LAB-101-991: membrane filter 5 µm Ø 47 mm
- LAB-101-992: evaporating dish 50 ml
- LAB-101-993: filtration apparatus 1 lt
- LAB-101-132/500: conical flask 500 ml with ground glass stopper
- LT/DO-248000/N: natural ventilation oven

Spare Parts

- LAB-101-982: air reducer
- LAB-110-012: heater
- LAB-160-014: digital thermoregulator
- LAB-140-002: probe PT100
- LAB-150-015: static relay



Oxidation Stability RBOT and TFOUT Bath



ASTM D2112
ASTM D2272
ASTM D4742
IP 229

ASTM D2112

Oxidation Stability of Inhibited Mineral Insulating Oil by Pressure Vessel.

This test method is intended as a rapid method for the evaluation of the oxidation stability of new mineral insulating oils containing a synthetic oxidation inhibitor. This test is considered of value in checking the oxidation stability of new mineral insulating oils containing 2,6-ditertiary-butyl para-cresol or 2,6-ditertiary-butyl phenol, or both, in order to control the continuity of this property from shipment to shipment. The applicability of this procedure for use with inhibited insulating oils of more than 12 cSt at 40°C (approximately 65 SUS at 100°F) has not been established.

ASTM D2272

Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel (RBOT).

This test method utilizes an oxygen-pressured vessel to evaluate the oxidation stability of new and in-service turbine oils having the same composition (base stock and additives) in the presence of water and a copper catalyst coil at 150°C.

ASTM D4742 - Oxidation Stability of Gasoline Automotive Engine Oils by Thin-film Oxygen Uptake (TFOUT)

This test method evaluates the oxidation stability of engine oils for gasoline automotive engines. This test, run at 160°C, utilizes a high pressure reactor pressurized with oxygen along with a metal catalyst package, a fuel catalyst, and water in a partial simulation

of the conditions to which an oil may be subjected in a gasoline combustion engine. This test method can be used for engine oils with viscosity in the range from 4 mm²/s (cSt) to 21 mm²/s (cSt) at 100°C, including re-refined oils.

IP 229 - Relative Oxidation Stability by Rotating Bomb of Mineral Turbine Oil (RBOT)

This method covers a rapid means for estimating the oxidation stability of new turbine oils having the same composition.

Art. LT/OS-197000/M RBOT and TFOUT Bath

ASTM D2112 - D2272 - D4742

- Bath made in stainless steel for four vessels with capacity about 35 liters where the oxidation cylinders are turned at 100 rpm with a 30° angle according to ASTM specifications
- Bath temperature range from ambient to 199°C ± 0.1°
- Controlled by a digital thermo regulator PID with over-temperature alarm and PT100A
- Each rotating place is independent with motor switching
- Drain tap

Accessories

- LAB-101-971: oxidation pressure vessel RBOT/RPOVT, made in stainless steel, complete with O-ring, stem, needle valve, fast connection
- LAB-101-972: pressure gauge 0-200 psi, div. 5 (for each vessel)

Accessories for ASTM D2112

- LAB-101-974/A: glass container 175 ml
- LAB-101-974/C: glass cover
- LAB-101-922/CU: copper wire catalyst; 3 meters, pack of 5 pcs.
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100 pcs.

- LAB-100-371/50: silicone oil, can of 25 litres
- T-AS96C: thermometer ASTM 96C

Accessories for ASTM D2272

- LAB-101-974/A: glass container 175 ml
- LAB-101-974/B: cover in Teflon®
- LAB-101-974/D: spring made in stainless steel as per ASTM D2272
- LAB-101-922/CU: copper wire catalyst 3 meters, pack of 5 pcs.
- LAB-101-441/P: silicon carbide paper 100 grit, pack of 100 pcs.
- T-IP37C: thermometer IP 37C

Accessories for ASTM D4742

- LAB-101-978/A: glass container
- LAB-101-978/B: cover in Teflon®
- LAB-101-978/D: spring made in stainless steel as per ASTM D4742
- LAB-101-978/E: aluminum insert made of 2024
- T-AS102C: thermometer ASTM 102C

Alternative Pressure Gauge

- LAB-102-001-DPS-RF: digital manometers with record function
 - Autonomous battery powered instrument with digital display designed to record pressure and temperature over long periods.
 - High measuring accuracy, resolution and robustness
 - High data security due to the use of a non-volatile memory
 - Display of the actual pressure and the record status
 - Recording of the pressure and temperature
 - Connectable to a Data software for PC via USB
 - Pressure connection with G1/4" thread (other threads on demand)

Optional Accessories

- LT/WM-227200: electric winding mandrel for copper wire catalyst coiling, mounted on solid base with possibility to fix to bench, 220Vac 50/60 Hz



Penetration of Bituminous Material, Grease, Petrolatum, Waxes, Gel



ASTM D5
ASTM D217
ASTM D937
ASTM D1321
ASTM D1403
ASTM D1831
ASTM D2884
DIN 51579
DIN 51580
DIN 51804
DIN 52010
IP 49
IP 50
IP 179
IP 310
IP 376
ISO 2137

ASTM D5, IP 49, DIN 52010

Penetration of bituminous material.

For determination of the penetration of semi-solid and solid bituminous materials.

ASTM D217, ASTM D1403, IP 50, IP 310, DIN 51804, ISO 2137

Cone penetration of lubricating grease.

Cover four procedures for measuring the consistency of lubricating greases by the penetration of a cone of specified dimensions, mass and finish.

ASTM D937, IP 179, DIN 51580, ISO 2137

Cone penetration of petrolatum.

Covers measuring with a penetrometer the penetration of petrolatum as an empirical measure of consistency.

ASTM D1321, IP 376, DIN 51579

Needle penetration of petroleum waxes.

Covers the empirical estimation of the consistency of waxes derived from petroleum by measurement of the extent of penetration of a standard needle. This test method is applicable to waxes having a penetration of not greater than 250.

ASTM D1831

Roll stability of lubricating grease.

Covers determination of the changes in the consistency, as measurably cone penetration, of lubricating greases when worked in the roll stability test apparatus.

ASTM D2884 - Yield stress of heterogeneous propellants by cone penetration method.

Covers determination of the yield stress of heterogeneous propellants, both of the gel and emulsion types, containing from 0 to 70% solid additives.

Art. LT/P-65000/M

Precision penetrometer

ASTM D5, D217, D937, D1321, D1403, D1831, D2884

- Metallic base with inset spirit level and adjustable feet
- Stainless steel column supporting a calibrated dial with 360 divisions corresponding to 1/10 of mm and release button with manual halting function
- Micrometric regulation
- 47.5 gr plunger in stainless steel
- Check light

Art. LT/P-66000/M

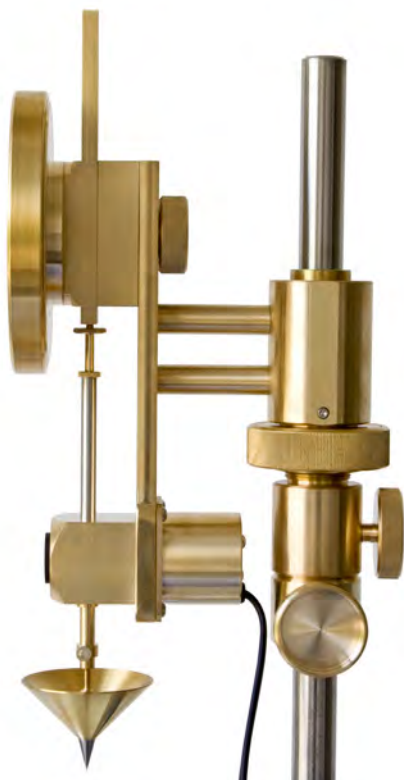
Semiautomatic penetrometer

ASTM D5, D217, D937, D1321, D1403, D1831, D2884

- Metallic base with inset spirit level and adjustable feet
- Plate painted with epoxy products that works as a control box with precision digital timer
- Stainless steel column supporting a calibrated dial with 360 divisions corresponding to 1/10 of mm and release button controlled by a low voltage solenoid, controlled on its turn by a timer
- 47.5 gr plunger in stainless steel
- Micrometric regulation of movements with a check light



Penetration of Bituminous Material, Grease, Petrolatum, Waxes, Gel



Accessories

- LAB-100-661/50: plunger weight 50 g
- LAB-100-661/100: plunger weight 100 g

Spare Parts

- LAB-100-661/47: plunger weight 47.5 gr
- LAB-150-038: low voltage solenoid
- LAB-150-037: push button
- LAB-150-080: digital timer

Optional Accessories

- T-AS17C: thermometer ASTM 17C
- T-AS17C/C: thermometer ASTM 17C with calibration certificate DKD
- T-AS63C: thermometer ASTM 63C
- T-AS63C/C: thermometer ASTM 63C with calibration certificate DKD
- T-AS64C: thermometer ASTM 64C
- T-AS64C/C: thermometer ASTM 64C with calibration certificate DKD

Accessories for ASTM D5, IP 49, EN 1426

- LAB-100-662: penetration needle ASTM D5, IP 49, 2.5 g, pack of 5
- LAB-100-1426/20: reduction ring for reduce sample volume, Ø ext. 53 mm, Ø int. 36 mm, 20 mm height, for EN 1426
- LAB-100-1426/30: reduction ring for reduce sample volume, Ø ext. 53 mm, Ø int. 36 mm, 30 mm height, for EN 1426
- LAB-100-666/B: sample container 55 × 35 mm, made in brass, pack of 5 pcs.
- LAB-100-666/C: sample container 55 × 45 mm, made in brass, pack of 5 pcs.
- LAB-100-666/E: sample container 70 × 45 mm, for bitumen, penetrations between 200 and 350, made in brass, pack of 5 pcs.
- LAB-100-666/G: sample container 70 × 60 mm, for bitumen, penetrations between 350 and 500, made in brass, pack of 5 pcs.

Accessories ASTM D217:

- LAB-100-664: optional penetration cone ASTM D217, Ø 65 mm body of brass, stainless steel tip
- LAB-100-664/SS: optional penetration cone ASTM D217, Ø 65 mm, body and tip of stainless steel, for European Pharmacopoeia
- LAB-100-665: optional penetration cone ASTM D217, Ø 69 mm, body and tip of stainless steel
- LAB-100-666/I: sample container 76.5 × 63.5 mm, made in brass, pack of 3 pcs.
- LAB-100-666/I-ring: external ring for grease restraint/recovery, Ø 203 mm

Accessories for ASTM D937

- LAB-100-664: optional penetration cone ASTM D217, Ø 65 mm body of brass, stainless steel tip
- LAB-100-666/H: sample container 100 × 65 mm, made in steel with cover, pack of 3 pcs.

Accessories for ASTM D1321

- LAB-100-663: needle ASTM D1321, 2.5 g, stainless steel
- LAB-100-666/F: sample container wax test cylinder 25 × 32 mm, pack of 2
- LAB-100-666/BC: base plate in brass 63.5 × 38 mm, pack of 2

Accessories for ASTM D1403 – D1831

- LAB-100-711: penetration cone ½ ASTM D1403 IP 310 22.5g, body of brass, stainless steel tip
- LAB-100-712: slider ½ - 15g
- LAB-100-713: sample container ½ 38 × 32 mm pack of 3
- LAB-100-715: penetration cone ¼ ASTM D1403, IP 310, 1.20 gr, body Plexiglas®, stainless steel tip

- LAB-100-716: Plexiglas® slider ¼ 8.18 gr
- LAB-100-717: sample container ¼ 19 × 11.5 mm pack of 3

Accessories for ASTM D2884

- LAB-100-719: propellant cone 15 gr, Ø 65 mm, body in magnesium, stainless steel tip
- LAB-100-661/47: plunger 47.5 gr
- LAB-100-666/I: sample container 76.5 × 63.5 mm, made in brass, pack of 3 pcs.

Optional Accessories

- LT/CB-40800/M-10: cryostatic bath (8 litres) for temperatures up to -10°C
 - professional cryostatic baths ideal for all thermostatic application
 - outer body in steel coated in epoxy anti-acid paint
 - double wall heat insulation
 - internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning
 - digital display P.I.D. thermostat
 - temperature range from -10°C to +99,9°C accuracy to ±0,5°C to +37°C (BC)
 - display precision ±0,1°C
 - exit RS 485
 - safety thermostat
 - circulating pump: 1 mt prevalence
 - power supply 230 V - 50 Hz
 - built according to C.E.I. normatives (66-5)
 - 2 class, DIN 12880
 - capacity: 8 litres
- LAB-100-660/A: transfer dish
- LAB-100-332: digital stopwatch



Ash Determination



ASTM D482 - ASTM D874 - ASTM D4422
IP 4 - IP 163
ISO 3987 - ISO 6245

ASTM D482 - IP 4 - ISO 6245 Ash from Petroleum Products.

This test method covers the determination of ash in the range 0.001 - 0.180 mass %, from distillate and residual fuels, gas turbine fuels, crude oils, lubricating oils, waxes, and other petroleum products, in which any ash-forming materials present are normally considered to be undesirable impurities or contaminants. The test method is limited to petroleum products which are free from added ash-forming additives, including certain phosphorus compounds.

ASTM D874 - IP 163 - ISO 3987 Sulfated Ash from Lubricating Oils and Additives.

This test method covers the determination of the sulfated ash from unused lubricating oils containing additives and from additive concentrates used in compounding. These additives usually contain one or more of the following metals: barium, calcium, magnesium, zinc, potassium, sodium, and tin. The elements sulfur, phosphorus, and chlorine can also be present in combined form. Application of this test method to sulfated ash levels below 0.02 mass% is restricted to oils containing ashless additives. The lower limit of the method is 0.005 mass% sulfated ash.

ASTM D4422

Ash in Analysis of Petroleum Coke.

This test method covers the determination of the ash content of petroleum coke.

Art. LT/MF-272000/M Art. LT/MF-273000/M Ash Determination ASTM D482 D874 D4422

- Insulation heat made in ceramics fibre in order to get a speed heating with a limited energetic consumption
 - Heating muffle unthreaded from the back, in an only cast of refractory cordieletic material to provide for thermal jolts
 - Resistors in Kanthal screened
 - Lateral opening door with pressure wedge and with a stop device for electric feeding when it opens, allowing the worker, during the loading and unloading of the muffle, to act with the utmost safety avoiding the contact with the burning part
 - Natural draught posterior exhaust of the smokes
 - Control panel is positioned on the furnace bottom containing a digital visualized thermoregulator and safety switch for system protection
- Art. LT/MF-272000/M
• Max temperature 1100°C
- Art. LT/MF-273000/M
• Max temperature 1200°C

Power Supply Availables

- Single phase tension: 220 Vac / 115 Vac
- Three phase tension: 380 Vac
- Frequency: 50 / 60 Hz
- Power: Kw 3.9

Useful inside dimensions in cm

- width 21
- depth 32
- height 14.5

Encumbrance dimensions in cm

- width 50
- depth 65
- height 65

Accessories for ASTM D482 - D874

- LT/B-2470/BCA200: analytical balance
 - Capacity: 210 g
 - Readability: 0.1 mg
 - Linearity: ± 0.2 mg
 - Repeatability: ± 0.05 mg
 - Response time: 6/10 sec.
 - Pan diameter: 80 mm
 - Calibration: Internal
- LAB-102-722: crucible made in porcelain, 100 ml, pack of 5
- LAB-102-723: crucible made in porcelain, 150 ml, pack of 5
- LAB-580-0016: gloves heat resistant
- LAB-102-421/T: tongs
- LAB-102-275: dessicator made in glass, \varnothing 300 mm with tap plate made in porcelain

Accessories for ASTM D4422

- LT/B-2470/ BC 200: analytical balance
- LT/DO-248000/N50: drying oven
- LAB-102-724: crucible made in porcelain, 30 ml, pack of 5



Asphaltenes Extraction



ASTM D6560
DIN 51595
IP 143

Determination of Asphaltenes (Heptane Insolubles) in Crude Petroleum and Petroleum Products.

Covers a procedure for the determination of the heptane insoluble asphaltene content of gas oil, diesel fuel, residual fuel oils, lubricating oil, bitumen, and crude petroleum that has been topped to an oil temperature of 260°C.

Art. LT/AA-114000/M Determination Asphaltenes Apparatus ASTM D6560

- Heating plate with temperature regulation and magnetic stirring, 230 Vac / 50-60 Hz, with support rod and clamp
- Condenser
- Reflux extractor
- Filter funnel
- Evaporating vessel
- Forceps for manage the filters
- Conical flask, to be ordered separately

Conical Flasks

- LAB-101-132/1000:
Erlenmeyer Flask 1000 ml
complete of stopper
- LAB-101-132/500
Erlenmeyer Flask 500 ml
complete of stopper
- LAB-101-132/250
Erlenmeyer Flask 250 ml
complete of stopper
- LAB-101-132/150
Erlenmeyer Flask 150 ml
complete of stopper
- LAB-101-132/100
Erlenmeyer Flask 100 ml
complete of stopper

Accessories

- LAB-100-555/50: graduated cylinder capacity 50 ml
- LAB-100-555/100: graduated cylinder capacity 100 ml
- LAB-103-776: filter papers, grade 42, Ø 110 mm, pack of 100 pcs.

Optional Accessories

- LAB-102-275: dessicator 300 mm
- LT/AB-200/M: analytical balance 200 gr

Spare Parts

- LAB-101-134: condenser
- LAB-101-135: reflux extractor
- LAB-101-136: glass stoppers
- LAB-101-137: magnetic bars
- LAB-101-138: evaporating vessel



ASTM D189
ASTM D2416
DIN 51551
IP 13
ISO 6615

ASTM D189 - DIN 51551 -
IP 13 - ISO 6615

Conradson Carbon Residues of Petroleum Products

This test method covers the determination of the amount of carbon residue left after evaporation and pyrolysis of an oil, and is intended to provide some indication of relative coke-forming propensities.

ASTM D2416

Coking Value of Tar and Pitch

This test method covers the determination of the coking value of tar and pitch having an ash content not over 0.5 %.

Art. LT/CCR-96000/M

Conradson Carbon Residues Apparatus ASTM D189

- LPG-heated by Meker lamp fitted with safety valve
- Insulating ring block
- Metal tripod holder with Nichrome triangle
- Stainless steel chimney
- Inner porcelain crucible
- Middle iron crucible fitted with Skidmore lid
- External iron crucible fitted with lid

Art. LT/CCV-97000/M

Conradson Coking Value Apparatus ASTM D2416

- Vertical electric furnace
- Insulating ring block
- Metal tripod holder with nichrome triangle
- Stainless steel chimney
- Inner porcelain crucible
- Middle iron crucible fitted with Skidmore lid
- External iron crucible fitted with lid

Accessories

- LT/B-2470/ BC150: balance

Spare Parts

- LAB-100-961: inner porcelain crucible
- LAB-100-962: middle iron crucible
- LAB-100-963: external iron crucible
- LAB-100-964: Skidmore
- LAB-100-966: Nichrome triangle
- LAB-100-967: cover for external crucible



FIA – Fluorescent Indicator Adsorption



LT/FA-225000-S/M



LT/FA-224000-S/M

ASTM D1319
EN 10 (obs.)
FTM 791-3703
IP 156
JIS K 2536
ISO 3837
NF M07-024

ASTM D1319 - IP 156 - Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption.

This test method covers the determination of hydrocarbon types over the concentration ranges from 5 to 99 volume % aromatics, 0.3 to 55 volume % olefins, and 1 to 95 volume % saturates in petroleum fractions that distill below 315°C.

Art. LT/FA-225000-S/M Hydrocarbons in Liquid Petroleum Products Fluorescent Indicator Adsorption FIA Method – ASTM D1319

- Flat support made in black material equipped with spring connections that block two columns, standard or precision true bore
- 2 spherical joint
- 2 linear rulers with sliding pointers
- 2 socket places fitted with a reducer and manometer for controlling the nitrogen pumped into the columns
- 1 stainless steel lamp holder with 365 nm UV light source

Art. LT/FA-224000-S/M Hydrocarbons in Liquid Petroleum Products Fluorescent Indicator Adsorption FIA Method – ASTM D1319

- Flat support made in black material equipped with spring connections that block two columns, standard or precision true bore
- 4 spherical joint
- 4 linear rulers with sliding pointers
- 4 socket places fitted with a reducer and manometer for controlling the nitrogen pumped into the columns
- 2 stainless steel lamp holder with 365 nm UV light source equipped with main switch

Accessories

- LAB-102-220: standard column, 1 pcs.
- LAB-102-221: analyser 1.6 × 1200 mm for standard columns, pack of 25 pcs.
- LAB-102-230: Precision True Bore Column, 1 pcs.
- LAB-102-231: tip of 30 mm for Precision True Bore Column, 1 pcs.
- LAB-102-241: vibrator unit portable
- LAB-102-242: syringe 1 ml capacity, div. 0.01 ml, stainless steel needle L = 102 mm
- LAB-102-251/A: stainless steel needle L = 102 mm, pack of 6
- LAB-102-251/B: silica gel 923, degree 923, 100-200 mesh, pack of 1 kg
- LAB-102-252: fluorescent Dyed Gel, pack of 40 g
- LAB-102-256: cleaning capillary

Spare Parts

- LAB-102-254: UV light source
- LAB-102-222: spherical joint clamps
- LAB-102-255: measuring scale, 2 pcs.



Lead, Acid and Salt Content



ASTM D2547 (obs.)
IP 77 - IP 182 - IP 248
ISO 2083

ASTM D2547 (obs.) - IP 248 - ISO 2083
Lead in Gasoline Volumetric-Chromate
Method.

Covers the volumetric determination of the total lead content of gasoline and other volatile distilled blended with lead alkyls within the concentration range of 0.04 to 1.1 gr of lead/litre.

IP 77

Determination of Salt Content
by Extraction and Volumetric Titration.

This method is intended for the determination of total halide concentration of 0.002 to 0.02% wt, in crude petroleum, topped crude, residual cracking stock, and fuel oil.

It may also be applied to the estimation of seawater contamination of used turbine oil and of marine diesel fuel.

IP 182

Acidity (Inorganic) of Petroleum Products.

This method is intended to provide a measure of the inorganic (strong) acid content of used and unused lubricating oils, fuel oils, and petrolatums.

Misleading results may be obtained with oils containing additives.

Art. LT/EA-244000/M

Extraction Apparatus - ASTM D2547

- Light and resistant assembled structure painted with anti-epoxidic agent
- Heat transparent protection in plastic material
- Dual extractor apparatus for the determination of lead, acid and salt content
- Two independent sets of glassware including adjustable clamp and springs for glassware
- Controlled by two independent electronic regulators with relevant switch for work independently

Spare Parts

- LAB-112-441: heater
- LAB-102-442: boiling tank 500 ml
- LAB-102-443: reflux condenser
- LAB-102-444: graduated funnel
- LAB-102-445: beaker 600 ml
- LAB-150-110: electronic regulator



Ramsbottom



ASTM D524
IP 14
ISO 4262

Ramsbottom Carbon Residue of Petroleum Products.

This test method covers the determination of the amount of carbon residue left after evaporation and pyrolysis of an oil, and is intended to provide some indication of relative coke-forming propensity.

Art. LT/RCR-98000/M

Ramsbottom ASTM D524

- Heating block equipped with 5 wells
- Stainless steel external structure
- Heating group controlled by a digital thermoregulator PID with over-temperature alarm and thermocouple K
- Control stainless steel crucible connected to thermocouple
- Reading is provided by a digital thermometer
- Hollow space between the walls is fitted with a high efficiency insulator

Accessories

- LAB-100-981: coke bulb borosilicate glass, pack of 10
- LAB-100-982: luer-lock syringe 10 ml with needle
- LAB-100-983: tongs for removing coke bulb from the block bath
- LAB-100-984: filling rack for 5 coking bulbs

Spare Parts

- LAB-100-985: control bulb
- LAB-140-003: thermocouple for furnace
- LAB-140-003/CR: thermocouple for control bulb

Optional Accessories

- LT/B-2470/BCA200: analytical balance
 - capacity: 210 g
 - readability: 0.1 mg
 - linearity: ± 0.2 mg
 - repeatability: ± 0.05 mg
 - response time: 6/10 sec.
 - pan diameter: 80 mm
 - calibration: internal



Smoke Point



ASTM D1322
IP 57

Smoke Point of Kerosine and Aviation Turbine Fuel.

This test method covers a procedure
for determination of the smoke point
of kerosine and aviation turbine fuel.

Art. LT/SP-253000/M Smoke Point ASTM D1322

- Brass lamp painted in black
- Millimetric white scale on a black background
- Window with mobile glass
- Brass candle with oil tank and cotton wick 180 mm long
- Micrometric setting

Accessories

- LAB-102-531: cotton wick, pack of 50 pcs.

Spare Parts

- LAB-102-532: candle with oil tank
- LAB-102-533: concave glass
- LAB-102-534: brass lamp
- LAB-102-535: millimetric scale



Sulfonation Number



LT/DB-428005/M

LAB-101-201

LAB-101-228 -230 -231

ASTM D1019 (obs.)
IP 145 (obs.)
ISO 3840

Olefinic Plus Aromatic Hydrocarbons in Petroleum Distillates

This method covers the determination of olefinic plus aromatic hydrocarbons in gasolines, naphthas, kerosenes and other petroleum distillates that are substantially free from butanes and that have a 90% not over 600 F.

Art. LT/SA-120000/M Sulfonation Number Apparatus ASTM D1019, composed by:

- LT/CF-122000-R/M: centrifuge
- LT/DB-428005/M: 4 places shaking machine
- LAB-101-228: 4 standard sulfonation flask 100 ml graduated to 0.2 ml
- LAB-101-235: 4 buckets
- LAB-101-234: rubber pads
- LAB-101-201: 4 ice water jar

Accessories

- LT/B-2470/BC150: balance
- LT/CB-40800/M-10: cryostat up to -10°C
- LAB-101-230: precision sulfonation flask 10 ml, pack of 4
- LAB-101-231: precision sulfonation flask 5 ml, pack of 4

Spare Parts

- LAB-101-234: rubber pad, pack of 4
- LAB-101-228: standard sulfonation flask, pack of 4
- LAB-101-230: precision sulfonation flask 10 ml, pack of 4
- LAB-101-231: precision sulfonation flask 5 ml, pack of 4
- LAB-101-201: ice water jar, pack of 4



Humidity Cabinet



ASTM D 1748

Rust Protection by Metal Preservatives in the Humidity Cabinet.

This test method is used for evaluating the rust-preventive properties of metal preservatives under conditions of high humidity.

Art. LT/HC-250000/M

Humidity Cabinet - ASTM D 1748

- Double wall thermostatic cabinet made of 18/8 stainless steel
- Hinged cover consisting of two layers of desized cotton cloth mounted on an aluminium frame
- Desized cotton cloth conforming to military specification MIL C-5646F
- Water level regulating system for automatic adjustment of the water level consisting of one 20 litres carboy, 2000 ml Erlenmeyer flask, glass and rubber tubing
- Low-level water device
- Air supply and metering system:
 - air filter
 - needle valve
 - rotameter
 - pressure gauge
 - pressure regulator
 - filtering trap and tubing
- Tank equipped with draining tap
- Electric heating with 2 armoured stainless steel immersion heaters
- Lin-Tech operating software Lab-Link running in Windows® ambient:
 - TFT/LCD 8"
 - resolution 800 × 640 and 16.2 M colours
 - USB Port
 - storage capacity for more than 60'000 analysis
- Temperature controlled by PID with over-temperature alarm and temperature sensor with provision for calibration

- Air flow rate automatically monitored
- Humidity sensor
- Rotating stage at 1/3 rpm geared by and electric motor for the suspension of 33 steel test panels by means of the suspension hooks
- Circular drip pan mounted on the rotating stage

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 80 × 80 × 100

Weight

- kg 60

Accessories

- LAB-102-502: steel test panel
- LAB-102-504: dummy panel made of PMMA
- LAB-102-507/A: aluminium oxide cloth 240 grit, pack of 100
- LAB-102-508: silica sand, pack of 1 kg
- LAB-102-509: PH paper

Spare Parts

- LAB-102-515: desized cotton cloth
- LAB-102-510: air diffuser stones not certified
- LAB-102-503: suspension hooks
- LAB-110-020: heater
- LAB-140-002: PT100 probe



Rust-preventing Characteristics



LT/RP-194000-6/M

ASTM D665 - D3603 - D5534
DIN 51585
IP 135
ISO 7120

ASTM D665 - IP 135
[Rust-preventing Characteristics of Inhibited Mineral Oil in the Presence of Water](#)

This test method is used to evaluate the ability of inhibited mineral oils, particularly steam-turbine oils, to aid in preventing the rusting of ferrous parts should water become mixed with the oil.

This test method is also used for testing other oils, such as hydraulic oils and circulating oils.

Provision is made in the procedure for testing heavier-than-water fluids.

[ASTM D3603 - Rust-preventing Characteristics of Steam Turbine Oil in the Presence of Water \(Horizontal Disk Method\)](#)
This test method covers the ability of steam-turbine oils to prevent the rusting of horizontal and vertical ferrous surfaces when water becomes mixed with the oil.

[ASTM D5534 - Standard Test Method for Vapour-phase Rust-preventing Characteristics of Hydraulic Fluids](#)
This test method covers the ability of hydraulic fluids to prevent the rusting of steel in the vapour phase over the hydraulic fluid and water.

DIN 51585 - ISO 7120
[Determination of Rust-preventing Characteristics in the Presence of Water in Petroleum Products, Lubricants Oils, Petroleum Oils and Other Fluids](#)
Defines a method for evaluating these products to indicate the effectiveness in

preventing the rusting of ferrous parts should. Water becomes mixed the oil/fluid. The method is for application to inhibited oils including steam turbine oils, circulating oils and hydraulic oils and non-hydrocarbon fluids including fluids denser than water.

Art. LT/RP-194000-4/M
Rust Prevention Test Bath - 4 places
Art. LT/RP-194000-6/M
Rust Prevention Test Bath - 6 places

- Oil bath completely made in stainless steel with a capacity of 30 liters
- Double insulated wall
- 4 or 6 places for the immersion of ASTM containers
- Armoured stainless steel heater
- Temperature is controlled by a digital thermoregulator PID with over-temperature alarm and probe PT100A
- 4 or 6 stainless steel-plate stirrers rotate in their glasses at a constant speed of 1000 rpm adjustable
- Each Stirring position have an independent transmission with solid pulley-bearing-belt system

Power supply
• 220Vac 50/60Hz

Dimensions
• cm 60 × 120 × 80

Weight
• kg 60

- Accessories for ASTM D665**
- LAB-101-172: beaker 400 ml
 - LAB-101-941-AB: beaker cover made in Plexiglas® for method A and B
 - LAB-101-941-C: beaker cover made in PCTFE for method C
 - LAB-101-942: test specimen made in steel

- LAB-101-943: test specimen holder made in Plexiglas®
- LAB-101-944: test specimen holder made in Teflon
- LAB-101-945: t-shaped stirrer for methods A and B, made in stainless steel
- LAB-101-946: T-shaped stirrer for method C, made in stainless steel
- T-AS9C: thermometer ASTM 9C
- T-IP21C: thermometer IP 21C

Accessories for ASTM D3603 - D5534

- LAB-101-172: beaker 400 ml
- LAB-101-955: beaker cover made in Plexiglas® complete with specimen holder
- LAB-101-951: horizontal test specimen made in steel
- LAB-101-952: vertical test specimen made in steel
- LAB-101-952/C: cap for vertical test specimen
- LAB-101-956: test specimen holder made in Teflon
- LAB-101-954: washer
- LAB-101-957: T-shaped stirrer made in stainless steel
- T-AS9C: thermometer ASTM 9C IP 15C
- T-IP21C: thermometer IP 21C

Optional Accessories

- LAB-101-940: grinding and polishing device complete with chuck
- LAB-101-947: aluminium oxide paper 150 grit, pack of 100
- LAB-101-948: aluminium oxide paper 240 grit, pack of 100

Spare Parts

- LAB-110-012: heater
- LAB-140-002: PT100 probe
- LAB-160-014: digital thermoregulator
- LAB-150-015: static relay



Particulate Contamination



LT/PC-155000/M



LT/PC-156000/M

ASTM D5452 IP 440

Particulate Contamination in Aviation Fuels.

This test method covers the gravimetric determination by filtration of particulate contaminant in a sample of aviation turbine fuel delivered to a laboratory.

Art. LT/PC-155000/M

Particulate Contamination ASTM D5452

- Metallic filter funnel supported by a base with support for closing of the tightness membrane
- 100 pcs. of 0.8 micron membrane filters Ø 47 mm made of cellulose acetate
- 5 litres filling container made in stainless steel with stopper for spillage
- Two receiver and security 5 litres cylindrical bottles for vacuum
- Connection bottle to bottle by vacuum tube
- Bottles provided with grounding system
- Metallic structure for apparatus assembling
- Rubber stoppers and tubes for connection

Art. LT/PC-156000/M

Particulate Contamination IP440

- Membrane filter apparatus composed by:
 - 2 x 500 ml filtering flask complete with protective mesh, rubber stoppers and connecting tube
 - grounding system
 - filtration funnel made in stainless steel complete with filter holder also made in stainless steel
 - membrane filters 47 mm Ø, 0.8 µm, pack of 100 pcs.
 - beaker 250 ml tall form
 - beaker 600 ml tall form
 - beaker 1000 ml tall form
 - desiccator with porcelain dish
 - watch glass
 - stainless steel forceps
 - vacuum pump

Accessories

- LAB-106-007: laboratory solvent dispenser
- wash capacity up to 1 litre
- filter container made in stainless steel Ø 25 mm
- filter 0.45 µm, Ø 25 mm, JHWP02500, pack of 100 pcs.
- borosilicated glass flask
- PTFE high quality seal

Spare Parts

- LAB-101-553: membrane filters Ø 47 mm, pack of 100
- LAB-101-556: rubber stopper, pack of 2, and tube for connection
- LAB-101-557: grounding system
- LT/DO-248000/N-20: hot air oven, natural ventilation, 20 liter capacity

Accessories for ASTM D5452

- LT/VP-8618/K: diaphragm vacuum pump
 - 100% oil-free transfer
 - pure transfer, evacuation and compression
 - compatible with vapours and condensation
 - chemically-resistant gases and vapours
 - maintenance-free
 - environmentally friendly
 - delivery 6 l/min
 - ultimate vacuum 100 mbar abs.
 - connectors for tube ID 4 mm
 - power supply: 230 V - 50 Hz / 115 V - 60 Hz
 - weight: kg 1.9
 - dimensions: 164 x 141 x 90 mm
- LT/B-2470/BCA200: analytical balance
 - capacity: 210 g
 - readability: 0.1 mg
 - linearity: ± 0.2 mg
 - repeatability: ± 0.05 mg
 - response time: 6/10 sec.
 - pan diameter: 80 mm
 - calibration: internal
- LAB-100-332: digital stopwatch



Sediment in Crude and Fuel Oils



ASTM D473
DIN 51789
IP 53
ISO 3735

Sediment in Crude and Fuel Oils by Extraction Method.

Covers the determination of sediment in crude oils and fuel oils by extraction with toluene.

The precision applies to a range of sediment levels from 0.01 to 0.40 % mass, although higher levels may be determined.

Art. LT/SE-113000/M

Sediment in Crude and Fuel Oils by Extraction Apparatus - ASTM D473

- 1000 ml Erlenmeyer flask
- Stainless steel basket supporting an extraction thimble of alundum
- Cooling metal coil
- Water cup

Accessories

- LT/HD-1280/S6: heating device unit 600 W
- LT/B-2470/ BC150: balance
 - capacity: 210 g
 - readability: 0.1 mg
 - linearity: ± 0.2 mg
 - repeatability: ± 0.05 mg
 - response time: 6/10 sec.
 - pan diameter: 80 mm
 - calibration: internal

Spare Parts

- LAB-101-131: stainless steel basket
- LAB-101-132/1000: Erlenmeyer flask 1000 ml
- LAB-101-133: extraction thimble of alundum, pack of 3
- LAB-101-134: water cup
- LAB-130-009: cooling coil



Total Sediment Tester



ASTM D4870
IP 375 - IP 390 (proc.A)
ISO 10307

Determination of Total Sediment in Residual Fuels

This test method covers the determination of total sediment up to 0.40 % m/m for distillate fuel oils containing residual components and to 0.50 % m/m in residual fuel oils having a maximum viscosity of 55 cSt (mm²/s) at 100°C.

Art. LT/TST-115200/M Total Sediment Tester - ASTM D4870

- Structure in stainless steel
- Two filtration groups
- Throttle valve
- Heating or cooling coil
- Pipes for steam
- Water and vacuum
- 500 ml flask fitted with protection
- Vacuum manometer

Accessories

- LAB-101-154: steam generator
 - water lever indicator
 - pressure indicator
 - solenoid steam flow valve with adjuster knob
 - safety water tap
 - double power switch
 - boiler: inox 3,5 litres
 - autonomy 4 hours
 - steam pressure 2,5 bar
 - heating power 1 KW
 - power supply 230 V - 50 Hz / 115 V / 60 Hz
- LT/VP-8618/K: diaphragm vacuum pumps
 - 100% oil-free transfer
 - pure transfer, evacuation and compression
 - compatible with vapours and condensation
 - chemically-resistant gases and vapours
 - maintenance-free
 - environmentally friendly
 - delivery 6 l/min
 - ultimate vacuum 100 mbar abs.100
 - connectors for tube ID 4 mm
 - power supply 230 V - 50 Hz / 115 V - 60 Hz
 - weight Kg 1.9
 - dimensions l 164 × h 141 × w 90 mm
- T-4870: thermometer scale +95°C ... +105°C
- LAB-101-153: filter GFA, pack of 100 pcs.
- LAB-101-095: glass stirring rod 130 mm length × 4 mm Ø, pack of 3 pcs.

Accessories only for IP 390 - ISO 10307

- LAB-101-152/BIS: ageing bath with 6 air wells
- LAB-101-153/BIS: conical flask, pack of 10 pcs.
- LAB-101-154/BIS: air condenser, made in glass, pack of 10 pcs.
- LAB -100-371: silicone oil kinematic viscosity 50mm²/s at 25°C, can of 25 litres
- T-AS22C: thermometer ASTM 22 C - IP 24 C

Spare Parts

- LAB-101-153: filter GFA, pack of 100 pcs.
- LAB-101-158: sintered disk, pack of 2 pcs.
- LAB-101-156: flask, 500 ml, pack of 2 pcs.

Spare Parts only for IP 390 - ISO 10307

- LAB-101-154/BIS: air condenser, made in glass, pack of 10 pcs.



Sulfur in Petroleum Oils Quartz-tube Method



ASTM D1551 (obs.)
DIN 51768
IP 63

Sulfur In Petroleum Oils (Quartz-tube Method)

Determines the sulfur content within the range 0.1 to 5% by weight in petroleum oils which cannot be burned completely in a wick lamp.

Art. LT/QT-146000/M Quartz Tube Sulfur Apparatus

- Two-place instrument mounted on a plate painted with epoxy products
- Electric stainless steel furnace with two independent places
- Two digital thermoregulators with thermocouple
- Two scrubbers
- Trap equipped with two inlet cocks for air or oxygen and two outlet cocks for combustion tubes made in transparent quartz
- Tubes provided with tapered connections at the inlet side and spherical connections at the delivery side
- Set of primary and secondary absorbers on support
- Vacuum collector with two regulating valves
- Two flow-off valves
- Two LPG Meeker lamps
- Flame filter mesh for combustion tubes
- Included 20 porcelain boat

Accessories

- LT/VP-8618/K: diaphragm vacuum pump
- 100% oil-free transfer
- pure transfer, evacuation and compression
- compatible with vapours and condensation
- chemically-resistant gases and vapours
- maintenance-free
- environmentally friendly
- delivery 6 l/min
- ultimate vacuum 100 mbar abs.
- connectors for tube ID 4 mm
- power supply: 230V - 50Hz / 115V - 60Hz
- weight: kg 1.9
- dimensions: 164 × 141 × 90 mm
- LAB-101-466: flowmeter

Spare Parts

- LAB-101-461: quartz tube combustion
- LAB-101-462/A: primary absorber glassware
- LAB-101-462/B: secondary absorber glassware
- LAB-101-463: scrubber glass
- LAB-101-464: porcelain boat
- LAB-101-465: glass trap
- LAB-160-014: digital thermoregulator
- LAB-140-003: thermocouple K



Sulfur in Petroleum Products Lamp Method



LT/SL-153000/M



LT/SL-152000/M

ASTM D1266
IP 107

Sulfur in Petroleum Products (Lamp Method).

This test method covers the determination of total sulfur in liquid petroleum products in concentrations from 0.01 to 0.4 mass %. A special sulfate analysis procedure permits the determination of sulfur in concentrations as low as 5 mg/kg.

Art. LT/SL-152000/M

Sulfur Lamp - 6 places - ASTM D1266

- Structure made in plate painted with epoxidic products
- Valve on the vacuum regulator
- Metallic collectors for the vacuum lines
- Gate valves for vacuum and gas
- 6 valves on the vacuum lines
- 6 valves on the burners line
- 1 valve on the chimney line
- 1 flowmeter on the vacuum line

Art. LT/SL-153000/M

Sulfur Lamp - 2 places - ASTM D1266

- Structure made in plate painted with epoxidic products
- Valve on the vacuum regulator
- Metallic collectors for the vacuum lines
- Gate valves for vacuum and gas
- 2 valves on the vacuum lines
- 2 valves on the burners line
- 1 valve on the chimney line
- 1 flowmeter on the vacuum line

Accessories

- LAB-101-492/L: wick for liquid products, pack of 10 m
- LAB-101-492/A: wick for aromatics products, pack of 10 m
- LT/VP-8618/K: pump for vacuum for SL-153000/M
 - vacuum 100 mBar (ABS)
 - flow 6 l/min
 - power supply 230 Vac 50 Hz
 - protection class: IP44
- LT/VP-246000/SA3: pump for vacuum for SL-152000/M
 - vacuum 100 mBar (ABS)
 - flow 20 l/min
 - power supply 230 Vac 50 Hz

Spare Parts

- LAB-101-492: wick for liquid products, pack of 10 m
- LAB-101-493: wick for aromatics, pack of 10 m
- LAB-101-499: chimney
- LAB-101-495: absorbing tube with porous baffle
- LAB-101-496: drop filter
- LAB-101-498/A: flask for liquids products
- LAB-101-498/B: flask for aromatics



Vapour Pressure of Petroleum Products Reid Method



ASTM D323
IP 69
ISO 3007

ASTM D323 - IP 69 - ISO 3007

Vapour Pressure of Petroleum Products (Reid Method)

This test method covers procedures for the determination of vapour pressure of gasoline, volatile crude oil, and other volatile petroleum products. Procedure A is applicable to gasoline and other petroleum products with a vapour pressure of less than 180 kPa (26 psi).

Procedure B may also be applicable to these other materials, but only gasoline was included in the interlaboratory test program to determine the precision of this test method.

Neither procedure is applicable to liquefied petroleum gases or fuels containing oxygenated compounds other than methyl-butyl ether (MTBE).

Procedure C is for materials with a vapour pressure of greater than 180 kPa (26 psi) and procedure D for aviation gasoline with a vapour pressure of approximately 50 kPa (7 psi).

Art. LT/RC-179000-A/M Reid Cylinder - Liquid Chamber One Opening - ASTM D323

- Made in stainless steel
- In one end of the liquid chamber an opening of approximately $\frac{1}{2}$ " shall be provided for coupling with the vapour chamber
- The inner surface of the coupling end shall be sloped to provide complete drainage when inverted
- The other end of the chamber shall be completely closed

Art. LT/RC-179000-B/M Reid Cylinder - Vapour Chamber ASTM D323

- Made in stainless steel
- Lower coupling
- Upper $\frac{1}{2}$ " groove with a $\frac{1}{4}$ " reducing cap for pressure gauge

Art. LT/RC-179000-C/M Reid Cylinder - Liquid Chamber Two Opening

- Made in stainless steel
- In one end of the liquid chamber an opening of approximately $\frac{1}{2}$ " shall be provided for coupling with the vapour chamber
- $\frac{1}{4}$ " pin valve

Accessories

- LT/TB-177000/M: thermostatic bath
- LAB-101-793/1: pressure gauge scale 0-1 bar
- LAB-101-793/2.5: pressure gauge scale 0-2.5 bar
- LAB-101-793/35: pressure gauge double scale as per ASTM D323, 0-35 kPa and 0-5 Psi
- LAB-101-793/100: pressure gauge double scale as per ASTM D323, 0-100 kPa and 0-15 Psi
- LAB-101-793/200: pressure gauge double scale as per ASTM D323, 0-200 kPa and 0-30 Psi
- LAB-101-793/300: pressure gauge double scale as per ASTM D323, 0-300 kPa and 0-45 Psi
- LAB-101-793/400: pressure gauge double scale as per ASTM D323, 0-400 kPa and 0-60 Psi
- LAB-101-793/700: pressure gauge double scale as per ASTM D323, 0-700 kPa and 0-100 Psi
- LAB-100-371/50: silicone oil, can of 25 litres
- T-AS18C: thermometer ASTM 18C
- LAB-102-013: flexible junction for O₂

Spare Parts

- LAB-101-792-A: gasket for chamber, pack of 10
- LAB-101-792-B: gasket for pressure gauge, pack of 10



Brookfield® Original Viscometer



ASTM D789 - ASTM D1084 - ASTM D1638 - ASTM D1824 - ASTM D2196 - ASTM D2669 - ASTM D2849 - ASTM D2983 - ASTM D4016 - ASTM D4287
DIN 53019

Viscosity Range cP (mPa·s)			Speeds		Spring Torque	
Model	Min.	Max.	RPM	Number of increments	Dyne-cm	Milli Newton-m
LVDV-E	1*	2M	.0.3-100	18	673.7	0.0673
RVDV-E	100**	13M	.0.3-100	18	7187.0	0.7187
HADV-E	200**	26M	.0.3-100	18	14374.0	1.4374
HBDV-E	800**	104M	.0.3-100	18	57496.0	5.7496
LVDV-IP	1*	2M	.3-100	18	673.7	0.0673
RVDV-IP	100**	13M	.3-100	18	7187.0	0.7187
HADV-IP	200**	26M	.3-100	18	14374.0	1.4374
HBDV-IP	800**	104M	.3-100	18	57496.0	5.7496
DV2TLV	1*	6M	0.1-200	200	673.7	0.0673
DV2TRV	100**	40M	0.1-200	200	7187.0	0.7187
DV2THA	200**	80M	0.1-200	200	14374.0	1.4374
DV2THB	800**	320M	0.1-200	200	57496.0	5.7496

* 1 cP achieved with UL Adapter accessory. 15 cP on LV with standard spindles.

** Minimum viscosity is achieved with optional RV/HA/HB spindle.

M=1 million, cP=Centipoise, mPa·s=Millipascal-second.

Accessories

- LAB-100-231: beaker - short-shaped, 600 ml
- LAB-100-237: UL adapter - ideal for measuring low viscosity materials, small sample size 16 ml
- LAB-100-232: DIN adapter - DIN 53019 low volumes (16 to 20 ml)
- LAB-100-238: water bath for refrigerating and heating (-20 to +200°C)
- LAB-100-233: small sample adapter low volumes (2 to 16 ml)
- LAB-100-239: vane spindles - for use with paste
- LAB-100-234: spiral adapter, designed for measuring the viscosity of heavy paste
- LAB-100-240: disposable sample chambers, are intended for use with materials that are difficult to clean
- LAB-100-235: jar - double wall, 600 ml
- LAB-100-241: Thermosel™, for elevated temperature testing up to 300°C, for use with hot melts, asphalt, wax, polymers
- LAB-100-236: helipath stand, designed for viscosity consistency measurements of gels pastes

Dimensions

- cm 35 × 35 × 60

Weight

- kg 6



Calibrated Glass Capillary Kinematic Viscometers



1. Cannon-Fenske

Viscometer for transparent liquids according to ASTM - BS - IP standards with calibration certificate at 40°C.

Item code	Size	Approximate constant centistoke/sec.	Kinematic viscosity range centistokes
10003	25	0,002	0,5 - 2
10006	50	0,004	0,8 - 4
10009	75	0,008	1,6 - 8
10012	100	0,015	3 - 15
10015	150	0,035	7 - 35
10018	200	0,1	20 - 100
10021	300	0,25	50 - 250
10024	350	0,5	100 - 500
10027	400	1,2	240 - 1'200
10030	450	2,5	500 - 2'500
10033	500	8	1'600 - 8'000
10036	600	20	4000 - 20'000
10039	650	50	10'000 - 50'000
10042	700	100	20'000 - 100'000

2. Cannon-Fenske

Viscometer for opaque liquids according to ASTM - BS - IP standards with calibration certificate at 40°C.

Item code	Size	Approximate constant centistoke/sec.	Kinematic viscosity range centistokes
10039	25	0,002	0,5 - 2
10042	50	0,004	0,8 - 4
10045	75	0,008	1,6 - 8
10048	100	0,015	3 - 15
10051	150	0,035	7 - 35
10054	200	0,1	20 - 100
10056	250	0,17	35 - 175
10057	300	0,25	50 - 250
10060	350	0,5	100 - 500
10063	400	1,2	240 - 1200
10066	450	2,5	500 - 2500
10069	500	8	1600 - 8000
10072	600	20	4000 - 20000

3. Ubbelohde

Viscometer for transparent liquids according to ASTM - BS - IP standards with calibration certificate at 40°C.

Item code	Size	Approximate constant centistoke/sec.	Kinematic viscosity range centistokes
10075	0	0,001	0,3 - 1
10078	0C	0,003	0,6 - 3
10081	OB	0,005	1 - 5
10084	I	0,01	2 - 10
10087	IC	0,03	6 - 30
10090	IB	0,05	10 - 50
10093	II	0,1	20 - 100
10096	IIC	0,3	60 - 300
10099	IIB	0,5	100 - 500
10102	III	1	200 - 1000
10105	IIIC	3	600 - 3000
10108	IIIB	5	1000 - 5000
10111	IV	10	2000 - 10000
10114	IVC	30	6000 - 30000
10117	IVB	50	10000 - 50000
10120	V	100	20000 - 100000

4. BS / IP / RF

Viscometer U-tube reverse flow for opaque liquids according to BS-IP-ASTM standards with calibration certificate at 40°C.

Item code	Size	Approximate constant centistoke/sec.	Kinematic viscosity range centistokes
10259	1	0,003	0,6 - 3
10262	2	0,01	2 - 10
10265	3	0,03	6 - 30
10268	4	0,01	20 - 100
10271	5	0,3	60 - 300
10274	6	1	200 - 1000
10277	7	3	600 - 3000
10280	8	10	2000 - 10000
10283	9	30	6000 - 30000
10286	10	100	20000 - 100000
10289	11	300	60000 - 300000



B.R.T.A. Viscometer



LT/BV-14000-2/M



IP 72
IP 502
EN 12846
EN 13357

Viscosity Cutback Bitumen.

Measure of the viscosity by determining the time of efflux of 50 ml of a cutback bitumen, at 40°C, through a dedicated orifice.

Art. LT/BV-14000-2/M

Digital B.R.T.A. Viscometer IP 72 2 Place

- Water bath made in stainless steel 18/8, insulated double wall, front opened jacket
- Digital thermoregulator PID with over temperature alarm and PT100 A probe
- Lid with double stainless steel heater
- Motor Stirrer with shaft
- Atmospheric drain with drain cock
- Cooling coil with relevant joints for the connection to an external cooling source
- Calibrated brass oil cup with orifice no.2 included (for each place)

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- cm 45 × 50 × 85

Weight

- kg 25

Accessories

- LAB-100-141: calibrated brass cup with orifice Ø 4
- LAB-100-142: calibrated brass cup with orifice Ø 10
- LAB-100-144: go/not go gauge Ø 4
- LAB-100-145: go/not go gauge Ø 10
- LAB-100-143: receiver made in glass, pack of 5 pcs.
- LAB-100-332: digital stopwatch

Thermometers

- T-IP8C: thermometer IP 8C Redwood Low Range 0 °C ... +45 °C Div. 0.2

Silicon Oil

- LAB-100-371/50: silicon oil viscosity approx. 50 mm² / S @ 25 °C, suitable for working temperatures up to +150 °C, can of 25 litres

Spare Parts:

- LAB-140-002: o-ring small for filling stopper, pack of 3 pcs.
- LAB-100-140: calibrated brass cup with orifice Ø 2
- LAB-100-146: go/not go gauge Ø 2



Engler Viscometer



LT/EV-27000-1/M

ASTM D1665
DIN 51560
IP 212

Engler Specific Viscosity of Tar Products.
Covers the determination of specific viscosity of tars and their fluid products. It does not determine absolute viscosity but is an empirical flow test.

Art. LT/EV-26000/M Conventional Engler Viscometer ASTM D1665

- Brass test cup with stainless steel level-control of capillary flow outcropping
- Lid with Teflon tipped rod for closing the capillary hole
- Hand stirrer
- Bath with stainless steel heater regulated by table electronic regulator

Art. LT/EV-27000-1/M Digital Engler Viscometer ASTM D1665 1 place

- Calibrated brass cup for oils with stainless steel orifice
- Teflon® tipped closing rod
- 18/8 stainless steel water bath
- Lid with stirrer motor
- Cooling coil
- Stainless steel heater
- Digital thermoregulator with over-temperature alarm and PT100 A probe
- Insulated double wall
- Front opened jacket

Art. LT/EV-27000-2/M Digital Engler Viscometer ASTM D1665 2 place

- 2 × calibrated brass cup for oils with stainless steel orifice
- 2 × Teflon tipped closing rod
- 18/8 stainless steel water bath
- Lid with stirrer motor
- Cooling coil
- Stainless steel heater
- Digital thermoregulator with over-temperature alarm and PT 100A probe
- Insulated double wall
- Front opened jacket

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- cm 50 × 50 × 70

Weight

- kg 25

Accessories

- LAB-100-265: glass flask - 50 ml, calibrated at 20°C, pack of 3
- LAB-100-267: Kohlrausch receiving flask 200 ml, pack of 3
- LAB-100-332: digital stopwatch

Thermometers

- T-AS23C: thermometer ASTM 23C
- T-AS24C: thermometer ASTM 24C
- T-AS25C: thermometer ASTM 25C
- T-IP76C: thermometer IP 76C

Spare Parts

- LAB-270-002: o-ring small for filling stopper, pack of 3
- LAB-270-001: o-ring set for oil cup composed by 1 o-ring big and 1 o-ring medium
- LAB-270-003: slider with PTFE tip for open-close the flow



Ford Viscometer



ASTM D1200
ASTM D5125
DIN 53211

Viscosity by Ford cup - ASTM D1200.
Determination of the viscosity of Newtonian
or near Newtonian paints, varnishes,
lacquers and related liquid material.

Art. LT/FV-20000-/M
Ford Viscometer
anodized aluminium cup
with orifice no. 1 - 2 - 3 - 4 - 5

Art. LT/FV-21000/M
Ford Viscometer
anodized aluminium cup
with orifice no. - 2 - 3 - 4 - 5 - 6 - 7 - 8

Art. LT/FV-22000/M
Ford Viscometer
anodized aluminium cup
with orifice no. - 2 - 3 - 4 - 5 - 6 - 8

Dimensions

- cm 25 × 25 × 40

Weight

- kg 2

Accessories

- LAB-100-204: Ford support
- LAB-100-331: analog stopwatch
- LAB-100-332: digital stopwatch

Accessories for ASTM D1200

- LAB-100-205/1: cup with orifice no. 1
- LAB-100-205/2: cup with orifice no. 2
- LAB-100-205/3: cup with orifice no. 3
- LAB-100-205/4: cup with orifice no. 4
- LAB-100-205/5: cup with orifice no. 5

Accessories for DIN 53211

- LAB-100-215/2: cup with orifice no. 2
- LAB-100-215/3: cup with orifice no. 3
- LAB-100-215/4: cup with orifice no. 4
- LAB-100-215/5: cup with orifice no. 5
- LAB-100-215/6: cup with orifice no. 6
- LAB-100-215/7: cup with orifice no. 7
- LAB-100-215/8: cup with orifice no. 8

Accessories for ASTM D5125 - ISO 2431

- LAB-100-225/2: cup with orifice no. 2
- LAB-100-225/3: cup with orifice no. 3
- LAB-100-225/4: cup with orifice no. 4
- LAB-100-225/5: cup with orifice no. 5
- LAB-100-225/6: cup with orifice no. 6
- LAB-100-225/8: cup with orifice no. 8



Low Temperatures Viscometer Bath



LT/VB-47000/M2-SA

ASTM D445
ASTM D2532
ASTM D2983

Viscosity change after standing at low temperature of aircraft turbine lubricants. Covers the determination of the kinematic viscosity of aircraft turbine lubricants at low temperature and the percent change of viscosity after a 3 and a 72h standing period at low temperature.

Art. LT/VB-47000/M-SA Digital viscometer bath for low temperatures - ASTM D2983 Stand Alone

- Liquid bath with heating / cooling coil
- Bath cover with 6 on-line holes
- Light and resistant structure fitted with front squared window and light
- Cooling is controlled by a motor compressor with ecological gas CFC free
- Support for Brookfield head
- Heating is provided by an electric immersion stainless steel heater
- Integrated touch screen panel pc for control bath:
 - TFT/LCD 8"
 - Resolution 1024 x 768 and 256k colours
 - 2 x USB Port
- PID with over temperature alarm and PT100A probe
- LabLink software running in Windows® ambient
- Motor stirrer
- Power supply: 220Vac 50/60Hz
- Cord cable 220 Vac
- User manual
- Temperatures: in °C / °F
- Cooling capacity: from ambient temperature up to -75 °C

Art. LT/VB-47445/M-SA Digital viscometer bath for low temperatures ASTM D2983, D445, D2532 Stand Alone

- Liquid bath with heating / cooling coil
- Bath cover with 5 on-line holes for capillary accommodation and reduction rings for test cell ASTM D2532 / D2932
- Light and resistant structure fitted with front squared window and light
- Cooling is controlled by a motor compressor with ecological gas CFC free
- Support for Brookfield head
- Heating is provided by an electric immersion stainless steel heater
- Integrated touch screen panel pc for control bath:
 - TFT/LCD 8"
 - resolution 1024 x 768 and 256k colours
 - 2 x USB port
- PID with over temperature alarm and PT100A probe
- LabLink software running in Windows® ambient
- Motor stirrer
- Power supply: 220Vac 50/60Hz
- Temperatures in °C / °F
- Cooling capacity: from ambient temperature up to -75 °C

Accessories for ASTM D2532 / D2932

- LAB-100-472: test cells made in glass, pack of 6 pcs.
- LAB-100-473: cell cover made in glass, pack of 6 pcs.
- LAB-100-474: test cells stoppers made in PTFE with hole for spindle introduction, pack of 6 pcs.
- LAB-100-475: spindle clips for hold the spindle during the conditioning time, pack of 6 pcs.

- LAB-100-476: metal forceps for hold stopper, pack of 6 pcs.
- T-AS122C: thermometer ASTM 122C -45...-35°C div. 0.1
- T-AS123C: thermometer ASTM 123C -35...-25°C div. 0.1
- T-AS124C: thermometer ASTM 124C -25...-15°C div. 0.1
- T-AS125C: thermometer ASTM 125C -15...-5°C div. 0.1
- LAB-100-371/C: propylene glycol, Kinematic viscosity ~44mm²/s at 25°C, can of 25 litres, for cooling

Accessories for ASTM D445

- LAB-100- 373 T&O: viscometer holders PTFE for Cannon-Fenske, pack of 5 pcs.
- LAB-100- 374: viscometer holders in metal for Ubbelohde/BS
- LAB-100-371/C: Propylene Glycol – Kinematic viscosity ~44mm²/s at 25°C, can of 25 litres – for cooling
- T-AS72C: thermometer ASTM 72C -19.4...-16.6°C div. 0.05
- T-AS73C: thermometer ASTM 73C -41.4...-38.5°C div. 0.05
- T-AS74C: thermometer ASTM 74C -55.4...-52.6°C div. 0.05

Spare parts

- LAB-100-472: test cells - pack of 12
- LAB-100-473: cells cover
- LAB-100-474: test stoppers
- LAB-140-006: PT100 probe
- LAB-110-012: heater
- LAB-160-015: digital thermoregulator
- LAB-150-015: static relay



Redwood Viscometer



LT/RV-12000/M

IP 70 (obs.)

Redwood Viscosity

No. 1 Determines viscosity of oils not exceeding 2000 seconds at the test temperature.

No. 2 Determines viscosity of oils exceeding 2000 seconds at the test temperature.

Art. LT/RV-12000/M

Digital Redwood Viscometer no. 1 IP 70 (obs.)

- Water bath made in stainless steel 18/8, insulated double wall, front opened jacket
- Lid with stainless steel heater
- Stirrer
- Cooling coil
- Digital thermoregulator PID with over temperature alarm and PT100 A probe
- Calibrated brass oil cup with orifice no. 1
- Fitted with closing-ball-ended

Art. LT/RV-12100/M

Digital Redwood Viscometer no. 1 IP 70 (obs.) - 2 places

Art. LT/RV-12200/M

Digital Redwood Viscometer no. 2 IP 70 (obs.) - 2 places

- Water bath made in stainless steel 18/8, insulated double wall, front opened jacket
- Digital thermoregulator PID with over temperature alarm and PT100 A probe
- Lid with double stainless steel heater
- Motor stirrer with shaft
- Atmospheric drain with drain cock
- Cooling coil with relevant joints for the connection to an external cooling source
- Calibrated brass oil cup

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 50 × 50 × 70

Weight

- kg 25

Accessories

- LAB-100-103: Kohlrausch receiving flask 50 ml, pack of 3
- LAB-100-332: digital stopwatch
- LAB-100-161: filter funnel with stainless steel wire mesh

Thermometers

- T-IP8C: thermometer IP 8C Redwood low range 0 °C ...+45 °C div. 0.2
- T-IP9C: thermometer IP 9C Redwood medium range +40 °C ...+85 °C div. 0.2
- T-IP10C: thermometer IP 10C Redwood high range +76 °C ...+122 °C div. 0.2

Silicon Oil

- LAB-100-371/50: silicon oil - viscosity approx. 50 mm² / S @ 25 °C suitable for working temperatures up to +150 °C - Can of 25 litres

Spare Parts

- LAB-120-001: o-ring set for oil cup composed by 1 o-ring big and 1 o-ring medium
- LAB-120-002: o-ring small for filling stopper, pack of 3
- LAB-120-003: closing ball ended rod



Saybolt Viscometer



LT/SV-18000-2/M



LT/SV-18000-4/M



ASTM D88
ASTM D7496
ASTM E102
IP 55
FTM 791-0304
JIS K 2207

ASTM D88 Saybolt Viscosity

Covers the measurement of viscosities of petroleum products at temperature between 21° and 99°C (70° ÷ 210°F)

ASTM D7496

This test method utilizes the Saybolt Furol viscometer to measure the consistency of emulsified asphalt. It is applicable to all the emulsified asphalts specified in Specifications D977 and D2397.

ASTM E 102 Saybolt Viscosity

Covers the measurement of viscosities of petroleum products at temperature between 121° and 232°C (250° ÷ 450°F)

Art. LT/SV-18000-2/M
Digital Saybolt Viscometer
ASTM D88, ASTM E 102

2 places

Art. LT/SV-18000-4/M
Digital Saybolt Viscometer
ASTM D88, ASTM E 102

4 places

- Water bath made in stainless steel 18/8, insulated double wall, front opened jacket
- Digital thermoregulator PID with over temperature alarm and PT100 A probe
- Lid with stainless steel heater
- Atmospheric drain with drain cock
- Cooling coil with relevant joints for the connection to an external cooling source
- Calibrated brass oil cup (1 cup for each test place included) suitable for stainless steel flowing orifice Universal and Furol, polished and calibrated

Power Supply

- 220 Vac 50/60 Hz

Orifices

- LAB-100-165: Universal orifice with diameter 1.76 mm
- LAB-100-166: Furol orifice with diameter 3.15 mm

Spare Parts

- LAB-180-001: o-ring ASTM D88 set for oil cup composed by 1 o-ring big and 1 o-ring medium
- LAB-180-002: o-ring small for filling stopper, pack of 3
- LAB-180-003: o-ring high temperature set for oil cup composed by 1 o-ring big and 1 o-ring medium

Accessories

- LAB-100-161: filter funnel with stainless steel wire mesh 150
- LAB-100-161/75: spare stainless steel wire mesh 75
- LAB-100-162: Saybolt flask 60 ml, pack of 2
- LAB-100-163: thermometer support
- LAB-100-164: withdrawal tube
- LAB-100-167: movement ring E102
- LAB-100-168: suction pipette
- LAB-100-165/0: orifice wrench compatible for Universal and Furol orifice
- LAB-100-165/C: cup wrench
- LAB-100-371: silicone oil, can of 25 litres
- LAB-100-332: digital stopwatch
- T-AS17C: thermometer ASTM 17C
- T-AS18C: thermometer ASTM 18C
- T-AS19C: thermometer ASTM 19C
- T-AS20C: thermometer ASTM 20C
- T-AS21C: thermometer ASTM 21C
- T-AS22C: thermometer ASTM 22C



Viscometer Bath



LT/VB-37000/M



LT/VB-39000/M

PID system

ASTM D445 - ASTM D446 - ASTM D2170
EN 12595

IP 71-1 - IP 71-2 - IP 319

ISO 3104 - ISO 3105

Art. LT/VB-37000/M Digital Viscometer Bath

- Used for measuring oils viscosity by Cannon-Fenske, Ubbelohde and similar capillary
- Working temperature from ambient to +70°C
- Transparent tank
- Cover with 5 holes 51 mm
- Control box on the cover
- Digital display with over temperature alarm and PT100A probe, resolution 0.1°C
- Stainless steel heater and motor stirrer
- Stand-by covers

Power Supply

- 220Vac 50/60 Hz

Dimensions

- Ø 50 cm x h 60 cm

Weight

- kg 12

Art. LT/VB-39000/M 5 Places Digital Viscometer Bath ASTM D445 - IP 71

- Used for measuring oils viscosity by Cannon-Fenske, Ubbelohde, U-Tube and similar capillary
- Solid painted structure with internal stainless steel bath and double wall insulation
- Working temperature from ambient to +200°C, with possibility to work to +20°C using external chiller
- Display resolution 0.01°, with instant temperature graphic, set point, °C / °F and possibility to switch on/off the stirrer
- Double viewing glass with thermal insulation and extra bright led
- Stainless steel full immersion heater, safety stirrer motor and PT100 class A in medium position

- Cover with 5 holes of approx. 51 mm complete with stand-by stainless steel covers
- Tank capacity approx. 28 liters
- Atmospheric drain

Power Supply

- 220Vac 50/60 Hz

Dimensions

- cm 45 x 60 x 60

Weight

- kg 25

Accessories

- LAB-100- 371: silicone oil – Kinematic viscosity 50 mm²/s at 25°C, can of 25 liters
- LAB-100- 373 T&O: viscometer holders PTFE for Cannon-Fenske, pack of 5 pcs.
- LAB-100- 374: viscometer holders in metal for Ubbelohde/BS
- LAB-100-332: digital stopwatch



Viscometer Tube Cleaner and Dryer



Art. LT/VC-48100/M

Viscometer Tube Cleaner and Dryer

- Solvent cleaning-unit for washing and drying capillary-glass-tube viscometers
- Washes and dries up to 6 capillary tubes at a time
- Stainless steel case with 6 independent regulation valves fitted with holding-down spring
- Air filters
- Pressure regulator and pressure gauge to be feed from one external air source
- 7.5 litres capacity internal solvent tank with level indicator
- Protection cover in stainless steel and window check

Dimensions

- cm 50 × 80 × 80

Weight

- kg 30



Dean and Stark



ASTM D95 - ASTM D4006
IP 74 - IP 358
ISO 9029

ASTM D95, IP 74

Water in Petroleum Products
and Bituminous Materials by Distillation.

This test method covers the determination of water in the range from 0 to 25 % volume in petroleum products, tars, and other bituminous materials by the distillation method.

Art. LT/DS-109000/M

Dean and Stark Apparatus ASTM D95

- Heating mantle 300 Watt with steel rod and clamp
- 500 ml round bottom flask
- Liebig Condenser
- Receiver

Power supply

- 230 Vac 50 Hz

Art. LT/DS-109500/M

Dean and Stark Apparatus ASTM D95

- Solid structure with 5 Heating mantle 300 Watt with steel rod and clamp, main switch, fan, heating warning lamp
- 5 x 500 ml round bottom flask 24/40
- 5 x Liebig Condenser 24/40
- 5 x receivers

Power supply

- 230 Vac 50 Hz

Accessories

- LAB-101-093/10A0.2: receiver type A 10 ml, div. 0.2 with siphon (D95-D4006)
- LAB-101-093/25B0.1: receiver type B 25 ml, div. 0.1 with siphon and 24/40 connection (D95-D4006)
- LAB-101-093/5E0.1: receiver type E 5 ml, div. 0.1 (D95-D4006)
- LAB-101-093/5E0.05: receiver type E 5 ml, div. 0.05 (D95)
- LAB-101-093/10E0.1: receiver type E 10 ml, div. 0.1 (D95-D4006)
- LAB-101-093/2F0.05: receiver type F 2 ml, div. 0.05 (D95)

Spare Parts

- LAB-101-091/500: flask 500 ml, tapered joint 24/40, pack of 3 pcs.
- LAB-101-092: Liebig condenser 400 mm, tapered joint 24/40



Dew Point



LT/DP-172000/M



LT/DP-172000/M + LAB-101-734



ASTM D1142

Water Vapour Content of Gaseous Fuels by Measurement of Dew Point Temperature.
This test method covers the determination of the water vapour content of gaseous fuels by measurement of the dew-point temperature and the calculation there from of the water vapour content.

Art. LT/DP-172000/M

Dew Point - ASTM 1142

- Manometer Ø 60 mm, scale 0-160 bar
- Refrigerant chamber with ¼" gas valve
- Stainless steel block with ¼" gas valve
- Plexiglas® Window
- External mirror in SS

Accessories

- LAB-101-732: case
- LAB-101-733: junction hy-flex for CO₂
- LAB-101-734: tripod support for portable
- LAB-101-734/T: laboratory table support
- T-AS33C: thermometer ASTM 33C
- T-AS33F: thermometer ASTM 33F
- T-AS114C: thermometer ASTM 114C

Spare Parts

- LAB-101-722/0-23: pressure gauge 0 – 23 psi
- LAB-101-722/0-23-LF: liquid filled pressure gauge 0 – 23 psi
- LAB-101-722/0-230: pressure gauge 0 – 230 psi
- LAB-101-722/0-230-LF: liquid filled pressure gauge 0 – 230 psi
- LAB-101-722/0-2300: pressure gauge 0 – 2300 psi
- LAB-101-722/0-2300-LF: liquid filled pressure gauge 0 – 2300 psi



Water in Crude Oil by Distillation



LT/WD-110000/M

LT/WD-110500/M

ASTM D4006
IP 358
ISO 9029

Water in Crude Oil by Distillation.

This test method covers the determination of water in crude oil by distillation.

Art. LT/WD-110000/M Water in Crude Oil Distillation Apparatus ASTM D4006

- Heating mantle 500 Watt with steel rod and clamp
- 1000 ml round bottom flask 24/40
- Liebig Condenser 24/40
- Drain tube
- Graduated trap specific for ASTM D4006
- Power supply 230 Vac 50 Hz

Art. LT/WD-110500/M Water in Crude Oil Distillation Apparatus ASTM D4006

- Solid structure with 5 heating mantle 500 Watt with steel rod and clamp, main switch, fan, heating warning lamp
- 5 × 1000 ml round bottom flask 24/40
- 5 × Liebig condenser 24/40
- 5 × Graduated trap
- Power supply 230 Vac 50 Hz

Accessories

- LAB-101-093/10A0.2: receiver type A 10 ml, 0.2 div with siphon (D95-D4006)
- LAB-101-093/25B0.1: receiver type B 25 ml, 0.1 div with siphon and 24/40 connection (D95-D4006)
- LAB-101-093/5E0.1: receiver type E 5 ml, 0.1 div (D95-D4006)
- LAB-101-093/5E0.05: receiver type E 5 ml, 0.05 div (D95)
- LAB-101-093/10E0.1: receiver type E 10 ml, 0.1 div (D95-D4006)
- LAB-101-093/2F0.05: receiver type F 2 ml, 0.05 div (D95)

Spare Parts

- LAB-101-091/500: flask 500 ml, round bottom, pack of 3 pcs.
- LAB-101-091/1000: flask 1000 ml, round bottom; pack of 3 pcs.
- LAB-101-092: liebig condenser 400 mm, pack of 3 pcs.

Spare Parts for LT/WD-110000/M

- LAB-101-094: drain tube with stopper
- LAB-101-093/4006: receiver trap specific ASTM D4006



Water Reaction of Aviation Fuels



ASTM D1094
DIN 12685 (obs.)
ISO 4788

ASTM D1094

Water Reaction of Aviation Fuels.

This test method covers the determination of the presence of water miscible components in aviation gasoline and turbine fuels, and the effect of these components on volume change and on the fuel-water.

Art. LT/WR-253700/M

Water Reaction Interface of Aviation Fuels ASTM D1094

- 4 × Cylinders in glass from 100 ml div.1 ml with glass cap
- Shaker to vertical movement with a timer 0-99 minutes/seconds
- Fixing table for accommodate up to 4 cylinders

Power supply

- 220Vac 50-60Hz
- 300 W

Dimensions

- width: 60 cm
- height: 60 cm
- depth: 45 cm

Weight

- kg 50



Water Washout Characteristics of Lubricating Greases



ASTM D1264
IP 215

Water Washout Characteristics of Lubricating Greases.

This test method covers the evaluation of the resistance of a lubricating grease to washout by water from a bearing, when tested at 38 and 79°C (100 and 175°F) under the prescribed laboratory conditions.

It is not to be considered the equivalent of service evaluation tests.

This test method may not be suitable for some greases containing highly volatile components.

Art. LT/WW-205600/M Water Washout Grease Apparatus ASTM D1264

- Thermostatic cabinet controlled by a touch panel:
 - digital timer
 - bath temperature
 - motor speed rotation RPM
- 2 × 175 W stainless steel heaters
- Two bearings type 6204
- PT100 bath sensor
- Low voltage electric motor with direct coupling of the 600 rpm shaft
- Bearings block assembly
- Low voltage water pump for the delivery to the jet tip of the 300 ml/min ± 10% and electric open/closing valve
- Bypass tube and recovery system with external drain tap
- Manual flow regulator valve
- Cooling fan

Dimensions

- width: 40 cm
- height: 43.5 cm
- depth: 30 cm

Weight

- kg 15

Accessories

- T-AS34C: thermometer ASTM 34C

Spare Parts

- LAB-102-056/A: bearing
- LAB-102-056/C: cover for bearing
- LAB-110-001: heater
- LAB-140-006: PT100 Probe
- LAB-150-015: static relay



Drop Melting Point



ASTM D127
IP 133

Drop Melting Point of Petroleum Wax Including Petrolatum.

This test method covers the determination of the drop melting point of petroleum wax. It is used primarily for petrolatums and other microcrystalline wax.

Art. LT/DM-210000/M Drop Melting Point ASTM D127

- Heating device with a stainless steel housing and with electronic regulator
- 1 transparent container (jar) of 1500 ml capacity supplied with Teflon cover for the accommodation of the test tube by means of a cork stopper having a hole in the center for introducing and holding the test tube
- Teflon cover is also equipped with a filling hole with cap and hole with relevant metal holder for thermometer
- Test tube with 25 mm outside diameter and 150 mm long with cork stopper with hole for thermometer

Power supply

- 230 Vac 50/60 Hz
- Power consumption 1000 Watt

Accessories

- T-AS14C: thermometer ASTM 14C
- T-AS34C: thermometer ASTM 34C
- T-AS61C: thermometer ASTM 31C

Spare Parts

- LAB-102-101: test tube, pack of 10 pcs.
- LAB-102-102: Pyrex® Jar
- LAB-102-103: cork stopper series
- LAB-102-104: Teflon cover



Wax Melting Point



ASTM D87
IP 55

Melting Point of Petroleum Wax (Cooling Curve).

This test method covers the determination of the melting point (cooling curve) of petroleum wax. It is unsuitable for waxes of the petrolatum group, microcrystalline waxes, or blends of such waxes with paraffin wax or scale wax.

Art. LT/WM-209000/M Wax Melting Point ASTM D87

- Air bath with brass well
- Glass test tube $\varnothing 25 \times 100$ mm calibrated to 50.8 mm
- Cork stoppers
- Water bath

Accessories

- LAB-100-332: digital stopwatch
- T-AS14C: thermometer ASTM 14C - IP 17C
- T-AS14F: thermometer ASTM 14F - IP 17F
- T-AS34C: thermometer ASTM 34C - IP 21C
- T-AS34F: thermometer ASTM 34F

Spare Parts

- LAB-102-091: calibrated dish, pack of 10
- LAB-102-092: cork

ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Length mm	ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Length mm
1C	-	Partial immersion	-20 +150°C	1	76	322	43C	65C	Kinematic Viscosity	51.6 -34°C	0.1	Total	420
1F	-	Partial immersion	0 +302°F	2	76	322	43F	65F	Kinematic Viscosity	-61 -29°F	0.2	Total	420
2C	62C	Partial immersion	-5 +300°C	1	76	390	44C	29C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305
2F	62F	Partial immersion	20 +580°F	2	76	390	44F	29F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305
3C	73C	Partial immersion	-5 +400°C	1	76	415	45C	30C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305
3F	73F	Partial immersion	20 +760°F	2	76	415	45F	30F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305
5C	1C	Cloud and Pour	-38 +50°C	1	108	230	46C	66C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
5F	1F	Cloud and Pour	-36 +120°F	2	108	230	46F	66F	Kinematic Viscosity	119.5 +124.5°	0.1	Total	305
6C	2C	Low Cloud and Pour	-80 +20°C	1	76	230	47C	35C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305
6F	2F	Low Cloud and Pour	-112 +70°F	2	76	230	47F	35F	Kinematic Viscosity	137.5 +142.5°	0.1	Total	305
7C	5C	Low Distillation	-2 +300°C	1	Total	385	48C	90C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
7F	-	Low Distillation	30 +580°F	2	Total	385	48F	90F	Kinematic Viscosity	177.5 +182.5°	0.1	Total	305
8C	6C	High Distillation	-2 +400°C	1	Total	385	49C	-	Stormer Viscosity	20 +70°C	0.2	65	305
8F	-	High Distillation	30 +760°F	2	Total	385	50F	-	Gas Calorimeter Inlet	54 +101°F	0.1	Total	468
9C	15C	Low Pensky Martens	-5 +110°C	0.5	57	290	51F	-	Gas Calorimeter Inlet	69 +116°F	0.1	Total	468
9F	15F	Low Pensky Martens	20 +230°F	1	57	290	52C	-	Butadiene Boiling Point	-10 +5°C	0.1	Total	162
10C	16C	High Pensky Martens	90 +370°C	2	57	290	54C	18C	Congealing Point	20 +100.6°	0.2	Total	310
10F	16F	High Pensky Martens	200 +700°F	5	57	290	54F	18F	Congealing Point	68 +213°F	0.5	Total	310
11C	28C	Cleveland Open Flash	-6 +400°C	2	25	310	56C	-	Bomb Calorimeter	19 +35°C	0.02	Total	600
11F	28F	Cleveland Open Flash	20 +760°F	5	25	310	56F	-	Bomb Calorimeter	66 +95°F	0.05	Total	600
12C	64C	Density-Wide Range	-20 +102°C	0.2	Total	420	57C	-	Tag Closed	-20 +50°C	0.5	57	287
12F	64F	Density-Wide Range	-5 +215°F	0.5	Total	420	57F	-	Tag Closed	-4 +122°F	1	57	287
13C	47C	Loss on Heat	115 +170°C	0.5	Total	155	58C	-	Tank	-34 +49°C	0.5	Total	305
14C	17C	Wax Melting Point	38 +82°C	0.1	79	375	58F	-	Tank	-30 +120°F	1	Total	305
14F	17F	Wax Melting Point	100 +180°F	0.2	79	375	59C	-	Tank	-18 +82°C	0.5	Total	305
15C	60C	Low Softening Point	-2 +80°C	0.2	Total	395	59F	-	Tank	0 +180°F	1	Total	305
15F	-	Low Softening Point	30 +180°F	0.5	Total	395	60C	-	Tank	77 +260°C	1	Total	305
16C	61C	High Softening Point	30 +200°C	0.5	Total	395	60F	-	Tank	170 +500°F	2	Total	305
16F	-	High Softening Point	85 +392°F	1	Total	395	61C	63C	Petrolatum Melting Point	32 +127°C	0.2	79	380
17C	-	Saybolt Viscosity	19 +27°C	0.1	Total	275	61F	-	Petrolatum Melting Point	90 +260°F	0.5	79	380
17F	-	Saybolt Viscosity	66 +80°F	0.2	Total	275	62C	-	Precision	-38 +2°C	0.1	Total	379
18C	23C	Reid Vapour Pressure	34 +42°C	0.1	Total	275	62F	-	Precision	-36 +35°F	0.2	Total	379
18F	23F	Reid Vapour Pressure	94 +108°F	0.2	Total	275	63C	-	Precision	-8 +32°C	0.1	Total	379
19C	-	Saybolt Viscosity	49 +57°C	0.1	Total	275	63F	-	Precision	18 +89°F	0.2	Total	379
19F	-	Saybolt Viscosity	120 +134°F	0.2	Total	275	64C	-	Precision	25 +55°C	0.1	Total	379
20C	-	Saybolt Viscosity	57 +65°C	0.1	Total	275	64F	-	Precision	77 +131°F	0.2	Total	379
20F	-	Saybolt Viscosity	134 +148°F	0.2	Total	275	65C	-	Precision	50 +80°C	0.1	Total	379
21C	-	Saybolt Viscosity	79 +87°C	0.1	Total	275	65F	-	Precision	122 +176°F	0.2	Total	379
21F	-	Saybolt Viscosity	174 +188°F	0.2	Total	275	66C	-	Precision	75 +105°C	0.1	Total	379
22C	24C	Oxidation Stability	95 +103°C	0.1	Total	275	66F	-	Precision	167 +221°F	0.2	Total	379
22F	24F	Oxidation Stability	204 +218°F	0.2	Total	275	67C	-	Precision	95 +155°C	0.2	Total	379
23C	-	Engler Viscosity	18 +28°C	0.2	90	212	67F	-	Precision	203 +311°F	0.5	Total	379
24C	-	Engler Viscosity	39 +54°C	0.2	90	237	68C	-	Precision	145 +205°C	0.2	Total	379
25C	-	Engler Viscosity	95 +105°C	0.2	90	212	68F	-	Precision	293 +401°F	0.5	Total	379
26C	-	Stability Test	130 +140°C	0.1	Total	463	69C	-	Precision	195 +305°C	0.5	Total	379
27C	-	Turpentine Distillation	147 +182°C	0.5	76	301	69F	-	Precision	383 +581°F	1	Total	379
28C	31C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305	70C	-	Precision	295 +405°C	0.5	Total	379
28F	31F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305	70F	-	Precision	563 +761°F	1	Total	379
29C	34C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305	71C	72C	Oil in Wax	-37 +21°C	0.5	76	355
29F	34F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305	71F	72F	Oil in Wax	-35 +70°F	1	76	355
30F	32F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305	72C	67C	Kinematic Viscosity	19.4 -16.6°C	0.05	Total	305
33C	20C	Low Aniline Point	-38 +42°C	0.2	50	420	72F	67F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
33F	-	Low Aniline Point	36.5 +107.5°	0.5	50	420	73C	68C	Kinematic Viscosity	41.4 -38.6°C	0.05	Total	305
34C	21C	Medium Aniline Point	25 +105°C	0.2	50	420	73F	68F	Kinematic Viscosity	42.5 -37.5°F	0.1	Total	305
34F	-	Medium Aniline Point	77 +221°F	0.5	50	420	74C	69C	Kinematic Viscosity	55.4 -52.6°C	0.05	Total	305
35C	59C	High Aniline Point	90 +170°C	0.2	50	420	74F	69F	Kinematic Viscosity	67.5 -62.5°F	0.1	Total	305
35F	-	High Aniline Point	194 +338°F	0.5	50	420	75F	-	Anti-freeze Freezing Point	-35 +35°F	0.5	100	408
36C	-	Titer Test	-2 +68°C	0.2	45	405	76F	-	Anti-freeze Freezing Point	-65 +5°F	0.5	100	408
37C	77C	Solvents Distillation	-2 +52°C	0.2	100	395	77F	-	Saybolt Viscosity	245 +265°F	0.5	Total	275
38C	78C	Solvents Distillation	24 +78°C	0.2	100	395	78F	-	Saybolt Viscosity	295 +315°F	0.5	Total	275
39C	79C	Solvents Distillation	48 +102°C	0.2	100	395	79F	-	Saybolt Viscosity	345 +365°F	0.5	Total	275
40C	80C	Solvents Distillation	72 +126°C	0.2	100	395	80F	-	Saybolt Viscosity	395 +415°F	0.5	Total	275
41C	81C	Solvents Distillation	98 +152°C	0.2	100	395	81F	-	Saybolt Viscosity	445 +465°F	0.5	Total	275
42C	82C	Solvents Distillation	95 +255°C	0.5	100	395	82C	-	Fuel Rating. Engine	-15 +105°C	1	30	162



ASTM Thermometers

ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Length mm
82F	-	Fuel Rating, Engine	0 +220°F	2	30	162
83C	-	Fuel Rating, Air	15 +70°C	1	40	171
83F	-	Fuel Rating, Air	60 +160°F	1	40	171
84C	-	Fuel Rating, Orifice Tank	25 +80°C	1	249	383
84F	-	Fuel Rating, Orifice Tank	75 +175°F	1	249	383
85C	-	Fuel Rating, Surge	40 +150°C	1	181	310
85F	-	Fuel Rating, Surge	100 +300°F	2	181	310
86C	-	Fuel Rating, Mix	95 +175°C	1	35	167
86F	-	Fuel Rating, Mix	200 +350°F	2	35	167
87C	-	Fuel Rating, Coolant	150 +205°C	1	40	172
87F	-	Fuel Rating, Coolant	300 +400°F	1	40	172
88C	-	Vegetable Oil Flash	10 +200°C	1	57	287
88F	-	Vegetable Oil Flash	50 +392°F	2	57	287
89C	-	Solidification Point	-20 +10°C	0.1	76	370
90C	-	Solidification Point	0 +30°C	0.1	76	370
91C	-	Solidification Point	20 +50°C	0.1	76	370
92C	-	Solidification Point	40 +70°C	0.1	76	370
93C	-	Solidification Point	60 +90°C	0.1	76	370
94C	-	Solidification Point	80 +110°C	0.1	76	370
95C	-	Solidification Point	100 +130°C	0.1	76	370
96C	-	Solidification Point	120 +150°C	0.1	76	370
97C	-	Tank	-18 +49°C	0.5	Total	305
97F	-	Tank	0 +120°F	1	Total	305
98C	-	Tank	16 +82°C	0.5	Total	305
98F	-	Tank	60 +180°F	1	Total	305
99C	-	Weathering Test	-50 +5°C	0.2	35	302
99F	-	Weathering Test	-55 +40°F	0.5	35	302
100C	-	Solidification Point	145 +205°C	0.2	76	370
101C	-	Solidification Point	195 +305°C	0.5	76	370
102C	83C	Solvents Distillation	123 +177°C	0.2	100	395
103C	84C	Solvents Distillation	148 +202°C	0.2	100	395
104C	85C	Solvents Distillation	173 +227°C	0.2	100	395
105C	86C	Solvents Distillation	198 +252°C	0.2	100	395
106C	87C	Solvents Distillation	223 +277°C	0.2	100	395
107C	88C	Solvents Distillation	248 +302°C	0.2	100	395
108F	-	Saybolt Viscosity	270 +290°F	0.5	Total	175
109F	-	Saybolt Viscosity	320 +340°F	0.5	Total	175
110C	83C	Kinematic Viscosity	133.6 +136.4°C	0.05	Total	305
110F	-	Kinematic Viscosity	272.5 +277.5°F	0.1	Total	305
111C	-	Tar Acids Distillation	170 +250°C	0.2	100	395
112C	-	of Benzene	4 +6°C	0.02	Total	215
112C	89C	Softening Point Wide Range	-1 +175°C	0.5	Total	405
113F	89F	Softening Point Wide Range	30 +350°F	1	Total	405
114C	14C	Aviation Fuel Freezing Point	-80 +20°C	0.5	Total	300
116C	-	Bomb Calorimeter	18.9 +25.1°C	0.01	Total	609
117C	-	Bomb Calorimeter	23.9 +30.1°C	0.01	Total	609
118C	-	Kinematic Viscosity	28.6 +31.4°C	0.05	Total	305
118F	-	Kinematic Viscosity	83.5 +88.5°F	0.1	Total	305
119C	-	Anti-Freeze Freezing Point	38.3 -30°C	0.1	100	420
119F	-	Anti-Freeze Freezing Point	-37 -22°F	0.2	100	420
120C	92C	Kinematic Viscosity	38.6 +41.4°C	0.05	Total	305
121C	32C	Kinematic Viscosity	98.6 +101.4°C	0.05	Total	305
122C	94C	Brookfield Viscosity	-45 -35°C	0.1	Total	305
123C	95C	Brookfield Viscosity	-35 -25°C	0.1	Total	305
124C	96C	Brookfield Viscosity	-25 -15°C	0.1	Total	305
125C	97C	Brookfield Viscosity	-15 -5°C	0.1	Total	305
126C	71C	Kinematic Viscosity	27.4 -24.6°C	0.05	Total	305
126F	71F	Kinematic Viscosity	17.5 -12.5°F	0.1	Total	305
127C	99C	Kinematic Viscosity	21.4 -18.6°C	0.05	Total	305
128C	33C	Kinematic Viscosity	-1.4 +1.4°C	0.05	Total	305
128F	33F	Kinematic Viscosity	29.5 +34.5°F	0.1	Total	305
129C	36C	Kinematic Viscosity	91.6 +94.4°C	0.05	Total	305
129F	36F	Kinematic Viscosity	197.5 +202.5°F	0.1	Total	305

ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Length mm	ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Length mm
1C	-	Partial immersion	-20 +150°C	1	76	322	53C	-	Tank Cargo	0 +80°C	0.5	Total	310
1C	5C	Cloud and Pour	-38 +50°C	1	108	230	59C	35C	High Aniline Point	90 +170°C	0.2	50	420
1F	5F	Cloud and Pour	-36 +120°F	2	108	230	60C	15C	Low Softening Point	-2 +80°C	0.2	Total	395
2C	6C	Low Cloud and Pour	-80 +20°C	1	76	230	61C	16C	High Softening Point	30 +200°C	0.5	Total	395
2F	6F	Low Cloud and Pour	-112 +70°F	2	76	230	62C	2C	Partial Immersion	-5 +300°C	1	76	390
3C	-	Demulsification	-1 +105°C	0.5	Total	-	62F	2F	Partial Immersion	20 +580°F	2	76	390
3F	-	Demulsification	30 +220°F	1	Total	-	63C	61C	Petrolatum Melting Point	32 +127°C	0.2	79	380
4C	-	Crude Oil Distillation	-4 +360°C	2	Total	310	64C	12C	Density-Wide Range	-20 +102°C	0.2	Total	420
5C	7C	Low Distillation	-2 +300°C	1	Total	385	64F	12F	Density-Wide Range	-5 +215°F	0.5	Total	420
6C	8C	High Distillation	-2 +400°C	1	Total	385	65C	-	Kinematic Viscosity Low	51.6 -34°C	0.1	Total	420
8C	-	Flushing Case Low	0 +45°C	0.2	65	340	65F	43F	Kinematic Viscosity	-61 -29°F	0.2	Total	420
9C	-	Flushing Case Low	40 +85°C	0.2	65	340	66C	46C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
14C	114C	Aviation Fuel Freezing Point	-80 +20°C	0.5	Total	300	66F	46F	Kinematic Viscosity	119.5 +124.5°F	0.1	Total	305
15C	9C	Low Pensky Martens	-5 +110°C	0.5	57	290	67C	72C	Kinematic Viscosity	19.4 -16.6°C	0.05	Total	305
15F	9F	Low Pensky Martens	20 +230°F	1	57	290	67F	72F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
16C	10C	High Pensky Martens	90 +370°C	2	57	290	68C	73C	Kinematic Viscosity	41.4 -38.6°C	0.05	Total	305
16F	10F	High Pensky Martens	200 +700°F	5	57	290	68F	73F	Kinematic Viscosity	42.5 -37.5°F	0.1	Total	305
17C	14C	Wax Melting Point	38 +82°C	0.1	79	375	69C	74C	Kinematic Viscosity	55.4 -52.6°C	0.05	Total	305
17F	14F	Wax Melting Point	100 +180°F	0.2	79	375	69F	74F	Kinematic Viscosity	67.5 -62.5°F	0.1	Total	305
18C	54C	Congeaing Point	20 +100.6°C	0.2	Total	310	71C	126C	Kinematic Viscosity	27.4 -24.6°C	0.05	Total	305
20C	54C	Low Aniline Point	-38 +42°C	0.2	50	420	71F	126F	Kinematic Viscosity	17.5 -12.5°F	0.1	Total	305
21C	33C	Medium Aniline Point	25 +105°C	0.2	50	420	72C	71C	Oil in Wax	-37 +21°C	0.5	76	355
22C	34C	Oxidation	195 +205°C	0.1	100	300	72F	71F	Oil in Wax	-35 +70°F	1	76	355
23C	18C	Reid Vapour Pressure	34 +42°C	0.1	Total	275	73C	3C	Partial Immersion	-5 +400°C	1	76	415
23F	18F	Reid Vapour Pressure	94 +108°F	0.2	Total	275	73F	3F	Partial Immersion	20 +760°F	2	76	415
24C	22C	Oxidation Stability	95 +103°C	0.1	Total	275	74C	-	Abel Oil Cup Wide Range	-35 +70°C	0.5	61	310
24F	22F	Oxidation Stability	204 +218°F	0.2	Total	275	74F	-	Abel Oil Cup Wide Range	-35 +160°F	1	61	310
28C	11C	Cleveland Open Flash	-6 +400°C	2	25	310	75C	-	Abel Water Bath Wide Range	-30 +80°C	0.5	89	310
28F	11F	Cleveland Open Flash	20 +760°F	5	25	310	75F	-	Abel Water Bath Wide Range	-25° +180°F	1	89	310
29C	44C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305	76C	-	Engler Viscosity	10 +55°C	0.5	93	240
29F	44F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305	77C	37C	Solvents Distillation	-2 +52°C	0.2	100	395
30C	45C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305	78C	38C	Solvents Distillation	24 +78°C	0.2	100	395
30F	45F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305	79C	39C	Solvents Distillation	48 +102°C	0.2	100	395
31C	28C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305	80C	40C	Solvents Distillation	72 +126°C	0.2	100	395
31F	28F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305	81C	41C	Solvents Distillation	98 +152°C	0.2	100	395
32C	121C	Kinematic Viscosity	98.6 +101.4°C	0.05	Total	305	82C	42C	Solvents Distillation	95 +255°C	0.5	100	395
32F	30F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305	83C	102C	Solvents Distillation	123 +177°C	0.2	100	395
33C	128C	Kinematic Viscosity	-1.4 +1.4°C	0.05	Total	305	84C	103C	Solvents Distillation	148 +202°C	0.2	100	395
33F	128F	Kinematic Viscosity	29.5 +34.5°F	0.1	Total	305	85C	104C	Solvents Distillation	173 +227°C	0.2	100	395
34C	29C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305	86C	105C	Solvents Distillation	198 +252°C	0.2	100	395
34F	29F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305	87C	106C	Solvents Distillation	223 +277°C	0.2	100	395
35C	47C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305	88C	107C	Solvents Distillation	248 +302°C	0.2	100	395
35F	47F	Kinematic Viscosity	137.5 +142.5°F	0.1	Total	305	89C	113C	Softening Point Wide Range	-1 +175°C	0.5	Total	405
36C	129C	Kinematic Viscosity	91.6 +94.4°C	0.05	Total	305	89F	113F	Softening Point Wide Range	30 +350°F	1	Total	405
36F	129F	Kinematic Viscosity	197.5 +202.5°F	0.1	Total	305	90C	48C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
37C	-	Sludge	144 +156°C	0.2	100	270	90F	48F	Kinematic Viscosity	177.5 +182.5°F	0.1	Total	305
38C	-	Penetration	23 +27°C	0.1	Total	260	92C	120C	Kinematic Viscosity	38.6 +41.4°C	0.05	Total	305
39C	-	Density	-1 -38°C	0.1	Total	440	93C	110C	Kinematic Viscosity	133.6 +136.4°C	0.05	Total	305
39F	-	Relative Density	30 +100°F	0.2	Total	440	94C	122C	Brookfield Viscosity	-45 -35°C	0.1	Total	305
40C	-	Drop Point Low	20 +120°C	1	100	250	95C	123C	Brookfield Viscosity	-35 -25°C	0.1	Total	305
41C	-	Drop Point Low	30 +100°F	1	100	250	96C	124C	Brookfield Viscosity	-25 -15°C	0.1	Total	305
42C	-	Breaking Point	20 +120°C	0.5	250	370	97C	125C	Brookfield Viscosity	-15 -5°C	0.1	Total	305
43C	-	FP Cut-Back (Int)	10 +110°C	0.5	-	305	99C	127C	Kinematic Viscosity	21.4 -18.6°C	0.05	Total	305
43F	-	FP Cut-Back (Int)	50 +230°F	1	-	305	100C	-	Kinematic Viscosity	78.6 81.4°C	0.05	Total	305
44C	-	FP Cut-Back (Ext)	15 +121°C	0.5	-	305	101C	-	Medium Pensky Martens	20 +150°C	1	57	290
44F	-	FP Cut-Back (Ext)	60 +250°F	1	-	305							
45C	-	Refractometer	15 +30°C	0.2	22	160							
46C	-	Gravity Balance	14.5 +21°C	0.1	Total	160							
46F	-	Gravity Balance	58° +70°F	0.2	Total	160							
47C	13C	Loss on Heating	115 +170°C	0.5	Total	155							
48C	-	Tank Low	-38 +30°C	0.5	Total	310							
49C	-	Tank Medium	-15 +40°C	0.5	Total	310							
50C	-	Tank High	10 +65°C	0.5	Total	310							
51C	-	Tank Heated Fuel	35 +120°C	0.5	Total	310							
52C	-	Tank Bitumen	90 +260°C	1	Total	310							



Cryostat and Low Temperature Thermostatic Bath and Circulator



LT/CB-40800-M/30

Art. LT/CB-40800-M/10 Cryostatic Bath (8 litres) for temperatures up to -10°C

- Professional cryostatic baths ideal for all thermostatic application
- Outer body in steel coated in epoxy anti-acid paint
- Double wall heat insulation
- Internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning
- Digital display P.I.D. thermostat
- Temperature range from -10°C to +99,9°C accuracy to $\pm 0,5^\circ\text{C}$ to +37°C (BC)
- Display precision $\pm 0,1^\circ\text{C}$
- Exit RS 485
- Safety thermostat
- Circulating pump: 1 mt prevalence
- Power supply 230 V / 50 Hz
- Built according to C.E.I. normatives (66-5)

Art. LT/CB-40800-M/30 Cryostatic Bath (8 litres) for temperatures up to -30°C

- Professional cryostatic baths ideal for all thermostatic application
- Outer body in steel coated in epoxy anti-acid paint
- Double wall heat insulation
- Internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning
- Digital display P.I.D. thermostat
- Temperature range from -30°C to +99,9°C accuracy to $\pm 0,5^\circ\text{C}$ to +37°C (BC)
- Display precision $\pm 0,1^\circ\text{C}$
- Exit RS 485
- Safety thermostat
- Circulating pump: 1 mt prevalence
- Power supply 230 V / 50 Hz
- Built according to C.E.I. normatives (66-5)



Oven



Art. LT/DO-248000/N
Natural Ventilation Oven
Art. LT/DO-248000/F
Drying Oven

- Professional natural or forced ventilation oven suitable for all thermostatic applications where a specific precision is needed.
- Outer body in steel coated in epoxy anti-acid paint.
- Inner structure in stainless steel AISI 304 with rounded corners.
- Double insulation door with silicone seal to prevent heat loss.
- Thermal insulation with mineral fibre.
- Digital display P.I.D. thermostat to ensure good stability.
- Temperature range from +5°C ambient to +280°C, model from 40 to 120 litres.

- Temperature range from +5°C ambient to +200°C, model from 8 to 20 litres.
- Accuracy to $\pm 1.5^\circ\text{C}$ at +105°C, model from 40 to 120 litres forced ventilation.
- Accuracy to $\pm 2^\circ\text{C}$ at +105°C, model from 40 to 120 litres natural ventilation.
- Accuracy to $\pm 1^\circ\text{C}$ at +105°C model from 8 to 20 litres.
- Display precision $\pm 1^\circ\text{C}$.
- For further protection the oven is equipped with visual alarm security thermostat, range from +50°C to +280°C and manual resetting.
- Steel shelves adjustable in height.
- Panel commands isolated.
- Heating elements are not in contact with internal chamber but are in an ante-chamber to guarantee uniform heating.
- Illuminated two phase main switch.
- Built according to C.E.I. normative (66-5).
- 2 class, DIN 12880.

Power supply

- 115 Vac 50/60 Hz
- 220 Vac 50/60 Hz

Accessories

- LAB-248000/1: tempered inspection glass window 200 x 200 mm
- LAB-248000/2: internal light with temperature protection glass and switch
- LAB-248000/3: internal shelves made in stainless steel

Article	Volume in litres	Internal dimensions W x D x H in mm	External dimensions W x D x H in mm	Included shelves	Watt	Weight Kg
LT/DO-248000/N-8	8	208 x 202 x 220	465 x 400 x 370	1	240	16
LT/DO-248000/N-20	20	285 x 252 x 285	550 x 450 x 433	1	400	22
LT/DO-248000/N-40	40	348 x 312 x 367	686 x 515 x 575	1	700	35
LT/DO-248000/N-60	60	408 x 372 x 422	746 x 605 x 605	2	1000	40
LT/DO-248000/N-80	80	458 x 372 x 472	796 x 605 x 680	2	1000	45
LT/DO-248000/N-120	120	498 x 477 x 512	836 x 710 x 720	2	1600	50
LT/DO-248000/F-40	40	348 x 312 x 367	686 x 515 x 575	1	700	35
LT/DO-248000/F-60	60	408 x 372 x 422	746 x 605 x 605	2	1000	40
LT/DO-248000/F-80	80	458 x 372 x 472	796 x 605 x 680	2	1000	45
LT/DO-248000/F-120	120	498 x 477 x 512	836 x 710 x 720	2	1600	50



Thermostatic Bath



LT/TB-220000/M



LT/TB-177000/M

ASTM D323
ASTM D972
ASTM D1267
ASTM D1657
ASTM D1838
IP 12
IP 69
IP 161
IP 410

Art. LT/TB-220000/M Thermostatic Bath general purposes

- Painted metal case with insulated double wall
- Internal bath made of stainless steel
- Capacity 42 litres approx.
- Test tubes blocking system
- Digital thermoregulator PID $\pm 0.1^\circ$ with over temperature alarm and probe PT100A
- Motor stirrer
- Safety thermostat
- Stainless steel heaters, 4000 W
- Working temperature up to 230°C
- Drain tap and overflow

Art. LT/TB-177000/M Thermostatic Bath ASTM D1267 - D1657 - D1838 IP 161 - IP 410

- Completely made in 18/8 stainless steel
- Double bottom
- Thermostating digitally thermoregulated PID with over-temperature alarm and probe PT100A
- Stainless steel heater
- Cooling coil
- Motor stirrer
- Support which allows the immersion of 3 cylinders RVP:
 - 3 corrosion cylinders
 - 2 Hydrometers



This catalog is subject
to changes and updates
therefore the information
shown may not be correct.