LINETRONIC TECHNOLOGIES

Linetronic Technologies

Laboratory and Process Analyzers

Catalogue 2024

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NewLab 100
Cloud Point

LINETRONIC TECHNOLOGIES
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CE

ASTM D5771
DIN 51597
EN 23015
EN 590
IP 444

Correlated:
ASTM D2500
ASTM D5772
ASTM D5773
IP 219
IP 445
IP 446
ISO 3015
JIS K2269

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 fibber 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

NewLab 100 ST

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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
- 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%

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 1.6 A, 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: fibber 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 × 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

NewLab 100 ST
- Measuring range: +55°C … -95°C
- Resolution: 0.01 °C
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

NewLab 200
CFPP – Cold Filter Plugging Point

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ASTM D6371
IP 309 - IP 419
EN 116 - EN 16329

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 × micro-pump of 350 mBar
  · 1 × 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 × 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 200
CFPP – Cold Filter Plugging Point

NewLab 200 ST

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CE

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 ± 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 1.6 A, 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

NewLab 200 ST
- Measuring range: +55°C … -95°C
- Resolution: 0.01 °C
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

NewLab 225
Filter Blocking Tendency

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ASTM D 2068
ASTM D 6426
IP 387

Subject

Determination of the filter blocking tendency (FBT) and filterability of middle distillate fuel oils and liquid fuels such as biodiesel and biodiesel blends. The three procedures and associated filter types are applicable to fuels within the viscosity range of 1.3 mm2 to 6.0 mm2/s 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

- Automatic calculation of FBT/FTP and/or F-QF
- 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 µm, 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 µm, 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, 13 mm diameter, pack of 100 pcs. for ASTM D2068 method A

Dimensions (cm)

- width 48
- depth 30
- height 52

Weight

- 27 kg

NewLab 226
LTFT – Low Temperature Flow Test

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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 istogram (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 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 / °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

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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
- width 98 cm
- depth 60 cm
- height 130 cm

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

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ASTM D97
ASTM D5853
ASTM D5950
ASTM D6074
ASTM D6158
IP 15
IP 441
ISO 3016
EN ISO 22995

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: -110°C … +100°C
- Range of analysis: -90°C … +60°C (300/2-SA)
- 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

NewLab 300 ST

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CE

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%

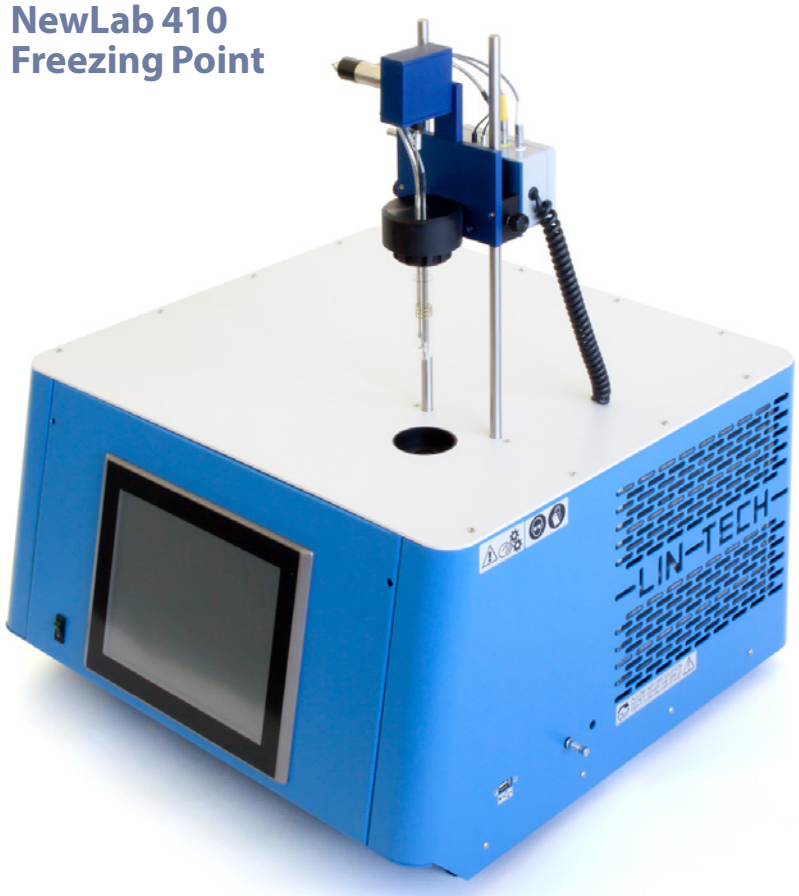
Dimensions and weight
- 1 test pos.: w 66 × d 60 × h 80 cm, 60 kg
- 2 test pos.: w 66 × d 60 × h 80 cm, 90 kg / 100 kg
- 3 test pos.: w 100 × d 60 × h 80 cm, 130 kg
- 4 test pos.: w 134 × d 60 × h 80 cm, 160 kg
- 6 test pos.: w 130 × d 75 × h 170 cm, 280 kg

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 1.6 A, box of 10 pcs.
- LAB-xxx/006-01: cooling fluid valve + fitting (only for motor-compressor units)
- 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 300 ST
- Measuring range: -110°C … +100°C
- Range of analysis: -110°C … +55°C
- Resolution: 0.01 °C
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

NewLab 410
Freezing Point



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CE

ASTM D1655
ASTM D2386
IP 16

Correlated:
ASTM D852
ASTM D1493
ASTM D5901
ASTM D5972
ASTM D6660
ASTM D7153
ASTM D7154
IP 435
IP 528
IP 529
ISO 3013
JIS K2276
DEF STAN91-091

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 throught 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 fibber optic
- Coaxial fibber 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: -110°C … +100°C
- Range of analysis: -90°C … +55°C (410/2-SA)
- Resolution: 0.01 °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

FP

NewLab 410
Freezing Point

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CE

NewLab 410 ST

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 -90°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

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 1.6 A, 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: fibber 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 410 ST
- Measuring range: -110°C … +100°C
- Range of analysis: -110°C … +55°C
- Resolution: 0.01 °C
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

NewLab 411 ST
Freezing Point

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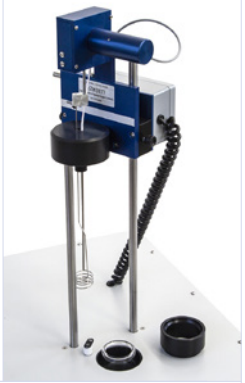

ASTM D1177
Freezing Point of engine coolants, antifreeze products.

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 throught 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 fibber optic
- Coaxial fibber 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: +55°C up to -100°C
- Resolution: 0.01 °C
- Accuracy: ± 0.1 °C
- Repeatability / Reproducibility: as per standards methods or better

Software Features
- 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 norm 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 8"
- Resolution 1024 × 768, 16.2 M colours
- 2 USB ports for connection to an external printer and/or external PC

Test Jar
- Same dimensions and volume as described by the standard test method ASTM D1177
- Small edge on the top in order to fix the glass cell to the analytical head

Cooling System
- Insulated cooling jackets
- Integrated gas CFC/HCFC free liquid helium motor compressor
- Equipped with an automatic energy power save system

Safety Devices
- Pressure controller
- Thermostat and thermo-switch

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

Ambient Temperature
- Max 32 °C
- H.R. 80%

Dimensions and weight
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

Spare Parts
- LAB-102-381: double tube
- LAB-102-382: wire stirrer
- LAB-400/008-04: PT100 Product with connector
- LAB-400/008-07: fibre optic
- LAB-400/008-08: mirror

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

NewLab 800
Low-temperature Torque

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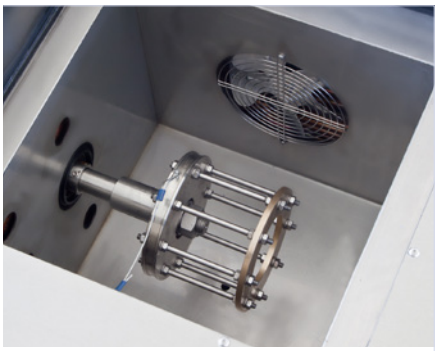

Newlab 800: Low-temperature Torque, testing chamber
Best raw materials and simplicity in construction, strong points that make it appreciated.

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.

Main Features

- 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

CP+PP

NewLab 1300
Cloud and Pour Point

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Cloud Point:
ASTM D5771
DIN 51597
EN 23015
EN 590
IP 444

Correlated:
ASTM D2500
ASTM D5772
ASTM D5773
IP 219
IP 445
IP 446
ISO 3015
JIS K2269

Pour Point:
ASTM D97
ASTM D5853
ASTM D5950
ASTM D6074
ASTM D6158
IP 15
IP 441
ISO 3016
EN ISO 22995

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

CP+PP

NewLab 1300
Cloud and Pour Point

NewLab 1300 ST

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- 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 1.6 A, 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

NewLab 1300 ST

- Measuring range: -110°C … +100°C
- Range of analysis: -110°C … +55°C
- Resolution: 0.01 °C
- Width: 34 cm
- Depth: 60 cm
- Height: 80 cm
- Weight: 34 kg

NewLab X

CFPP

FP

CP+PP

Analitical Head 1300 2.0

Analitical Head 410 2.0

Analitical Head 200 2.0

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Methods

CFPP:
ASTM D6371
IP 309
IP 419
EN 116
EN 16329

Freezing Point:
ASTM D1655
ASTM D2386
IP 16

Correlated:
ASTM D1493
ASTM D5901
ASTM D5972
ASTM D6660
ASTM D7153
ASTM D7154
IP 435
IP 528
IP 529
ISO 3013
JIS K2276
DEF STAN91-091

Cloud Point
ASTM D5771
DIN 51597
EN 23015
EN 590
IP 444

Correlated:
ASTM D2500
ASTM D5772
ASTM D5773
IP 219
IP 445
IP 446
ISO 3015
JIS K2269

Pour Point
ASTM D97
ASTM D5853
ASTM D5950
ASTM D6074
ASTM D6158
IP 15
IP 441
ISO 3016
EN ISO 22995

Automatic Newlab X Bath

- Bench top instrument compact and solid structure painted with anti-epoxy products, include the refrigerator system (with Gas CFC free) and dedicated electronic board with the new Linetronic's **interchangeable head** system for use different analytical heads with a single cooling bath.
- Analytical head support made in aluminium and corrosion resistant plastics, automatic up-middle-down movement with locking system.
- Safety systems: Overheating alarm and protection, over-pressure protection system, head wrong position protection, Stand-by module for energy saving.
- Cooling Performance: able to grant working temperatures of -120°C …+55°C.
- Linetronic Management software running on 10" High-brightness TFT with resolution 1280 × 700:
  . Pre-setting for methods ASTM / IP / ISO;
  . Customizable analysis parameters;
  . Settable bath temperature and controlled by PT100 A Class with 0,1°C precision;
  . More than 60'000 analysis storage capacity;
  . 2 × USB for connecting: mouse, keyboard and software updates;
  . 1 x RJ45 Ethernet / Lims connection;
  . Integrated beeper for end-test notification.

Lightweight

- Only 17 Kg

Small footprint:

- Width 28 cm
- Depth 52 cm
- Height 50 cm

Power supply

- 220 or 115 Vac

- NewLab X must be equipped with one (at least) of the following analitical head →

Accessory Analitical Heads

Cold Filter Plugging Point
Analitical Head 200 2.0

- Analytical head made in aluminium and corrosion resistant plastics, automatic up-middle-down movement with locking system.
- Linetronic fixing system for glassware that allow an easy cleaning of all components.
- Integrated CFPP electronic board for manage and generate the vacuum.
- Glassware included: glass cell and aspiration pipette.
- PT100 temperature sensor.
- Filter holder with filter.

Freezing Point
Analitical Head 410 2.0

- Analytical head made in corrosion resistant plastics, automatic up-middle-down movement with locking system.
- Linetronic fixing system for glassware that allow an easy cleaning of all components.
- Integrated FP electronic board.
- Glassware included: Freezing glass cell.
- Fiber optic and PT100 sensor for Freezing Point temperature.
- Stirring motor and wire.
- Adapter for glassware.

Cloud and Pour
Analitical Head 1300 2.0

- Analytical head made in corrosion resistant plastics, automatic up-middle-down movement with locking system.
- Linetronic fixing system for glassware that allow an easy cleaning of all components.
- Integrated CPP electronic board.
- Glassware included: glass cell with silvered bottom.
- Fiber optic and PT100 sensor for Cloud Point temperature.
- PT100 sensors for Pour Point Detection and temperature.

OilLab 230
Filterability of Lubricating Oils

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ISO 13357 -1 -2

Subject

Procedure for the evaluation of the filterability of lubricating oils, particularly those designed for hydraulic applications, in the presence of water. The procedure only applies to mineral-based oils, since fluids manufactured from other materials (e.g. fire-resistant fluids) may not be compatible with the specified test membranes.

Main Features

- Filter funnel system with support for 47 mm filter
- Oil tank gas tight closure with 350 ml capacity
- Membrane filter 47 mm 0.8 µm
- Grounding system
- Air pressure inlet with solenoid valve in order to work at prescribed pressures up to 200 kPa
- Pressure sensor up to 250 kpa
- Measuring/receiving cylinder 250 ml 320 ml capacity
- Forceps for manage the filter
- Timing
- Petrislide 47 mm pack of 100 for microscopic examination
- Oven natural convection 8 litres with window 200 × 200 mm
- Managing software working in Windows® ambient
  · FT/LCD 12" touch screen resolution 1024 × 768 and 16 M colours
  · I/O ports: 2 × USB
  · storage capacity for more than 60'000 analysis
  · with automatic test results, discharge the test at the end time of 2 h

Dimensions (cm)

- width 48
- depth 30
- height 52

Weight

- 25 kg

Power Supply

- 115 / 220 Vac 50/60 Hz

Optional Accessories

- LAB-106-007: laboratory solvent dispenser
  · wash capacity up to 1 litre
  · filter container made in stainless steel 25 mm
  · pack of 100 pcs filter 0.45 µm, 25 mm diameter, JHWP02500
  · borosilicated glass flask
  · PTFE high quality seal

Consumables

- LAB-101-553: membrane filters, pack of 100 pcs.

OilLab 500
Ring and Ball

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CE

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, 9.5 mm diamenter, 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
- Analysis range: ambient up to +200° 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
- Unknow 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 1200 W
- Equipped with over temperature cut-out
- Magnetic stirrer of approx. 250 rpm for heating uniformity

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
- Width 48 cm, depth 30 cm , height 52 cm

Weight
- 25 kg

Spare Parts
- LAB-500/005-13: heater
- LAB-500/005-26: PT100 bath
- LAB-500/009-05: Pyrex® jar
- LAB-500/171-01: steels balls, pack of 50 pcs.
- 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 84: set of connectors and cables

OilLab 510
Foaming Tester

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ASTM D892
ASTM D6082
DIN 51566
IP 146
ISO 6247

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 precision of ± 0.1°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 × USB port, equipped with the Lablink software with both ASTM D892 and D6082 test methods, for automatic start /stop soak time, audible alarm after completing soak time.
- Precision as per test method requirements: ± 0.5°C.
- Equipment precision: ± 0.1°C.
- Temperature display definition: 0.01°C.
- Max temperature as per test method requirements: 150°C.
- Equipment maximum temperature: 180°C, in controlled lab temperature environment.

Integrated Touch Screen Panel PC

- TFT/LCD 7"
- Resolution 480 × 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

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OilLab 525/L

CE

ASTM D525 - ASTM D873 - ASTM D942
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.

ASTM D942 - 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.

OilLab 525/L
Automatic Oxidation Stability Bath, liquid version - 4 positions, ASTM D525, D873 and D942

- Compact structure painted with anti-acid epoxy products.
- Stainless steel bath with approx. 40 liters capacity, insulated and equipped with a stirring motor for grant temperature uniformity and side drain cock for atmospheric draining.
- Upper cover equipped with 4 holes for test cells accommodation, un-used positions can be covered with stand-by covers that prevents heat loss, the cover is made in stainless-steel for easy cleaning.
- Front opening useful for deposit the cells after test for cool down and bath medium drainage.
- Stainless steel electric heaters protected inside the bath by a double bottom stainless-steel protection.
- Linetronic Management software running on 12" High-brightness 800cd/m^2 TFT with resolution 1024 × 768:
  - Pre-setting for method ASTM D525/ D873/ D942, or customizable analysis parameters;
  - Settable bath temperature and controlled by PT100 A Class with 0,1°C precision, automatic for method selected or custom temperature;
  - Calibration menu, result browser, dual level password protection;
  - More than >60'000 analysis storage capacity;
  - 2 × USB for connecting: mouse, keyboard and software updates;
  - 1 x RJ45 Ethernet / Lims connection;
  - Integrated beeper for end-test notification / errors;
- Oxygen sampling system with analog manometer and needle valve.
  - 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 in case of pressure leakage;
  - Export of files in .xls / .pdf / .jpg format;
  - Calibration up to 100 points.

Dimensions and Weight
- width 66 cm, depth 60 cm, height 45 cm
- 45 kg

Power Supply
- 230 Vac or 115 Vac 50/60 Hz

Temperature Range
- ambient to +150°C or +302°F
- precision 0.1°C

Consumption
- 1600 Watt

OilLab 525/ST-2
Automatic Oxidation Stability bath, dry version, 2 positions, ASTM D525, D873 and D942

- Compact structure painted with anti-acid epoxidy products.
- Single aluminium dry bath deeply coated, insulated and equipped with multi electrical heaters grant uniformity and stability.
- Upper cover equipped with 2 holes for test cells accommodation, un-used positions can be covered with stand-by covers that prevents heat loss, the cover is made in stainless-steel for easy cleaning.
- Linetronic Management software running on 8" High-brightness 800cd/m^2 TFT with resolution 1024 × 768:
  - Pre-setting for method ASTM D525/ D873/ D942, or customizable analysis parameters;
  - Single settable bath temperature and controlled by PT100 A Class with 0,1°C precision, automatic for method selected or custom temperature;
  - Calibration menu, result browser, dual level password protection;
  - More than >60'000 analysis storage capacity;
  - 2 × USB for connecting: mouse, keyboard and software updates;
  - 1 × RJ45 Ethernet / Lims connection;
  - Integrated beeper for end-test notification / errors
  - Export file in .xls format
- 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 in case of pressure leakage;
  - Export of files in xls. / .pdf / jpg. format;
  - Calibration up to 100 points.
- Oxygen filling system with manual needle valve, analog manometer and filling tube, rear connection permit to joint to external Oxygen line (mandatory)

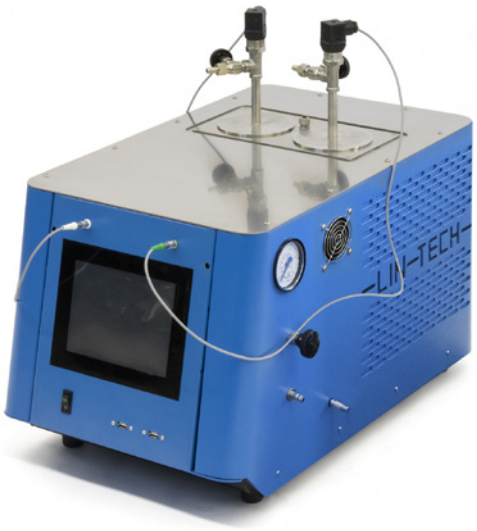
Dimensions and Weight
- width 34 cm, depth 60 cm, height 45 cm
- 28 kg

Power Supply
- 230 Vac or 115 Vac 50/60 Hz

Temperature Range
- ambient to +150°C or +302°F
- precision 0.1°C

Consumption
- 2400 Watt

OilLab 525
Oxidation Stability of Gasoline and Aviation Fuels



OilLab 525/ST-2

OilLab 525/ST-4

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OilLab 525/ST-4
Automatic Oxidation Stability bath, dry version, 4 positions, ASTM D525, D873 and D942

- Compact structure painted with anti-acid epoxidy products.
- Double aluminium dry bath deeply coated, insulated and equipped with multi electrical heaters grant uniformity and stability.
- Upper cover equipped with 4 holes for test cells accommodation, un-used positions can be covered with stand-by covers that prevents heat loss, the cover is made in stainless-steel for easy cleaning.
- Front opening useful for deposit the cells after test for cool down.
- Linetronic Management software running on 8" high-brightness 800 cd/m² TFT with resolution 1024 × 768:
  - · Pre-setting for method ASTM D525/ D873/ D942, or customizable analysis parameters;
  - · Double settable bath temperature and controlled by PT100 A Class with 0,1°C precision, automatic for method selected or custom temperature;
  - · Calibration menu, result browser, dual level password protection;
  - · More than >60'000 analysis storage capacity;
  - · 2 × USB for connecting: mouse, keyboard and software updates;
  - · 1 × RJ45 Ethernet / Lims connection;
  - · Integrated beeper for end-test notification / error;
  - · Export file in .xls format.
- 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 in case of pressure leakage;
  - · Export of files in xls. / .pdf / jpg. format;
  - · Calibration up to 100 points.
- Oxygen filling system with manual needle valve, analog manometer and filling tube, rear connection permit to joint to external Oxygen line (mandatory).

Dimensions and Weight
- width 34 cm, depth 60 cm, height 45 cm
- 38 kg

Power Supply
- 230 Vac or 115 Vac 50/60 Hz

Temperature Range
- ambient to +150°C or +302°F
- precision 0.1°C

Consumption
- 4800 Watt

Accessories for ASTM D525 – D873

1000183
Oxidation Pressure Vessel ASTM D525 - D873
- Complete of:
  - · Threaded suspension lid;
  - · Stem with filler rod and mounting flange;
  - · Needle valve for purging, pressurizing and exhausting pressure vessel with oxygen;
  - · Glass sample container with cover made in glass;
  - · Burst disc assembly set at 15 bar;
  - · Pressure transducer sensor.
- Interior of the pressure vessel can be easily cleaned to prevent corrosion.
- Threaded lid and vessel allow a tight closure.

1000536
Oxidation Pressure Vessel ASTM D525 - D873
- Complete of:
  - · Threaded suspension lid;
  - · Stem with filler rod and mounting flange;
  - · Needle valve for purging, pressurizing and exhausting pressure vessel with oxygen;
  - · Glass sample container with cover made in glass;
  - · Re-armable safety relief valve set at 15 bar;
  - · Pressure transducer sensor;
  - · Interior of the pressure vessel can be easily cleaned to prevent corrosion;
  - · Threaded lid and vessel allow a tight closure.

Spare Parts ASTM D525 - D873
- 2487: glass sample container with cover, pack of 2 pcs.
- 7064: gasket for vessel, pack of 10 pcs.
- 5432: needle valve for purging/discharging pressure vessel
- 16433: rupture disk set at 15 bar (only for 1000183 and 1000537)

Accessories for ASTM D942

15605-AUT
Linetronic Oxidation Pressure Vessel ASTM D942
- Pressure vessel made in stainless steel with threaded body.
- Complete of:
  - · Threaded suspension lid;
  - · Stem with mounting flange;
  - · Needle valve for purging, pressurizing and exhausting pressure vessel with oxygen;
  - · Holder and glass dishes;
  - · Pressure transducer sensor.
- Interior of the pressure vessel can be easily cleaned to prevent corrosion.
- Threaded lid and vessel allow a tight closure.

Spare Parts ASTM D942
- 5290: dish holder, 5 places, made in stainless steel
- 5292: sample dish, Pyrex®, 41 mm diameter, pack of 5 pcs.
- 7064: gasket for vessel, pack of 10 pcs.

Tools or Routine Calibration
- 3013: calibration decade box - PT100 Simulator
- 3102: kit of connectors and cables
- 3096: digital thermometer reader with LCD display for PT100, PT1000, resolution 0.01°C, accuracy 0.01°C, read up to +650°C
- 3774: PT100 sensor 3 mm diameter, 605 mm length, with connector

OilLab 560
Evaporation Bath

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OilLab 560

LT/FA-246000/M

ASTM D381
DIN 51784
IP 131
IP 540
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 × removable blowing devices
- 8 × 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 12"
  · Resolution 1024 × 768, 16 M colours
  · 2 × 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 × 12 A fuses

Dimensions

- 48 × 48 × 46 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 for superheater

General 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
- LT/DO-248000/N: 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/M: flow apparatus
  · full die-cast aluminium construction
  · no contact between rotating and static components
  · motor power: 0.70 kW
  · power supply: 230 V / 115 V 50/60 Hz
  · designed flow rate: 88 m^3/h - 0 mbar
  · noise level: 55 dB(A)
  · weight: 15 Kg
- LAB-246-001: air filter for flow apparatus
  · kit composed by filter support with screwing cover made in painted steel, filter element with particle retain and adapter for connection to flow apparatus
- LAB-2410-CAL: mass flow meter:
  · flow mass range from 1.2 to 60 nl/min
  · digital display readout, connection joints ¼"
  · power supply – battery or micro-Usb power supply
  · operating pressure 0.2 – 11 bar
  · made in anodized aluminium
  · repeatability ± 0.5% of full scale
- LAB-246-002: filter element (spare part)

Steam Accessories

- LAB-102-423: steam generator

OilLab 570
Automatic Oxidation Stability
RBOT and TFOUT Liquid Bath

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CE

ASTM D2112 - D2272 - D4742 - D7098
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.

ASTM D7098
Standard Test Method for Oxidation Stability of Lubricants by Thin-Film Oxygen Uptake (TFOUT) Catalyst B
This test method covers the oxidation stability of lubricants by thin-film oxygen uptake (TFOUT) Catalyst B. This test method evaluates the oxidation stability of petroleum products, and it was originally developed as a screening test to indicate whether a given re-refined base stock could be formulated for use as automotive engine oil (see Test Method D4742).
The test is run at 160 °C in a pressure vessel under oxygen pressure, and the sample contains a metal catalyst package, a fuel catalyst, and water to partially simulate oil conditions in an operating engine. In addition, the test method has since been found broadly useful as an oxidation test of petroleum products.

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 40 litres of oil mixed with 2 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 easly 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 TFOUT Dry Bath

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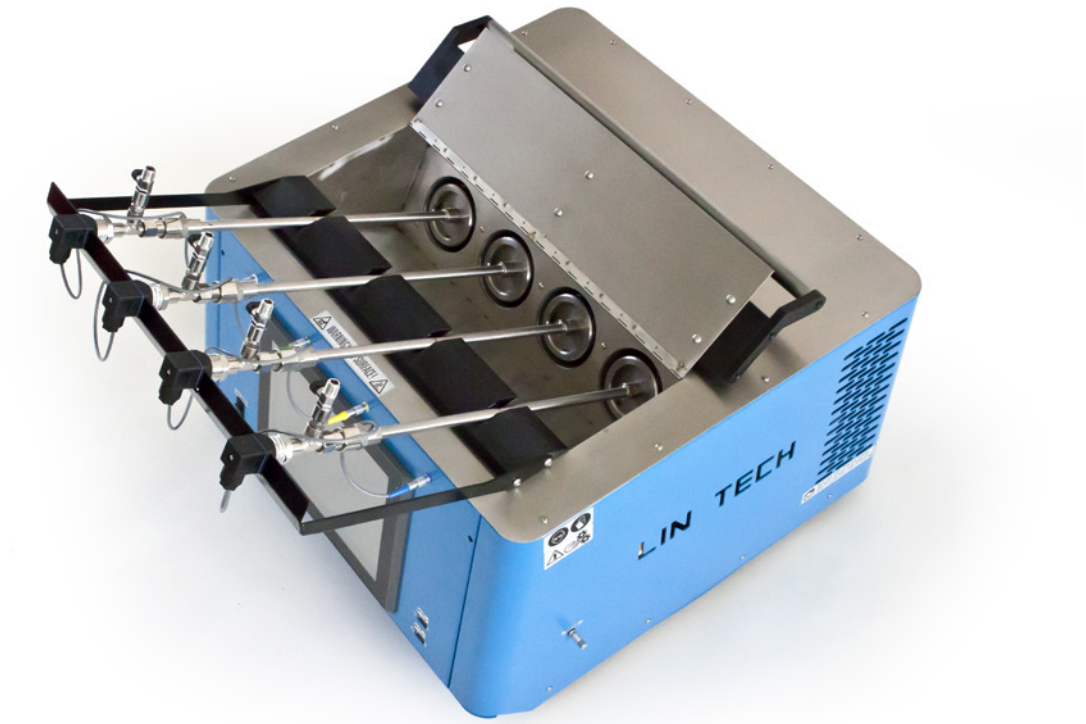

OilLab 570-D-SA
4 places RBOT & TFOUT dry bath

- 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

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 easly 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 - D7098

- 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

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ASTM D942 - D2272 - D4742 - D7098
IP 229

ASTM D942 - Standard Test Method for Oxidation Stability of Lubricating Greases by the Oxygen Pressure Vessel Method.

ASTM D2272 - Oxidation Stability of Steam Turbine Oils by Rotating Pressure Vessel (RBOT).

ASTM D4742 - Oxidation Stability of Gasoline Automotive Engine Oils by Thin-film Oxygen Uptake (TFOUT).

ASTM D7098 - Standard Test Method for Oxidation Stability of Lubricants by Thin-Film Oxygen Uptake (TFOUT) Catalyst B.

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

Main Features

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.

- 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)

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.

Internal tank and mechanical parts

- Dry system without using oil for heating
- 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 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

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 centring made in PEEK
- 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.
- LAB-101-974/571/H: holder for glass container

Calibration Accessories

- OilLab 80: calibration decade box - PT100 simulator
- OilLab 84: kit of connectors and cables
- OilLab 91: pressure calibration kit
- LAB-101-974/571/F: stainless steel cover with hole for calibration
- LAB-101-974/571/G: temperature sensor for tank calibration

Reference Sample

- LAB-571/004-03: RBOT D2272 reference liquid, approx. 2000 ml, reference value approx. 650 min.
- LAB-571/004-04: RBOT D2272 reference liquid, approx. 2000 ml, reference value approx. 1400 min.

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 m
- ALINK: software network connection for remote control of OilLab 571; it permit the control and monitoring of up to 10 Oillab 571
- LAB-571/004-07: Linetronic Varclean solution for cleaning the RBOT glass cell and interior chamber with spray ended selector - 500 ml approx.
- LAB-101-922/CU5000: copper wire 5000 gr, 1.6 mm diameter / approx. 280 m
- 942 Kit, analysis kit to perform the ASTM D942 test composed by:
  · Dish holder with 5 glass sample dish
  · Instrument vertical swing-balance system
  · Holder support and centring system
  · Software for ASTM D942 method
- 4742 Kit, analysis kit to perform the ASTM D4742/ D7098 test composed by:
  · Aluminium insert for reduce volume of chamber
  · Glass, Teflon® cover and spring
  · Adapter kit for perform method on OilLab 571
  · Software for ASTM D4742 and D7098 method

OilLab 580 Noack

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CE

ASTM D5800
CEC L-40-A-93
DIN 51581
IP 421
JPI-5S-41-04
NB/SH/T 0059

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 reweighted: 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
- Accuracy 0.15° C and resolution = 0.01° C
- Temperature probe is fixed on the test cup by mean of the locking device

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 ±0.2 mm H20

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 pressure differential 20 mm ±0.2 mm during the analysis
- Low voltage power supply

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
- 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
- Unknow 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 ± 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%

OilLab 580
Noack

Particular attention has been payd 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 ans hook wrench, high quality materials for safety operations.

With the pliers the nut of the crucible cover is accurate 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

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OilLab 590
Air Release

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CE

ASTM D3427
IP 313
ISO 9120
Standard Test Method for Air Release Properties of Hydrocarbon Based Oils.
This test methods cover the ability of turbine, hydraulic and lubricating oils to separate entrained air.

Compact bench instrument is fully independent, equipped in standard with density measurement system, heater, temperature control system, pressure regulation and microprocessor-based control system and other devices to assure perfect performance in all range of application. Design of the instrument is very easy to use and allows even inexperienced operator to perform routine tests.

- Automatic instrument with pre-programmed software for execute analysis in conformity with ASTM D3427, IP313 and ISO9120.
- Automatic diagnostic of position and sensors as well as automatic calibration procedure.
- Integrated liquid conditioning system for test temperatures between +25°C and +85°C with accuracy of 0,1°C.
- Automatic conditioning of air from ambient up to +75°C with accuracy of 0,5°C.
- PT100 sensors class A able to monitor temperature of Air/Liquid/Oil sample with an accuracy of 0,1 °C.
- Instrument is equipped with automatic movement of glassware; no operator time is needed during analysis to perform changes in positions.
- Audible alarm when glassware is on movement.
- Integrated balance assures automatic density reading by using glass sinker 5 and 10 ml with accuracy < 0,5 Kg/m^3, temperature control device grant temperature between +25°C and +75°C.
- Test vessel made in tempered glass, composed by external test tube with graduation at 175, 180 and 185 ml, and internal air diffuser tube with bubble dispersion baffle.
- Integrated analysis timer with 0,1 sec precision.
- Safety system with audio-visual signals against overpressure, overtemperature, lack of air flow and low liquid level.
- Real-time graph creation for density and temperature over the time.
- Unit is managed by an integrated computer with high visibility 10" touch screen:
  · Internal memory capable of storing up to 30'000 tests
  · High brightness and resolution 1280 x 800 dpi
  · 2 × USB ports, 1 × RJ45 Ethernet / Lims
- Software features:
  · Possibility to change pressure unit between: bar / Psi / kpa
  · Possibility to change temperature unit between: °C / °F
  · Files export in .xls format

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

Dimensions
- width 61
- depth 58
- height 86

Weight
- 62 kg

Air Input
- Mandatory compressed air supply at least 6 bar pressure, clean and dried, unit is equipped with quick-connection mechanism with 1/8" BSP female connection.

Air Output
- Unit is equipped with a rear connection for exhaust oils fumes, a tube of inside diameter 8mm with a length of min. 1 meter and with 0 bar backpressure is highly recommended.

AP

OilLab 611
Aniline Point

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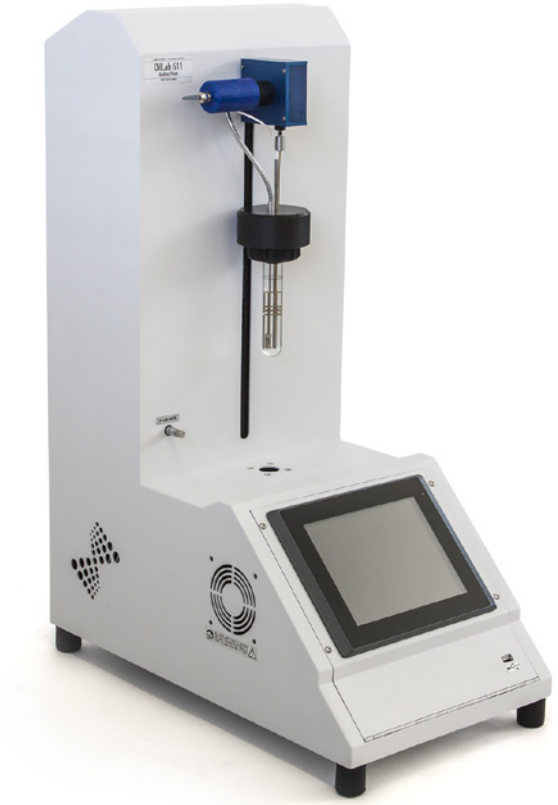

ASTM D611-E
IP 2 -E
Correlated to
ASTM D611-A, B, C, D
IP 2-A, B, C and D
Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents.
Test method E describes a procedure using an automatic apparatus suitable for the range covered by test methods A and B.

- Automatic unit able to measure products with ASTM color less than 8
- Automatic movement of the head up and down.
- Electric heater controlled by PID system and on-board cooling system with liquid Peltier exchanger grant the following temperature: -10°…+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 costums 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 anti-acid products
- Double detection system able to detect dark and clear samples
- Managed by a touch screen panel PC
  · TFT/LCD 8"
  · 40 Gb HD
  · resolution 1024 × 768 and 16 M 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
- 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
- 115 Vac 50/60 Hz

Dimensions
- 53 × 31 × 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
Automatic Penetrometer

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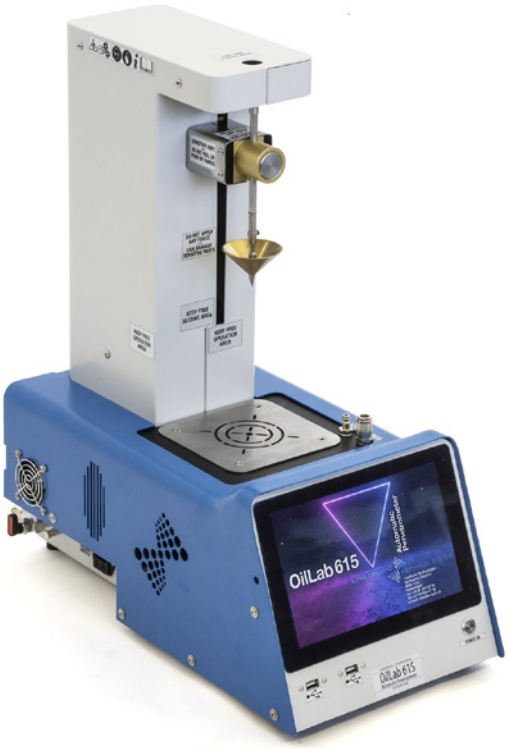


ASTM D5
ASTM D217
ASTM D937
ASTM D1321
ASTM D1403
ASTM D1831
ASTM D2884
DIN 51579
DIN 51580
DIN 51804
DIN 52010
IP 49
IP 50
IP 179
IP 310
IP 376
ISO 2137
NF T60-119
NF T60-132
NF T60-140

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, NF T60-132, NF T60-140
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, NF T60-119
Cone penetration of petrolatum.
Covers measuring with a penetrometer the penetration of petrolatum as an empirical measure of consistency.

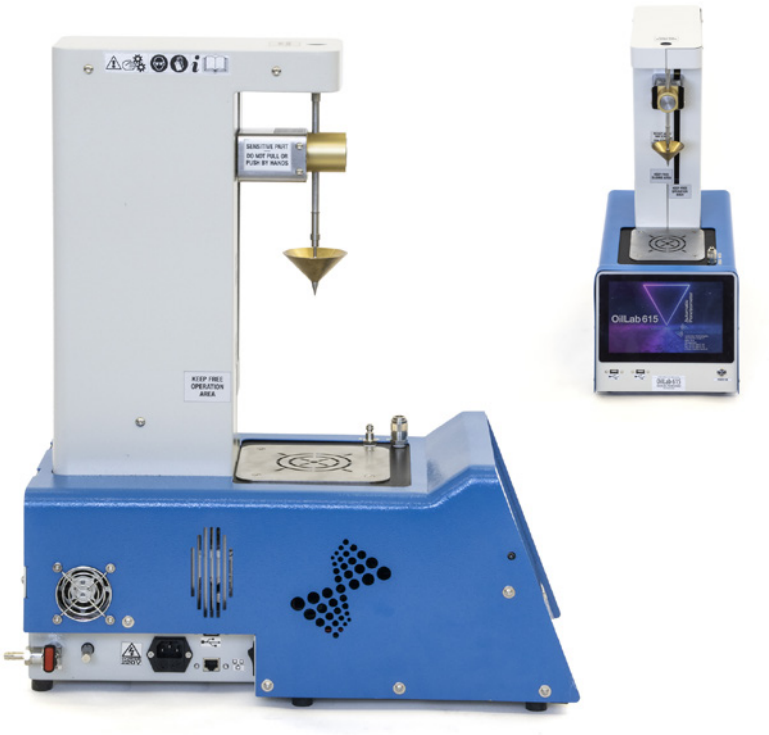
ASTM D1321, IP 376, DIN 51579
Needle penetration of petroleum waxes.
Covers the empirical estimation of the consistency of waxes derived from petroleum by measurement of the extent of penetration of a standard needle.
This test method is applicable to waxes having a penetration of not greater than 250.

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.

- Bench top instrument compact and solid structure painted with anti-epoxy products, include the refrigerator system able to cool down 10°C sub-ambient temperature and dedicated electronic boards.
- Analytical head made in aluminium and corrosion resistant plastics, advanced automatic up-down movement and sample surface positioning system, penetration range up to 75 mm.
- Regulable led light and mirror.
- Water bath for conditioning sample with quick-joints.
- Safety systems: low level liquid alarm and protection, head malfunctioning movement, protection against needle/cone not installed, stand-by module for energy saving.
- Linetronic Management software running on 10.1" high-brightness 800cd/m² TFT with resolution 1280 × 700:
  · pre-setting for method ASTM, DIN, IP; and ISO, or customizable analysis parameters
  · advanced surface detection with adjustable sensitivity;
  · settable bath temperature and controlled by PT100 A Class with 0,1°C precision, automatic for method selected or custom temperature;
  · calibration menu, result browser, dual level password protection;
  · more than 60'000 analysis storage capacity
  · 2 × USB for connecting: mouse, keyboard and software updates;
  · 1 × RJ45 Ethernet / Lims connection
  · integrated beeper for end-test notification / errors;
  · real time graph for comparing penetrations values, export file in .xls format.
- Plunger 47.5 gr, ASTM D217 optional cone.
- With spirit level and adjustable foots.

OilLab 615
Automatic Penetrometer



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CE

Dimensions
- Width 28 cm
- Depth 54 cm
- Height 73 cm

Weight
- 22 Kg

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 g

Accessories for ASTM D5 , IP 49, EN 1426
- LAB-100-662: penetration needle ASTM D5, IP 49, 2.5 g, pack of 5 pcs.
- LAB-100-1426/20: reduction ring for reduce sample volume, 53 mm external diameter, 36 mm internal diameter, 20 mm height, for EN 1426
- LAB-100-1426/30: reduction ring for reduce sample volume, 53 mm external diameter, 36 mm internal diameter, 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, diam. 65 mm body of brass, stainless steel tip
- LAB-100-664/SS: optional penetration cone ASTM D217, 65 mm, diameter body and tip of stainless steel, for European Pharmacopoeia
- LAB-100-665: optional penetration cone ASTM D217, 69 mm diameter, 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, 203 mm diameter

Accessories for ASTM D937
- LAB-100-664: optional penetration cone ASTM D217, 5 mm diameter 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 pcs.
- LAB-100-666/BC: base plate in brass 63.5 × 38 mm, pack of 2 pcs.

Accessories for ASTM D1403 – D1831
- LAB-100-711: penetration cone ½ ASTM D1403, IP 310, 22.5 g, body and tip in stainless steel
- LAB-100-712: slider ½ - 15g
- LAB-100-713: sample container ½ 38 × 32 mm pack of 3
- LAB-100-714: half-scale grease worker ASTM D1403, brass, with 8 holes 6.35 mm diameter
- LAB-100-715: penetration cone ¼ ASTM D1403, IP 310, 1.20 g, 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 pcs.
- LAB-100-718: quarter-scale grease worker ASTM D1403, brass, 8 holes 3.17 mm diameter

Accessories for ASTM D2884
- LAB-100-719: propellant cone 15 gr, 65 mm diameter, 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
- LAB-100-660/A: transfer dish

OilLab 600
Pensky Martens

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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, lubrificants, 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.

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

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
Instrument equipped with flame ignition device made in brass, with 0.7 mm diameter orifice for analysis with gas also provided with electrical ignitor hot-wire that automatically passes through the center of large opening (A) of the proper cup cover.

Pilot Flame
Secondary pilot flame gas propelled for re-enlight the test flame, alternatively elictrical ignitor hot wire shall be used; a bead of 4 mm is provided to compare flame dimensions.

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

Barometric correction
- Barometric 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 at the end of the test

Test Cup
- Made of brass with Ni-Cr treatment for more corrosion resistance 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 through a two-bladed metal propellers. 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 costumized procedures)
- Automatic handling of samples with unknown flash point

OilLab 600
Pensky Martens

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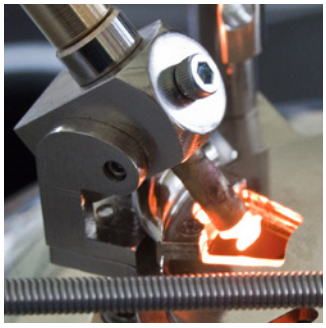


Electric lighter
with electrical ignitor.

Gas with flame exposure device.

- Display in real time of all the analysis parameters and status
- 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"
- 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 with schuko plug

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

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

Weight

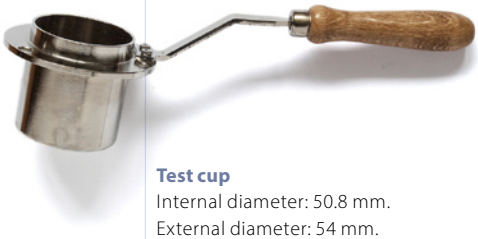
- 27 Kg

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-600/08-12: PT100 product
- LAB-600/08-13: detection / ionisation cable
- LAB-600/08-14: PT100 Bath
- LAB-600/09-04: gas reducer
- LAB-600/09-05: calibrated brass crucible
- LAB-600/09-06: calibrated brass crucible complete with movement
- 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



Test cup

Internal diameter: 50.8 mm.
External diameter: 54 mm.
Internal depht: 55.8 mm.
Filling mark at 21.8 mm from upper side.

OilLab 6000 - *Leonardo*
Pensky Martens

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

Subject
Flash Point on petroleum products, gas oils, fuel oils, lubrificants, 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
- Ectrical 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 costumized 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

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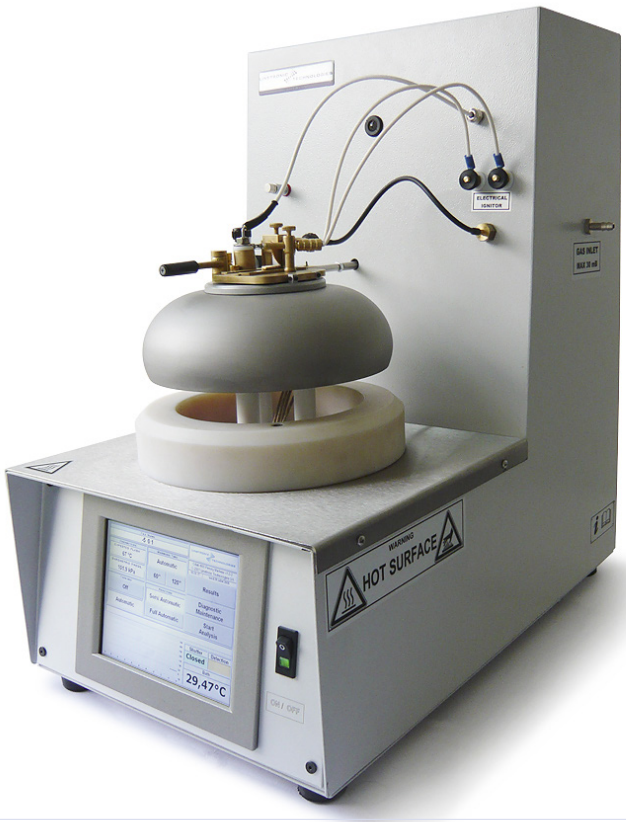
CE



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
- Unknow 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

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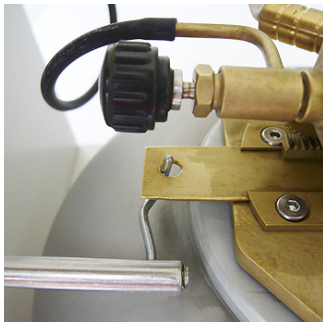
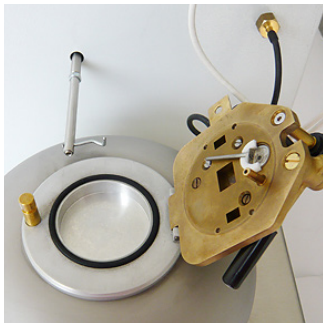
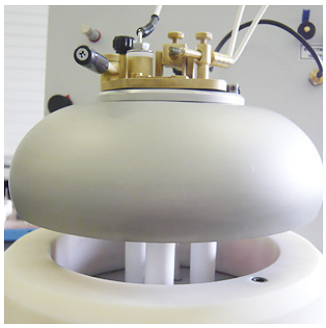
CE



Automatic opening, closing and positioning of the sliding shutter.

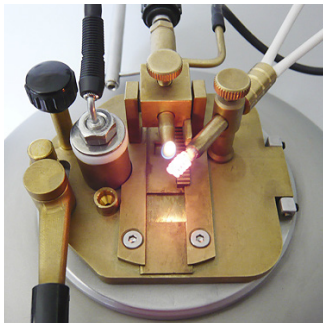


The test cup is completely made of aluminium and is equipped with a high temperatures resistant o-ring, allowing an uniform sealing of the closing cover.



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 throught 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 ± 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 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 - OilLab 650 Plus Abel

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CE

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 … +120°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
- Warning if results obtained is out of specification

The software includes:

Analysis Menu
- Standard method as per ASTM / IP / ISO / EN / DIN… norms of reference
- Unknow 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 (OilLab 650)
- Peltier elements granting a temperature to -10°C (OilLab 650 Plus)

OilLab 650 - OilLab 650 Plus Abel

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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

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

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 ± 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 37 cm
- depth 48 cm
- height 61 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 6560 - *Golleo*
Abel + Pensky Martens

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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…

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, lubrificants, biodiesel. Suitable for flash point detection on different substances, 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 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 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 Pensky Devices
- Sample temperature: PT100 sensor completely made in stainless steel resistant to corrosion and shock resistant
- Bath temperature: PT100 sensor

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

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
- Ectrical ignitor

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.
- 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

Shutter
- Automatic mechanism opening the shutter conform to the methods

Cooling system
- Built-in forced air fan (Pensky Martens ASTM D93)
- Liquid refrigerant controlled by internal solenoid valve (Abel)

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

OilLab 6560 - *Golleo*
Abel + Pensky Martens

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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 costumized 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
- 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

Cord Cable
- 3 conductors flexible cable with schuko plug

Ambient Temperature
- Max 35°C
- H.R. 80%

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

Weight
- 34 Kg

Spare Parts for Abel
- 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

Accessories / Spare Parts for Pensky Martens
- 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 670 Cleveland

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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 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
- Unknow 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
- Internal diameter: 50.8 mm
- External diameter: 54 mm
- Internal depht: 55.8 mm
- Filling mark at 21.8 mm from upper side

Heating

- Electrical heater
- Equipped with over temperature cut-out

Electrical Supply

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

Test Cup

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

Gas ignitor / flame applicator made in stainless steel with orifice 0.8 mm diameter, automed duplicator of the sweep movement permit the precise positioning at 1.8 mm above cup rim and 152 mm radius from cup center.

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.

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 - pilot arm
- LAB-670/07-02: gas ignitor
- LAB-670/07-03: micro switch
- LAB-670/07-04: handle
- LAB-670/07-05: electrical lateral ignitors pack of 2 (old model)
- 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.

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OilLab 690 Tag

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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…

Automatic Tag Flash Point Analyser

- One calibrated brass crucible with sample level mark.
- Ignition system: gas or electric lighter.
- Control system: on microprocessor based.
- Temperature measurement: platinum resistance, PT100, Class A with metal shield.
- Built-in barometric sensor with automatic barometric correction of results executed by the software.
- Detection of the flash point by ionization/thermal flash detector.
- Heating and cooling by High Tec Peltier module + external cooling joints (mandatory for granting temperature below 0°C).
- Temperature range: +8°C up to +110°C, with external cooling temperature range extended to -30°C.
- Safety features:
  · Auto fire detection with alert alarm;
  · Fire extinguishing system with connection for external inert gas.
- Built-in Touch Screen Panel PC for the managing of the analyser by means of the Lab-Link software:
  · Large display TFT/LCD 8" to show the test temperature, test conditions, service parameters, calibration procedures etc…;
  · Resolution 1024 × 768 and 16 M colours;
  · I/O ports: 2 × USB for connection to an external printer and /or external PC;
  · Storage capacity for more than 60'000 test results and 10 different test method.
- Lab-Link operating software:
  · Automatic execution of the analysis as per methods;
  · Automatic handling of samples with unknown flash point;
  · Automatic barometric correction of results;
  · Alpha numeric keypad on the touch screen with function keys;
  · Calibrating menu with up to 50 calibration points;
  · Auto Calibration Menu with calibration time recorded.

  Diagnostic Menu:
  · Protection password for settings and calibration menu;
  · Expected flash point temperature programmable.

Electrical Supply

- 220 V / 50 Hz
- 115 V / 60 Hz

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

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

Weight

- 32 Kg

Accessories

- 5050: gas reducer 30 mbar.
- 5052: gas connection tube, 5 m.
- LT/CB-40800/M-30: cryostatic bath 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 ±0,5°C to +37°C (BC);
  · Display precision ±0,1°C;
  · Exit RS 485;
  · Safety thermostat;
  · Power supply 230 V / 115 V;
  · Built according to C.E.I. normatives (66-5), 2 class, DIN 12880;
  · Capacity: 8 litres.

Spare Parts

- LAB-690/07-01/P: electrical ignitor platinum coil.
- LAB-690/08-12: PT100 product.
- 5755: calibrated brass crucible.
- LAB-690/08-13: ionisation / detection cable.
- LAB-690/08-17: thermal flash detector.
- LAB-690/08-66: thermal fuses.

Calibration Tools

- 3013: calibration decade box - PT100 simulator.
- 3102: kit of connectors and cables.

OilLab 6901 Tag

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CE

ASTM D56
ASTM D3278
ASTM D3941

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…

Automatic Tag Flash Point Analyser Stand Alone

- Calibrated brass crucible with sample level mark.
- Ignition system: gas or electric lighter.
- Control system: on microprocessor based.
- Temperature measurement: platinum resistance, PT100, Class A with SS sheath.
- Built-in barometric sensor with automatic barometric correction of results executed by the software.
- A single multi-detector combines the ionization detector and thermal detector.
- Heating: electrical heater with heating rates as per method.
- Temperature range: +8°C … +110 °C.
- Cooling: inbuilt forced air fan for automatic cooling at the end of test.
- Safety features:
  - Automatic diagnostic in case of breakage of the sample temperature probe and thermal sensors;
  - Automatic fire detection and extinguisher system;
  - Overheating protection with auto shut off during the test;
  - Gas valve for closing the gas supply.
- Built-in Touch Screen Panel PC for the managing of the analyser by means of the Lab-Link software:
  - TFT/LCD 8.4";
  - Resolution 1024 × 768 and 16.2 M colours;
  - 2 × USB for connection to an external printer;
  - 1 × Ethernet port for LAN or Lims network;
  - Storage capacity for more than 65'000 analysis.
- Lab-Link operating software:
  - Automatic execution of the analysis as per method;
  - Automatic handling of samples with unknown flash point;
  - Display in real time of all the analysis parameters and status;
  - Field for introduction of operator and product name;
  - Expected flash point temperature programmable;
  - Audible alarm and displayed message for end analysis, errors/malfunctions;
  - Configuration menu with up to 20 preset sample and expected flash point;
  - Automatic barometric correction of result.
- Cord cable with Schuko plug.
- USB flash memory pen drive with the installed software with calibration and settings (copy of backup), User Manual (PDF format).

Electrical Supply

- 220 V / 50 Hz
- 115 V / 60 Hz

Ambient Temperature

- Max 35°C
- H.R. 80%

Dimensions

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

Weight

- 30 kg

Accessories

- 5050: gas reducer 30 mbar.
- 5052: gas connection tube, 5 m.

Calibration Tools

- Testo511: absolute barometer.
- 3013: calibration decade box - PT100 Simulator.
- OilLab 91: kit of connectors and cables.

Spare Parts

- LAB-6900/09-05: calibrated brass crucible with handle.
- LAB-6900/08-12: PT100 product.
- LAB-6900/07-01: electrical ignitor long life.
- LAB-6900/08-17: thermal flash detector.

OilLab 715
Reid Vapour Pressure

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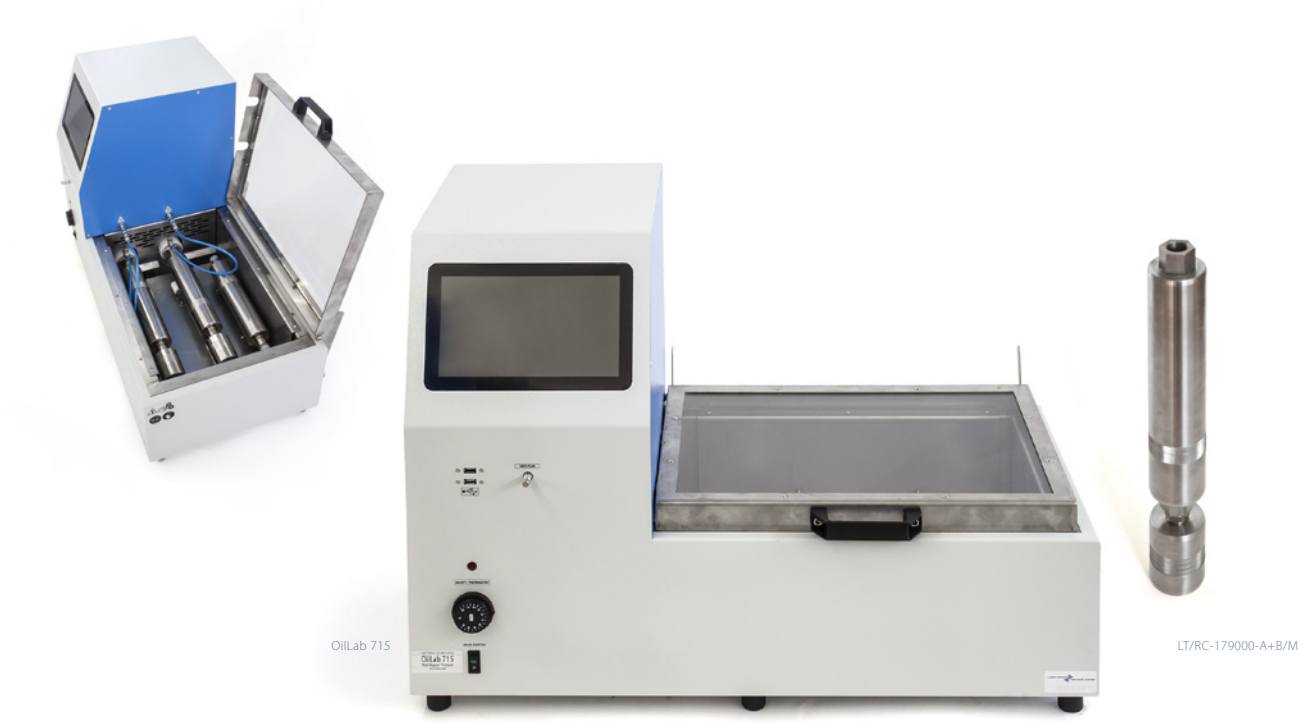

OilLab 715

LT/RC-179000-A+B/M

ASTM D323
ASTM D4953
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).

ASTM D4953
Standard Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends

This test method covers and is applicable to gasolines and gasoline-oxygenate blends with a vapor pressure range from 35 kPa to 100 kPa (5 psi to 15 psi).
This test method, a modification of Test Method D323 (Reid Method), provides two procedures to determine the vapor pressure of gasoline and gasoline-oxygenate blends.

- 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 litres.
- Analysis range from 0 up to 250 kPa.
- 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 O_2
- 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 730
Ductilometer

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CE

ASTM D113
ASTM D6084
AASHTO T51
EN 13398
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 ± 0.9°F (25 ± 0.5°C) and with a speed of 5 cm/min ± 5.0%.
At other temperatures the speed should be specified.

5047+15945

5045+15945

5207

Automatic Refrigerated Apparatus for Ductility of Bituminous Materials

- Structure fully made in stainless steel, internal bath realized with round edges easily to clean, bath is also equipped with atmospheric drain.
- Bath is automatically thermo-stated with integrated refrigerating gas motor-compressor system CFC free for test temperatures up to +5°C and heated with total immersion stainless steel heaters granting temperature up to +50°C, resolution 0,1°C and stability ± 0.1°C (with cover).
- Double pump system with gently movement of liquid avoid ripple on sample surface.
- 1 × traction monophasic motor 220 Watt with reduction. fitted on traction head able to manage 3 samples thanks to 3 independent force reader sensors.
- Analysis length resolution 1500 mm with < 1mm resolution and minimum settable parameter.
- Transparent inspection window and anti-overturn system.
- Automatic traction system to measure and record the traction from 0.1 to 300N for each test place, with automatic system to measure the elongation from 1 to 1500 mm for each test place.
- Touch screen panel pc 10.1" high visibility display equipped with 2 USB ports for connecting external control peripherals, for software updates, for exporting files and printing, 1 × RJ45 for Ethernet connection and LIMS.
- Dedicated software for automatic sample according to ASTM D113 – ASTM D6084 - EN13589 - EN13703:
  · User friendly and customizable interface;
  · Automatic saving of all analytical parameters;
  · Customizable analysis parameters;
  · Printable graphs and results.
- Included with instrument:
  · 3 × Ductility form for ASTM D113;
  · 3 × Base plate for form filling.

Dimensions
- Width 190 cm
- Depth 50 cm
- Height 90 cm (with open cover)

Weight
- 82 Kg (empty)

Bath Internal Dimensions
- Width 175 cm
- Depth 25 cm
- Height 16 cm

Range
- +5°C to +50°C

Power supply
- 230 Vac 50 Hz
- 115 Vac 50 Hz

Max. consumption
- 1300 Watt

Accessories
- 5047+15945: elastic recovery form/mold made in brass for ASTM D6084

Spare Parts
- 5045+15945: ductility form/mold made in brass for ASTM D113
- 5207: base plate for form/mold fllling

OilLab 740
Herschel Emulsifying

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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.

Automatic Herschel Emulsifier - ASTM D1401
OilLab 740 - 6 places
OilLab 744 - 4 places
OilLab 742 - 2 places

- Compact structure painted with anti-acid epoxidy products.
- Stainless steel bath with approx. 14/10 liters capacity, insulated and equipped with a wide double windows equipped with illuminating LED barriers.
- 1 × Drain tap.
- Cover with 6/4/2 holes for the accommodation of up to 6/4/2 graduated cylinders (included).
- Heating supplied by stainless steel heater.
- PT100 made in stainless steel for bath temperature control.
- Liquid level sensor with alarm.
- Motor pump for bath uniformity.
- 6/4/2 × Herschel head equipped with stirring paddle, rpm sensor and up/down movement system.
- Beeper for audible alarm at the end of analysis.
- Automatic image recording system.
- Integrated touch screen panel pc 8" with dedicated software:
  · 6/4/2 × independent timer management;
  · bath temperature management;
  · independent RPM setting;
  · automatic detection of separation via CCD system;
  · graph creation.
- 2 × USB ports for export data / printer connection.

Power supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- 70 × 55 × 77 cm (OilLab 740)
- 54 × 55 × 77 cm (OilLab 744)
- 37 × 55 × 94 cm (OilLab 742)

Accessories
- T-AS19C/CB: thermometer ASTM 19C with special propylene filling, range +49...+57, div. 0,1°C
- T-AS21C/CB: thermometer ASTM 21C with special propylene filling, range +79...+87, div. 0,1°C
  · Ext-851: external stainless-steel support for up to 10 cylinders
  · LAB-001-516: digital tachometer
  · Digital 5 digit 13 mm LCD display with backlight
  · Non-contact rotation speed (RPM) and total revolutions (REV)
  · 40 reading memories: Max, Min, Avg, Data
  · Speed range: 0.5…19'999 m/min
  · Rotational speed 0.1 U/min
  · Measuring error: +/- 0.05%
  · Weight: 325 gram

Spare Parts
- LAB-140-002: PT100 probe
- LAB-185-001: stirring paddle for Herschel
- LAB-101-851: glass cylinder Pyrex®, 100 ml, graduated

OilLab 880
Saybolt Viscometer

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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

OilLab 900
Automatic Refrigerated Distillation Unit Analyser Stand Alone

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ASTM D86 group 0,1,2,3, 4 - ASTM D216 - ASTM D447 - 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.

Hardware Performance
- Internal built-in heating/cooling unit which granting the following working temperatures: +65°C…-0°C for condensing side, +40°C…-0°C for receiver side.
- Low mass low voltage heater 600 W in order to heat sample up to +450°C.
- Automatic electric fan with electronic switch for rapidly cooling down end of analysis.
- Automatic fire extinguisher system with joint to be connected to an external extinguisher product line with 2 × fire detector and pressure connection sensor.
- Automatic barometric correction with precision 0.1 kPa.
- Temperature resolution and accuracy 0.1°C through PT100 A class sensor.
- Volume resolution 0.02 ml.
- Volume accuracy ±0.1ml.
- Level following accuracy: ±0.1 ml.

Software Performance
- Managed by a touch screen panel PC by means of the Lab-Link software running in Windows® ambient:
  · TFT/LCD 10.1";
  · resolution 1280 × 800 with 16M colours, high brightness;
  · 3 × USB Port, 1 × RJ45;
  · LIMS compatible connection with network printer option with network printer option;
  · storage capacity for more than 60'000 analysis;
  · 6 methods based configurations and adaptive heating algorithm;
  · settable password for protect calibration settings;
  · recovery program;
  · friendly user system with wizard.
- Automatic determination of initial boiling point (IBP) and final boiling point (FBP).

Instruments Features
- Mounted on a single-solid case painted with anti-acid epoxidic products.
- Recovery metal plate supported by a base whose height is adjustable with elevating system software controlled , self-positioning heating plate with compatibility with distillation flask 100, 125 and 200 cc.
- Wide toughed glass squared window movable for easily operation.
- Condensing tube made in stainless steel with integrated drip deflector and tube cleaned sensor.
- Receiver positioning sensor (receiver in-place), receiving door sensor for better conditioning, optical measurement sensor for auto-adapting distillation feature.
- PT100 A platinum resistance for sample temperature.

Power Consumption
- approx. 1200 W
- 220 Vac +/- 10%, 50/60 Hz

Weight
- 70 kg

Dimensions
- 46 × 55 × 80 cm

Thermo Twin
Thermo Four

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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 =ΔT/Δt)
- 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 Sceenshot

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

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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.

LT/AP-215000-A/M

Aniline Point ASTM D611-A,
manual instrument composed by:

- Painted electric heater device with power regulator and main switch
- Heating warm lamp for safety
- External glass jacket and test tube diam. 25 mm × 150 mm
- Stainless steel stirrer for manual operating
- Thermometer stand-by support
- Clamp with cork-coated paddles for glassware adjustable in height

LT/AP-215000-B/M

Aniline Point "Thin-film" ASTM D611-B, manual instrument composed by:

- Metallic case structure painted with anti-acid products
- Heating plate with aluminium ring, rod nd clamp for glassware
- Thermometer stand-by support
- Main switch for activate the heating, warming lamp and heat regulation knob
- Glassware composed by external tube 175 × 40 mm, internal tube 150 × 25 mm and glass sleeve 65 × 3 mm
- Cork stoppers and soft iron stirrer for manual operating

LT/AP-215000-C/M
Aniline Point "Tube" ASTM D611-C

- Electric heater device
- Test tube diam. 22 mm × 150 mm
- Caps
- Support

LT/AP-215000-D/M
Aniline Point ASTM D611-D

- Electric heater device
- Test tube diam. 22 mm
- Caps
- Support

Power Supply

- 220 or 115 Vac 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 made in glass
- 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

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CE

ASTM D113
ASTM D6084
AASHTO T51
EN 13398
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 ± 0.9°F (25 ± 0.5°C) and with a speed of 5 cm/min ± 5.0%.
At other temperatures the speed should be specified.

LT/DU-73000-R/M
Ductility of Bituminous Materials
Electric and Refrigerated - ASTM D113

- Bench top instrument completely made in stainless-steel and double chamber insulation.
- Internal stainless-steel bath with capacity of approximately 55 liters, equipped with double-insulation and fully immersion stainless-steel heater.
- Temperature controlled by a digital thermoregulator with PID functions that control the temperature trough an A class PT100 sensor in the range from ambient to +50°C, resolution 0,1°C and stability ± 0.1°C (with cover).
- Double pump system with gently movement of liquid avoid ripple on sample surface.
- Gas CFC free refrigeration system allow to cool down the bath to +5°C.
- Three-place stainless steel structure with a motion of 1500 mm, transmission of 10 rev. on square-thread traction rod with speed 5 cm/min. by monophasic motor 220 Watt with reduction.
- Stainless-steel / plexiglass cover preventing evaporation and disturbance during the test.
- Lateral drain valve for easily emptying the bath.
- Safety thermostat.
- Included with instrument:
  · 3 × ductility form for ASTM D113;
  · 3 × base plate for form filling.

Dimensions
- Width 190 cm
- Depth 32 cm
- Height 90 cm (with open cover)

Weight
- 70 Kg (empty)

Bath Internal Dimensions
- Width 175 cm
- Depth 25 cm
- Height 16 cm

Range
- +5°C to +50°C

Power supply
- 230 Vac 50 Hz
- 115 Vac 50 Hz

Max. consumption
- 1200 Watt

Accessories
- 5047+15945: elastic recovery form/mold made in brass for ASTM D6084

Spare Parts
- 5045+15945: ductility form/mold made in brass for ASTM D113
- 5207: base plate for form/mold fllling


5207


5047+15945


5045+15945

Fraass

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CE

LT/FA-252000/M

LT/FA-252000-BIS/M

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.

LT/FA-252000/M
Fraass Apparatus IP 80

- Bending apparatus composed by 2 concentric tubes topped by two clamps for holding the test plaque.
- Flexing brass system complete with 1 test plaque.
- Internal glass tube 35 × 210 mm, median glass tube 55 × 200 mm, external glass container.
- Glass funnel for carbon dioxide introduction.
- 3 Stoppers made in rubber/cork.

LT/FA-252000-BIS/M
Fraass Apparatus IP 80

- Bending apparatus composed by 2 concentric tubes topped by two clamps for holding the test plaque.
- Flexing brass system complete with 1 test plaque.
- Internal glass tube 35 × 210 mm, external unsilvered dewar jar.
- Glass funnel for carbon dioxide introduction.
- 2 Stoppers made in rubber/cork.
- Base support for dewar jar.

Accessories

- 1000511: heating plate 600 W
- T-IP42C: thermometer IP 42C

Spare Parts

- LAB-102-521: Fraass test plaque, pack of 25 pcs.
- LAB-102-522: glassware set composed by median tube and external for LT/FA-252000/M
- LAB-102-524: internal glass tube 35 × 210 mm
- LAB-102-525: stoppers set pack of 3 pcs. for LT/FA-252000/M
- LAB-102-526: stoppers set pack of 2 pcs. for LT/FA-252000-BIS/M
- LAB-102-527: flexing brass system complete of bending apparatus
- LAB-102-528: Dewar jar for LT/FA-252000-BIS/M

Loss on Heating

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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.

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

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ASTM D36
IP 58-B

Softening Point of Bitumen
(Ring and Ball Apparatus)
This test method coversthe 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).

LT/RB-217000-B/M
Ring and Ball Apparatus ASTM D36
- Pyrex® jar diam. 85 × 130 mm
- Two-places brass cage adjustable in height
- 2 hardened steel balls diam. 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 × 40 × 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

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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.

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

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

Fuel Blending Unit

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CE

ASTM D613
ASTM D2699
ASTM D2700
ASTM D2885

Standard Test Method for Research Octane Number of Spark-Ignition Engine Fuel

Standard Test Method for Determination of Octane Number of Spark-Ignition Engine Fuels by On-Line Direct Comparison Technique

Standard Test Method for Cetane Number of Diesel Fuel Oil

LT/BM-314000/SA

- Floor instrument compact and solid structure painted with anti-epoxy products, include the refrigerator system (with gas CFC free) and dedicated electronic boards.
- Linetronic fixing system for glassware that allow an easy cleaning of all components.
- Safety systems: overheating alarm and protection, over-pressure protection system, sample bottle wrong position protection, stand-by module for energy saving.
- Cooling performance: able to grant working temperatures of -20°C.
- Up to 6 liquid tank connection facility.
- Integrated balance assures an accuracy of +/- 0.01 ON/CN (0.2%).
- Linetronic Management software running on 12" high-brightness TFT with resolution 1024 × 768:
  . Pre-setting for methods: ASTM D2699 / D2700 / D2885 / D613;
  . Customizable blending parameters with tolerance of 0.2%;
  . Settable bath temperature and controlled by PT100 A Class with 0,1°C precision;
  . More than 100 recipes storage capacity;
  . 2 × USB for connecting: mouse, keyboard and software updates;
  . 1 × RJ45 Ethernet / Lims connection;
  . Integrated beeper for end-preparation notification.

Weight

- 250 Kg

Dimensions

- Width 77 cm
- Depth 72 cm
- Height 145 cm

Power supply

- 220 or 115 Vac 50/60 Hz

Boiling Point of Engine Coolants

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ASTM D1120

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

LT/BP-232000/M
Manual apparatus for Boiling Point of Engine Coolants - ASTM D1120

- Metal tube-shaped structure with double colour fine painting equipped with rod and clamp for glassware.
- Heating mantle equipped with wire heating resistance gently rolled around a stainless steel basket.
- Internal insulation made with mineral fibres.
- Main switch and heating power regulator.
- 100 ml round-bottom flask with short-neck and side-entering for the thermometer introduction.
- Linear condenser made in glass with joints for liquid circulation and grounds joints 19/38.

Temperature Range
- Ambient to +300°C

Power Supply
- 220 or 115 Vac 50/60 Hz

Consumption
- 250 Watt

Spare Parts
- 092: 100 ml glass flask with thermometer cap.
- 1094: condenser made in glass.
- 1988: Boiling stones, pack of 150 g.

Accessories
- T-AS2C: thermometer ASTM 2C without mercury.

Centrifuge

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LT/WB-123200/M - water conditioning bath, 18 liters capacity,
LAB-4007-010 - gas release and dilution system, adapters and glassware.

ASTM D91, ASTM D96, ASTM D893, ASTM D1796, ASTM D2273, ASTM D2709, ASTM D2711, ASTM D4007, ASTM D5546, API 2542, API 2548, BS 4385, DIN 51793, IP75, IP 359, ISO 3734, ISO 9030, NF M07-020

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 D1796 - Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure).
This test method describes the laboratory determination of water and sediment in fuel oils in the range from 0 % to 30 % volume by means of the centrifuge procedure.

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.

ASTM D5546 - Standard Test Method for Solubility of Asphalt Binders in Toluene by Centrifuge.
This test method covers determination of the degree of solubility of asphalt binders in toluene using centrifugal separation. The method is an alternative to Test Method D 2042, and may be preferable to Test Method D 2042 when testing modified asphalt binders.

API 2542
API 2548
BS 4385
DIN 51793
IP 75 (obs.)
IP 359
ISO 3734
ISO 9030
NF M07-020

LT/CF-121000/M
Laboratory Centrifuge

- Table top compact and robust centrifuge, frontal and upper part made of anti-abrasion and fire-retardant plastic material.
- Sever method available: ASTM D91, D893, D2273, D2709, D5546, API 2542, API 2548, BS 4385, DIN 51793.
- TFT color touch screen, visible from more than 3 m.
- Shows RPM and RCF, time, temperature, acceleration/deceleration values (PCBS) and unbalancing location system (ULS).
- Speed programming in 10 RPM/10 xg steps.
- Real RCF values on screen based in accessories configuration.
- Count up/down from "0" or at "set RPM/RCF" for test reproducibility, timer countdown/up from "0" or at "set RPM/ RCF" for reproducible tests, timer settable from 1min – 99 hrs.
- PCBS: Progressive controlled acceleration and braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- ULS: Unbalancing location system indicating on the screen the number of the bucket which produces the unbalance switch off.
- 40 programmable memories, with protection under password.
- Several acoustic and visual messages warning the user the device situation.
- Microprocessor controlled, PC connection, last values remain in memory.
- Induction motor maintenance free (brushless) with noise level below 60 dB, Rotors and adapters list on memory.
- Start, stop, open lid and short spin with adjustable speed buttons.
- Option of free/locked adjustment of RPM/ RCF along the run.
- Automatic rotor recognition, over-speed protection.

Centrifuge

- Lid provided with security systems:
  · Automatic lid lock system, motorized with double lock.
  · Emergency lid-lock release.
  · Locking and protection against opening along the run.
  · Lid dropping protection.
  · Port in the lid for calibration and operation checking.
- Chamber of centrifugation in stainless steel (easy cleaning), equipped with protection safety ring.
- Rotors and adapters autoclavable, easy to install by the user.
- Automatic disconnection for energy saving up to 8 h.
- Max speed 3000 RPM / 2425 RCF xg.
- Swing out rotor 4 positions – for hold 4 x 100 ml 8/6" tubes

Power Supply
- 220 or 115 Vac 50/60 Hz
- 450 W

Dimensions and Weight
- 54 × 65 × 40 cm
- 73 kg

LT/CF-122000-R/M
Heated Laboratory Centrifuge
- Table top compact and robust centrifuge, frontal and upper part made of anti-abrasion and fire-retardant plastic material.
- Sever method available: ASTM D91, D96, D893, D1796, D2273, D2709, D2711, D4007, D5546, API 2542, API 2548, BS 4385, ISO 3734, ISO 9030, IP75, IP 359, NF M07-020, DIN 51793.
- TFT color touch screen, visible from more than 3 m.
- Shows RPM and RCF, time, temperature, acceleration/deceleration values (PCBS) and unbalancing location system (ULS).
- Speed programming in 10 RPM/10 xg steps.
- Real RCF values on screen based in accessories configuration.
- Count up/down from "0" or at "set RPM/RCF" for test reproducibility, timer countdown/up from "0" or at "set RPM/ RCF" for reproducible tests, timer settable from 1min – 99 hrs.
- PCBS: Progressive controlled acceleration and braking system up to 175 selectable ramps that prevents sample homogenization after separation.
- ULS: Unbalancing location system indicating on the screen the number of the bucket which produces the unbalance switch off.
- 40 programmable memories, with protection under password.
- Several acoustic and visual messages warning the user the device situation.
- Microprocessor controlled, PC connection, last values remain in memory.
- Induction motor maintenance free (brushless) with noise level below 60 dB, rotors and adapters list on memory
- Start, stop, open lid and short spin with adjustable speed buttons.
- Option of free/locked adjustment of RPM/ RCF along the run.
- Automatic rotor recognition, over-speed protection.
- Lid provided with security systems:
  · Automatic lid lock system, motorized with double lock.
  · Emergency lid-lock release.
  · Locking and protection against opening along the run.
  · Lid dropping protection.
  · Port in the lid for calibration and operation checking.
- Chamber of centrifugation in stainless steel (easy cleaning), equipped with protection safety ring that also reduce heat dissipation.
- Rotors and adapters autoclavable, easy to install by the user.
- Automatic disconnection for energy saving up to 8 h.
- Preheating program with rotor spinning and temperature selectable. Allows keep the chamber at working temperature before starting the process.
- Regulation of the room temperature +5°C (41°F) to 80°C (176°F) in 1°C/1°F steps programmable in °C o °F.
- Temperature sensor inside the chamber. Overheating protection.
- Max speed 3000 RPM / 2425 RCF xg.
- Swing out rotor 4 positions – for hold 4 × 100 ml 8/6" tubes.

Power Supply
- 220 or 115 Vac 50/60 Hz
- 450 W

Dimensions and Weight
- 54 × 65 × 40 cm
- 77 kg

Accessories for Safety

LAB-4007-010
Gas Release and Dilution System
- Safety box system that work only when centrifuge is in analysis.
- Create 10 l/min suction from test chamber (compressed air supply is requested / max 8 bar).
- Air inlet pressure regulator and inlet pressure gauge.
- Operation controlled by operator with a simple valve.

LT/WB-123200/M
Water Conditioning Bath 18 Liters Capacity
- Heating element bottom positioned.
- Atmosferic drain tap.
- Stainless steel inner tank with rounded edges.
- Digital thermoregulatory with 0.1°C precision.
- Stainless steel cover with handle.
- Dimensions 36 × 37 × 33 cm.
- Power supply 220 Vac or 115 Vac.

Accessories

	Article	Description	ASTM D91	ASTM D96	ASTM D893	ASTM D1796	ASTM D2273	ASTM D2709	ASTM D2711	ASTM D4007	ASTM D5546
optional accessories	LT/WB-123000/M	water bath	•	•		•	•	•		•	
	LT/DO-248000/F	drying oven			•						•
	LT/B-2470/BCA200 INT-CAL	analytical balance, range 220 g			•						•
	LAB-4007-010	gas release and dilution system								•	
adapters	5116	adapter made in plastic with rubber insert, height 137 mm, pack of 4 pcs., for 2104 and 2106	•	•	•	•	•	•	•	•	•
	5419	adapter made in plastic with rubber insert, height 65 mm, pack of 4 pcs., for 2102 and 2109		•				•	•		
	5420	adapter made in plastic with rubber insert, height 137 mm, pack of 4 pcs., for 2108		•					•		
	5421	adapter made in plastic with 7 positions, height 97 mm, pack of 4 pcs., for 2110		•							
glassware	2102	pear-shaped tube 100 ml, graduated to 0.1 ml, pack of 4 pcs.		•				•	•		
	2102/st	stoppers, pack of 50 pcs.									
	2104	cone-shaped tube 100 ml, height 203 mm, graduated to 0.05, pack of 4 pcs.	•	•	•	•			•	•	•
	2104/st	stoppers, pack of 50 pcs.									
	2106	trace sediment tube 100 ml, graduated to 0,005, fine tip, pack of 4 pcs.					•	•	•		
	2106/st	stoppers, pack of 50 pcs.									
	2108	cone-shaped tube 100 ml, height 152 mm graduated to 0.05 ml, pack of 4 pcs.		•					•		
	2108/st	stoppers, pack of 50 pcs.									
	2109	trace sediment pear-shaped tube Goetz 100 ml with stopper, pack of 4 pcs.						•			
	2110	Api tube 12.5 ml with % graduation, pack of 12 pcs.		•							
	2110/st	stoppers, pack of 50 pcs.									
racks	5425	5 places water bath rack for 2102 and 2109		•				•	•		
	5473	8 places water bath rack for 2104 and 2106	•	•	•	•	•	•	•	•	•
	5474	6 Places water bath rack for 2108		•					•		
	LAB-101-229/W28	28 Places water bath rack for 2110		•							

Cloud and Pour Point Refrigerator

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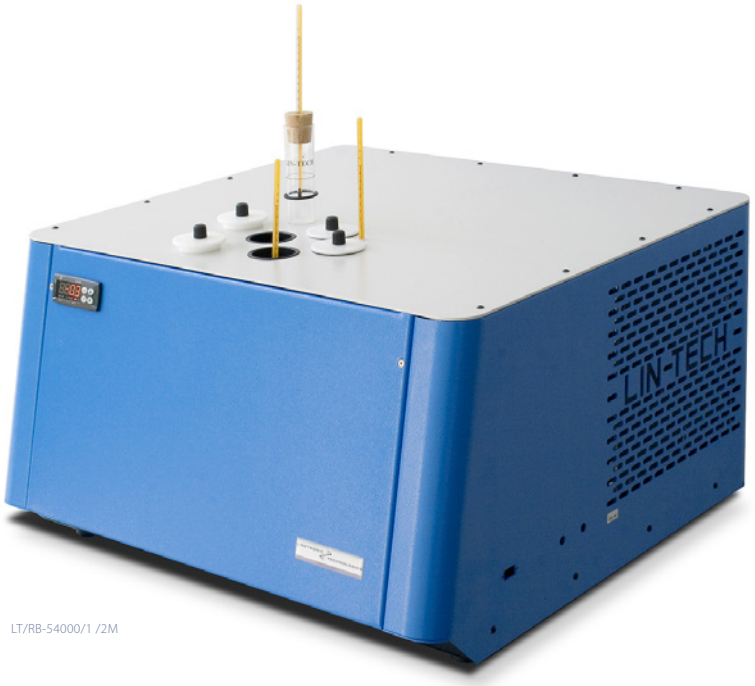

LT/RB-54000/1 /2M

ASTM D97
ASTM D2500
ASTM D5853
ASTM D6922
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

Homogeneity and Miscibility in Automotive Engine Oils (D6922)

Determination if an automotive engine oil is homogeneous and will remain so, and if it is miscible with certain standard reference oils after being submitted to a prescribed cycle of temperature changes.

LT/RB-54000/1-M
Manual refrigerator, dry bath, 1 temperature, 4 places, bench model

- Bench top instrument with steel structure painted with anti-epoxy products.
- Circular aluminium metal block bath deeply coated equipped with heating element to heat up the bath up to +60°C.
- 4 × dry wells for glassware introduction and 1 × thermometer hole.
- 4 × stand-by plastic covers with handle.
- Temperature controlled by a digital thermoregulator with PID function that control the temperature trough an A class PT100 sensor with resolution 0,1°C and stability +/- 0.1°C.
- Cooling provided by motor compressor system single-stage grant temperature up to -51°C.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 0.7 Kw

Dimensions
- Width 66 cm
- Depth 60 cm
- Height 42 cm

Weight
- 70 kg

LT/RB-54000/2-M
Manual refrigerator, dry bath, 1 temperature, 4 places, bench model

- Bench top instrument with steel structure painted with anti-epoxy products.
- Circular aluminium metal block bath deeply coated equipped with heating element to heat up the bath up to +60°C.
- 4 × dry wells for glassware introduction and 1 × thermometer hole.
- 4 × stand-by plastic covers with handle.
- Temperature controlled by a digital thermoregulator with PID function that control the temperature trough an A class PT100 sensor with resolution 0,1°C and stability +/- 0.1°C.
- Cooling provided by Motor compressor system single-stage grant temperature up to -69°C.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 1.5 Kw

Dimensions
- Width 66 cm
- Depth 60 cm
- Height 42 cm

Weight
- 70 kg

Cloud and Pour Point Refrigerator

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CE

LT/RB-53300/M /M+

LT/RB-50000/M

LT/RB-53300-M
Manual refrigerator, dry bath, Pour Point of Petroleum Products, 3 temperature

- Floor model instrument made in die-casted aluminium covered by special plastic material fitted with four wheels allowing movement.
- 3 × dry aluminium block bath with 4 wells each for accommodation of glassware and a small 1 for thermometer/ each block.
- Low-voltage anti-condensing system and 12 stand by covers made in plastic material.
- Motor compressor system with CFC free gases.
- 3 × digital thermoregulator with PT100 A class grant resolution and precision of 0,1°C.
- Standard block temperature configuration: 0, -18, -33°C.
- Available working temperature (on last position): up to -33°C.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 1.8 Kw

Inrush current
- 5.5 Kw

Dimensions
- Width 110 cm
- Depth 60 cm
- Height 92 cm

Weight
- 170 kg

LT/RB-53300-M+
Manual refrigerator, dry bath, for Pour Point of Petroleum Products, 3 temperature

- Floor model instrument made in die-casted aluminium covered by special plastic material fitted with four wheels allowing movement.
- 3 × dry aluminium block bath with 4 wells each for accommodation of glassware and a small 1 for thermometer/ each block.
- Low-voltage anti-condensing system and 12 stand by covers made in plastic material.
- Motor compressor system with CFC free gases.
- 3 × digital thermoregulator with PT100 A class grant resolution and precision of 0,1°C.
- Standard block temperature configuration: 0, -18, -51°C.
- Available working temperature (on last position): up to -51°C.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 1.8 Kw

Inrush current
- 5.5 Kw

Dimensions
- Width 110 cm
- Depth 60 cm
- Height 92 cm

Weight
- 170 kg

LT/RB-50000/M
Manual refrigerator, dry bath, 4 temperatures, 4 places

- Floor type instrument with steel structure painted with anti-epoxy products.
- 4 × Circular aluminium metal block bath deeply coated, last position equipped with heating element to heat up the bath up to +60°C.
- For each block:
  · 4 × dry wells for glassware introduction and 1 × thermometer hole.
  · 4 × stand-by plastic covers with handle.
- Fitted with four wheels allowing easy movement in laboratory.
- Working temperatures:
  · 1st position: ambient to 0°C.
  · 2nd position: ambient to -18°C.
  · 3rd position: ambient to -33°C.
  · 4th position: +60 to -51°C.
- Automatic defrosting device low voltage.
- Temperature controlled by 4 independents digital thermoregulators with PID function that control the temperature trough an A class PT100 sensor with resolution 0,1°C and stability +/- 0.1°C.
- Cooling provided by Motor compressor system double-stage equipped with CFC free gases.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 2.5 Kw

Inrush current
- 8 Kw

Dimensions
- Width 140 cm
- Depth 60 cm
- Height 92 cm

Weight
- 240 kg

Cloud and Pour Point Refrigerator

LT/RB-50000-W/M

LT/RB-53100/M

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LT/RB-50000-W/M
Manual refrigerator, 4 temperatures

- Floor model instrument made in die-casted aluminium covered by special plastic material fitted with four wheels allowing movement.
- 4 × small bath with 4 wells each for accommodation of glassware and a small 1 for thermometer/pouring medium liquid.
- Low-voltage anti-condensing system and 16 stand by covers made in plastic material.
- Motor compressor system with CFC free gases.
- 4 × digital thermo-regulator with PT100 A class grant resolution and precision of 0,1°C.
- Standard block temperature configuration:
  · 1st position: ambient to 0°C.
  · 2nd position: ambient to -18°C.
  · 3rd position: ambient to -33°C.
  · 4th position: ambient to -51°C.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 4 Kw

Inrush current
- 12 Kw

Dimensions
- Width 140 cm
- Depth 60 cm
- Height 92 cm

Weight
- 265 kg

LT/RB-53100/M
Manual refrigerator, dry bath, 5 temperatures, 4 places

- Floor type instrument with steel structure painted with anti-epoxy products.
- 5 × Circular aluminium metal block bath deeply coated, last 2 positions equipped with heating element to heat up the bath up to +60°C.
- For each block:
  · 4 × dry wells for glassware introduction and 1 × thermometer hole.
  · 4 × stand-by plastic covers with handle.
- Fitted with four wheels allowing easy movement in laboratory.
- Working temperatures:
  · 1st position: ambient to 0°C
  · 2nd position: ambient to -18°C
  · 3rd position: ambient to -33°C
  · 4th position: +60° to -51°C
  · 5th position: +60° to -69°C
- Automatic defrosting device low voltage.
- Temperature controlled by 5 independents digital thermoregulators with PID function that control the temperature trough an A class PT100 sensor with resolution 0,1°C and stability +/- 0.1°C.
- Cooling provided by motor compressor system double-stage equipped with CFC free gases.

Power supply
- 220 or 115 Vac, 50/60 Hz

Power consumption
- 4 Kw

Inrush current
- 12 Kw

Dimensions
- Width 170 cm
- Depth 60 cm
- Height 92 cm

Weight
- 260 kg

Accessories ASTM D97 / D2500
- 1050: test jar graduated glassware ASTM, pack of 4 pcs.
- 5334: cork cover for centring thermometer, pack of 4 pcs.
- 7183: cork disk for test jar, pack of 4 pcs.
- 11143: insulating gasket, pack of 4 pcs.
- T-AS5C: thermometer ASTM 5C IP 1C.
- T-AS6C: thermometer ASTM 6C IP 2C.

Accessories for manual determination of CFPP
- LT/CF-254000/M: Manual Cold Filter Plugging Point EN116 / IP 309.
  Instrument to be used with the article LT/RB-5x000/M or others refrigerators.
  · Test tube with level mark.
  · Stopper with relevant holes.
  · Spacer, centring basket.
  · Calibrated glass aspiration pipette.
  · Filter assembly complete with filter.
- OilLab 250: vacuum generator
  · 2 × glass bottles according to IP method.
  · U-tube.
  · Stopper with: flow regulating, valve manual, funnel Vinyl tube for connections.
- 3087: compact diaphragm air/vacuum pump
  · Vacuum and compression application.
  · Flow rate max. 5 l/min.
  · Pressure max. 0.3 bar rel.
  · Ultimate vacuum max. 300 mbar (abs.).
  · Weight 0.85 Kg.
  · Dimensions 72 × 72 × 180 mm.
  · Valve material NBR coated.
  · 4 mm connector included.
  · Maintenance free.
  · Power supply: 220 Vac, 50-60 Hz.

Spare Parts for CFPP
- 2505: calibrated aspiration pipette for CFPP.
- 7054: o-ring (small) for CFPP filter.
- 7055: o-ring (big) for CFPP filter.
- LAB-200/013-02-SS: stainless steel filter holder with 10 × mesh interchangeable.

Cold Filter Plugging Point CFPP

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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.

LT/CF-254000/M
Cold Filter Plugging Point - CFPP
- Test tube with level mark
- Teflon Stopper with relevant holes
- Spacer / Centering Basket
- Calibrated glass aspiration pipette
- Filter assembly complete with filter

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

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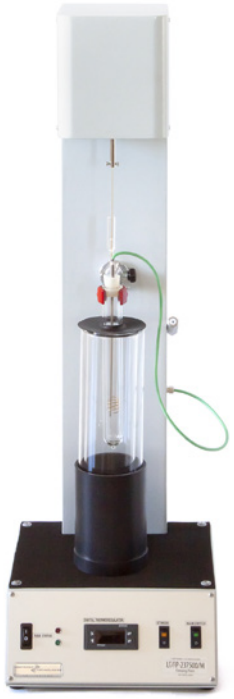

LT/FP-237500/M

LT/FP-237000/M

LT/FP-238500/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.

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

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

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

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

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

- Double tube diam. 48 × 220 mm fitted with cap
- Silvered Dewar jar diam. 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 diam. 95 × 295 mm
- LAB-102-384: stopper
- LAB-102-385: PT100 sensor, only for LT/FP-238500/M

Freezing Point Refrigerator

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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 alluminium 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

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ASTM D852
ASTM D6875

ASTM D852 - Solidification Point of Benzene
This test method covers the determination of the solidification point of benzene.

ASTM D6875 - Standard Test Method for Solidification Point of Industrial Organic Chemicals by Thermistor
This test method covers a general procedure for determining the solidification point of most organic chemicals having appreciable heats of fusion and solidification points between 4 and 41°C.

LT/SP-237100/ME
Electric Manual Solidification Point of Benzene

- Mounted on a metallic case painted with anti-acid products, equipped with PT100 stand-by support and anti-slide carpet.
- Support base made in corrosion resistant plastic for holding the Un-Silvered vacuum dewar.
- Easily accessible control panel with: thermoregulator, stirrer switch, main switch and re-armable detection fuse with led status indicator.
- Geared motor for stirring at approx. 80 rpm with 1 mm metal wire stirrer.
- PT100 A Class for sample temperature with reading 0.1°C.

Power Supply

- 230 Vac or 115 Vac, 50/60 Hz

Consumption

- 40 W

Spare Parts

- 1044: dewar
- 3168: PT100 sensor
- 2093: test tube glass 25 mm diameter × 150 mm height, pack 10 pcs.
- 1046: test tube 15 × 125 mm, pack of 10 pcs.
- 7216: cover for jacket tube + stopper for test tube + stopper for PT100
- 5826: stainless steel wire

Copper and Silver Corrosion

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5597


2093


5334
1115


5554


5132


5422


7024

ASTM D130
ASTM D7671
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.

Standard Test Method for Corrosiveness to Silver by Automotive Spark–Ignition Engine Fuel–Silver Strip Method.

This test method covers the determination of the corrosiveness to silver by automotive spark-ignition engine fuel having a vapor pressure no greater than 124 kPa (18 psi) at 37.8 °C (100 °F), by one of two procedures. Procedure A involves the use of a pressure vessel, whereas Procedure B involves the use of a vented test tube.

5597 - Copper Corrosion Test Vessel
- Stainless steel.
- 10 bar pressure certificate.
- For liquid model only.

2093 - Test Tube ASTM
- Made in glass.
- 25 mm diameter × 150 mm height.
- Pack of 10 pcs.

5334 - Vented Corks
- For gasoline application.
- Pack of 10 pcs.

5554 - Support Test Tube Racks
- Autoclavable.
- Made in polypropylene.
- With 12 × 25 mm diameter holes for the accommodation of 12 test tubes.

1115 - Flat Glass
- Viewing tube.
- To protect the strip.

5132 - Copper Test Strip
- 75 × 12.5 mm.
- Pack of 10 pcs.

5422 - 3 Places Strip Vice

Silicon Carbide Paper
- 7146: 100 grit, pack of 100 pcs.
- 7060: 240 grit, pack of 100 pcs.

7024 - Copper Strip Corrosion Standard
- Original ASTM®.

7062 - Silicon Carbide Grains
- 150 mesh.
- Pack of 1kg.

7016 - Gasket
- Pack of 10 pcs.

5499 - Stainless steel forceps
- For manage the test strips.

T-AS12C - Thermometer ASTM 12C - IP 64C

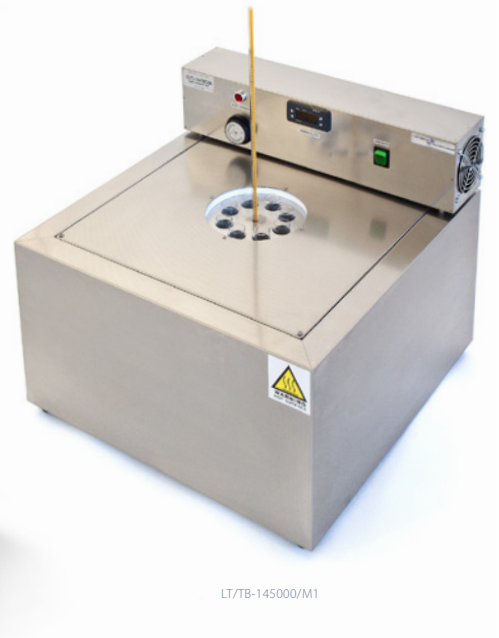
Accessories for IP 227
- 7278: silver test strip IP 227, 19 × 12.7 × 3 mm, pack of 5 pcs.
- 2088: silver corrosion test tube complete.
- 7277: IP 227 standard original ASTM ® for Silver Corrosion Test, ASTM D3241.

Spare Parts for IP 227
- 2089: glass cradle for silver strip suspension.
- 7278: silver test strip IP 227, 19 × 12.7 × 3 mm, pack of 5 pcs.

Accessories for ASTM D7671
- 5698: silver strip ASTM D7671, pack of 5 pcs.
- LAB-001-7671-002: silver strip suspension assembly, proc. A, made in glass, pack of 3 pcs.

Copper and Silver Corrosion

LT/TB-144000/M



LT/TB-145000/M1

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LT/TB-144000/M

Bench top laboratory liquid bath

- Bench top instrument completely made in stainless-steel and double chamber insulation.
- Internal stainless-steel bath with capacity of 45 liters, equipped with double-insulation and fully immersion stainless-steel heater.
- Temperature controlled by a digital thermoregulator with PID functions that control the temperature through an A class PT100 sensor in the range from ambient to +150°C, resolution 0,1°C and stability +/- 0.1°C (with cover).
- Motorized stirrer grant uniformity and stability.
- Manually settable overtemperature cut-off alarm.
- Stainless-steel cover with thermoplastic insulated handle.

Dimensions

- Width 50 cm, depth 50,5 cm, height 49,2 cm

Internal Dimensions

- Width 40 cm, depth 33 cm, height 30 cm

Power consumption

- 1600 Watt

Power supply

- 220 or 115 Vac 50 Hz

Accessories for LT/TB-144000/M

- 5856: support and cover for copper corrosion application D130 & D1838 application, 4 positions with covers and hook, 8 places for glass tube Æ 25 mm when directly immersed.
- 5942: support and cover for copper corrosion application D130 & D1838 application, 4 positions with covers and hook, 8 places for glass tube Æ 25 mm when directly immersed and 2 position for ASTM D7671 test glass.

Accessory: Silicon Oil for Liquid Bath

- 7058: silicone oil, kinematic viscosity 50 mm^2/s at 25°C, can of 20 liters for working up to +150°C, requested quantity 2 cans.

Spare Parts for LT/TB-144000/M

- 3168: PT100 probe.
- 3186: digital thermoregulator K38.
- 3178: solid state relay 40A.
- 3072: stirring motor without propeller - 230 Vac.

LT/TB-145000/M1

Bench top laboratory dry bath

- Bench top instrument completely made in stainless-steel and double chamber insulation.
- Single aluminium dry bath deeply coated equipped with 8 × Æ26 mm wells for test tube introduction, insulated and equipped with multi electrical heaters grant uniformity and stability.
- Upper cover equipped with central hole made in stainless-steel for easy cleaning.
- Temperature controlled by a digital thermoregulator with PID functions that control the temperature through an A class PT100 sensor in the range from ambient to +200°C, resolution 0,1°C and stability +/- 0.1°C.
- Manually settable overtemperature cut-off alarm.

Dimensions

- Width 50 cm, depth 50,5 cm, height 49,2 cm

Temperature Range

- Ambient to +200°C, with precision 0.1°C

Power consumption

- 1200 Watt

Power supply

- 220 or 115 Vac 50 Hz

Accessories for LT/TB-145000/M1

- 3631: heater for dry bath, 1700 W.
- 3168: PT100 probe.
- 3186: digital thermoregulator K38.
- 3178: solid state relay 40A.

Corrosion of Cast Aluminum

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ASTM D4340

Standard Test Method for Corrosion of Cast Aluminum Alloys in Engine Coolants Under Heat-Rejecting Conditions.

This test method covers a laboratory screening procedure for evaluating the effectiveness of engine coolants in combating corrosion of aluminum casting alloys under heat-transfer conditions that may be present in aluminum cylinder head engines.

LT/CA-222000/M

Manual instrument composed by:

- Metallic case structure painted with anti-acid products and stainless steel test cabinet equipped with liquid connector and drain tap
- Heating plate digitally thermo-regulated with 0,1°C resolution with PT100 A class for temperature reading
- Safety thermostat for overheating protection and cooling fan
- Main switch and heating activation switch
- Aluminium test specimen plate with holes for temperature sensors
- Corrosion cell made in glass with heat resistant O-rings
- Top plate made in stainless steel with filling hole and pressure inlet equipped with pressure gauge and safety valve
- Plexiglas protection window with magnetic open/close feature

Power supply

- 220 or 115 Vac 50/60 Hz

Max. power consumption

- 1000 W

Dimensions

- width 32 cm
- depth 42 cm
- height 88 cm

Weight

- 25 kg

Accessories

- LAB-222-001: cast aluminium heat transfer

Spare Parts

- LAB-222-001: cast aluminium heat transfer
- LAB-222-002: PT100 probe for cast aluminium heat transfer, 3 × 180 mm
- LAB-222-003: sealing o-rings, pack of 2 pcs.
- LAB-222-004: sample test cell 500 ml, level mark
- LAB-222-005: heater collar 420 W, 60 × 50 mm, pack of 2 pcs.
- LAB-222-006: safety thermostat 300°C
- LAB-222-007: digital thermoregulator and programmer K38P
- LAB-222-008: pressure gauge 63 mm diameter, 6 bar M1/4 G
- LAB-222-009: pressure relief valve adjustable, 0/10Bar M1/4 G
- LAB-222-010: pressure drain valve, 0/10Bar 1/4 G MF
- LAB-222-011: static relay, 10/40 A
- LAB-222-012: drain tap, 1/4 G MF
- LAB-222-013: quick coupling female 1/4 G for pressure inlet

Corrosiveness and Oxidation Stability Bath

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ASTM D4636
ASTM D6594

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.

Evaluation of Corrosiveness of Diesel Engine Oil at 135°C.

This test method covers testing diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings.

LT/COS-199000/M

Corrosiveness and oxidation stability bath, manual instrument composed by:

- Bench top instrument fully made in stainless steel with double chamber insulation
- Heating block made in aluminium with 4 holes/positions,
- Range of temperature: ambient +10° up to +400°C
- Digital thermo-regulator with 0.1°C resolution and PT100 sensor for bath temperature, over-temperature alarm and safety thermostat.
- Stainless steel heaters with PID control system
- 4 × Digital displays for independent sample temperature with thermocouple type K
- 4 × independent flowmeter able to regulate the flow from 1.6 to 16 Lt/h for each position

Power supply

- 220 or 115 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

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LT/MC-233000/M

LT/MC-233003/M

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 laborawtory conditions.

LT/MC-233000/M
Corrosion Test for Engine Coolants in Glassware

- Bench top instrument with steel structure painted with anti-epoxy products.
- Test bath made in spoutless tempered glass beaker with capacity 1000 mL equipped with Epdm stopper.
- Condenser made in glass, reflux straight type with a 400 mm condenser jacket.
- Aerator tube with porosity end size 12-C.
- Stainless steel heater 630 Watt with motor stirrer for granting stability and uniformity.
- Digital thermo-regulator display with PID temperature control and PT100 probe A Class for easily check the sample temperature.
- Support bar with clamps for glassware positioning.
- Analog flowmeter 0.8 - 8 nL/h with stainless-steel sheath and graduated glass metering chamber equipped with fine needle regulating knob.

Dimensions
- 28 × 20.5 × 80 cm

Power Supply
- 230 Vac 50/60 Hz or 115 Vac

Temperature Range
- Ambient to 99,9°C

Consumption
- 630 Watt

LT/MC-233003/M
Corrosion Test for Engine Coolants in Glassware (3 positions)

- Bench top instrument with steel structure painted with anti-epoxy products, internal bath with capacity of approx. 18 liters made in stainless steel with rounded edges and atmospheric drain for easily cleaning.
- Automatic levelling system of water (need connection to water line).
- 3 × test bath made in spoutless tempered glass beaker with capacity 1000 mL equipped with Epdm stopper.
- 3 × condenser made in glass, reflux straight type with a 400 mm condenser jacket.
- 3 × aerator tube with porosity end size 12-C.
- Stainless steel heater 800 Watt with overheat protection.
- Digital thermo-regulator display with PID temperature control and PT100 probe A Class for easily check the bath temperature.
- Support bar with clamps for glassware positioning.
- 3 × analog flowmeter 0.8 - 8 nL/h with stainless-steel sheath and graduated glass metering chamber equipped with fine needle regulating knob.

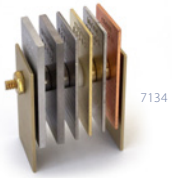
Dimensions
- 36 × 36.5 × 80 cm

Power Supply
- 230 Vac 50/60 Hz or 115 Vac

Temperature Range
- Ambient to 99,9°C

Consumption
- 800 Watt

Metals Corrosion of Engine Coolants



LT/MC-233006/M
Corrosion Test for Engine Coolants in Glassware (6 positions)

- Bench top instrument with steel structure painted with anti-epoxy products, internal bath with capacity of approx. 18 liters made in stainless steel with rounded edges and atmospheric drain for easily cleaning.
- Automatic levelling system of water (need connection to water line).
- 6 × test bath made in spoutless tempered glass beaker with capacity 1000 mL equipped with Epdm stopper.
- 6 × condenser made in glass, reflux straight type with a 400 mm condenser jacket.
- 6 × aerator tube with porosity end size 12-C.
- Stainless steel heater 800 Watt with overheat protection.
- Digital thermo-regulator display with PID temperature control and PT100 probe A Class for easily check the bath temperature.
- Support bar with clamps for glassware positioning.
- 6 × analog flowmeter 0.8 - 8 nL/h with stainless-steel sheath and graduated glass metering chamber equipped with fine needle regulating knob.

Dimensions
- 54 × 36.5 × 80 cm

Power Supply
- 230 Vac 50/60 Hz or 115 Vac

Temperature Range
- Ambient to 99,9°C

Consumption
- 1200 Watt

Accessories
- 3087: compact diaphragm air/vacuum pump
  - Vacuum and Compression application
  - Flow rate max. 5l/min
  - Pressure max. 0.3 bar rel.
  - Ultimate Vacuum max. 300 mbar (abs.)
  - Weight 0.85 Kg
  - Dimensions 72 × 72 × 180 mm
  - Valve Material NBR coated
  - 4 mm connector included
  - Maintenance free
  - Power Supply 220 Vac 50-60Hz

Accessories for Each Test Position
- 7134: catalyst ASTM D1384 metal specimen arrangement
  - 2 × brass leg, pan head screw with hex nut
  - insulating spacers (brass, steel and Ptfe)
  - test speciments 50.8 × 25.4 × 3.18 mm made of:
    Copper CA-110
    Solder 30%
    Brass CA-260
    Steel SAE-1020 CR
    Cast Iron SAE G-3500
    Cast Aluminum A319

Mandatory Accessories for Each Test Position – Liquid Bath
- T-AS1C: thermometer ASTM 1C
- 3837: digital thermometer reader with LCD display for PT100, PT1000
  - resolution 0.01°C
  - accuracy 0.01°C
  - read up to +650°C, double channel
- 3779: PT100 sensor for immersion
  - temperature range -196°…+500°C
  - 3 mm diameter
  - 300 mm length

Spare Parts
Recommended for 2 years for each test position
- 2211: flowmeter with needle valve, range 0.8 – 8 nL/h
- 1248: beaker 1 Liter capacity with rubber stopper
- 2185: Liebig condenser 400 mm, pack of 3 pcs.
- 1251: tube for air diffusion with porosity ended (P2)
- 16265: holder set
  - pan head screw
  - hex nut
  - brass leg
  - insulating spacers (brass, steel and Ptfe)
- 7121: metal specimen Copper spare parts for 7134, pack of 5 pcs.
- 7123: metal specimen Solder spare parts for 7134, pack of 5 pcs.
- 7125: metal specimen Brass spare parts for 7134, pack of 5 pcs.
- 7127: metal specimen Steel spare parts for 7134, pack of 5 pcs.
- 7129: metal specimen Cast Iron spare parts for 7134, pack of 5 pcs.
- 7130: metal specimen Cast Aluminum spare parts for 7134, pack of 5 pcs.

Demulsibility Characteristics of Lubricating Oils

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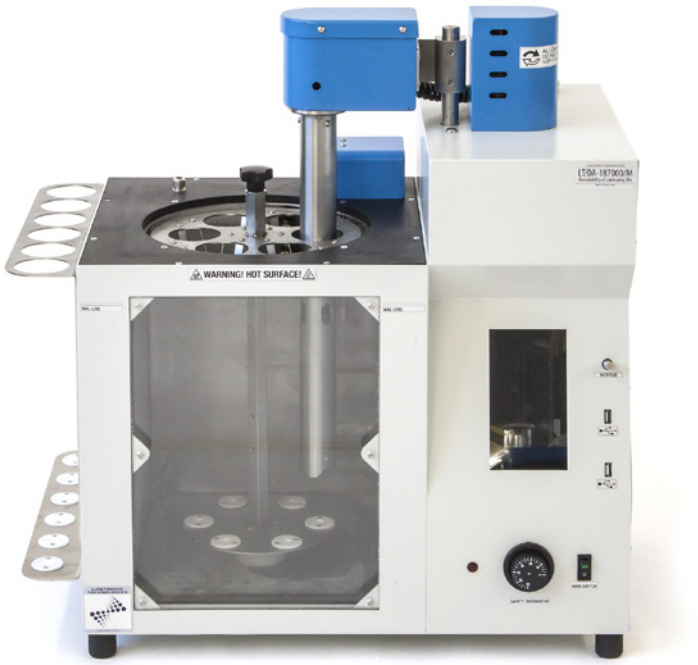

ASTM D2711

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.

LT/DA-187000/M
Demulsibility apparatus, semi-automatic instrument composed by:
- Bench top instrument with metallic case structure painted with anti-acid products and double chamber insulation.
- Stainless steel bath with double window for internal inspection, cover made in plastic material with hole for bath thermometer and motorized stirrer.
- 6 positions side rack for separatory funnel for stand-by after analysis.
- Temperature controlled by Linetronic's control board with PT100 A class, stainless steel immersion heaters and manually settable over-temperature protection system.
- Automatic head for up and down movement equipped with turbine stirrer from 300 to 5,000 rpm, electronically regulated with digitally reading and audible beeper for end mixing procedure.
- Touch screen displayed stirring time, rpm, bath temperature, demulsivity timer.
- 6 × Glassware separatory funnel included.

Power Supply
- 220 or 115 Vac 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, diam. 54 mm

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

Foaming Characteristics of Lubricating Oils

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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.

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

LT/FB-190000/M
Manual 2 Places - Twin Foaming Bath - ASTM D 892

- Tank fitted with cover with two holes diam. 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 Characteristics of Lubricating Oils

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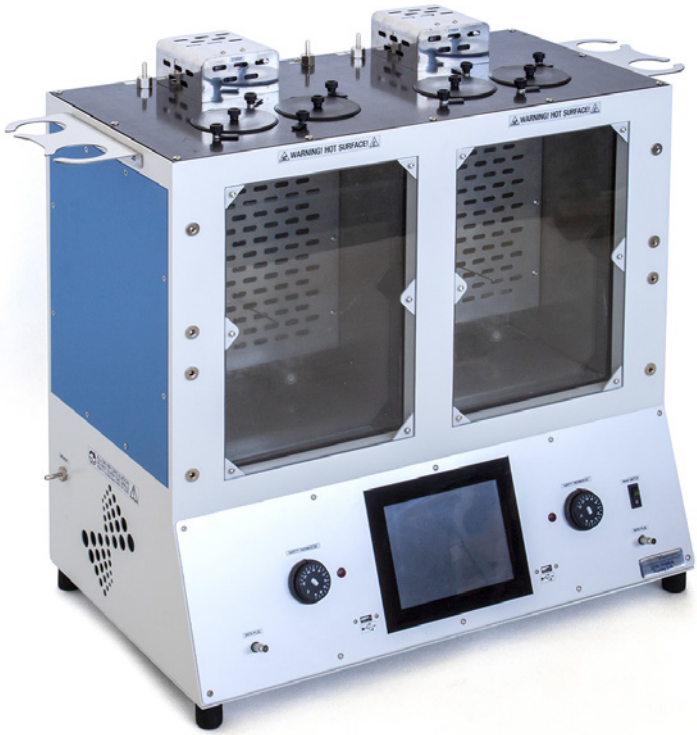

LT/FB-192000/M
Semi-automatic Apparatus for Foaming Characteristics of Lubricating Oils – 4 places

- Bench top instrument with metallic case structure painted with anti-acid products and double chamber insulation, top cover made in stainless steel with four holes for the cylinders accommodation and one hole for control thermometer (not included).
- 2 × independent 25 liters capacity stainless steel baths (one for 24°C and one for more than 93.5°C) equipped with viewing and illuminated windows, two independent motor stirrer grants uniformity and stability of bath temperature.
- Stainless steel grid divide the glassware from the heating and stirring device.
- Air pre-heating system by copper coils immersed in the first bath.
- Lateral stand-by support for stoppers and diffusing assembly.
- Anti-floating and centring system for test cylinders.
- Control unit include 7"Touch screen panel PC with 800 × 480 resolution with dedicated Lin-Tech software able to manage the bath functions:
  - Independent management of 4 places analysis trough the activation of air micro-compressors and counter (time of blowing, waiting time, flow) – audible alarm for each intervention of the operator requested.
  - Air flow monitoring system (flow rate) managed digitally and calibrated.
  - Diagnostic panel for temperature calibration, air flow, analysis parameters.
- Removable back panel equipped with drain tap for easily empty and clean the baths.
- Baths are thermo-insulated equipped with tempered glass window inside for easily cleaning the limestone or oils residue, second protection panel made of plastic material with optical transparency.
- 4 Places Apparatus including: 4 diffuser stones (not certified), 4 rubber stoppers, 4 air diffuser tubes, 4 graduated cylinders.

Dimensions (cm)
- Width 71
- Depth 40
- Height 67

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

Accessories
- LAB-101-883/C: certified diffuser stone
- LAB-101-886: flow indicator calibrating device, digital display readout, AA battery supply power / 230 Vac 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

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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.

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
- LT/SP-302-SA: air pump
- LAB-1280-S6/M: heating device unit - 600 W
- T-AS1C: thermometer ASTM 1C

Herschel Emulsifying

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LT/HE-186000/M

LT/HE-185000-A/M

ASTM D1401
DIN 51599
ISO 6614

Water Separability of Petroleum Oils and Synthetic Fluids.

This test method provides a guide for determining the water separation characteristics of oils subject to water contamination and turbulence. It is used for specification of new oils and monitoring of in-service oils.
Covers measurement of the ability of petroleum oils or synthetic fluids to separate from water.

LT/HE-185000-A/M
Semiautomatic Herschel Emulsifier

- Bath housed in a Pyrex® tank diam. 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

LT/HE-186000/M
Semiautomatic Herschel Emulsifier, 6 places, ASTM D1401 – DIN 51599 – ISO 6614

- 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

Herschel Emulsifying

LT/HE-186004/M

LT/HE-185002/M

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LT/HE-186002/M
Semiautomatic Herschel Emulsifier, 2 places, ASTM D1401 – DIN 51599 – ISO 6614

- Compact structure painted with anti-acid epoxidy products.
- Stainless steel bath with approx. 5 liters capacity, insulated and equipped with a wide double window equipped with illuminating LED barriers.
- Rear drain tap.
- Cover with 2 holes for the accommodation of up to 2 graduated cylinders (included) and 1 hole for bath thermometer.
- Stainless steel total immersion heater with protection bulkhead and PT100 A class sensor for bath temperature monitoring.
- Water recirculation system grants bath uniformity.
- Security system:
  · Manual safety thermostat.
  · Level sensor.
  · Acoustic sensor for alarms / end of analysis.
- 2 × independent work station with D1401 standard stirring rod, independent revolution counter, automatic up/down movement.
- Integrated touch screen panel pc 8" high-resolution with dedicated software:
  · Bath temperature control with analysis programming.
  · Independent control of each head with pre-set setting according to the ASTM method or customizable in the RPM, stirring time and temperature.
  · 2 × USB ports and 1 × RJ45 port for LIMS connection.

Power Supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- 37 × 43 × 77 cm

LT/HE-186004/M
Semiautomatic Herschel Emulsifier, 4 places, ASTM D1401 – DIN 51599 – ISO 6614

- Compact structure painted with anti-acid epoxidy products.
- Stainless steel bath with approx. 10 liters capacity, insulated and equipped with a wide double window equipped with illuminating LED barriers.
- Rear drain tap.
- Cover with 4 holes for the accommodation of up to 4 graduated cylinders (included) and 1 hole for bath thermometer.
- Stainless steel total immersion heater with protection bulkhead and PT100 A class sensor for bath temperature monitoring.
- Water recirculation system grants bath uniformity.
- Security system:
  · Manual safety thermostat.
  · Level sensor.
  · Acoustic sensor for alarms / end of analysis.
- 4 × independent work station with D1401 standard stirring rod, independent revolution counter, automatic up/down movement
- Integrated touch screen panel pc 8" high-resolution with dedicated software:
  · Bath temperature control with analysis programming.
  · Independent control of each head with pre-set setting according to the ASTM method or customizable in the RPM, stirring time and temperature.
- 2 × USB ports and 1 × RJ45 port for LIMS connection.

Power Supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- 54 × 43 × 77 cm

Accessories
- T-AS19C: thermometer ASTM 19C with special propylene filling, range +49...+57, div. 0,1°C.
- T-AS21C: thermometer ASTM 21C with special propylene filling, range +79...+87, div. 0,1°C.
- 5271: external stainless-steel support for up to 10 cylinders.
- 5273: digital tachometer (contact and non-contact).
  · Digital 5 digit 13 mm LCD display with backlight.
  · Non-contact rotation speed (RPM), total revolutions (REV), Frequency (Hz), Surface speed (m/min, In/min, Ft/min, Yd/min) and length (m, In, Ft, Yd).
  · 40 reading memories: Max, Min, Avg, Data.
  · Detecting distance: 50…500 mm.
  · Speed range: up to 99 with 0.001 scale, up to 999 with 0.01 scale, up to 9999 with 0,1 scale , up to 199'999 with 1 scale (value in rpm/min).
  · Accuracy: +/- 0.05% +/- 1 digit.
  · Dimensions: 60 × 160 × 40 mm.
  · Weight: 160 grams.
  · Power: battery 9 V.

Spare Parts
- 3646: PT100 Probe for HE-185000.
- 3168: PT100 Probe for HE-186000 series and OilLab 740.
- 5495: Stirring paddle for Herschel.
- 1234: Glass cylinder Pyrex®, 100 ml graduated.

Densimetry Bath

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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.

LT/DB-55112/M
Digital densimetry bath, manual instrument composed by:
- Bench top instrument with metallic case structure painted with anti-acid products and double chamber insulation.
- Internal bath made of stainless steel with capacity of 42 litres approx., drain tap and overflow.
- Support with 9 holes diam. 65 mm for 64 × 440 mm test tubes.
- Test tubes blocking system.
- Double motor stirrer with on/off switch and main power switch.
- Temperature controlled by a digital thermoregulator with PT100 A class temperature sensor with PID range from ambient to +230°C, resolution 0,1°C.
- Over-temperature light and heating cut-off manually settable by safety thermostat.
- Cooling fan for electronic parts, stirrer motor grant homogeneity/uniformity.
- Cooling coil with joints for external cooling source, metal cover with handle.

Power consumption
- 4000 Watt

Power Supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- 35 cm × 70 cm × 60 cm

Weight
- 27 kg

LT/DB-55100/M
Digital densimetry bath, manual instrument composed by:
- Glass tank of about 29 litres capacity with stainless steel table support.
- Stainless steel cover with 5 holes diam. 69 mm for 65 × 440 mm test tubes with tube guide.
- Thermometer support and 5 stand-by covers for unused openings.
- Stainless steel control unit with heating protection system including, power switch, stirrer switch, thermoregulator, safety thermostat equipped with PT100 A class for temperature reading.
- Brass cooling coil with Ni-Cr treatment and joints for external cooling system.
- Stainless steel immersion heaters with low level liquid protection system.

Dimensions
- diam. 56 cm × 65 cm

Weight
- 12 kg

Accessories
- LAB-100-552/45: protection jacket for low temperature, for tank 29 litres
- LAB-100-553: test tubes 65 × 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 65 × 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

Schilling Effusiometer

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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.

LT/SE-231000/M
Schilling Effusiometer - IP 59

- Glass cylinder
- Cylinder cover fitted with three sphere valves for gas charge and flow-off
- Stainless steel orifice plate with a gauged diam. 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

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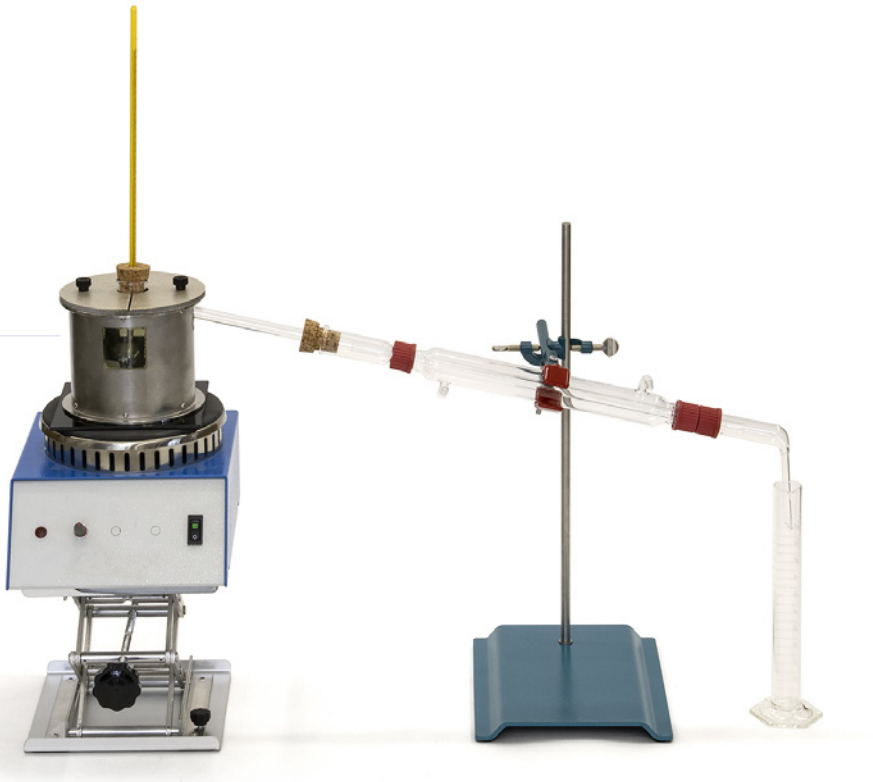

Shield
Internal diameter 117 mm
Total height 117 mm
Mica windows 45 x 45 mm
Rim external
diameter 148 mm

ASTM D402

Distillation of Cutback Asphaltic (Bituminous) Products

LT/CB-106000/M

Manual instrument composed by:

- Electric heater 1000 Watt with main switch and power regulator, supported on a manual height adjustable platform
- Shield made in steel lined with 3 mm fire proof insulation and fitted with trasparent mica windows, cover in two halves made of fire resistant material
- Distillation flask, 500 ml side-arm with stopper for thermometer
- Nozzle extensor made in glass
- Water condenser made in glass with 8 mm joints
- Metal base with rod, clamp and clamp for glassware
- Adapter made in glass with reinforced top for avoiding splash
- Receiver cylinder graduated to 100 ml, div. 1 ml

Power supply

- 220 or 115 Vac 50/60 Hz

Accessories

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

Spare Parts

- LAB-101-050: distillation flask, 500 ml side-ACM with stopper for thermometer
- LAB-101-051: shield made in steel lined with 3 mm fire proof insulation and fitted with trasparent mica windows, cover in two halves made of fire resistant material
- LAB-101-052: cover in two halves
- LAB-101-053: set of stoppers
- LAB-101-054: receiver cylinder 100 ml, div. 1 ml
- LAB-101-055: water jacketed condenser made in glass
- LAB-101-056: adapter made in glass
- LAB-101-057: nozzle estensor 450 mm

Distillation Units

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LT/HCU-99000/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.

LT/HCU-99000/M
Manual instrument for distillation composed by:
- Structure fully made in stainless steel
- Front panel including manual controls for heating power, fan activation and main power supply
- Plate supported by a base whose height is adjustable with an elevation mechanism controlled by an external knob
- Electric heater 1200 Watt with ceramic-glass plate support
- Wide toughed glass squared window and stainless steel cover with hole for flask neck
- Cooling fan manually activated for cooling down the glass after analysis
- Condensing unit fully made in stainless steel with double chamber insulation:
  - Condensing tube made in stainless steel
  - Insulated cover with handle and hole for accommodation of the thermometer with relevant support and liquid level indicator
  - Rear connection for coolants circulation, over flow tube and atmospheric drain cock
  - White background panel for easier reading of the receiver glass cylinder level mark

LT/HCU-99000/M+
Manual instrument for distillation composed by:
- Structure fully made in stainless steel
- Front panel including manual controls for heating power, fan activation and main power supply
- Plate supported by a base whose height is adjustable with an elevation mechanism controlled by an external knob
- Controlled by a digital thermoregulator with PT100 A class temperature sensor
- PID range from ambient to +450°C, resolution and accuracy 0,1°C
- Electric heater 1200 Watt with ceramic-glass plate support
- Wide toughed glass squared window and stainless steel cover with hole for flask neck
- Cooling fan manually activated for cooling down the glass after analysis
- Condensing unit fully made in stainless steel with double chamber insulation:
  - Condensing tube made in stainless steel
  - Insulated cover with handle and hole for accommodation of the thermometer with relevant support and liquid level indicator
  - Rear connection for coolants circulation, over flow tube and atmospheric drain cock
  - White background panel for easier reading of the receiver glass cylinder level mark

Power consumption
- 1200 Watt

Power supply
- 220 or 115 Vac 50/60 Hz

Distillation Units

LT/RDS-900/SA

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CE

LT/RDS-900/SA

Semi-automatic instrument for distillation composed by:

- Structure fully made in stainless steel
- Front panel including manual controls for heating power, fan activation and main power supply
- Plate supported by a base whose height is adjustable with an elevation mechanism controlled by an external knob
- Controlled by a digital thermoregulator with PT100 A class temperature sensor
- PID range from ambient to +450°C, resolution and accuracy 0,1°C
- 3 programmable set points for Gasoline, Kerosene, Gasoil for semiautomatic operation mode
- Infrared heaters 1300 Watt with ceramic-glass plate support
- 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 with joint for the external conection
- Wide toughed glass squared window and stainless steel cover with hole for flask neck
- Cooling fan manually activated for cooling down the glass after analysis
- Refrigerated condensing unit fully made in stainless steel with double chamber insulation:
  · condensing tube made in stainless steel
  · Insulated cover with handle and hole for accommodation of the thermometer with relevant support and liquid level indicator
  · integrated cooling system granting temperature from 0 to +60°C
  · controlled by a digital thermoregulator with PT100 A class temperature sensor with resolution 0,1°C, stirrer motor grant homogeneity/ uniformity
  · rear connection for coolants circulation, over flow tube and atmospheric drain cock
  · white background panel for easier reading of the receiver glass cylinder level mark

Power consumption

- 2500 Watt

Power supply

- 220 or 115 Vac 50/60 Hz

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, 1.0 ml sub
- LAB-101-191: ceramic board diam. 25 mm
- LAB-101-192: ceramic board diam. 32 mm
- LAB-101-193: ceramic board diam. 38 mm
- LAB-101-194: ceramic board diam. 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
- LAB-101-630/RD: rubber disc for receiver cylinder to prevent evaporation
- T-AS7C: thermometer ASTM 7C, range -2°…+300° C, div. 1° C
- T-AS7F: thermometer ASTM 7F, range +30°…+580° F, div. 2° F
- T-AS8C: thermometer ASTM 8C, range -2°…+400° C, div. 1° C
- T-AS8F: thermometer ASTM 8F, range +30°…+760° F, div. 2° F

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

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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.

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

Abel

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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.

LT/AF-82000/M

Electric Abel Flash Point, manual instrument composed by:

- Metallic case structure painted with anti-acid products
- Digital display for temperature reading with 0,1°C resolution
- Temperature read by a stainless steel PT100 A class with stand-by protection support
- Stirrer motor with flexible junction and on/off switch
- Calibrated brass crucible with level line, handle and stand-by support
- Cover with gas ignition device allowing to ignite the testing sample by a manual glide-opening
- Electrical ignitor/enlighter with intensity regulation knob
- Stainless steel bath with internal cooling coil and joints for external cooling source
- Internal solenoid valve for manage cooling through a power switch
- Stainless steel heating element with power heating regulation knob
- Power supply 220 or 115 Vac 50/60 Hz

Dimensions and Weight

- cm 40 × 50 × 50
- kg 10

LT/AF-82200/DC

Electric Abel Flash Point, semi-automatic instrument composed by:

- Metallic case structure painted with anti-acid products
- Digital display for temperature reading with 0,1°C resolution
- Temperature read by a stainless steel PT100 A class with stand-by protection support
- Stirrer motor with flexible junction and on/off switch
- Calibrated brass crucible with level line, handle and stand-by support
- Cover with gas ignition device allowing to ignite the testing sample by pushing a button
- Electrical ignitor/enlighter with intensity regulation knob
- Stainless steel bath with internal cooling coil and joints for external cooling source
- Internal solenoid valve for manage cooling through a power switch
- Stainless steel heating element with power heating regulation knob
- Power supply 220 or 115 Vac 50/60 Hz

Dimensions and Weight

- cm 40 × 50 × 50
- kg 12

Accessories for all articles

- 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 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 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

Cleveland

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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.

LT/CO-88000/M

Cleveland, manual instrument composed by:

- Metallic case structure painted with anti-acid products
- Electric heater 500 Watt with main switch, power regulator and centring aluminium ring
- Calibrated brass cup with handle
- Gas ignition device fitted with a manually operated pivot passing through the cup
- Rod and clamp for thermometer

LT/CO-89000/DC

Cleveland, semi-automatic instrument composed by:

- Metallic case structure painted with anti-acid products
- Digital display for temperature reading with 0,1°C resolution
- Temperature read by a stainless steel PT100 A class
- Gas ignition device fitted with a motor operated pivot passing through the cup
- Calibrated brass crucible with level line, handle and correct positioning support
- Safety cover activated when flame/flash occur
- Electrical ignitor/enlighter with intensity regulation knob and stand-by SS protection
- Electric heater 500 Watt with main switch, power regulator and centring aluminium ring
- Cooling fan with activation switch
- Test button for check the instrument performance
- Motorized up-down movement of sensor's head, buttons operated
- Internal solenoid valve for manage gas supply, activated by an external switch
- Ionization detector rings with audible alarm

Power Supply

- 220 or 115 Vac 50/60 Hz

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 LT/CO-89000/DC

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

Pensky Martens

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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.)

From Method 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.

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
- PT 100 probe Class A for sample temperature measuring
- Measuring range from 15 to 370°C
- Over heat protection

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
- Over heat protection

Power Supply

- 220 Vac 50/60 Hz

Dimensions

- LT/PM-75500/M /ME: cm 35 × 28 × 43
- LT/PM-75500/DC: cm 48 × 30 × 52

Weight

- LT/PM-75500/M /ME: kg 7
- LT/PM-75500/DC: 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

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LT/TC-93000/M

LT/TC-93000/DC

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 mm^2/s (cSt) at 40°C (104°F), or below 9.5 mm^2/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).

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
- 220 Vac 50/60 Hz

Dimensions
- cm 40 × 40 × 50

Weight
- 8 kg

LT/TC-93000/DC
Electric Semi-Automatic Tag Closed
ASTM D56 D3934 D3941

- Electrically heated by electronic regulator manually settable that give the possibility to have different ramp rate
- Temperature range up to +120°C
- Mounted on a case painted with anti-acid epoxidic products
- Calibrated brass crucible
- Cooling coil for testing sample below ambient temperature (an external cooling source is needed)
- Electrical heater 250W or similar
- Cover with ignition system: electric lighter or gas flame
- Automatic shutter opening and dip-in of test flame by means of an electrical motor, activation by push button
- Built in cooling fan allow rapid cooling between tests
- PT100 probe Class A for sample temperature measuring
- Digital display with 0.1°C resolution

Power Supply
- 220Vac 50/60 Hz

Dimensions
- cm 40 × 50 × 50

Weight
- 12 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

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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).

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 jet-ended passes on the circumference of a circle having a radius of 150 mm minimum, grants the ignition at the center of test cup
- Copper with Ni-Cr treatment water bath with constant level overflow for keep bath level at 3.2 mm approx. from glass cup rim fitted with pincers for thermometer
- Levelling device for adjusting liquid level in test cup, height of taper above cup, and size of test flame

Power Supply
- 220Vac 50/60 Hz

Dimensions
- cm 40 × 40 × 50

Weight
- 7 kg

Levelling device

Gas ignition device

Accessories
- LAB-100-748: triangular draft shield 610 × 610 mm
- 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
- LAB-102-242: syringe 1 ml capacity, div. 0.01 ml, stainless steel needle L = 102 mm

Spare Parts
- LAB-100-951: test cup made of moulded glass, pack of 2
- LAB-100-952: gas ignition device, pack of 3
- LAB-110-022: heater
- LAB-150-110: electronic regulator

Test cup
Outside diameter: 63.5 mm
Inside diameter: 50.8 mm
Internal height: 47.6 mm
Total height: 51.6 mm

Evaporation Bath

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LT/EB-241000/M

LT/EB-241400/M

ASTM D381
DIN 51784
IP 131
IP 540
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.

LT/EB-241000/M
Evaporation Bath, Air and Steam Jet, 8 places

- Bench top instrument with metallic case structure painted with anti-acid products.
- 2 × dedicated inlet lines, 1 for air and 1 for steam both equipped with a dedicated manual valve and a manometer for the steam pressure monitoring.
- Built-in super-heater of 400 W for steam.
- Aluminium block with 8 test positions with high speed heating elements (4 heaters), for a total power of 2300 W.
- 8 jets (one for each test place) fitted with its conical adapters with 500 to 600 micron screens for delivery of air / steam.
- Block Temperature display with 0.1°C resolution trough PT100 sensor for bath temperature control, equipped with over-heating protection.
- Super heater Temperature display with 0.1°C resolution trough PT100 sensor for temperature control, equipped with over-heating protection.
- Fast heating: 250°C are reached in approximately 8 minutes.
- Large visible flow meter with metal protection sheet for the correct reading of the air-flow from 2 to 20 m^3/h.
- Front panel with heating and super heating switch, air/steam selector.
- Power supply: 220 or 115 Vac 50/60 Hz.

LT/EB-241400/M
Evaporation Bath - Air and Steam Jet, 4 places

- Bench top instrument with metallic case structure painted with anti-acid products.
- 2 × dedicated inlet lines, 1 for air and 1 for steam both equipped with a dedicated manual valve and a manometer for the steam pressure monitoring.
- Aluminium block with 4 test positions with high speed heating elements (4 heaters), for a total power of 2400 W.
- 4 jets (one for each test place) fitted with its conical adapters with 500 to 600 micron screens for delivery of air / steam.
- Block Temperature display with 0.1°C resolution trough PT100 sensor for bath temperature control, equipped with over-heating protection.
- Fast heating: 250°C are reached in approximately 8 minutes.
- Large visible flow meter with metal protection sheet for the correct reading of the air-flow from 2 to 20 m^3/h.
- Front panel with heating and main switch, safety thermostat.
- Power supply: 220 or 115 Vac 50/60 Hz.

Evaporation Bath

LT/EB-241500/M

LT/FA-247000/M

5210

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LT/EB-241500/M
Evaporation Bath - Air and Steam Jet, 5 places

- Bench top instrument with metallic case structure painted with anti-acid products.
- 2 × dedicated inlet lines, 1 for air and 1 for steam both equipped with a dedicated manual valve and a manometer for the steam pressure monitoring.
- Aluminium block with 5 test positions with high speed heating elements (4 heaters), for a total power of 2400 W.
- 5 jets (one for each test place) fitted with its conical adapters with 500 to 600 micron screens for delivery of air / steam.
- Block Temperature display with 0.1°C resolution trough PT100 sensor for bath temperature control, equipped with over-heating protection.
- Fast heating: 250°C are reached in approximately 8 minutes.
- Large visible flow meter with metal protection sheet for the correct reading of the air-flow from 2 to 20 m^3/h.
- Front panel with heating and main switch, safety thermostat.
- Power supply: 220 or 115 Vac 50/60 Hz.

Factory options for LT/EB-241400/M and LT/EB-241500/M

- D381-SH: Super-heater option

Air Accessories

- LT/FA-247000/M: flow apparatus (for LT/EB-241400/M and LT/EB-241500/M)
  - Full die-cast aluminium construction
  - No contact between rotating and static components
  - Motor power 2.20 kW
  - Power supply 230 V 50/60 Hz or 115 Vac
  - Designed flow rate 150 m^3/h - 0 mbar
  - Noise level 66 dB(A)
  - Weight 27 Kg
- 5210: air filter for flow apparatus
  - Kit composed by filter support with screwing cover made in painted steel, filter element with particle retain and adapter for connection to flow apparatus.
- 7084: filter element (spare).
- 3189: mass flow meter.
  - Flow mass range from 1.2 to 60 nl/min.
  - Digital display readout.
  - Connection joints ¼".
  - Power supply, battery or micro-usb power supply.
  - Operating pressure 0.2 – 11 bar.
  - Made in anodized aluminium, Fkm seals.
  - Repeatability ± 0.5% of full scale.

Steam Accessories

- LAB-102-423/SG: steam generator
  - Steam supply: 19.5 Kg. / h
  - Heating Power installed: 15-18 Kw
  - Steam temperature @ 3.5 bar: 152°C
  - Power supply: 400V – 3ph - 50Hz
  - Working Pressure: 5 bar / Max. working pressure: 5,5 bar
  - Water: must be connected to a water line (boiler capacity 10 liters)
- LAB-102-423: steam generator
  - Steam supply: 5.2 Kg. / h
  - Power: 4KW
  - Power supply: 230V – 1ph - 50Hz
  - Pressure: 4.5 bar
  - Water: rear water tank of 20 liters

General Accessories

- LAB-102-421: Pyrex® beaker
- T-AS3C: thermometer ASTM 3C IP 73C
- 5550: tongs made in stainless steel with corks protection, total length 250 mm

Spare Parts

Only for LT/EB-241000/M

- 3574: digital thermoregulator
- 3114: heating cartridge 100 mm, pack of 2 pcs.
- 7082: air jet complete, pack of 4 pcs.
- 5476: spare metallic mesh, pack of 10 pcs.

Hydrometers / Thermo-hydrometers
Specific Gravity

LINETRONIC TECHNOLOGIES
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CE

General Purpose Hydrometers for Common Density Areas
Instruments with good accuracy for reliable determination of density in laboratory and industry

Hydrometer without thermometer – short form – scale 0.060 g/cm³ - accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-800-000	00	0,600 - 0,660 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-002	0	0,650 - 0,710 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-004	1	0,700 - 0,760 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-006	2	0,760 - 0,820 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-008	3	0,820 - 0,880 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-010	4	0,880 - 0,940 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-012	5	0,940 – 1,000 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-014	6	1,000 - 1,060 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-016	7	1,060 - 1,120 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-018	8	1,120 - 1,180 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-020	9	1,180 - 1,240 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-022	10	1,240 - 1,300 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-024	11	1,300 - 1,360 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-026	12	1,360 - 1,420 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-028	13	1,420 - 1,480 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-030	14	1,480 - 1,540 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-032	15	1,540 - 1,600 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-034	16	1,600 - 1,660 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-036	17	1,660 - 1,720 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-038	18	1,720 - 1,780 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-040	19	1,780 - 1,840 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-042	20	1,840 - 1,900 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-044	21	1,900 - 1,960 : 0,001 g/cm³	160 mm	+20°C
LAB-H-800-046	22	1,960 - 2,020 : 0,001 g/cm³	160 mm	+20°C

Hydrometer without thermometer – long form – accuracy +/- 1 scale di vision

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-800-130	00	0,600 - 0,660 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-132	0	0,650 - 0,710 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-134	1	0,700 - 0,760 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-136	2	0,760 - 0,820 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-138	3	0,820 - 0,880 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-140	4	0,880 - 0,940 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-142	5	0,940 – 1,000 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-144	6	1,000 - 1,060 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-146	7	1,060 - 1,120 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-148	8	1,120 - 1,180 : 0,001 g/cm³	300 mm	+20°C


Hydrometers / Thermo-hydrometers
Specific Gravity

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LAB-H-800-150	9	1,180 - 1,240 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-152	10	1,240 - 1,300 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-154	11	1,300 - 1,360 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-156	12	1,360 - 1,420 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-158	13	1,420 - 1,480 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-160	14	1,480 - 1,540 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-162	15	1,540 - 1,600 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-164	16	1,600 - 1,660 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-166	17	1,660 - 1,720 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-168	18	1,720 - 1,780 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-170	19	1,780 - 1,840 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-172	20	1,840 - 1,900 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-174	21	1,900 - 1,960 : 0,001 g/cm³	300 mm	+20°C
LAB-H-800-176	22	1,960 - 2,020 : 0,001 g/cm³	300 mm	+20°C

Hydrometer with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.	Thermometer scale
LAB-H-800-240	00	0,600 - 0,660 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-244	1	0,700 - 0,760 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-246	2	0,760 - 0,820 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-248	3	0,820 - 0,880 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-250	4	0,880 - 0,940 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-252	5	0,940 – 1,000 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-254	6	1,000 - 1,060 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-256	7	1,060 - 1,120 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-258	8	1,120 - 1,180 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-260	9	1,180 - 1,240 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-262	10	1,240 - 1,300 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-264	11	1,300 - 1,360 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-266	12	1,360 - 1,420 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-268	13	1,420 - 1,480 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-270	14	1,480 - 1,540 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-272	15	1,540 - 1,600 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-274	16	1,600 - 1,660 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-276	17	1,660 - 1,720 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-278	18	1,720 - 1,780 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-280	19	1,780 - 1,840 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-282	20	1,840 - 1,900 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-284	21	1,900 - 1,960 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-800-286	22	1,960 - 2,020 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C

Hydrometer without thermometer – long form – (Scale 0.100 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-050	0,600 - 0,700 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-052	0,700 - 0,800 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-054	0,800 - 0,900 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-056	0,900 - 1,000 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-058	1,000 - 1,100 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-060	1,100 - 1,200 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-062	1,200 - 1,300 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-064	1,300 - 1,400 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-066	1,400 - 1,500 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-068	1,500 - 1,600 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-070	1,600 - 1,700 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-072	1,700 - 1,800 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-074	1,800 - 1,900 : 0,001 g/cm³	300 mm	+20°C
LAB-H-801-076	1,900 - 2,000 : 0,001 g/cm³	300 mm	+20°C

Thermo-Hydrometer with thermometer – long form – (Scale 0.100 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-801-200	0,600 - 0,700 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-202	0,700 - 0,800 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-204	0,800 - 0,900 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-206	0,900 - 1,000 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-208	1,000 - 1,100 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-210	1,100 - 1,200 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-212	1,200 - 1,300 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-214	1,300 - 1,400 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-216	1,400 - 1,500 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-218	1,500 - 1,600 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-220	1,600 - 1,700 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C

Hydrometers / Thermo-hydrometers
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LAB-H-801-222	1,700 - 1,800 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-224	1,800 - 1,900 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-226	1,900 - 2,000 : 0,001 g/cm³	350 mm	+20°C	0..+40:1°C

Hydrometer without thermometer – short form – (Scale 0.150 up to 0.250 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-280	0,700 - 0,850 : 0,005 g/cm³	180 mm	+20°C
LAB-H-801-282	0,850 - 1,000 : 0,005 g/cm³	180 mm	+20°C
LAB-H-801-284	1,000 - 1,250 : 0,005 g/cm³	180 mm	+20°C
LAB-H-801-286	1,250 - 1,500 : 0,005 g/cm³	180 mm	+20°C
LAB-H-801-288	1,500 - 1,750 : 0,005 g/cm³	180 mm	+20°C
LAB-H-801-290	1,750 - 2,000 : 0,005 g/cm³	180 mm	+20°C

Hydrometer without thermometer – long form – (Scale 0.150 up to 0.250 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-360	0,600 - 0,800 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-362	0,800 - 1,000 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-364	1,000 - 1,200 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-366	1,200 - 1,400 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-368	1,400 - 1,600 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-370	1,600 - 1,800 : 0,002 g/cm³	280 mm	+20°C
LAB-H-801-372	1,800 - 2,000 : 0,002 g/cm³	280 mm	+20°C

Thermo-Hydrometer with thermometer – long form – (Scale 0.150 up to 0.250 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-801-490	0,600 - 0,800 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-492	0,800 - 1,000 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-494	1,000 - 1,200 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-496	1,200 - 1,400 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-498	1,400 - 1,600 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-500	1,600 - 1,800 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C
LAB-H-801-502	1,800 - 2,000 : 0,002 g/cm³	350 mm	+20°C	0..+40:1°C

Hydrometer without thermometer – long form – (Scale 0.300 up to 0.500 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-620	0,700 - 1,000 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-622	1,000 - 1,300 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-624	1,000 - 1,500 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-626	1,300 - 1,600 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-628	1,500 - 2,000 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-630	2,000 - 2,500 : 0,005 g/cm³	280-300 mm	+20°C
LAB-H-801-632	2,500 - 3,000 : 0,005 g/cm³	280-300 mm	+20°C

Thermo-Hydrometer with thermometer – long form – (Scale 0.150 up to 0.250 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-801-680	0,700 - 1,000 : 0,005 g/cm³	280-350 mm	+20°C	0..+40:1°C
LAB-H-801-682	1,000 - 1,500 : 0,005 g/cm³	280-350 mm	+20°C	0..+40:1°C
LAB-H-801-684	1,500 - 2,000 : 0,005 g/cm³	280-350 mm	+20°C	0..+40:1°C

Hydrometer without thermometer – long form – (Scale 1.000 up to 1.300 g/cm³) - accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-800	0,700 - 2,000 : 0,02 g/cm³	280-350 mm	+20°C
LAB-H-801-804	1,000 - 2,000 : 0,01 g/cm³	280-350 mm	+20°C

Specific Gravity Hydrometers
General purpose hydrometers for the ranges of 0,600sp gr up to 2,000sp gr

Hydrometer without thermometer – long form – accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.
LAB-H-801-850	0,600 - 0,700 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-852	0,700 - 0,800 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-854	0,800 - 0,900 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-856	0,900 - 1,000 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-858	1,000 - 1,100 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-860	1,100 - 1,200 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-862	1,200 - 1,300 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-864	1,300 - 1,400 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-866	1,400 - 1,500 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-868	1,500 - 1,600 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-870	1,600 - 1,700 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-872	1,700 - 1,800 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-874	1,800 - 1,900 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F

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LAB-H-801-876	1,900 - 2,000 : 0,001 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-890	0,600 - 0,800 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-892	0,800 - 1,000 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-894	1,000 - 1,200 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-896	1,200 - 1,400 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-898	1,400 - 1,600 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-900	1,600 - 1,800 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-902	1,800 - 2,000 : 0,002 sp gr	300 mm	+28.9/28.9°C – 89°F
LAB-H-801-920	0,700 - 1,000 : 0,005 sp gr	285 mm	+28.9/28.9°C – 89°F
LAB-H-801-922	1,000 - 1,500 : 0,005 sp gr	285 mm	+28.9/28.9°C – 89°F
LAB-H-801-924	1,500 - 2,000 : 0,005 sp gr	285 mm	+28.9/28.9°C – 89°F

Density Hydrometers according to international standards
High-precision hydrometers for the density range of 0,600g/cm³ up to 2,000g/cm³

Hydrometer series L20 without thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-805-008	L20-068	0,6800 - 0,7000 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-010	L20-070	0,7000 - 0,7200 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-012	L20-072	0,7200 - 0,7400 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-014	L20-074	0,7400 - 0,7600 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-016	L20-076	0,7600 - 0,7800 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-018	L20-078	0,7800 - 0,8000 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-020	L20-080	0,8000 - 0,8200 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-022	L20-082	0,8200 - 0,8400 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-024	L20-084	0,8400 - 0,8600 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-026	L20-086	0,8600 - 0,8800 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-028	L20-088	0,8800 - 0,9000 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-030	L20-090	0,9000 - 0,9200 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-032	L20-092	0,9200 - 0,9400 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-034	L20-094	0,9400 - 0,9600 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-036	L20-096	0,9600 - 0,9800 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-038	L20-098	0,9800 - 1,0000 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-040	L20-100	1,0000 - 1,0200 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-042	L20-102	1,0200 - 1,0400 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-044	L20-104	1,0400 - 1,0600 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-046	L20-106	1,0600 - 1,0800 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C
LAB-H-805-048	L20-108	1,0800 - 1,1000 : 0,0002 g/cm³	430 mm	DIN 12 791 / BS 718	+20°C

Hydrometer series L50 without thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-806-200	L50-060	0,600 - 0,650 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-202	L50-065	0,650 - 0,700 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-204	L50-070	0,700 - 0,750 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-206	L50-075	0,750 - 0,800 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-208	L50-080	0,800 - 0,850 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-210	L50-085	0,850 - 0,900 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-212	L50-090	0,900 - 0,950 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-214	L50-095	0,950 - 1,000 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-216	L50-100	1,000 - 1,050 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-218	L50-105	1,050 - 1,100 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-220	L50-110	1,100 - 1,150 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-222	L50-115	1,150 - 1,200 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-224	L50-120	1,200 - 1,250 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-226	L50-125	1,250 - 1,300 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-228	L50-130	1,300 - 1,350 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-230	L50-135	1,350 - 1,400 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-232	L50-140	1,400 - 1,450 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-234	L50-145	1,450 - 1,500 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-236	L50-150	1,500 - 1,550 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-238	L50-155	1,550 - 1,600 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-240	L50-160	1,600 - 1,650 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-242	L50-165	1,650 - 1,700 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-244	L50-170	1,700 - 1,750 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-246	L50-175	1,750 - 1,800 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-248	L50-180	1,800 - 1,850 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-250	L50-185	1,850 - 1,900 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-252	L50-190	1,900 - 1,950 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C
LAB-H-806-254	L50-195	1,950 - 2,000 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+20°C


Hydrometers / Thermo-hydrometers
Specific Gravity

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Hydrometer series L50SP precision without thermometer – long form – accuracy +/- 0.0003 g/cm³

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-806-300	L50-060	0,600 - 0,650 : 0,0005 g/cm³	335 mm	DIN 12 791 / BS 718	+15°C
LAB-H-806-302	L50-065	0,650 - 0,700 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-304	L50-070	0,700 - 0,750 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-306	L50-075	0,750 - 0,800 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-308	L50-080	0,800 - 0,850 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-310	L50-085	0,850 - 0,900 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-312	L50-090	0,900 - 0,950 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-314	L50-095	0,950 - 1,000 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-316	L50-100	1,000 - 1,050 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C
LAB-H-806-318	L50-105	1,050 - 1,100 : 0,0005 g/cm³	335 mm	DIN12 791 / BS 718	+15°C

Hydrometer series M50 without thermometer – short form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-808-000	M50-060	0,600 - 0,650 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-002	M50-065	0,650 - 0,700 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-004	M50-070	0,700 - 0,750 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-006	M50-075	0,750 - 0,800 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-008	M50-080	0,800 - 0,850 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-010	M50-085	0,850 - 0,900 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-012	M50-090	0,900 - 0,950 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-014	M50-095	0,950 - 1,000 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-016	M50-100	1,000 - 1,050 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-018	M50-105	1,050 - 1,100 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-020	M50-110	1,100 - 1,150 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-022	M50-115	1,150 - 1,200 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-024	M50-120	1,200 - 1,250 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-026	M50-125	1,250 - 1,300 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-028	M50-130	1,300 - 1,350 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-030	M50-135	1,350 - 1,400 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-032	M50-140	1,400 - 1,450 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-034	M50-145	1,450 - 1,500 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-036	M50-150	1,500 - 1,550 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-038	M50-155	1,550 - 1,600 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-040	M50-160	1,600 - 1,650 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-042	M50-165	1,650 - 1,700 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-044	M50-170	1,700 - 1,750 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-046	M50-175	1,750 - 1,800 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-048	M50-180	1,800 - 1,850 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-050	M50-185	1,850 - 1,900 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-052	M50-190	1,900 - 1,950 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C
LAB-H-808-054	M50-195	1,950 - 2,000 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+20°C

Hydrometer series M50SP precision without thermometer – short form – accuracy +/- 0.0006 g/cm³

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-808-100	M50-060	0,600 - 0,650 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-102	M50-065	0,650 - 0,700 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-104	M50-070	0,700 - 0,750 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-106	M50-075	0,750 - 0,800 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-108	M50-080	0,800 - 0,850 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-110	M50-085	0,850 - 0,900 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-112	M50-090	0,900 - 0,950 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-114	M50-095	0,950 - 1,000 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-116	M50-100	1,000 - 1,050 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C
LAB-H-808-118	M50-105	1,050 - 1,100 : 0,001 g/cm³	270 mm	DIN 12 791 / BS 718	+15°C

Hydrometer series M100 without thermometer – short form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-809-600	M100-060	0,600 - 0,700 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-602	M100-070	0,700 - 0,800 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-604	M100-080	0,800 - 0,900 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-606	M100-090	0,900 - 1,000 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-608	M100-100	1,000 - 1,100 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-610	M100-110	1,100 - 1,200 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-612	M100-120	1,200 - 1,300 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-614	M100-130	1,300 - 1,400 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-616	M100-140	1,400 - 1,500 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-618	M100-150	1,500 - 1,600 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-620	M100-160	1,600 - 1,700 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-622	M100-170	1,700 - 1,800 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-624	M100-180	1,800 - 1,900 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C
LAB-H-809-626	M100-190	1,900 - 2,000 : 0,002 g/cm³	250 mm	DIN 12 791 / BS 718	+20°C


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Hydrometer series M100 with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.	Thermom. scale
LAB-H-809-730	M100/TH-060	0,600 - 0,700 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-732	M100/TH-070	0,700 - 0,800 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-734	M100/TH-080	0,800 - 0,900 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-736	M100/TH-090	0,900 - 1,000 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-738	M100/TH-100	1,000 - 1,100 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-740	M100/TH-110	1,100 - 1,200 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-742	M100/TH-120	1,200 - 1,300 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-744	M100/TH-130	1,300 - 1,400 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-746	M100/TH-140	1,400 - 1,500 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-748	M100/TH-150	1,500 - 1,600 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-750	M100/TH-160	1,600 - 1,700 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-752	M100/TH-170	1,700 - 1,800 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-754	M100/TH-180	1,800 - 1,900 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C
LAB-H-809-756	M100/TH-190	1,900 - 2,000 : 0,002 g/cm³	310 mm	DIN 12 791 / BS 718	+20°C	0+30 :1°C

Hydrometer series S50 without thermometer – short form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-811-100	S50-060	0,60 - 0,65 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-102	S50-060	0,65 - 0,70 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-104	S50-070	0,70 - 0,75 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-106	S50-075	0,75 - 0,80 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-108	S50-080	0,80 - 0,85 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-110	S50-085	0,85 - 0,90 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-112	S50-090	0,90 - 0,95 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-114	S50-095	0,95 - 1,00 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-116	S50-100	1,00 - 1,05 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-118	S50-105	1,05 - 1,10 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-120	S50-110	1,10 - 1,15 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-122	S50-115	1,15 - 1,20 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-124	S50-120	1,20 - 1,25 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-126	S50-125	1,25 - 1,30 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-128	S50-130	1,30 - 1,35 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-130	S50-135	1,35 - 1,40 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-132	S50-140	1,40 - 1,45 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-134	S50-145	1,45 - 1,50 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-136	S50-150	1,50 - 1,55 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-138	S50-155	1,55 - 1,60 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-140	S50-160	1,60 - 1,65 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-142	S50-165	1,65 - 1,70 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-144	S50-170	1,70 - 1,75 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-146	S50-175	1,75 - 1,80 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-148	S50-180	1,80 - 1,85 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-150	S50-185	1,85 - 1,90 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-152	S50-190	1,90 - 1,95 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C
LAB-H-811-154	S50-195	1,95 - 2,00 : 0,002 g/cm³	190 mm	DIN 12 791 / BS 718	+20°C

Hydrometer series S50 SP precision without thermometer – short form – accuracy +/- 0.001 g/cm³

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-811-200	S50-060	0,60 - 0,65 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-202	S50-065	0,65 - 0,70 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-204	S50-070	0,70 - 0,75 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-206	S50-075	0,75 - 0,80 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-208	S50-080	0,80 - 0,85 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-210	S50-085	0,85 - 0,90 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-212	S50-090	0,90 - 0,95 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-214	S50-095	0,95 - 1,00 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-216	S50-100	1,00 - 1,05 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C
LAB-H-811-218	S50-105	1,05 - 1,10 : 0,001 g/cm³	190 mm	DIN 12 791 / BS 718	+15°C

Laboratory Hydrometer without thermometer – short form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Standard	Ref. temp.
LAB-H-820-290	1	0,630 - 0,715 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-292	2	0,715 - 0,788 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-294	3	0,788 - 0,860 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-296	4	0,860 - 0,930 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-298	5	0,930 - 1,000 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-300	6	1,000 - 1,110 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-302	7	1,090 - 1,210 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-304	8	1,190 - 1,310 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C


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LAB-H-820-306	9	1,290 - 1,410 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-308	10	1,390 - 1,510 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-310	11	1,490 - 1,610 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-312	12	1,600 - 1,720 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-314	13	1,720 - 1,842 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C
LAB-H-820-316	14	1,842 - 2,000 : 0,001 g/cm³	225 mm	DIN 12 791	+20°C

Hydrometers According to ASTM - High-precision hydrometers for the ranges of -1 upto +101°API from 0,065 up to 1,850 sp gr and from 600 up to 1100 kg/m³

API Gravity Hydrometer without thermometer – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-825-000	1H-62	-1 + 11 : 0,1° API	330 mm	60°F
LAB-H-825-002	2H-62	9 + 21 : 0,1° API	330 mm	60°F
LAB-H-825-004	3H-62	19 + 31 : 0,1° API	330 mm	60°F
LAB-H-825-006	4H-62	29 + 41 : 0,1° API	330 mm	60°F
LAB-H-825-008	5H-62	39 + 51 : 0,1° API	330 mm	60°F
LAB-H-825-010	6H-62	49 + 61 : 0,1° API	330 mm	60°F
LAB-H-825-012	7H-62	59 + 71 : 0,1° API	330 mm	60°F
LAB-H-825-014	8H-62	69 + 81 : 0,1° API	330 mm	60°F
LAB-H-825-016	9H-62	79 + 91 : 0,1° API	330 mm	60°F
LAB-H-825-018	10H-62	89 + 101 : 0,1° API	330 mm	60°F
LAB-H-825-120	21H-62	0 + 6 : 0,1° API	163 mm	60°F
LAB-H-825-122	22H-62	5 + 11 : 0,1° API	163 mm	60°F
LAB-H-825-124	23H-62	10 + 16 : 0,1° API	163 mm	60°F
LAB-H-825-126	24H-62	15 + 21 : 0,1° API	163 mm	60°F
LAB-H-825-128	25H-62	20 + 26 : 0,1° API	163 mm	60°F
LAB-H-825-130	26H-62	25 + 31 : 0,1° API	163 mm	60°F
LAB-H-825-132	27H-62	30 + 36 : 0,1° API	163 mm	60°F
LAB-H-825-134	28H-62	35 + 41 : 0,1° API	163 mm	60°F
LAB-H-825-136	29H-62	40 + 46 : 0,1° API	163 mm	60°F
LAB-H-825-138	30H-62	45 + 51 : 0,1° API	163 mm	60°F
LAB-H-825-140	31H-62	50 + 56 : 0,1° API	163 mm	60°F
LAB-H-825-142	32H-62	55 + 61 : 0,1° API	163 mm	60°F
LAB-H-825-144	33H-62	60 + 66 : 0,1° API	163 mm	60°F
LAB-H-825-146	34H-62	65 + 71 : 0,1° API	163 mm	60°F
LAB-H-825-148	35H-62	70 + 76 : 0,1° API	163 mm	60°F
LAB-H-825-150	36H-62	75 + 81 : 0,1° API	163 mm	60°F
LAB-H-825-152	37H-62	80 + 86 : 0,1° API	163 mm	60°F
LAB-H-825-154	38H-62	85 + 91 : 0,1° API	163 mm	60°F
LAB-H-825-156	39H-62	90 + 96 : 0,1° API	163 mm	60°F
LAB-H-825-158	40H-62	95 + 101 : 0,1° API	163 mm	60°F

Specific Gravity Hydrometer without thermometer – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-826-500	82H-62	0,650 – 0,700 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-502	83H-62	0,700 – 0,750 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-504	84H-62	0,750 – 0,800 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-506	85H-62	0,800 – 0,850 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-508	86H-62	0,850 – 0,900 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-510	87H-62	0,900 – 0,950 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-512	88H-62	0,950 – 1,000 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-514	89H-62	1,000 – 1,050 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-516	90H-62	1,050 – 1,100 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-628	98H-62	0,950 – 1,000 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-630	111H-62	1,000 – 1,050 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-632	112H-62	1,050 – 1,100 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-634	113H-62	1,100 – 1,150 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-636	114H-62	1,150 – 1,200 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-638	115H-62	1,200 – 1,250 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-640	116H-62	1,250 – 1,300 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-642	117H-62	1,300 – 1,350 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-644	118H-62	1,350 – 1,400 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-646	119H-62	1,400 – 1,450 : 0,0005 sp gr	330 mm	60/60 °F
LAB-H-826-648	120H-62	1,450 – 1,500 : 0,0005 sp gr	330 mm	60/60 °F

Specific Gravity Hydrometer without thermometer – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.	Thermometer scale
LAB-H-826-760	101H	0,500 – 0,650 : 0,001 sp gr	360 mm	60/60 °F	+30+90: 1 °F

Hydrometers / Thermo-hydrometers
Specific Gravity

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Specific Gravity Hydrometer without thermometer – short form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-826-780	102H-62	0,650 – 0,700 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-782	103H-62	0,700 – 0,750 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-784	104H-62	0,750 – 0,800 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-786	105H-62	0,800 – 0,850 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-788	106H-62	0,850 – 0,900 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-790	107H-62	0,900 – 0,950 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-792	108H-62	0,950 – 1,000 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-910	125H-62	1,000 – 1,050 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-912	126H-62	1,050 – 1,100 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-914	127H-62	1,100 – 1,150 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-916	128H-62	1,150 – 1,200 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-918	129H-62	1,200 – 1,250 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-920	130H-62	1,250 – 1,300 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-922	131H-62	1,300 – 1,350 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-924	132H-62	1,350 – 1,400 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-926	133H-62	1,400 – 1,450 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-928	134H-62	1,450 – 1,500 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-930	135H-62	1,500 – 1,550 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-932	136H-62	1,550 – 1,600 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-934	137H-62	1,600 – 1,650 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-936	138H-62	1,650 – 1,700 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-938	139H-62	1,700 – 1,750 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-940	140H-62	1,750 – 1,800 : 0,001 sp gr	260 mm	60/60 °F
LAB-H-826-942	141H-62	1,800 – 1,850 : 0,001 sp gr	260 mm	60/60 °F

Density Hydrometer with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.	Thermometer scale
LAB-H-827-100	S500HL-14	600 – 650 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-102	S501HL-14	650 – 700 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-104	S502HL-14	700 – 750 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-106	S503HL-14	750 – 800 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-108	S504HL-14	800 – 850 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-110	S505HL-14	850 – 900 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-112	S506HL-14	900 – 950 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-114	S507HL-14	950 – 1000 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-116	S508HL-14	1000 – 1050 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C
LAB-H-827-118	S509HL-14	1050 – 1100 : 0,5 kg/m^3	380 mm	15°C	-20+65: 1 °C

Density Hydrometer with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.	Thermometer scale
LAB-H-826-764	310H	500 – 650 : 1 kg/m^3	390 mm	15°C	0+35: 0,5 °C

Density Hydrometer without thermometer – long form – accuracy +/- 1 scale division

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-827-130	311H - 82	600 – 650 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-132	312H - 82	650 – 700 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-134	313H - 82	700 – 750 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-136	314H - 82	750 – 800 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-138	315H - 82	800 – 850 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-140	316H - 82	850 – 900 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-142	317H - 82	900 – 950 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-144	318H - 82	950 – 1000 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-146	319H - 82	1000 – 1050 : 0,5 kg/m^3	330 mm	15°C
LAB-H-827-148	320H - 82	1050 – 1100 : 0,5 kg/m^3	330 mm	15°C

Hydrometers for Mineral Oil and Liquefied Gas Testing.
Reliable instruments for determination of density, material and quality in different special ranges.

Hydrometers for Mineral oil testing, with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-838-140	0,610 - 0,700 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C
LAB-H-838-142	0,680 - 0,770 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C
LAB-H-838-144	0,750 – 0,840 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C
LAB-H-838-146	0,820 - 0,910 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C
LAB-H-838-148	0,890 - 0,990 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C
LAB-H-838-150	0,980 - 1,100 : 0,001 g/cm^3	380 mm	15°C	-20+60 : 1°C


Hydrometers / Thermo-hydrometers Specific Gravity

Hydrometers for Mineral oil testing, customs examinations, with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-838-380	0,645 - 0,705 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-382	0,695 - 0,755 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-384	0,745 - 0,805 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-386	0,795 - 0,855 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-388	0,845 - 0,905 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-390	0,895 - 0,955 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C
LAB-H-838-392	0,945 - 1,005 : 0,0005 g/cm^3	420 mm	15°C	-10+60 : 0,5°C

Hydrometers for Liquefied Gas, for overpressure of 14 bar, with thermometer – long form – accuracy +/- 1 scale division

Art. no.	Range	Length	Ref. temp.	Thermometer scale
LAB-H-838-760	0,500 - 0,550 : 0,001 g/cm^3	360 mm	15°C	0+30 : 1°C
LAB-H-838-762	0,550 - 0,600 : 0,001 g/cm^3	360 mm	15°C	0+30 : 1°C
LAB-H-838-764	0,600 - 0,650 : 0,001 g/cm^3	360 mm	15°C	0+30 : 1°C
LAB-H-838-768	0,500 - 0,650 : 0,001 g/cm^3	360 mm	15°C	0+30 : 1°C

Hydrometers for Special Applications.
Reliable instruments for determination of density, material and quality in different special ranges

Art. no.	Type	Range	Length	Ref. temp.
LAB-H-851-500	Battery tester	1,10 – 1,30 g/ml	260 mm	15°C
LAB-H-851-710	Anti-freeze tester	-50 – 0°C, 0 – 57%vol	300 mm	15°C
LAB-H-860-580	Latexometers	50-250 : 10g/l	240 mm	84°F/28,9°C
LAB-H-860-582	Latexometers	50-450 : 10g/l	210 mm	84°F/28,9°C
LAB-H-860-590	Hydrogen Peroxide	10-40 : 0,5 mas%	270 mm	15°C
LAB-H-860-600	Ammonia	0-35 : 1 mas%	270 mm	15°C
LAB-H-860-604	Chloride of Lime	0-25 : 0,5 mas%	270 mm	20°C
LAB-H-860-608	Vinegar Tester	0-75 : 1 mas%	270 mm	15°C
LAB-H-860-616	Brine According to Bischoff	0-27 : 1 mas%	270 mm	15°C
LAB-H-860-620	Glues tester according to Suhr	0-56 : 1 mas%	415 mm	75°C
LAB-H-860-626	Nitric Acid	0-47 : 1 mas%	270 mm	15°C
LAB-H-860-628	Nitric Acid	45-96 : 1 mas%	270 mm	15°C
LAB-H-860-630	Hydrochloride Acide	0-39 : 1 mas%	270 mm	15°C
LAB-H-860-634	Sulphuric Acid	45-95 : 1 mas%	270 mm	15°C
LAB-H-860-636	Sulphurous Acid	0-10 : 1 mas%	260 mm	15°C
LAB-H-860-638	Phosphor Acid	0-25 : 1 mas%	260 mm	20°C
LAB-H-860-640	Phosphor Acid	0-75 : 1 mas%	300 mm	20°C
LAB-H-860-660	Potassium Hydroxide	0-50 : 1 mas%	280 mm	20°C
LAB-H-860-664	Sodium Hydroxide	0-27 : 0,5 mas%	270 mm	15°C
LAB-H-860-666	Sodium Hydroxide	25-50 : 1 mas%	270 mm	15°C
LAB-H-860-680	Milk of Lime	0 -50 g/l	260 mm	20°C
LAB-H-860-682	Milk of Lime	1,000 – 1,300 :0,002 g/cm^3	325 mm	20°C
LAB-H-860-686	Milk of Lime	0-340 g/l	290 mm	20°C

Art. no.	Type	Range	Length	Ref. temp.	Thermometer scale
LAB-H-860-632	Sulphuric Acid	0-45 : 1 mas%	270 mm	15°C	+30+85 :1 °C
LAB-H-860-720	Glycerine Tester	0-100 : 1% mas	360 mm	15°C	0+35 :1 °C

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Copper Corrosion by LPG

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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.

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 × 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

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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.

LT/HA-175000/M
Hydrometer Apparatus ASTM D1657

- Tubular chamber made in acrylic resins, external diameter 50, internal diameter 36 mm, lenght 440 mm.
- Metallic headers coupled with six stainless steel tie rods.
- Neoprene gaskets.
- Three ¼" 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

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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).

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.
- Volume of approx. 130 cc.

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.
- Volume of approx. 520 cc.

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.
- Volume of approx. 260 cc.

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-177000/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 diam. 6 mm × 4 mm

Spare Parts

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

Hydrogen Sulfide in LPG

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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/m^3 (0.15 to 0.2 grain of hydrogen sulfide per 100 ft^3) of gas.

LT/HS-230000/M
Hydrogen Sulfide in LPG
- Stainless steel cylinder 500 ml with internal coating and valve
- Stainless steel tubing with needle valve
- Water bath 18 liters capacity with stainless steel internal bath
- Glass cylinder with rubber stopper
- Watch glass, glass rod and glass tube
- Lead acetate test paper, pack of 100 pcs.
- Gas flow indicator, rotameter type with range 25 - 250 normalized liters per hour (nL/h)

Power Supply
- 220 Vac 50/60 Hz
- Cable with Shuko plug

Dimensions
- 70 × 50 × 60 cm

Weight
- 20 kg

Spare Parts
- 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 diam. 3 × 6 mm
- LAB-102-307: set of rubber stopper with hole for glass tube

Consumables
- LAB-102-301: lead acetate test paper, pack of 100 pcs.

Accessories
- T-AS15C: thermometer ASTM 15C

LPG Relative Purity

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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.

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 CO_2 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, diam. 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 diam. 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

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LT/SC-163100/M

LT/SV-184000/M

SS Integral Bonnet Needle Valve
SS High-Pressure Proportional Relief Valve

ASTM D1265
GPA 2140

Practice for Sampling Liquefied Petroleum Gases (Manual Method).

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

LT/CF-167000/M, Connection Filter

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

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

LT/SV-184000/M, Stainless Steel Valve for 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

LT/SC-163100-500/M
LPG Sample Cylinder 500 ml Capacity

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

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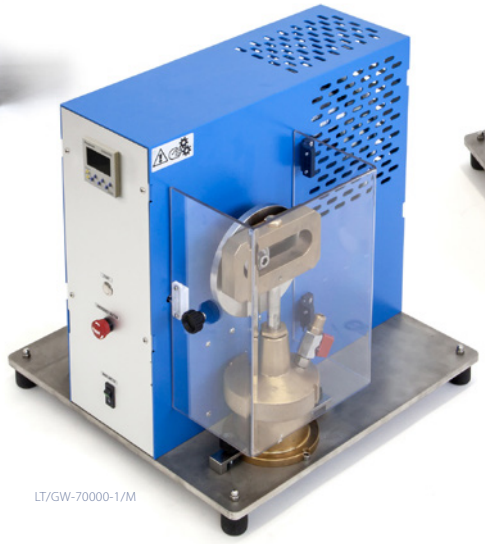
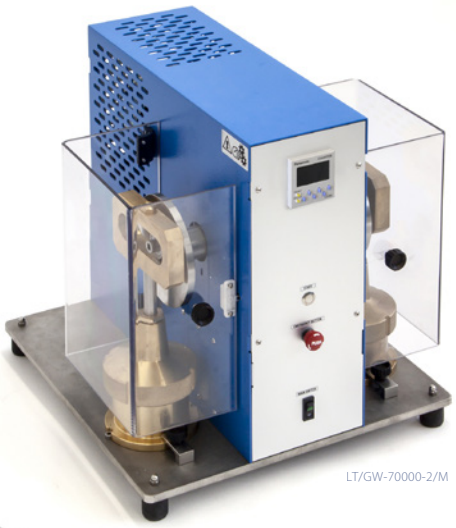
LT/GW-68000/M


LT/GW-67000/M


LT/GW-70000-1/M


LT/GW-70000-2/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.

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 diam. 6.35 mm

LT/GW-68000/M
Slave Unit ASTM D217 - D1403
- For manipulating fats manually
- Adaptable to Manual Grease Worker (art. 67000)

LT/GW-70000-1/M
Automatic Grease Worker
ASTM D217 - D1403
- 5 figure stroke counter
- Automatic preselector
- Adaptable to Manual Grease Worker (Art. 67000)

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

Power Supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- cm 43 × 45 × 46

Weight
- kg 47 (LT/GW-70000/M)
- kg 54 (LT/GW-70000-2/M)

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

Spare Parts
- LAB-100-681: disc ASTM with 51 diam. 6.35 mm holes


LAB-100-714


LAB-100-718

Corrosion Preventive Properties of Lubricating Greases

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LAB-102-059/A

LT/CG-205800/M

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 T echnique 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.

LT/CG-205800/M

Manual instrument composed by:
- Lightweight and solid structure painted with anti-epoxy products
- TFT Display 10" with dedicated software for automatic sample preparation according to ASTM D1743 and customizable procedure
- Integrated balance with real-time readout until 5 Kgs.
- Mechanical group for ASTM D1743 preparation made of brass with Ni-Cr treatment
- Brushless motor technology with adjustable rpm 0-2000 (customizable procedure) and timer 1-30 min.
- Automatic positioning system of head and safety weight imbalance control system
- Automatic force adjustment continuously controlled
- Fine regulation can be performed manually along with security release
- Software calibration tools for balance system

Power Supply
- 220 or 115 Vac 50/60 Hz

Dimensions
- cm 30 × 52 × 69

Weight
- kg 24

Accessories
- LAB-101-058/A: syringe 100 ml, glass, luer lock metal
- LAB-102-058/N: needle 16G, beveled, luer lock
- LAB-102-058/C: bearing removal pliers

Spare Parts
- LAB-102-059/A: weight 1 kg
- LAB-102-059/B: kit of air bleeds + screw
- LAB-102-059/C: bearing holder
- LAB-102-059/D: kit of o-rings, 3 × traction o-ring, 3 × cup o-ring, 3 × water access o-ring

Consumables
- LAB-102-061: bearing LM11949 / LM11910, pack of 3 pcs.
- LAB-102-062: container 895 made in plastics, pack of 5 pcs.

Dropping Point of Lubricating Grease

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LT/DP-211000/M

LT/DP-211500/M

LT/DP-211503/DC

CE

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

ASTM D566 - IP 132 - DIN 51801
Dropping Point of Lubricating Grease.

ASTM D4950
Classification and Specification
of Automotive Service Greases.

ASTM D2265
Dropping Point of Lubricating Grease
over Wide Temperature Range

LT/DP-211000/M
Manual Apparatus for Dropping Point of Lubricating Grease, ASTM D566 – D4950

- Metallic case structure painted with anti-acid products.
- Electric heater 500 Watt with main switch, power regulator and centring aluminium ring.
- Aluminium rod and clamp for holding the stirrer motor.
- Bath glass 400 ml without spout, cover made in aluminium, cork/silicon stoppers with hole for thermometer.
- Test tube with three pins, cork ring guide and grease cup.

Power supply / power consumption

- 220 or 115 Vac 50/60 Hz.
- 500 Watt.

Temperature Range

- Ambient to +268°C.

Accessories for LT/DP-211000/M

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

Spare Parts for LT/DP-211000/M

- 5189: grease cup.
- 1163: test tube with 3 pins.
- 1165: beaker 400 ml.
- 5191: polished metal rod for filling the grease cup.
- 16369: stopper for test tube with hole for thermometer, pack of 5 pcs.
- 5334: test tube support used to correct positioning into the bath, pack of 5 pcs.

LT/DP-211500/M
Manual Apparatus for Dropping Point of Lubricating Grease, ASTM D2265 – D4950

- Metal structure painted with anti-epoxy varnish with frontal stainless-steel opening for easily check the 6 test positions.
- Insulated 6 places aluminium furnace block for heat up to +400°C.
- 6 vertical apertures for the introduction of the sample tubes with spherical end for easily cleaning.
- Viewing chambers illuminated by a cold light lamp.
- Temperature controlled by a digital thermoregulator PID with overtemperature alarm and probe PT100 A class with 0.1°C resolution and 0.5°C precision.

Power supply/ power consumption

- 220 or 115 Vac 50/60 Hz.
- 1000 Watt.

Temperature Range

- Ambient to +400°C.

Accessories for LT/DP-211500/M

- 5189: grease cup ASTM.
- 1167: sampling tube made in glass, pack of 6 pcs.
- 5193: cup support made in glass, pack of 6 pcs.
- 5195: thermometer clamp made in brass, pack of 6 pcs.
- 5197: high bushing made in brass, pack of 6 pcs.
- 5199: low bushing made in brass, pack of 6 pcs.
- 5191: polished metal rod for filling the grease cup.
- 5201: bushing support ring, pack of 6 pcs.
- 2111: thermometer depth cage made in brass
- T-AS3C: thermometer ASTM 3C, without mercury filling.
- T-AS11C: thermometer ASTM 11C.
- 5205: cup cage made in brass for check grease cup dimensions.

Spare Parts for LT/DP-211500/M

- 3592: led illumination system.
- 3574: digital thermoregulator.
- 17064: heater.
- 3787: static relay 20A.

LT/DP-211503/DC
Digital Manual Apparatus for Dropping Point of Lubricating Grease, ASTM D2265 – D4950

- Metal structure painted with anti-epoxy varnish with frontal stainless-steel opening for easily check the 6 test positions.
- Insulated 6 places aluminium furnace block for heat up to +400°C.
- 6 vertical apertures for the introduction of the sample tubes with spherical end for easily cleaning.
- Viewing chambers illuminated by a cold light lamp.
- Touch screen 7" easy to read with operation system, alarm for over temperature.
- Lablink software:
  · Diagnostic and calibration menu;
  · Real time temperature display for each channel;
- 3 × PT100 sensors Class A, for real time sample temperature with 0.1°C resolution and 0.5°C precision.

Power supply/ power consumption

- 220 or 115 Vac 50/60 Hz.
- 1000 Watt.

Temperature Range

- Ambient to +400°C.

Accessories for LT/211503/DC

- 5189: grease cup ASTM.
- 1167: sampling tube made in glass, pack of 6 pcs.
- 5193: cup support made in glass, pack of 6 pcs.
- 5195-PT: PT100 clamp made in brass, pack of 6 pcs.
- 5197-PT: PT100 high bushing made in brass, pack of 6 pcs.
- 5199-PT: PT100 low bushing made in brass, pack of 6 pcs.
- 5191: polished metal rod for filling the grease cup.
- 5201-PT: PT100 bushing support ring, pack of 6 pcs.
- 2111-PT: PT100 depth cage made in brass.
- 5205: cup cage made in brass for check grease cup dimensions.

Spare Parts for LT/211503/DC

- 3592: led illumination system.
- LAB-152-016: PT100 sample temperature.
- 17064: heater.
- 3787: static relay 20A.

Evaporation Loss

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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).

LT/EC-205000/M
Evaporation cell,
manual instrument composed by:
- Stainless steel cylindrical body with neck flange and three screw bolt for tight cover closure.
- Double bottom with 3.17 mm orifice.
- Stainless Steel pre-heating coil with cell connections and air inlet tube.
- Stainless steel cover with neoprene gaskets.
- 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

Evaporation Loss of Lubricating Greases

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LT/TB-205100/4-DM

LT/TB-205100/2-DM

ASTM D2595

ASTM D2595 - Evaporation Loss of Lubricating Greases Over Wide-Temperature Range.
This test method covers the determination of evaporation loss of lubricating greases at temperatures between 93 °C and 316 °C (200 °F and 600 °F). This test method is intended to augment Test Method D972, which is limited to 149 °C (300 °F).

LT/TB-205100/4-DM
Thermostatic Dry Bath
4 places

- Four places aluminium block with double insulating wall
- Operating temperature up to + 320°C
- Digital thermoregulator, risolution 0.1°C, PT100 probe class A, over-temperature alarm and safety thermostat
- Digital display for air temperature control with thermocouple K for each single position
- Stainless steel heater controlled by PID system
- Four stand-by covers
- Remote control unit with cooling fan
- Four test places each with its flow meters 2 Lt/Min or 120 Lt/h
- Power supply: 220 Vac ±10% 50 Hz
- User manual
- Cord cable with shuko plug

LT/TB-205100/2-DM
Thermostatic Dry Bath
2 places

- Two places aluminium block with double insulating wall
- Operating temperature up to + 320°C
- Digital thermoregulator, risolution 0.1°C, PT100 probe class A, over-temperature alarm and safety thermostat
- Digital display for air temperature control with thermocouple K for each single position
- Stainless steel heater controlled by PID system
- Two stand-by covers
- Remote control unit with cooling fan
- Two test places each with its flow meters 2 Lt/Min or 120 Lt/h
- Power supply: 220 Vac ±10% 50 Hz
- User manual
- Cord cable with shuko plug

LT/SP-302-SA LT/EC-205100/M

Accessories for ASTM D2595

- LT/SP-302-SA: air pump
  · capacity: 5 l/min
  · max pressure: 0,3 bar
  · power supply: 220 Vac
- LT/EC-205100/M: set for product evaporation ASTM D2595 in stainless steel
  · flange for fixing to the block, 3 sealing screws and gasket
  · threaded axis for fixing the sample cup and calibrated internal hole to guarantee the correct vapors / pressure breather
- LAB-102-051: greases test cup with support
- T-AS3C: thermometer ASTM 3C

Spare Parts for ASTM D2595

- LAB-102-052/C: gasket, pack of 10 pcs.
- LAB-102-030: thermocouple support

Filterability of Lubricating Greases

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ISO 13357 -1 -2

Procedure for the evaluation of the filterability of lubricating oils, particularly those designed for hydraulic applications,
in the presence of water.
The procedure only applies to mineral-based oils, since fluids manufactured from other materials (e.g. fire-resistant fluids) may not be compatible with the specified test membranes.

LT/FR-13357/M
Manual Filterability of Lubricating Greases ISO 13357 -1 -2

- Stand support with relevant clamps
- Filter funnel system with support for 47 mm filter
- Oil tank gas tight closure with 350 ml capacity
- Membrane filter 47mm 0.8 µm
- Grounding system
- Air pump valve 220 Vac 50/60 Hz – power cable included
- Pressure gauge Dial to 250 kpa
- Ball valve on/off for apply the pressure
- Measuring/receiving cylinder 250 ml capacity and 320 ml capacity
- Forceps for manage the filter
- Digital stopwatch
- Petrislide 47 mm, pack of 100 for microscopic examination
- Oven natural convection 8 litres

Power Supply

- 115 / 220 Vac 50/60 Hz

Accessories

- LAB-133-571-001: bottle 500 ml capacity with screw cap, pack of 4 pcs.
- LAB-133-571-002: motor stirrer with RPM digital reader and regulator, 220 Vac, complete with base and shaft
- LAB-133-571-003: 1 ml manual pipette complete, pack of 3 pcs.

Leakage Tendencies of Wheel Bearing Greases

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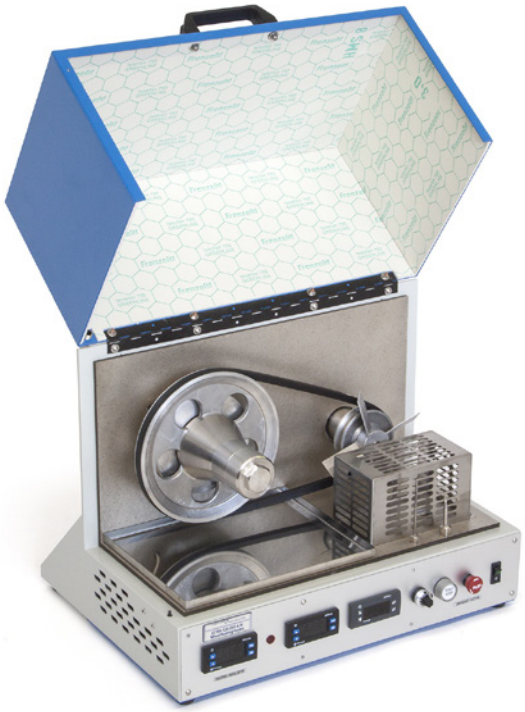

ASTM D1263

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.

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

For the evaluation of the Leakage Tendencies of Wheel Bearing Greases

- Benchtop thermostatic steel cabinet equipped with thermic insulator and thermometer support
- Front cover with handle and anti-tipping system
- Command panel with digital display for bath temperature setting, hub temperature display, RPM counter/regulator, emergency stop
- Manually settable safety thermostat prevent over-heating
- Brushless high-torque drive motor
- 2 × electric heaters with protection cover grant fast heating
- Stainless steel hub for long maintenance free operation
- Stainless steel grease collector
- Included in the scope of supply: two taper roller bearings, drive belt
- Settable hub speed: 50 – 800 rpm
- Settable temperature: ambient +10° up to +150°C

Power supply

- 220 or 115 Vac 50/60 Hz

Max. consumption

- 1000 Watt

Dimensions

- 53 × 39 × 40 cm

Weight

- 39 kg

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, kit, 2 pcs.
- LAB-140-001: PT100 probe
- LAB-160-001: digital thermoregulator
- LAB-170-002: drive belt, 2 pcs.

Oil Separation from Lubricating Grease

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LT/GS-203128/M

LT/GS-203300/M

LT/GS-203200/M-SS

ASTM D1742 - ASTM D6184
DIN 51817
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.

LT/GS-203128/M
Oil Separation from Lubricating Grease During Storage with Climatic Chamber ASTM D1742

- Compact structure painted with anti-acid epoxy products, plexiglass protection doors.
- Bottom part made in stainless-steel with independent activation valves, pressure gauge and regulator.
- Integrated air generator with main switch.
- Temperature controlled by a digital thermo-regulator with PID functions that control the temperature trough an A class PT100 sensor in the range from ambient to +50°C, resolution 0,1°C and stability +/- 0.5°C.
- Rear joints for water tap / cooling circuit connection.
- Active fan grants uniformity.
- 4 × 5664 Complete cell type B included.

Dimensions
- Width 53 cm
- Depth 60 cm
- Height 75 cm

Weight
- 30 Kg

Range
- Ambient to +50°C

Power supply
- 230 Vac 50 Hz or 115 Vac, 50 Hz

Max. consumption
- 500 Watt

Spare Parts for LT/GS-203128/M
- 5664: complete cell type B, made in aluminium deeply coated with soldered funnel, connection by fine-pitch thread
- 1223: recovery beaker, 20 ml capacity
- 7105: brass ring with stainless steel filter mesh

Accessories for LT/GS-203128/M
- 5246: complete cell type A made in brass with soldered funnel, brass ring with stainless steel filter mesh and recovery beaker 20 ml capacity, connection by turn-push system

LT/GS-203200/M-SS
Greases Separation - DIN 51817, IP 121

Manual apparatus for determination of oil separation from lubricating greases under static conditions.

- Stainless steel couple with 240 mesh filter cone located at the bottom
- Stainless steel weight 100 gr
- Oil container made in stainless steel

Spare Parts for LT/GS-203200/M-SS
- 5637: container made in stainless steel with mesh
- 5638: oil container made in stainless steel
- 5636: weight made in stainless steel, 100 gr

LT/GS-203300/M
Oil separation from lubricating grease, conical Sieve method ASTM D6184, FTM 791-321

- Stainless steel cone shaped 60 mesh filter
- Beaker made in borosilicated glass, without spout
- Cover with crane hook for cone suspension

Spare Parts for LT/GS-203300/M
- 5255: cone-shaped Sieve 60 mesh
- 1225: beaker made in borosilicated glass, without spout
- 5257: cover with crane hook for cone suspension

Roll Stability of Lubricating Grease

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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.

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: lubricanting 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

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LT/OX-192000/L-M

LT/OX-192000/D-M

ASTM D943
ASTM D2274
ASTM D4310
DIN 51587
EN ISO 12205
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.

LT/OX-192000/L-M
Oxidation Stability Liquid Bath 8 Places
EN ISO 12205 / ASTM D2274 / ASTM D943

- Instrument constructed with steel structure painted with anti-epoxy material.
- Integrated stainless-steel water bath with volume of 45 liters, with cover 8 positions, bath thermometer support, liquid level sensor with warning light and overflow.
- Height-place steel cover and stainless steel liquid bath with approx. 40 liters capacity.
- Insulated double wall to avoid heat dissipation.
- Double stainless steel immersion heating resistances and motorized stirrer grant uniformity in the bath.
- Equipped with over-temperature security system, manually settable up to +150°C.
- Bath temperature LED display with 0,1°C resolution indicating bath target temperature and actual temperature, sensing part is a stainless steel PT100 A class.
- Oxygen distribution line with 8 × flowmeters equipped with fine needle regulation valve with range 1.6 – 16 normalized liters per hour Nl/h.
- Refrigerant distribution line with 8 × flow valve for distributing refrigerant to each glass condenser.
- Instrument supplied with:
  · Water/refrigerant silicon connection tubes between instrument and glassware
  · Oxygen silicon connection tubes between instrument and glassware
  · Steel cover for limit the light exposure

Power supply
- 230 or 115 Vac 50 Hz

Dimensions and Weight
- cm 42 × 46 × 141
- 50 Kg

LT/OX-192000/D-M
Oxidation Stability Dry Bath 8 Places
EN ISO 12205 / ASTM D2274 / ASTM D943

- Instrument constructed with steel structure painted with anti-epoxy material.
- Integrated stainless-steel dry bath with cover 8 positions.
- Insulated double wall to avoid heat dissipation.
- Double stainless steel heating resistances grants balance and uniformity in the dry block.
- Equipped with over-temperature security system, manually settable up to +150°C.
- Bath temperature LED display with 0,1°C resolution indicating bath target temperature and actual temperature, sensing part is a stainless steel PT100 A class.
- Oxygen distribution line with 8 × flowmeters equipped with fine needle regulation valve with range 1.6 – 16 normalized liters per hour Nl/h.
- Refrigerant distribution line with 8 × flow valve for distributing refrigerant to each glass condenser.
- Instrument supplied with:
  · Water/refrigerant silicon connection tubes between instrument and glassware
  · Oxygen silicon connection tubes between instrument and glassware
  · Steel cover for limit the light exposure

Power supply
- 230 or 115 Vac 50 Hz

Dimensions and Weight
- cm 42 × 46 × 131
- 60 Kg

Oxidation Stability

LAB-101-921
ASTM D943/D4310,
ASTM D2274/ISO12205:
oxidation cell
· oil test tube
height: 600 mm
internal diameter: 41 mm
external diameter: 45 mm
level mark: 300 mm
· oxygen inlet tube
height: 825 mm
(ASTM D943/D4310)
height: 750 mm
(ASTM D2274/ISO12205)
· mushroom condenser
upper diameter:
62 mm approx.
lower diameter:
35 mm approx.
height: 130 mm approx.

LAB-102-274/A

LAB-2460-250

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General Accessories
- LAB-102-501/FC: Fresenius column made in glass filled with desiccant
- Liquid medium for liquid bath:
  · LAB-100-371/50 for work up to +100°C
  · LAB-100-371/350 for work up to +150°C

Utilities Required
- Oxigen 99.5% purity at reduced pressure
- Tap water or cryostatic circulation for mushroom condenser

Spare Parts
- LAB-101-929/1.6: flowmeter range 1.6 – 16 normalized liters per hour (Nl/h)

Accessories for ASTM D943
- LAB-101-921/D943: oxidation cell
  · oil test tube
  · oxygen inlet tube
  · mushroom condenser
- LAB-101-441/L100: silicon carbide paper 100 grit, pack of 100 pcs.
- LAB-101-922/CU: wire catalyst copper 1.6 mm diam., 500 gr.
- LAB-101-922/SS: wire catalyst steel 1.59 mm diam., 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 O_2, 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/D2274: oxidation cell
  · oil test tube
  · oxygen inlet tube
  · mushroom 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, diam. 47 mm, 0.8 µm, pack of 100 pcs.
- LT/VP-8618/K: vacuum pump

Spare Parts for ASTM D2274 (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

Accessories for ASTM D4310
- LAB-2460-250: vacuum pump
- LT/DO-248000/F/500: drying oven
- LAB-101-921 /D943: oxidation cell
- LAB-101-922: wire catalyst copper/steel 1.63 / 1.59 mm diam., 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 O_2, 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
- 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

Oxidation Stability of Gasoline and Aviation Fuels

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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.

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

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 O_2
- 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/cm^2, (m)H_2O
  · 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 trasmitting 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

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LT/OS-202000/M

LT/OS-202000-B/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.

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

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 ±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/cm^2, (m)H_2O
  · supplied with UBS converter
- LAB-102-013: junction O_2
- LAB-102-021: sample dish in Pyrex®, diam. 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®, diam. 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

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LT/OXS-198000/M

LT/OXS-198000-D/M

ASTM D2440
IP 280
IEC61125

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.

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

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 accomodation of the glass tubes
- Digital thermoregulator PID with over-temperature alarm and probe PT100A
- Collector with 6/8 flowmeters 1 L/h O_2 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 diam. 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 um diam. 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

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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.

LT/OS-197000/M
RBOT and TFOUT Bath
ASTM D2112 - D2272 - D4742

- Bath made in stainless steel for four vessels with capacity about 35 litres 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 whit possibility to fix to bench, 220 Vac 50/60 Hz

Penetration of Bituminous Material, Grease, Petrolatum, Waxes, Gel

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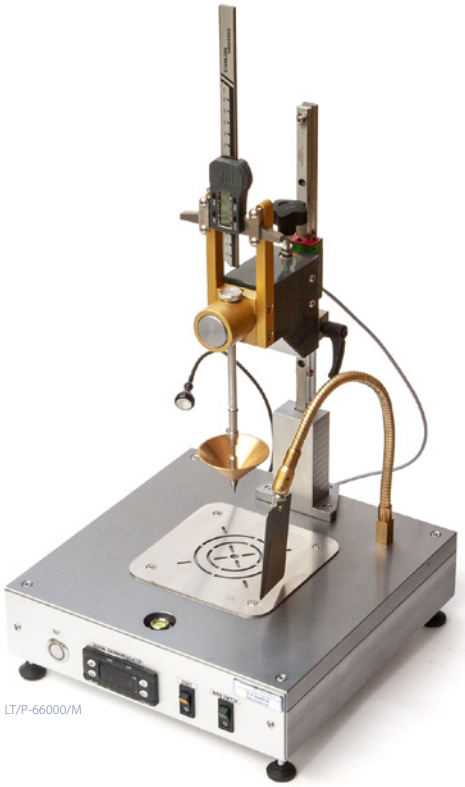


LT/P-66000/M

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
NF T60-119
NF T60-132
NF T60-140

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, NF T60-132, NF T60-140
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, NF T60-119
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.

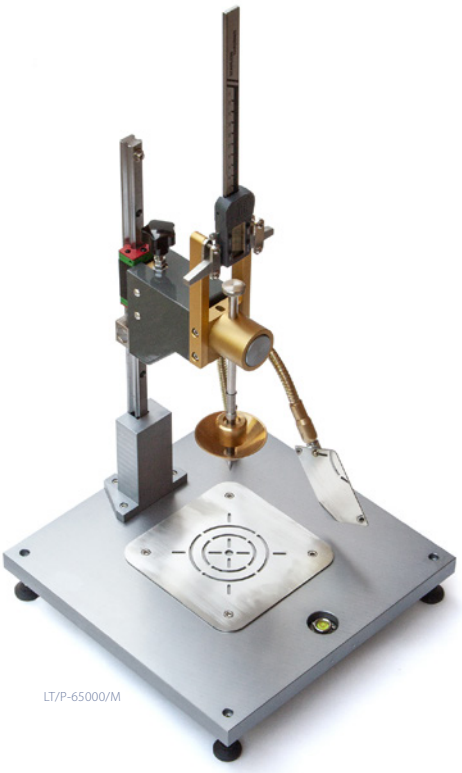
LT/P-65000/M
Precision penetrometer
ASTM D5, D217, D937, D1321, D1403, D1831, D2884

- 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

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



LT/P-65000/M

LAB-100-714

LAB-100-718

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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, 53 mm ext. diam., 36 mm int. diam., 20 mm height, for EN 1426
- LAB-100-1426/30: reduction ring for reduce sample volume, 53 mm ext. diam., 36 mm int. diam., 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, 65 mm diameter, body of brass, stainless steel tip
- LAB-100-664/SS: optional penetration cone ASTM D217, 65 mm diameter, body and tip of stainless steel, for European Pharmacopoeia
- LAB-100-665: optional penetration cone ASTM D217, 69 mm diameter, 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, 203 mm diameter

Accessories for ASTM D937
- LAB-100-664: optional penetration cone ASTM D217, 65 mm diameter, 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 pcs.
- LAB-100-666/BC: base plate in brass 63.5 × 38 mm, pack of 2 pcs.

Accessories for ASTM D1403 – D1831
- LAB-100-711: penetration cone ½ ASTM D1403, IP 310, 22.5 g, body and tip in stainless steel
- LAB-100-712: slider ½ - 15g
- LAB-100-713: sample container ½ 38 × 32 mm, pack of 3 pcs.
- LAB-100-714: half-scale grease worker ASTM D1403, brass, with 8 holes 6.35 mm diameter
- 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 pcs.
- LAB-100-718: quarter-scale grease worker ASTM D1403, brass, with 8 holes 3.17 mm diameter

Accessories for ASTM D2884
- LAB-100-719: propellant cone 15 gr, 65 mm diameter, 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: 1mt 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

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ASTM D482 - D1119 - 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.

ASTM D1119
Standard Test Method for Percent Ash Content of Engine Coolants.
This test method covers the determination of ash content after ignition of commercial engine coolants and antirusts, as packaged or after use.

ASTM D4422
Ash in Analysis of Petroleum Coke.
This test method covers the determination of the ash content of petroleum coke.

Muffle Furnace for Evaporating-autoclave Application

- 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 by thermic stainless AISI 310.
- 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.
- Control panel is positioned on the furnace bottom containing a digital visualized thermoregulator and safety switch for system protection – Gefran 1200.
- Internal chamber made in AISI 310 with direct-welded posterior exhaust for fume extraction (Optional Incoloy Ds).

LT/ME-271000/M

- Single phase tension: 220 Vac
- Power: 4.0 Kw
- Max. temperature + 980°C (up to +1050°C with optional Incoloy Ds Chamber)
- Encumbrance dimensions:
  · Width 500 mm
  · Depth 750 mm
  · Height 650 mm
  · Weight 85 Kg
- Useful inside dimensions:
  · Width 210 mm
  · Depth 320 mm
  · Height 145 mm

LT/ME-275000/M

- Single phase tension: 220 Vac
- Power: 6.0 Kw
- Max. temperature + 980°C (up to +1050°C with optional Incoloy Ds Chamber)
- Encumbrance dimensions:
  · Width 500 mm
  · Depth 950 mm
  · Height 650 mm
  · Weight 100 Kg
- Useful inside dimensions:
  · Width 210 mm
  · Depth 520 mm
  · Height 145 mm

Accessories Table	ASTM D482	ASTM D1119	ASTM D4422
Porcelain capsule 45 × 25 mm – 25 ml cap.			
Shallow form dishes 70×16 mm – 30 ml cap.			•
Silica/porcelain crucible 50 ml	•	•	
Cover for silica/porcelain crucible 50 ml		•	
Silica/porcelain crucible 100 ml	•		
Silica/porcelain crucible 150 ml	•		
Platinum crucible 50 ml	•	•	
Cover for platinum crucible 50 ml		•	
Platinum crucible 100 ml	•		
Platinum crucible 150 ml	•		
Meker gas burner	•	•	
Mechanical shaker	•		
Filter paper	•		
Balance 220 grams	•	•	•
Drying Oven			•
Desiccator			•
Sieve No.20 (850 µm)			•
Sieve No.60 (250 mm)			
Sieve No.200 (75 µm)			•

Reagents Table			
Propan-2-ol	•		
Toluene	•		
QC sample	•		

Ash Determination

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ASTM D482 - D1119 - D3174 - 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.

ASTM D1119
Standard Test Method for Percent Ash Content of Engine Coolants.
This test method covers the determination of ash content after ignition of commercial engine coolants and antirusts, as packaged or after use.

ASTM D3174
Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal.
This test method covers the determination of the inorganic residue as ash in the analysis sample of coal or coke as prepared in accordance with Practice D2013 or Practice D346.

ASTM D4422
Ash in Analysis of Petroleum Coke.
This test method covers the determination of the ash content of petroleum coke.

Muffle furnace for Ash Determination

- 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 hottest part.
- Natural draught posterior exhaust of the smokes.
- Control panel is positioned on the furnace bottom containing a digital visualized thermoregulator with overheating protection and safety switch for system protection.

LT/MF-271000/M

- Single phase tension: 220 Vac
- Power: 2.6 Kw
- Max. temperature +1100°C
- Encumbrance dimensions:
  · Width 400 mm
  · Depth 580 mm
  · Height 540 mm
  · Weight 40 Kg
- Useful inside dimensions:
  · Width 145 mm
  · Depth 250 mm
  · Height 100 mm

LT/MF-272000/M

- Single phase tension: 220 Vac
- Power: 3.9 Kw
- Max. temperature +1100°C
- Encumbrance dimensions:
  · Width 500 mm
  · Depth 650 mm
  · Height 650 mm
  · Weight 83 Kg
- Useful inside dimensions:
  · Width 210 mm
  · Depth 320 mm
  · Height 145 mm

LT/MF-273000/M

- Single phase tension: 220 Vac
- Power: 4.2 Kw
- Max. temperature +1200°C
- Encumbrance dimensions:
  · Width 500 mm
  · Depth 650 mm
  · Height 650 mm
  · Weight 83 Kg
- Useful inside dimensions:
  · Width 210 mm
  · Depth 280 mm
  · Height 145 mm

Accessories Table	ASTM D482	ASTM D1119	ASTM D3174	ASTM D4422
Porcelain capsule 45 × 25 mm – 25 ml cap.			•	
Shallow form dishes 70×16 mm – 30 ml cap.				•
Silica/porcelain crucible 50 ml	•	•		
Cover for silica/porcelain crucible 50 ml		•	•	
Silica/porcelain crucible 100 ml	•			
Silica/porcelain crucible 150 ml	•			
Platinum crucible 50 ml	•	•		
Cover for platinum crucible 50 ml		•		
Platinum crucible 100 ml	•			
Platinum crucible 150 ml	•			
Meker gas burner	•	•		
Mechanical shaker	•			
Filter paper	•			
Balance 220 grams	•	•	•	•
Drying Oven				•
Desiccator				•
Sieve No.20 (850 µm)				•
Sieve No.60 (250 mm)			•	
Sieve No.200 (75 µm)				•

Reagents Table	
Propan-2-ol	•
Toluene	•
QC sample	•

Asphaltenes Determination

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ASTM D6560
IP 143
NF T60-115

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.

AA-21
Apparatus for Determination of Asphaltenes

- Floor standing support with rod and clamps for sustain glassware and elements.
- Upper part composed by 380 W heating belt, boiling flask 1000 ml capacity with lateral sample injector port, upper condenser 300 mm.
- Gravity drain system with top manual actuator.
- Stainless steel hood with fume recovery system, complete with filter holder and o-rings that avoid pressure leak.
- 3 × needle valve for deviating fluid / nitrogen flush and recovery program.
- Lower flask 500 ml with temperature sensing port.
- Lateral condenser for fume recovery.
- Lower flask with condenser for solvent recovery.
- Lower heating mantle 250 W for boiling solvent, equipped with up/down movement.
- External control unit with Linetronic software to manage the temperature inside the 2 heating part of instrument, timer for analysis, audible alarm and analysis wizard step-by-step.
- Instrument shipped with spare o-rings, 1 pack of 100 filters and allen keys for open easily the hood for cleaning and filter change.

Asphaltenes Extraction

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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.

LT/AA-114000/M

Manual apparatus composed by:
- Heating plate with manual heating regulation and magnetic stirring features with rod and clamp for supporting glassware
- Bubble condenser made in glass with joints for liquid circulation and grounds joints 24/40 – 34/35
- Reflux extractor made in glass
- Conical flask made in borosilicate glass 500 ml capacity
- Stopper made in glass with ground connection 24/40
- Evaporating vessel diam. 90 mm
- Filter funnel made in glass
- Forceps made in stainless steel for manage the filters

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, diam. 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

Conradson

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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 %.

LT/CCR-96000/M

Conradson carbon residues,
manual instrument composed by:

- LPG-heated by Meker lamp fitted with safety valve
- Metal tripod holder with Nichrome triangle
- External insulating ring block fining painted
- Metallic chimney with handle
- Crucibles: porcelain crucible, inner iron crucible, outer iron crucible
- Covers: inner skidmore cover, outer iron cover
- User manual and power cable making part of scope of supply

LT/CCV-97000/M

Conradson coking value,
manual instrument composed by:

- 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-100-965: chimney
- LAB-100-966: Nichrome triangle
- LAB-100-967: cover for external crucible
- LAB-100-968: insulating ring
- LAB-100-696: Meker gas burner

LAB-100-961	Rim diam. 48 mm			
LAB-100-962	Flange outside diam. 64 mm	Flange inside diam. 55 mm	Inside height 38 mm	
LAB-100-963	Outside at top diam. 80 mm	Height 60 mm	Approx. thickness 0.9 mm	
LAB-100-964	Horizontal hole diam. 6 mm			
LAB-100-965	Lower side diam. 121 mm	Lower side height 50 mm	Upper side value diam. 52 mm	Upper side height 60 mm
LAB-100-966	Approximately diam. 1.2 mm			
LAB-100-967	diam. 83 mm			
LAB-100-968	External diam. 157 mm	Height 36 mm	Internal up diam. 89 mm	Internal down diam. 82.5 mm
LAB-100-969	Total height 155 mm	Flame obturator diam. 25 mm		

Values reported are indicatives and can change according production procedures.

FIA – Fluorescent Indicator Adsorption

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LT/FA-225000-S/M

LT/FA-224000-S/M

ASTM D1319
DIN 51791
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.

LT/FA-225000-S/M
Manual Apparatus for Hydrocarbon Types in Liquid Petroleum Products, Fluorescent Indicator Adsorption (FIA), ASTM D1319, 2 places

- Wall support made in black material equipped with spring connections that block up to 2 columns.
- 2 × spherical joint 28/12 equipped with manual application ball valve.
- 2 × stainless linear rulers with sliding pointers and 1 × stainless steel lamp holder with 365nm UV light source.
- 2 × gas reducer with manometer for controlling the nitrogen pumped into the columns.

LT/FA-224000-S/M
Manual Apparatus for Hydrocarbon Types in Liquid Petroleum Products, Fluorescent Indicator Adsorption (FIA), ASTM D1319, 2 places

- Wall support made in black material equipped with spring connections that block up to 4 columns.
- 4 × spherical joint 28/12 equipped with manual application ball valve.
- 4 × stainless linear rulers with sliding pointers and 2 × stainless steel lamp holder with 365nm UV light source.
- 1 × gas reducer with manometer for controlling the nitrogen pumped into the column.

Power Supply

- 220 or 115 Vac 50/60 Hz

Dimensions

- 2 places: 500 × 220 × 1900 cm
- 4 places: 750 × 220 × 1900 cm

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.
- LAB-102-228: spherical joints 28/12, pack of 2 pcs.

Lead, Acid and Salt Content

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ASTM D2547 (obs.)
ASTM D6470
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.

ASTM D6470 - Standard Test Method for Salt in Crude Oils (Potentiometric Method).
This test method covers the determination of salt in crude oils. For the purpose of this test method, salt is expressed as % (m/m) NaCl (sodium chloride) and covers the range from 0.0005 % to 0.15 % (m/m).

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.

LT/EA-244000/M
Extraction Apparatus,
manual instrument composed by:
- Metallic case structure painted with anti-acid products.
- Control part with: independent main switches, heating regulators, rods and adjustable clamps for glassware.
- Two independent sets of glassware composed by: Hopkins condenser, 50 ml graduated funnel, 500 ml boiling flask equipped with drain cock and 600 ml receiver beaker.
- Dual extractor apparatus with wire bound heating element.
- Heat transparent protections in plastic material.

Power Supply
- 220 or 115 Vac 50/60 Hz

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

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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.

LT/RCR-98000/M
Ramsbottom ASTM D524

- Compact structure made in painted steel with vibration free feet.
- Cast iron block furnace equipped with 5 wells, 63.5 mm diameter.
- Stainless steel cover with double layer insulting material connect to furnace block.
- Direct contact armoured heating element 1700 W grants working temperatures up to 550°C +/- 5°C.
- Front panel incorporate the block temperature display (0,1°C resolution) and the control bulb digital display (0,1°C resolution).
- Independent switch for: on/off (main) , heating, cooling fan.
- Lateral stainless steel control bulb stand-by support for checking the temperature provided with the unit.
- Control bulb made in stainless steel, weight 24 gr., for checking the temperature provided with the unit.

Weight

- 21 kg

Dimensions

- 320 × 330 × 310 mm

Power supply

- 220 or 115 Vac, 50/60 Hz

Accessories

- LAB-100-981: glass coking bulb of heat-resistant glass, pack of 10 pcs.
- LAB-100-982: sample charging syringe 10 ml made in glass with Luer lock and needle 150 × 1.5 mm
- LAB-100-983: stainless steel tongs for removing glass coking bulb from coking furnace
- LAB-100-984: coking bulb filling device made in stainless steel

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

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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.

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

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LAB-101-201


LAB-101-222


LAB-101-229 -230 -231

LT/DB-428005/M

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, naphtas, kerosenes and other petroleum distillates that are substantially free from butanes and that have a 90% not over 600 F.

LT/SA-120000/M
Sulfonation Number Apparatus ASTM D1019, composed by:

- LT/CF-122000-R/M: 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 3000 RPM / 2425 RCF
  - noise level low than 60 dB
  - 15 memories + pre-heating program & overheating protection
  - power supply: 220-240 Vac / 50 - 60Hz, 1400 Watt
- LT/DB-428000/M: thermostatic shaking bath
  - outer body in steel coated in epoxy anti-acid epoxy paint
  - double wall heat insulation with mineral fibre
  - internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning and draining tap
  - stainless steel hinged anti condensation lid
  - speed of shaking is set with electronic variator from 35 – 150 movements per minute with digital indicator
  - digital display P.I.D. thermostat
  - temperature range from +5°C above room temperature to +99,9°C accuracy to ±0,5°C to +37°C.
  - display precision 0,1°C.
  - additional thermostat with visual alarm and manual resetting
  - cooling coil with relevant joint for connection to an external cooling source
  - overall dimensions: L 725 × D 325 × H 387 mm
  - internal dimensions tank: L 366 × D 254 × H 150 mm
  - excursion of the tank: 24 mm (12+12)
  - nominal volume: 26 litres
  - rack for ice water jar 4 positions and rack for sulfunation flask 4 positions included
  - weigth: 27 kg
  - illuminated two phase main switch
  - power: 1000 W
  - power supply: 230 V - 50 Hz
- LAB-101-201: 4 ice water jar
- LAB-101-222: 4 buckets
- LAB-101-229: 4 standard sulfonation flask 100 ml graduated to 0.2 ml

Accessories

- LT/B-2470/BC200: 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-101-201: ice water jar, pack of 4
- LAB-101-229: standard sulfonation flask, pack of 4

Humidity Cabinet

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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.

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
- 220 Vac 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

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LT/RP-194000/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

ASTM D3603 - Rust-preventing Characteristics of Steam Turbine Oil in the Presence of Water (Horizontal Disk Method)

ASTM D5534 - Standard Test Method for Vapour-phase Rust-preventing Characteristics of Hydraulic Fluids

DIN 51585 - ISO 7120
Determination of Rust-preventing Characteristics in the Presence of Water in Petroleum Products, Lubricants Oils, Petroleum Oils and Other Fluids

LT/RP-194000-4/M
Rust Prevention Test Bath - 4 places
LT/RP-194000-6/M
Rust Prevention Test Bath - 6 places

- Compact and solid structure painted with anti-epoxy products, oil bath completely made in stainless steel with a capacity of 16 litres with double wall insulation
- 2 × armoured stainless steel heaters with heating capacity 2000 Watt
- Temperature controlled by PT100 A class and Lin-Tech managing software
- Safety systems:
  · overheating alarm
  · low level liquid
  · overflow system
- Available 4 or 6 test positions and include:
  · cover with holes for test beaker immersion
  · thermometer bath support
  · stirring bars with solid independent transmission PBB pulley-belt-bearing system
  · independent test timer
- Linetronic Management software running on 7" High-brightness TFT:
  · pre-setting for ASTM methods D665, D3606 and D5
  · customizable analysis parameters, temperature, time, RPM
  · 2 × USB for connecting mouse, keyboard and software update
- End-test audible alarm
- Automatic stand-by prevent evaporation of bath medium and power wast
- Temperature reachable : + 90 °C
- RPM setting: 0-1000 RPM

Power supply
- 220Vac 50/60Hz

Dimensions
- cm 65 × 35 × 65

Weight
- 4 positions: 42 kg
- 6 positions: 48 kg

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

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LT/PC-155000/M

LT/B-2470/BCA200 INT-CAL

LT/DO-248000/N-20

LAB-106-007

LAB-101-558

LAB-101-555

ASTM D5452

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.

LT/PC-155000/M
Particulate Contamination in Aviation Fuels by Laboratory Filtration ASTM D5452

- Aluminium structure with anti-vibrating feet according to ASTM D5452
- 5 litres stainless steel sample tank epoxy coated conform to ASTM D4306 and dispensing screw cap with mose barb internal diameter of approx. 9.5 mm
  and lenght 32 mm, equipped with 100 mm fuel resistant flexible tube
- Metallic funnel 200 ml capacity with filter support and base for fine closing of the membrane
- 5 litres graduated cylindrical vacuum bottles for receive sample
- Grounding system and vacuum connection tube included

Accessories

- LAB-100-332: digital stopwatch
- LT/B-2470/BCA200 INT-CAL: analytical balance
  · Capacity: 220 g
  · Linearity: ±0.2 mg
  · Response time: 4/6 sec.
  · Calibration: internal
  · Readability: 0.1 mg
  · Repeatability: ±0.05 mg
  · Pan diameter: 80 mm

Balance Functions
· LCD display with small decimal digits
· Membrane keyboard, water proof and solvent resistant, easy to use with TARE, ON/OFF, PRINT and MENU
· Indication of the reached stable weight
· Bar-graph indicator of dosage and remaining capacity of the balance
· Parameters configurable by menu: reading in g (grams), lb (pound), oz (ounce), ct (carats), pcs (pieces), % (percentage)

Technical Characteristics
· Full scale automatic calibration with internal and/or external mass
· Selectable response time: "fast/slow"
· Data output: RS232 I/O adjustable
· Operating temperature: 18° ÷ 35°C
· Power supply: 100 ÷ 240 Vac
· Power consumption: 200 mA
· Dimensions: w 216 × d 380 × h 360 mm
· Weighing chamber dimensions: w 180 × d 170 × h 240 mm
· Net weight: 7 kg
· Power supply: 230 Vac 50 Hz

- LAB-106-007: laboratory solvent dispenser
  · Wash capacity up to 1 liter
  · Filter container made in stainless steel diameter 25 mm
  · Pack of 100 pcs. filter 0.45 µm, 25 mm diameter JHWP02500
  · Borosilicated glass flask
  · PTFE High quality seal
- LT/DO-248000/N-20: mini-oven, 20 liters capacity, natural convection, for temperature from: +5°C ambient up to +200°C
- LAB-106-008: PetriSlide – for holds filter securely in place – PD1504700
  · 47 mm diameter
  · Pack of 100 pcs.
  · Made in plastic material
  · Transparent cover allows microscopic examination

Spare Parts

- LAB-101-553: membrane filters, pack of 100 pcs.
- LAB-101-556: rubber stopper pack of 2 pcs. and tube for connection
- LAB-101-557: grounding system
- LAB-101-555: vacuum bottle 5 liters capacity
- LAB-101-552: 5 liters filling container made in stainless steel with stopper for spillage
- LAB-101-441/T: stainless steel forceps for manage the test strips
- LAB-155-001: support stand
- LAB-101-558: metallic filter funnel supported by a base with support for closing of the tightness membrane

Optional Accessories

- LT/VP-81612/K: diaphragm vacuum pump, U.S. Air Force T.O. 42B-1-1 jet fuels filter test time
  · 100% oil-free transfer and maintenance-free
  · Pure transfer, evacuation and compression
  · Highly compatible with vapours and condensation
  · Chemically-resistant, therefore suitable for highly aggressive or corrosive gases and vapours
  · Delivery (l/min): 30
  · Ultimate vacuum (mbar abs.): 100
  · Connectors for tube (mm): ID 10
  · Power Supply: 230 or - 50 Hz / 115 V - 60 Hz
  · Weight: Kg. 3.95
  · Dimensions: 361 × 141 × 102 mm
- LT/VP-8618/K: diaphragm vacuum pump, for ASTM D5452
  · 100% oil-free transfer and maintenance-free
  · Pure transfer, evacuation and compression
  · Compatible with vapours and condensation
  · Chemically-resistant gases and vapours
  · Delivery (l/min): 6
  · Ultimate vacuum (mbar abs.): 100
  · Connectors for tube (mm): ID 4
  · Power Supply: 230 V - 50Hz / 115 V - 60 Hz
  · Weight: 1.9 kg
  · Dimensions: 164 × 141 × 90 mm

Sediment in Crude and Fuel Oils

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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.

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

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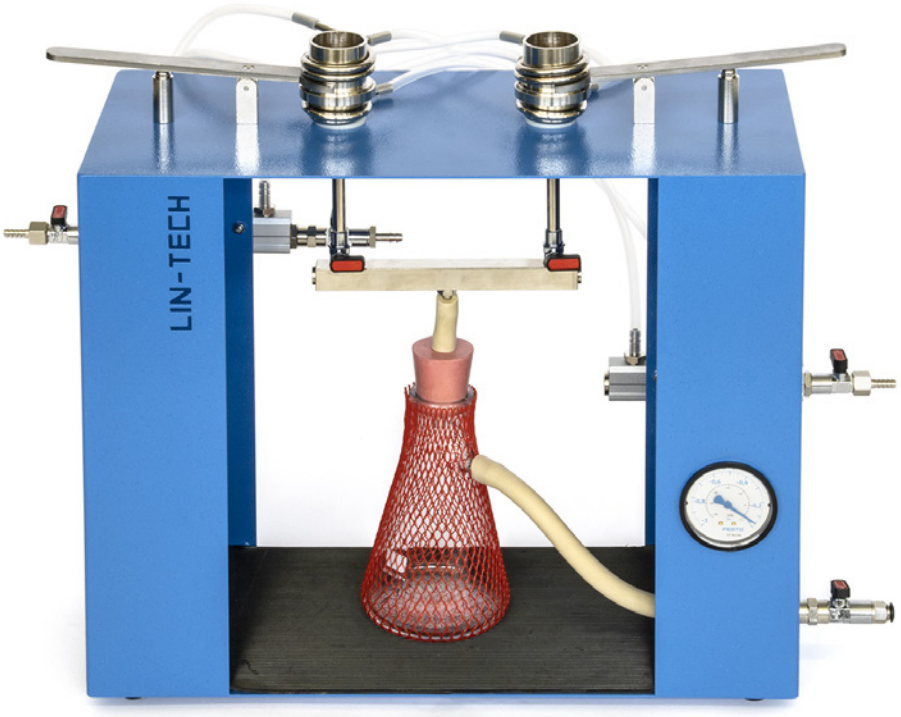

ASTM D4870
IP 375 - IP 390 (proc.A)
ISO 10307

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.

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
- 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 diam., 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 50mm^2/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

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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.

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 Meker 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

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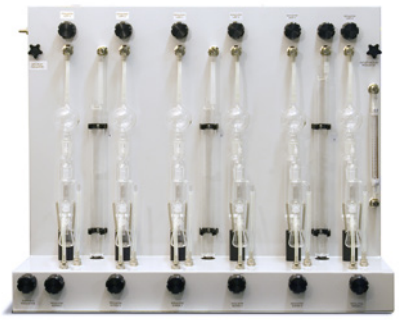
LT/SL-153000/M



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.

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

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: absobiting 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

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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).

Lower side: Liquid Chamber LT/RC-179000-A - One Opening

- Made of high-quality stainless steel, long time corrosion resistant.
- Internal and external fine polishing for excellent drop drain.
- Upper connection ½" fitting.
- The inner surface of the coupling end shall be sloped to provide complete drainage when inverted.

Upper side: Vapour Chamber LT/RC-179000-B - ASTM D323

- Made of high-quality stainless steel, long time corrosion resistant.
- Internal and external fine polishing for excellent drop drain.
- Fittings lower connection ½" / upper connection ½" (with optional adapter ¼" on request).
- Volume of approx. 520 cc.

Lower side: Liquid Chamber LT/RC-179000-C - Two Openings

- Made of high-quality stainless steel, long time corrosion resistant.
- Internal and external fine polishing for excellent drop drain.
- Upper connection ½" fitting with 12.7 straight-through full-opening valve.
- The inner surface of the coupling end shall be sloped to provide complete drainage when inverted.
- 6.35 mm valve positioned near bottom.
- Volume of approx. 130 cc.

General Specification

- Inside diameter 51 mm
- External diameter 57 mm
- Vapour chamber: inside lenght 253 mm external lenght 268 mm

Accessories

- LT/TB-177000/M: thermostatic bath
- LAB-101-793/100: pressure gauge double scale, 0-100 kPa and 0-15 Psi
- LAB-101-793/200: pressure gauge double scale, 0-200 kPa and 0-30 Psi
- LAB-101-793/300: pressure gauge double scale, 0-300 kPa and 0-45 Psi
- LAB-101-793/700: pressure gauge double scale, 0-700 kPa and 0-100 Psi
- T-AS18C: thermometer ASTM 18C
- LAB-179-006: sample transfer tool, rubber stopper + 2 tubes

Spare Parts

- LAB-101-792-A: gasket for chamber, pack of 10
- LAB-101-792-B: gasket for pressure gauge, pack of 10 pcs.

Calibrated Glass Capillary Kinematic Viscometers

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U-Tube Viscometers type BS/U, for transparent liquids, with certificate, length 300 mm, sample volume 13~40 ml

Article	Size	Constant	Range
1619/00	O	0.001	0.3 - 1 mm^2/s
1619/01	A	0.003	0.9 - 3 mm^2/s
1619/02	B	0.01	2 - 10 mm^2/s
1619/03	C	0.03	6 - 30 mm^2/s
1619/04	D	0.1	20 - 100 mm^2/s
1619/05	E	0.3	60 - 300 mm^2/s
1619/06	F	1.0	200 - 1000 mm^2/s
1619/07	G	3.0	600 - 3000 mm^2/s
1619/08	H	10	2000 - 10'000 mm^2/s

Miniature U-Tube Viscometers, for transparent liquids, with certificate, length 250 m, sample volume 4 ml

Article	Size	Constant	Range
1622/01	M1	0.001	0.2 - 1 mm^2/s
1622/02	M2	0.005	1 - 5 mm^2/s
1622/03	M3	0.015	3 - 15 mm^2/s
1622/04	M4	0.04	8 - 40 mm^2/s
1622/05	M5	0.1	20 - 100 mm^2/s

Suspended-Level Viscometers BS/IP/SL, for transparent liquids, with certificate, length 330 m, sample volume 22~40 ml

Article	Size	Constant	Range
1625/01	1	0.01	3.5 - 10 mm^2/s
1625/02	1A	0.03	6 - 30 mm^2/s
1625/03	2	0.1	20 - 100 mm^2/s
1625/04	2A	0.3	60 - 300 mm^2/s
1625/05	3	1.0	200 - 1000 mm^2/s
1625/06	3A	3.0	600 - 3000 mm^2/s
1625/07	4	10	2000 - 10'000 mm^2/s
1625/08	4A	30	6000 - 20'000 mm^2/s
1625/09	5	100	20'000 - 100'000 mm^2/s

Suspended-Level Shortened Form Viscometers, for transparent liquids, with certificate, length 250 mm, sample volume 10 ml

Article	Size	Constant	Range
1628/01	1	0.0008	1.05 min mm^2/s
1628/02	2	0.003	2.1 - 3 mm^2/s
1628/03	3	0.01	3.8 - 10 mm^2/s
1628/04	4	0.03	6 - 30 mm^2/s
1628/05	5	0.1	20 - 100 mm^2/s
1628/06	6	0.3	60 - 300 mm^2/s
1628/07	7	1.0	200 - 1000 mm^2/s
1628/08	8	3.0	600 - 3000 mm^2/s
1628/09	9	10	2000 - 10'000 mm^2/s

Shell Pattern Shortened Form Viscometers, suspended level, with certificate

Article	Size	Constant	Range
1629/01	1	0.0008	1.05 min mm^2/s
1629/02	2	0.003	2.1 - 3 mm^2/s
1629/03	3	0.01	3.8 - 10 mm^2/s
1629/04	4	0.03	6 - 30 mm^2/s
1629/05	5	0.1	20 - 100 mm^2/s
1629/06	6	0.3	60 - 300 mm^2/s
1629/07	7	1.0	200 - 1'000 mm^2/s
1629/08	8	3.0	600 - 3'000 mm^2/s
1629/09	9	10	2'000 - 10'000 mm^2/s

Miniature Suspended-Level Viscometers, for transparent liquids, with certificate, length 330 mm, sample volume 4 ml

Article	Size	Constant	Range
1631/01	1	0.003	0.6 - 3 mm^2/s
1631/02	2	0.01	2 - 10 mm^2/s
1631/03	3	0.03	6 - 30 mm^2/s
1631/04	4	0.1	20 - 100 mm^2/s
1631/05	5	0.3	60 - 300 mm^2/s
1631/06	6	1.0	200 - 1'000 mm^2/s
1631/07	7	3.0	600 - 3'000 mm^2/s

Cannon-Fenske Routine, for transparent liquids, with certificate, length 250 mm, sample volume 7 ml

Article	Size	Constant	Range
1634/01	25	0.002	0.5 - 2 mm^2/s
1634/02	50	0.004	0.8 - 4 mm^2/s
1634/03	75	0.008	1.6 - 8 mm^2/s
1634/04	100	0.015	3 - 15 mm^2/s
1634/05	150	0.035	7 - 35 mm^2/s
1634/06	200	0.1	20 - 100 mm^2/s
1634/07	300	0.25	50 - 250 mm^2/s
1634/08	350	0.5	100 - 500 mm^2/s
1634/09	400	1.2	240 - 1'200 mm^2/s
1634/10	450	2.5	500 - 2500 mm^2/s
1634/11	500	8	1600 - 8'000 mm^2/s
1634/12	600	20	4'000 - 20'000 mm^2/s
1634/13	650	20	10'000 - 50'000 mm^2/s
1634/13	700	100	20'000 - 10'0000 mm^2/s

U-Tube Reverse Flow Viscometer BS/IP/RF, for opaque liquids, with certificate, length 275 mm, sample volume 12~25 ml

Article	Size	Constant	Range
1637/01	1	0.003	0.6 - 3 mm^2/s
1637/02	2	0.01	2 - 10 mm^2/s
1637/03	3	0.03	6 - 30 mm^2/s
1637/04	4	0.1	20 - 100 mm^2/s
1637/05	5	0.3	60 - 300 mm^2/s
1637/06	6	1.0	200 - 1'000 mm^2/s
1637/07	7	3.0	600 - 3'000 mm^2/s
1637/08	8	10	2'000 - 10'000 mm^2/s
1637/09	9	30	6'000 - 30'000 mm^2/s
1637/10	10	100	20'000 - 100'000 mm^2/s
1637/11	11	300	60'000 - 300'000 mm^2/s

Calibrated Glass Capillary Kinematic Viscometers

Cannon-Fenske Opaque, for opaque liquids, with certificate, length 295 mm, sample volume 12 ml

Article	Size	Constant	Range
1641/01	25	0.002	0.5 - 2 mm²/s
1641/02	50	0.004	0.8 - 4 mm²/s
1641/03	75	0.008	1.6 - 8 mm²/s
1641/04	100	0.015	3 - 15 mm²/s
1641/05	150	0.035	7 - 35 mm²/s
1641/06	200	0.1	20 - 100 mm²/s
1641/07	300	0.25	50 - 250 mm²/s
1641/08	350	0.5	100 - 500 mm²/s
1641/09	400	1.2	240 - 1'200 mm²/s
1641/10	450	2.5	500 - 2500 mm²/s
1641/11	500	8	1600 - 8'000 mm²/s
1641/12	600	20	4'000 - 20'000 mm²/s
1641/13	650	50	10'000 - 50'000 mm²/s
1641/14	700	100	20'000 - 100'000 mm²/s

ASTM Ubbelohde, for transparent liquids, with certificate, length 283 mm, sample volume 18 ml

Article	Size	Constant	Range
1643/01	0	0.001	0.3 - 1 mm²/s
1643/02	0C	0.003	0.6 - 3 mm²/s
1643/03	0B	0.005	1 - 5 mm²/s
1643/04	1	0.01	2 - 10 mm²/s
1643/05	1C	0.03	6 - 30 mm²/s
1643/06	1B	0.05	10 - 50 mm²/s
1643/07	2	0.1	20 - 100 mm²/s
1643/08	2C	0.3	60 - 300 mm²/s
1643/09	2B	0.5	100 - 500 mm²/s
1643/10	3	1.0	200 - 1'000 mm²/s
1643/11	3C	3.0	600 - 3'000 mm²/s
1643/12	3B	5.0	1'000 - 5'000 mm²/s
1643/13	4	10	2'000 - 10'000 mm²/s
1643/14	4C	30	6'000 - 30'000 mm²/s
1643/15	4B	50	10'000 - 50'000 mm²/s
1643/16	5	100	20'000 - 100'000 mm²/s

Cannon-Ubbelohde Viscometers, for transparent liquids, with certificate, length 335 mm, sample volume 11 ml

Article	Size	Constant	Range
1647/01	25	0.002	0.5 - 2 mm²/s
1647/02	50	0.004	0.8 - 4 mm²/s
1647/03	75	0.008	1.6 - 8 mm²/s
1647/04	100	0.015	3 - 15 mm²/s
1647/05	150	0.035	7 - 35 mm²/s
1647/06	200	0.1	20 - 100 mm²/s
1647/07	300	0.25	50 - 250 mm²/s
1647/08	350	0.5	100 - 500 mm²/s
1647/09	400	1.2	240 - 1'200 mm²/s
1647/10	450	2.5	500 - 2500 mm²/s
1647/11	500	8.0	1600 - 8'000 mm²/s
1647/12	600	20	4'000 - 20'000 mm²/s
1647/13	650	45	9'000 - 45'000 mm²/s
1647/14	700	100	20'000 - 100'000 mm²/s

Ubbelohde Dilution Viscometers ASTM/IP, with certificate, length 385 mm, sample volume 8~40 ml

Article	Size	Constant	Range
1651/01	25	0.002	0.5 - 2 mm²/s
1651/02	50	0.004	0.8 - 4 mm²/s
1651/03	75	0.008	1.6 - 8 mm²/s
1651/04	100	0.015	3 - 15 mm²/s
1651/05	150	0.035	7 - 35 mm²/s
1651/06	200	0.1	20 - 100 mm²/s
1651/07	300	0.25	50 - 250 mm²/s
1651/08	350	0.5	100 - 500 mm²/s
1651/09	400	1.2	240 - 1'200 mm²/s
1651/10	450	2.5	500 - 2500 mm²/s
1651/11	500	8.0	1600 - 8'000 mm²/s
1651/12	600	20	4'000 - 20'000 mm²/s
1651/13	650	45	9'000 - 45'000 mm²/s
1651/14	700	100	20'000 - 100'000 mm²/s

Cannon-Ubbelohde Semi-Micro Viscometers ASTM/IP, with certificate, length 335 mm, sample volume 1~20 ml

Article	Size	Constant	Range
1655/01	25	0.002	0.4 - 1.0 mm²/s
1655/02	50	0.004	0.8 - 4.0 mm²/s
1655/03	75	0.008	1.6 - 8.0 mm²/s
1655/04	100	0.015	3 - 15 mm²/s
1655/05	150	0.035	7 - 35 mm²/s
1655/06	200	0.1	20 - 100 mm²/s
1655/07	300	0.25	50 - 250 mm²/s
1655/08	350	0.5	100 - 500 mm²/s
1655/09	400	1.2	240 - 1'200 mm²/s
1655/10	450	2.5	500 - 2'500 mm²/s
1655/11	500	8.0	1600 - 8'000 mm²/s
1655/12	600	20	4'000 - 20'000 mm²/s

ASTM Cannon Manning Semi-Micro Viscometers, with certificate, length 275 mm, sample volume 1 ml

Article	Size	Constant	Range
1659/01	25	0.002	0.4 - 1.0 mm²/s
1659/02	50	0.004	0.8 - 4.0 mm²/s
1659/03	75	0.008	1.6 - 8.0 mm²/s
1659/04	100	0.015	3 - 15 mm²/s
1659/05	150	0.035	7 - 35 mm²/s
1659/06	200	0.1	20 - 100 mm²/s
1659/07	300	0.25	50 - 250 mm²/s
1659/08	350	0.5	100 - 500 mm²/s
1659/09	400	1.2	240 - 1'200 mm²/s
1659/10	450	2.5	500 - 2'500 mm²/s
1659/11	500	8.0	1600 - 8'000 mm²/s
1659/12	600	20	4'000 - 20'000 mm²/s

ASTM Zeitfuchs Cross-Arm Viscometers, for transparent and opaque liquids, with certificate, length 295mm, sample volume 3 ml

Article	Size	Constant	Range
1663/01	1	0.003	0.6 - 3 mm²/s
1663/02	2	0.01	2 - 10 mm²/s
1663/03	3	0.03	6 - 30 mm²/s
1663/04	4	0.1	20 - 100 mm²/s
1663/05	5	0.3	60 - 300 mm²/s
1663/06	6	1.0	200 - 1'000 mm²/s
1663/07	7	3.0	600 - 3'000 mm²/s
1663/08	8	10	2'000 - 10'000 mm²/s
1663/09	9	30	6'000 - 30'000 mm²/s
1663/10	10	100	20'000 - 100'000 mm²/s

Pinkevitch Viscometer, for transparent liquids, with certificate, length 269 mm, sample volume 10 ml

Article	Size	Constant	Range
1669/01	0	0.0017	0.6 - 1.7 cSt
1669/02	1	0.0085	1.7 - 8.5 cSt
1669/03	2	0.027	5.4 - 27 cSt
1669/04	3	0.065	13 - 65 cSt
1669/05	4	0.14	28 - 140 cSt
1669/06	5	0.35	70 - 350 cSt
1669/07	6	1.0	200 - 1'000 cSt
1669/08	7	2.6	520 - 2'600 cSt
1669/09	8	5.3	1'060 - 5'300 cSt
1669/10	9	9.9	1'980 - 9'900 cSt
1669/11	10	17.0	3'400 - 17'000 cSt

Ubbelohde (DIN) Viscometers, for transparent liquids, with certificate, length 300 mm, sample volume 25 ml

Article	Size	Constant	Range
1671/01	0a	0.005	0.8 - 5
1671/02	I	0.01	1.2 - 10
1671/03	Ia	0.05	5 - 50
1671/04	II	0.1	10 - 100
1671/05	IIa	0.5	50 - 500
1671/06	III	1.0	100 - 1'000
1671/07	IIIa	5.0	500 - 5'000
1671/08	IV	10.0	1'000 - 10'000
1671/09	IVa	50.0	> 5'000

Cannon-Manning Vacuum Capillary Viscometers, with certificate, length 245 mm

Article	Size	Constant	Range
1676/01	4	0.0002	0.0036 – 0.08 Pa.s
1676/02	5	0.0006	0.012 – 0.24 Pa.s
1676/03	6	0.002	0.036 – 0.8 Pa.s
1676/04	7	0.01	0.12 – 2.4 Pa.s
1676/05	8	0.02	0.36 – 8.0 Pa.s
1676/06	9	0.06	1.2 – 24 Pa.s
1676/07	10	0.2	3.6 – 80 Pa.s
1676/08	11	0.6	12 – 240 Pa.s
1676/09	12	2.0	36 – 800 Pa.s
1676/10	13	6.0	120 – 2'400 Pa.s
1676/11	14	20.0	360 – 8'000 Pa.s

Asphalt Institute Vacuum Capillary Viscometers, with certificate, length 245 mm

Article	Size	Constant	Range
1677/01	25	0.2	4.2 – 80 Pa.s
1677/02	50	0.8	18 – 320 Pa.s
1677/03	100	3.2	60 – 1280 Pa.s
1677/04	200	12.8	240 – 5'200 Pa.s
1677/05	400	50	960 – 20'000 Pa.s
1677/06	400Rc	50	960 – 140'000 Pa.s
1677/07	800Rc	200	3'800 – 580'000 Pa.s

Modified Koppers Vacuum Capillary Viscometers, with certificate, length 270 mm

Article	Size	Constant	Range
1678/01	25	0.2	4.2 – 80 Pa.s
1678/02	50	0.8	18 – 320 Pa.s
1678/03	100	3.2	60 – 1'280 Pa.s
1678/04	200	12.8	240 – 5'200 Pa.s
1678/05	400	50	960 – 20'000 Pa.s

Master Viscometers, with certificate, length 420~580 mm

Article	Size	Constant
1690/01	0	0.001
1690/02	0C	0.003
1690/03	0B	0.005
1690/04	1	0.01
1690/05	1C	0.03
1690/06	1B	0.05
1690/07	2	0.1
1690/08^	2C	0.3
1690/09	2B	0.5
1690/10	3	1.0
1690/11	3C	3.0
1690/12	3B	5.0
1690/13	4	10
1690/14	4C	30
1690/15	4B	50
1690/16	5	100

B.R.T.A. Viscometer

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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.

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 diam. 4
- LAB-100-142: calibrated brass cup with orifice diam. 10
- LAB-100-144: go/not go gauge diam. 4
- LAB-100-145: go/not go gauge diam. 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 mm^2 / 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 diam. 2
- LAB-100-146: go/not go gauge diam. 2

Engler Viscometer

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CE

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.

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

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

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 receiveng 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 pcs.
- 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

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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.

LT/FV-20000-/M
Ford Viscometer
anodized aluminium cup
with orifice no. 1 - 2 - 3 - 4 - 5

LT/FV-21000/M
Ford Viscometer
anodized aluminium cup
with orifice no. - 2 - 3 - 4 - 5 - 6 - 7 - 8

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

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CE

LT/VB-44000/M -45000/M

ASTM D445
ASTM D2532
ASTM D2983
ASTM D5133

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.

Low temperature, low shear rate, viscosity/ temperature dependence of lubricating oils using a temperature scanning-technique.
This test method covers the measurement of the apparent viscosity of engine oil at low temperatures.

LT/VB-44000/M
Bench top laboratory liquid bath for low temperatures

- Bench top instrument with metallic case structure painted with anti-acid products and double chamber insulation.
- Stainless steel bath with liquid capacity about 18 litres.
- Over-temperature light and heating cut-off manually settable.
- Double stage motor compressors system CFC free able to cool down the bath to -40°C
- Bath cover with 5 test positions, 51 mm diameter.
- Cooling fan for electronic parts, stirrer motor grant homogeneity/uniformity.
- Managed by a Touch Screen Panel PC by means of the Lab-Link software running in Windows® ambient:
  · TFT/LCD 8" high resolution;
  · 2 × Usb ports for peripherical connection;
  · Switchable temperature from °C to °F.
- Power consumption: 2100 Watt.
- Power supply: 220 Vac 50/60 Hz.

LT/VB-45000/M
Bench top laboratory liquid bath for low temperatures

- Bench top instrument with metallic case structure painted with anti-acid products and double chamber insulation.
- Stainless steel bath with liquid capacity about 18 litres.
- Over-temperature light and heating cut-off manually settable.
- Double stage motor compressors system CFC free able to cool down the bath to -70°C.
- Bath cover with 5 test positions, 51 mm diameter.
- Cooling fan for electronic parts, stirrer motor grant homogeneity/uniformity.
- Managed by a Touch Screen Panel PC by means of the Lab-Link software running in Windows® ambient:
  · TFT/LCD 8" high resolution;
  · 2 × Usb ports for peripherical connection;
  · Switchable temperature from °C to °F.
- Power consumption: 2300 Watt.
- Power supply: 220 Vac 50/60 Hz.

Low Temperatures Viscometer Bath

LT/VB-47000/M

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CE

LT/VB-47000/M
Digital viscometer bath for low temperatures ASTM D2983

- 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 × 768 and 256 k colours;
  · 2 × 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.

LT/VB-47445/M
Digital viscometer bath for low temperatures ASTM D2983, D445, D2532

- Liquid bath with heating / cooling coil.
- Bath cover with 5 on-line holes for capillary accomodation 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 × 768 and 256 k colours;
  · 2 × USB port.
- PID with over temperature alarm and PT100A probe.
- LabLink software running in Windows© ambient.
- Motor stirrer.
- Power supply: 220 Vac 50/60 Hz.
- Temperatures in °C / °F.
- Cooling capacity: from ambient temperature up to -75 °C.

Accessories for ASTM D2532 / D2983

- 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 forceeps for hold stopper, pack of 6 pcs.
- T-AS122C: thermometer ASTM 122C -45°C…-35°C div. 0.1°C
- T-AS123C: thermometer ASTM 123C -35°C…-25°C div. 0.1°C
- T-AS124C: thermometer ASTM 124C -25°C…-15°C div. 0.1°C
- T-AS125C: thermometer ASTM 125C -15°C…-5°C div 0.1°C
- LAB-100-371/C: propylene glycol, Kinematic viscosity ~44 mm^2/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 ~44 mm^2/s at 25°C, can of 25 litres – for cooling
- T-AS72C: thermometer ASTM 72C -19.4°C…-16.6°C div. 0.05°C
- T-AS73C: thermometer ASTM 73C -41.4°C…-38.5°C div. 0.05°C
- T-AS74C: thermometer ASTM 74C -55.4°C…-52.6°C div. 0.05°C

Spare parts

- LAB-100-472: test cells - pack of 12 pcs.
- 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

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CE

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.

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

LT/RV-12100/M
Digital Redwood Viscometer no. 1
IP 70 (obs.) - 2 places
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 mm^2/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

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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)

LT/SV-18000-2/M
Digital Saybolt Viscometer
ASTM D88, ASTM E 102
2 places
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

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LT/VB-37000/M

LT/VB-39000/M

Space between top cover and top of the ispection window: 38 mm

ASTM D445 - ASTM D446 - ASTM D2170
EN 12595
IP 71-1 - IP 71-2 - IP 319
ISO 3104 - ISO 3105

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

- diam. 50 cm × h 60 cm

Weight

- kg 12

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
- Temperature stability, uniformity and accuracy ± 0.01°C at 150°C
- Double viewing glass 20 × 25 cm 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
- Cover with 6 holes available on request
- Tank capacity approx. 16 litres
- Atmospheric drain

Power Supply

- 220 Vac or 115 Vac 50/60 Hz

Dimensions

- cm 60 × 45 × 60

Weight

- kg 25

Accessories

- LAB-100-332: digital stopwatch
- LAB-100- 371: silicone oil – Kinematic viscosity 50 mm^2/s at 25°C, can of 20 litres
- 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-100-374/U1: U-tube viscometer holder Size O to F
- LAB-100-374/U2: U-tube viscometer holder Size G to H
- LAB-100-374/Urev: U-tube rev. flow viscometer holder
- LAB-100-374/CF: Cannon-Fenske viscometer holder pack of 5 pcs.
- LAB-100-374/ZTF: Zeitfuchs viscometer holder
- LAB-100-374/UBH-1: Ubbelhode viscometer holder Size 0 to 4
- LAB-100-374/UBH-2: Ubbelhode viscometer holder Size 4C to 5

Viscometer Tube Cleaner and Dryer

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CE

LT/VC-48100/M
Heated capillary viscometers tube cleaner and dryer, 6 places

Instrument composed by:

- Bench top single chassis instrument completely realized in stainless steel.
- Integrated touch screen panel pc managed by Linetronic Software running on Windows® basis able to:
  · running multiple cleaning cycles;
  · programming the solvent/air heating temperature;
  · settable timer for solvent and air action;
  · estimation of the remaining solvent;
  · automatic diagnostic and errors display;
  · software settable air/solvent action.
- Solvent tank made in stainless steel with 2 litres capacity removable with fast connections.
- Large front door equipped with tempered glass inspection window, gull-wing vertical opening for easily access to the washing chamber.
- Washing chamber with 6 (six) independent positions with manual operating valve, recovery disk and holding-down spring system.
- Air connection system composed by pressure regulator and integrated air level monitoring system.
  Need to be connected to external air-pressure line.
- Removable stainless steel recovery tank equipped with rear drain tap for used solvent

Power supply

- 220 or 115 Vac

Dimensions

- cm 720 × 520 × 600

Weight

- kg 50

Spare Parts

- LAB-48100-17007: static relay 40 A
- LAB-48100-17161: heating element 800 W
- LAB-48100-5274: silicon adapter for capillary tube

Dean and Stark

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LT/DS-109500/M

LT/DS-109000/M

ASTM D95
IP 74
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.

LT/DS-109000/M
Dean and Stark Apparatus,
manual instrument composed by:
- Metallic case structure painted with anti-acid products equipped with 1 × heating mantle 250 Watt with steel rod and clamp for glassware.
- Main switch and heating regulator.
- 500 ml round bottom flask and Liebig Condenser made in glass.
- Graduated receiver made in glass to be chosen from the accessories list.

Power supply
- 220 or 115 Vac 50 / 60 Hz

LT/DS-109500/M
Dean and Stark Apparatus,
5 places manual instrument composed by:
- Metallic case structure painted with anti-acid products equipped with 5 × heating mantle 250 Watt with steel rod and clamp for glassware.
- 5 × main switch and heating regulator.
- 5 × 500 ml round bottom flask and Liebig Condenser made in glass.
- 5 × graduated receivers made in glass to be chosen from the accessories list.

Power supply
- 220 or 115 Vac 50 / 60 Hz

Accessories according to ASTM E123 with conical ground joint
- 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

LAB-101-093

Dew Point

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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.

LT/DP-172000/M

Dew Point Apparatus, manual instrument composed by:

- Laboratory support painted with anti-acid products holding the instrument body made in stainless steel equipped with ¼" regulating valve.
- Refrigerant chamber made in copper with 2 × ¼"gas needle valve.
- Plexiglas® Window with stainless steel regulating mirror.
- Stainless steel manometer diam. 60 mm, double scale 0 – 160 bar / 0 – 2300 bar.
- Thermometer housing in aluminium.
- User manual making part of scope of supply.

Accessories

- LAB-101-732: case
- LAB-101-733: junction hy-flex for CO_2
- 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 double scale 0 – 23 psi / 0 – 1.6 bar
- LAB-101-722/0-23-LF: liquid filled pressure gauge double scale 0 – 23 psi / 0 – 1,6 bar
- LAB-101-722/0-230: pressure gauge double scale 0 – 230 psi / 0 – 16 bar
- LAB-101-722/0-230-LF: liquid filled pressure gauge double scale 0 – 230 psi / 0 – 16 bar
- LAB-101-722/0-2300: pressure gauge double scale 0 – 2300 psi / 0 – 160 bar
- LAB-101-722/0-2300-LF: liquid filled pressure gauge double scale 0 – 2300 psi / 0 – 160 bar

Water in Crude Oil by Distillation

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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.

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

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-101-091/1000: 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

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CE

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.

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

- 220 Vac 50-60Hz
- 300 W

Dimensions

- width: 55 cm
- height: 57 cm
- depth: 35 cm

Weight

- kg 50

Spare Parts

- LAB-253-701: glass cylinder graduated, 100 ml, div. 1 ml

Water Washout Characteristics of Lubricating Greases

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CE

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.

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

Power Supply

- 220 or 115 Vac 50/60 Hz

Dimensions

- width: 40 cm
- height: 43.5 cm
- depth: 30 cm

Weight

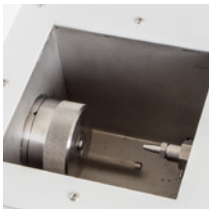
- kg 15

Accessories

- T-AS34C: thermometer ASTM 34C

Spare Parts

- LAB-102-056/A: bearing
- LAB-102-056/C: cover for bearing
- LAB-102-056/D: bearing block assembly
- LAB-110-001: heater
- LAB-140-006: PT100 Probe
- LAB-150-015: static relay



LAB-102-056

Drop Melting Point

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CE

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.

LT/DM-210000/M
Drop Melting Point Apparatus, manual instrument composed by:
- Heating device with metallic case structure painted with anti-acid products with electronic regulator and main switch.
- Temperate glass container (jar) with 2000 ml capacity supplied with plastic cover and cork stopper with hole for holding the test tube, and thermometer holder.
- Test tube with 25 mm outside diameter and 150 mm long with cork stopper with hole for thermometer.

Power supply
- 220 or 115 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

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CE

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.

LT/WM-209000/M
Wax Melting Point ASTM D87

- Air bath with brass well
- Glass test tube diam. 25 × 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

Oil and Solvent in Wax

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CE

ASTM D721 - ASTM D3235
DIN 51571
IP 158

ASTM D721 - DIN 51571 - IP 158
Oil Content of Petroleum Waxes
This test method covers the determination of oil in petroleum waxes having a congealing point of 30°C (86°F) or higher as determined in accordance with Test Method D938, and containing not more than 15 % of oil.

ASTM D3235
Solvent Extractables in Petroleum Waxes
This test method covers the determination of solvent extractable in petroleum waxes.

LT/WA-218000/M
Oil and Solvent in Wax Apparatus

Heating unit made in stainless steel composed by:
- Double layer structure with heating chamber
- Heating by irradiation bulb
- Inspection window in polymethylmethacrylate with open/close knob
- Collector for air distribution with 4 delivery position
- Digital thermoregulator with PT100 Class A for temperature monitoring
- Flowmeter with regulation valve
- Air supply system with integrated 15 l/min compressor

Cooling unit made in stainless steel composed by:
- Double layer structure with insulating material
- Internal stainless steel tank with plastic anti-condensing cover and 3 stand-by cover cap
- Filling hole with cover cap and thermometer holder
- Cooling connection with internal Nickel-plated serpentine

Accessories
- LAB-102-181: filter stick assembly, test tube + air inlet glass tube and filter
- LAB-102-182: regulator with cylinder 250 ml, T-tube with rubber cap
- LAB-102-185: weighing bottles 15 ml with stopper, pack of 4 pcs.
- T-AS71C: thermometer ASTM 71C - IP 72C
- T-AS71F: thermometer ASTM 71F - IP 72F
- LT/B-2470/BCA200 INT- CAL: analytical balance with 210 g capacity
- FP50-MA: refrigerated / heating circulator for internal and external temperature applications up to -50°C / +200°C

Thermometers

ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Lenght mm
1C	-	Partial immersion	-20 +150°C	1	76	322
1F	-	Partial immersion	0 +302°F	2	76	322
2C	62C	Partial immersion	-5 +300°C	1	76	390
2F	62F	Partial immersion	20 +580°F	2	76	390
3C	73C	Partial immersion	-5 +400°C	1	76	415
3F	73F	Partial immersion	20 +760°F	2	76	415
5C	1C	Cloud and Pour	-38 +50°C	1	108	230
5F	1F	Cloud and Pour	-36 +120°F	2	108	230
6C	2C	Low Cloud and Pour	-80 +20°C	1	76	230
6F	2F	Low Cloud and Pour	-112 +70°F	2	76	230
7C	5C	Low Distillation	-2 +300°C	1	Total	385
7F	-	Low Distillation	30 +580°F	2	Total	385
8C	6C	High Distillation	-2 +400°C	1	Total	385
8F	-	High Distillation	30 +760°F	2	Total	385
9C	15C	Low Pensky Martens	-5 +110°C	0.5	57	290
9F	15F	Low Pensky Martens	20 +230°F	1	57	290
10C	16C	High Pensky Martens	90 +370°C	2	57	290
10F	16F	High Pensky Martens	200 +700°F	5	57	290
11C	28C	Cleveland Open Flash	-6 +400°C	2	25	310
11F	28F	Cleveland Open Flash	20 +760°F	5	25	310
12C	64C	Density-Wide Range	-20 +102°C	0.2	Total	420
12F	64F	Density-Wide Range	-5 +215°F	0.5	Total	420
13C	47C	Loss on Heat	115 +170°C	0.5	Total	155
14C	17C	Wax Melting Point	38 +82°C	0.1	79	375
14F	17F	Wax Melting Point	100 +180°F	0.2	79	375
15C	60C	Low Softening Point	-2 +80°C	0.2	Total	395
15F	-	Low Softening Point	30 +180°F	0.5	Total	395
16C	61C	High Softening Point	30 +200°C	0.5	Total	395
16F	-	High Softening Point	85 +392°F	1	Total	395
17C	-	Saybolt Viscosity	19 +27°C	0.1	Total	275
17F	-	Saybolt Viscosity	66 +80°F	0.2	Total	275
18C	23C	Reid Vapour Pressure	34 +42°C	0.1	Total	275
18F	23F	Reid Vapour Pressure	94 +108°F	0.2	Total	275
19C	-	Saybolt Viscosity	49 +57°C	0.1	Total	275
19F	-	Saybolt Viscosity	120 +134°F	0.2	Total	275
20C	-	Saybolt Viscosity	57 +65°C	0.1	Total	275
20F	-	Saybolt Viscosity	134 +148°F	0.2	Total	275
21C	-	Saybolt Viscosity	79 +87°C	0.1	Total	275
21F	-	Saybolt Viscosity	174 +188°F	0.2	Total	275
22C	24C	Oxidation Stability	95 +103°C	0.1	Total	275
22F	24F	Oxidation Stability	204 +218°F	0.2	Total	275
23C	-	Engler Viscosity	18 +28°C	0.2	90	212
24C	-	Engler Viscosity	39 +54°C	0.2	90	237
25C	-	Engler Viscosity	95 +105°C	0.2	90	212
26C	-	Stability Test	130 +140°C	0.1	Total	463
27C	-	Turpentine Distillation	147 +182°C	0.5	76	301
28C	31C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305
28F	31F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305
29C	34C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305
29F	34F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305
30F	32F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305
33C	20C	Low Aniline Point	-38 +42°C	0.2	50	420
33F	-	Low Aniline Point	36.5 +107.5°	0.5	50	420
34C	21C	Medium Aniline Point	25 +105°C	0.2	50	420
34F	-	Medium Aniline Point	77 +221°F	0.5	50	420
35C	59C	High Aniline Point	90 +170°C	0.2	50	420
35F	-	High Aniline Point	194 +338°F	0.5	50	420
36C	-	Titer Test	-2 +68°C	0.2	45	405
37C	77C	Solvents Distillation	-2 +52°C	0.2	100	395
38C	78C	Solvents Distillation	24 +78°C	0.2	100	395
39C	79C	Solvents Distillation	48 +102°C	0.2	100	395
40C	80C	Solvents Distillation	72 +126°C	0.2	100	395
41C	81C	Solvents Distillation	98 +152°C	0.2	100	395
42C	82C	Solvents Distillation	95 +255°C	0.5	100	395
43C	65C	Kinematic Viscosity	51.6 -34°C	0.1	Total	420
43F	65F	Kinematic Viscosity	-61 -29°F	0.2	Total	420

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ASTM	IP	Name	Range+T°	Division mm	Immersion mm	Lenght mm
44C	29C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305
44F	29F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305
45C	30C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305
45F	30F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305
46C	66C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
46F	66F	Kinematic Viscosity	119.5 +124.5°	0.1	Total	305
47C	35C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305
47F	35F	Kinematic Viscosity	137.5 +142.5°	0.1	Total	305
48C	90C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
48F	90F	Kinematic Viscosity	177.5 +182.5°	0.1	Total	305
49C	-	Stormer Viscosity	20 +70°C	0.2	65	305
50F	-	Gas Calorimeter Inlet	54 +101°F	0.1	Total	468
51F	-	Gas Calorimeter Inlet	69 +116°F	0.1	Total	468
52C	-	Butadiene Boiling Point	-10 +5°C	0.1	Total	162
54C	18C	Congealing Point	20 +100.6°	0.2	Total	310
54F	18F	Congealing Point	68 +213°F	0.5	Total	310
56C	-	Bomb Calorimeter	19 +35°C	0.02	Total	600
56F	-	Bomb Calorimeter	66 +95°F	0.05	Total	600
57C	-	Tag Closed	-20 +50°C	0.5	57	287
57F	-	Tag Closed	-4 +122°F	1	57	287
58C	-	Tank	-34 +49°C	0.5	Total	305
58F	-	Tank	-30 +120°F	1	Total	305
59C	-	Tank	-18 +82°C	0.5	Total	305
59F	-	Tank	0 +180°F	1	Total	305
60C	-	Tank	77 +260°C	1	Total	305
60F	-	Tank	170 +500°F	2	Total	305
61C	63C	Petrolatum Melting Point	32 +127°C	0.2	79	380
61F	-	Petrolatum Melting Point	90 +260°F	0.5	79	380
62C	-	Precision	-38 +2°C	0.1	Total	379
62F	-	Precision	-36 +35°F	0.2	Total	379
63C	-	Precision	-8 +32°C	0.1	Total	379
63F	-	Precision	18 +89°F	0.2	Total	379
64C	-	Precision	25 +55°C	0.1	Total	379
64F	-	Precision	77 +131°F	0.2	Total	379
65C	-	Precision	50 +80°C	0.1	Total	379
65F	-	Precision	122 +176°F	0.2	Total	379
66C	-	Precision	75 +105°C	0.1	Total	379
66F	-	Precision	167 +221°F	0.2	Total	379
67C	-	Precision	95 +155°C	0.2	Total	379
67F	-	Precision	203 +311°F	0.5	Total	379
68C	-	Precision	145 +205°C	0.2	Total	379
68F	-	Precision	293 +401°F	0.5	Total	379
69C	-	Precision	195 +305°C	0.5	Total	379
69F	-	Precision	383 +581°F	1	Total	379
70C	-	Precision	295 +405°C	0.5	Total	379
70F	-	Precision	563 +761°F	1	Total	379
71C	72C	Oil in Wax	-37 +21°C	0.5	76	355
71F	72F	Oil in Wax	-35 +70°F	1	76	355
72C	67C	Kinematic Viscosity	19.4 -16.6°C	0.05	Total	305
72F	67F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
73C	68C	Kinematic Viscosity	41.4 -38.6°C	0.05	Total	305
73F	68F	Kinematic Viscosity	42.5 -37.5°F	0.1	Total	305
74C	69C	Kinematic Viscosity	55.4 -52.6°C	0.05	Total	305
74F	69F	Kinematic Viscosity	67.5 -62.5°F	0.1	Total	305
75F	-	Anti-freeze Freezing Point	-35 +35°F	0.5	100	408
76F	-	Anti-freeze Freezing Point	-65 +5°F	0.5	100	408
77F	-	Saybolt Viscosity	245 +265°F	0.5	Total	275
78F	-	Saybolt Viscosity	295 +315°F	0.5	Total	275
79F	-	Saybolt Viscosity	345 +365°F	0.5	Total	275
80F	-	Saybolt Viscosity	395 +415°F	0.5	Total	275
81F	-	Saybolt Viscosity	445 +465°F	0.5	Total	275
82C	-	Fuel Rating. Engine	-15 +105°C	1	30	162
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 Distllation	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	Lenght mm
1C	-	Partial immersion	-20 +150°C	1	76	322
1C	5C	Cloud and Pour	-38 +50°C	1	108	230
1F	5F	Cloud and Pour	-36 +120°F	2	108	230
2C	6C	Low Cloud and Pour	-80 +20°C	1	76	230
2F	6F	Low Cloud and Pour	-112 +70°F	2	76	230
3C	-	Demulsification	-1 +105°C	0.5	Total	-
3F	-	Demulsification	30 +220°F	1	Total	-
4C	-	Crude Oil Distillation	-4 +360°C	2	Total	310
5C	7C	Low Distillation	-2 +300°C	1	Total	385
6C	8C	High Distillation	-2 +400°C	1	Total	385
8C	-	Flushing Case Low	0 +45°C	0.2	65	340
9C	-	Flushing Case Low	40 +85°C	0.2	65	340
14C	114C	Aviation Fuel Freezing Point	-80 +20°C	0.5	Total	300
15C	9C	Low Pensky Martens	-5 +110°C	0.5	57	290
15F	9F	Low Pensky Martens	20 +230°F	1	57	290
16C	10C	High Pensky Martens	90 +370°C	2	57	290
16F	10F	High Pensky Martens	200 +700°F	5	57	290
17C	14C	Wax Melting Point	38 +82°C	0.1	79	375
17F	14F	Wax Melting Point	100 +180°F	0.2	79	375
18C	54C	Congealing Point	20 +100.6°C	0.2	Total	310
20C	54C	Low Aniline Point	-38 +42°C	0.2	50	420
21C	33C	Medium Aniline Point	25 +105°C	0.2	50	420
22C	34C	Oxidation	195 +205°C	0.1	100	300
23C	18C	Reid Vapour Pressure	34 +42°C	0.1	Total	275
23F	18F	Reid Vapour Pressure	94 +108°F	0.2	Total	275
24C	22C	Oxidation Stability	95 +103°C	0.1	Total	275
24F	22F	Oxidation Stability	204 +218°F	0.2	Total	275
28C	11C	Cleveland Open Flash	-6 +400°C	2	25	310
28F	11F	Cleveland Open Flash	20 +760°F	5	25	310
29C	44C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305
29F	44F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305
30C	45C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305
30F	45F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305
31C	28C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305
31F	28F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305
32C	121C	Kinematic Viscosity	98.6 +101.4°C	0.05	Total	305
32F	30F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305
33C	128C	Kinematic Viscosity	-1.4 +1.4°C	0.05	Total	305
33F	128F	Kinematic Viscosity	29.5 +34.5°F	0.1	Total	305
34C	29C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305
34F	29F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305
35C	47C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305
35F	47F	Kinematic Viscosity	137.5 +142.5°F	0.1	Total	305
36C	129C	Kinematic Viscosity	91.6 +94.4°C	0.05	Total	305
36F	129F	Kinematic Viscosity	197.5 +202.5°F	0.1	Total	305
37C	-	Sludge	144 +156°C	0.2	100	270
38C	-	Penetration	23 +27°C	0.1	Total	260
39C	-	Density	-1 -38°C	0.1	Total	440
39F	-	Relative Density	30 +100°F	0.2	Total	440
40C	-	Drop Point Low	20 +120°C	1	100	250
41C	-	Drop Point Low	30 +100°F	1	100	250
42C	-	Breaking Point	20 +120°C	0.5	250	370
43C	-	FP Cut-Back (Int)	10 +110°C	0.5	-	305
43F	-	FP Cut-Back (Int)	50 +230°F	1	-	305
44C	-	FP Cut-Back (Ext)	15 +121°C	0.5	-	305
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
53C	-	Tank Cargo	0 +80°C	0.5	Total	310
59C	35C	High Aniline Point	90 +170°C	0.2	50	420
60C	15C	Low Softening Point	-2 +80°C	0.2	Total	395
61C	16C	High Softening Point	30 +200°C	0.5	Total	395
62C	2C	Partial Immersion	-5 +300°C	1	76	390
62F	2F	Partial Immersion	20 +580°F	2	76	390
63C	61C	Petrolatum Melting Point	32 +127°C	0.2	79	380
64C	12C	Density-Wide Range	-20 +102°C	0.2	Total	420
64F	12F	Density-Wide Range	-5 +215°F	0.5	Total	420
65C	-	Kinematic Viscosity Low	51.6 -34°C	0.1	Total	420
65F	43F	Kinematic Viscosity	-61 -29°F	0.2	Total	420
66C	46C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
66F	46F	Kinematic Viscosity	119.5 +124.5°F	0.1	Total	305
67C	72C	Kinematic Viscosity	19.4 -16.6°C	0.05	Total	305
67F	72F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
68C	73C	Kinematic Viscosity	41.4 -38.6°C	0.05	Total	305
68F	73F	Kinematic Viscosity	42.5 -37.5°F	0.1	Total	305
69C	74C	Kinematic Viscosity	55.4 -52.6°C	0.05	Total	305
69F	74F	Kinematic Viscosity	67.5 -62.5°F	0.1	Total	305
71C	126C	Kinematic Viscosity	27.4 -24.6°C	0.05	Total	305
71F	126F	Kinematic Viscosity	17.5 -12.5°F	0.1	Total	305
72C	71C	Oil in Wax	-37 +21°C	0.5	76	355
72F	71F	Oil in Wax	-35 +70°F	1	76	355
73C	3C	Partial Immersion	-5 +400°C	1	76	415
73F	3F	Partial Immersion	20 +760°F	2	76	415
74C	-	Abel Oil Cup Wide Range	-35 +70°C	0.5	61	310
74F	-	Abel Oil Cup Wide Range	-35 +160°F	1	61	310
75C	-	Abel Water Bath Wide Range	-30 +80°C	0.5	89	310
75F	-	Abel Water Bath Wide Range	-25° +180°F	1	89	310
76C	-	Engler Viscosity	10 +55°C	0.5	93	240
77C	37C	Solvents Distillation	-2 +52°C	0.2	100	395
78C	38C	Solvents Distillation	24 +78°C	0.2	100	395
79C	39C	Solvents Distillation	48 +102°C	0.2	100	395
80C	40C	Solvents Distillation	72 +126°C	0.2	100	395
81C	41C	Solvents Distillation	98 +152°C	0.2	100	395
82C	42C	Solvents Distillation	95 +255°C	0.5	100	395
83C	102C	Solvents Distillation	123 +177°C	0.2	100	395
84C	103C	Solvents Distillation	148 +202°C	0.2	100	395
85C	104C	Solvents Distillation	173 +227°C	0.2	100	395
86C	105C	Solvents Distillation	198 +252°C	0.2	100	395
87C	106C	Solvents Distillation	223 +277°C	0.2	100	395
88C	107C	Solvents Distillation	248 +302°C	0.2	100	395
89C	113C	Softening Point Wide Range	-1 +175°C	0.5	Total	405
89F	113F	Softening Point Wide Range	30 +350°F	1	Total	405
90C	48C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
90F	48F	Kinematic Viscosity	177.5 +182.5°F	0.1	Total	305
92C	120C	Kinematic Viscosity	38.6 +41.4°C	0.05	Total	305
93C	110C	Kinematic Viscosity	133.6 +136.4°C	0.05	Total	305
94C	122C	Brookfield Viscosity	-45 -35°C	0.1	Total	305
95C	123C	Brookfield Viscosity	-35 -25°C	0.1	Total	305
96C	124C	Brookfield Viscosity	-25 -15°C	0.1	Total	305
97C	125C	Brookfield Viscosity	-15 -5°C	0.1	Total	305
99C	127C	Kinematic Viscosity	21.4 -18.6°C	0.05	Total	305
100C	-	Kinematic Viscosity	78.6 81.4°C	0.05	Total	305
101C	-	Medium Pensky Martens	20 +150°C	1	57	290

Pressure Gauges

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CE

- Nominal Diameter 150 mm
- Custodia – Outer Case
- Case and ring made in stainless steel AISI 304 with bayonet lock
- Outer case protection grade (according EN 60529): IP 55
- Protection: made in tempered glass
- Security feature: watertight rubber stopper
- Connection (according EN 837-1): ½"
- Sensing element: Stainless-steel AISI 316L
- Welding of the manometric element: electric made in controlled atmospheric
- Movement: made in stainless steel
- Scale angle: 270°
- Overpressure admitted: 130% of esv (occasionally)
- Index: made in aluminium for micrometric regulation
- Internal scale: made in aluminium with Linetronic Logo personalized range scale etched and parallax eliminator
- Accuracy/precision (according EN 837-1): +/- 0.6 % referred to esv
- Usable temperature range: -30° up to +210°C

ASTM D323		
LAB-101-793/100	Pressure gauge double scale 0-100 kPa, 0-15 Psi	kPa: Long line each 1 kPa / short each 2 kPa / numbered each 10 kPa Psi: Long line each 0.5 Psi / short each 0.1 Psi / numbered each 1 Psi Accuracy 0.6 kPa / 0.09 Psi
LAB-101-793/200	Pressure gauge double scale 0-200 kPa, 0-30 Psi	kPa: Long line each 5 kPa / short each 1 kPa / numbered each 20 kPa Psi: Long line each 1 Psi / short each 0.2° Psi / numbered each 2 Psi Accuracy 1.2 kPa / 0.18 Psi
LAB-101-793/300	Pressure gauge double scale 0-300 kPa, 0-45 Psi	kPa: Long line each 5 kPa / short each 1 kPa / numbered each 25 kPa Psi: Long line each 1 Psi / short each 0.2° Psi / numbered each 5 Psi Accuracy 1.8 kPa / 0.27 Psi
LAB-101-793/700	Pressure gauge double scale 0-700 kPa, 0-100 Psi	kPa: Long line each 10 kPa / short each 2 kPa / numbered each 50 kPa Psi: Long line each 1 Psi / short each 0.5 Psi / numbered each 10 Psi Accuracy 4.2 kPa / 0.60 Psi
ASTM D1267		
LAB-101-742/700	Pressure Gauge double scale 0-700 kPa, 0-100 Psi	kPa: Long line each 10 kPa / short each 2 kPa / numbered each 50 kPa Psi: Long line each 1 Psi / short each 0.5 Psi / numbered each 10 Psi Accuracy 4.2 kPa / 0.60 Psi
LAB-101-742/1750	Pressure Gauge double scale 0-1750 kPa, 0-250 Psi	kPa: Long line each 10 kPa / short each 5 kPa / numbered each 100 kPa Psi: Long line each 5 Psi / short each 1 Psi / numbered each 25 Psi Accuracy 10.5 kPa / 1.50 Psi
LAB-101-742/2000	Pressure Gauge double scale 0-2000 kPa, 0-285 Psi	kPa: Long line each 10 kPa / short each 5 kPa / numbered each 100 kPa Psi: Long line each 2 Psi / short each 1 Psi / numbered each 20 Psi Accuracy 12.0 kPa / 1.71 Psi
LAB-101-742/3500	Pressure Gauge double scale 0-3500 kPa, 0-500 Psi	kPa: Long line each 50 kPa / short each 10 kPa / numbered each 250 kPa Psi: Long line each 10 Psi / short each 2 Psi / numbered each 50 Psi Accuracy 21.0 kPa / 3.00 Psi

Steam Generators

LINETRONIC TECHNOLOGIES
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CE

LAB-101-154

LAB-102-423

LAB-102-423/SG

LAB-101-154
Laboratory mini steam generator

Table top version with small footprint only 26 × 30 × 37 centimetres, small weight (empty) 7.4 kg

Equipped with:
- Analog steam pressure indicator
- Visual water level indicator
- Solenoid steam flow valve with adjuster knob
- Automatic safety water tap

- Boiler: INOX 3,4 lt
- Autonomy: 3.0 hours
- Steam pressure: 2,8-3 bar
- Heating power: 1,45 KW
- Power supply:
  230 V - 50/60 Hz
  115 V - 60 Hz

LAB-102-423
Industrial Steam Generator

Floor version with motion wheels and footprint 34 × 60 × 90 centimetres, weight (empty) 46 kg

Equipped with:
- Analog steam pressure indicator
- Rear feeding tank capacity 20 liters with visual water level indicator
- Solenoid steam flow valve with adjuster knob
- Automatic overpressure valve
- Manual drain valve

- Boiler: INOX 8,5 lt
- Steam pressure: 4.5 bar
- Steam production: 5.2 kg/hour
- Heating power: 4 KW
- Power supply:
  230 V - 50/60 Hz - 1 ph

LAB-102-423/SG
Heavy Industrial Steam Generator

Floor version with motion wheels and footprint 70 × 58 × 70 centimetres, weight (empty) 65 kg

Equipped with:
- Analog steam pressure indicator
- Integrated built-in water pump 0.7 HP water line connection needed
- Manual steam flow valve
- Automatic overpressure valve
- Manual drain valve

- Boiler: INOX 17 lt
- Steam pressure: 5 bar
- Steam production: 19.5 Kg/hour
- Heating power: 18 KW
- Power supply:
  400 V - 50/60 Hz - 3 ph

Cryostat and Low Temperature Thermostatic Bath and Circulator

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LT/CB-40800-M/10

LT/CB-40800-M/10
LT/CB-40800-M/20
LT/CB-40800-M/30

- Professional Cryostatic Bath, 8 litres capacity, composed by:
- Metallic case structure painted with anti-acid products with double wall heat insulation
- Internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning
- Control head with digital display showing the set temperature and actual temperature, resolution 0,1°C and precision ±0,1°C; RS232 connection
- Safety thermostat manually settable for overheating protection
- Circulating pump: 80 cm prevalence for external application (3,5 lt/min)
- Frontal grid easily removable for cleaning the exchanger
- Double main switch

Power Supply

- 220 or 115 Vac 50/60 Hz

LT/CB-41800-M/10
LT/CB-41800-M/20

- Professional Cryostatic Bath, 18 litres capacity, composed by:
- Metallic case structure painted with anti-acid products with double wall heat insulation
- Internal chamber in seamless stainless steel with rounded corners for efficient circulation and cleaning
- Control head with digital display showing the set temperature and actual temperature, resolution 0,1°C and precision ±0,1°C; RS232 connection
- Safety thermostat manually settable for overheating protection
- Circulating pump: 80 cm prevalence for external application (3,5 lt/min)
- Frontal grid easily removable for cleaning the exchanger
- Double main switch

Power Supply

- 220 or 115 Vac 50/60 Hz

Article	Volume in litres	Internal dimensions W × D × H in mm	External dimensions W × D × H in mm	Power Watt	Weight Kg	Min. temperature
LT/CB-40800/M-10	8	300 × 150 × 150	490 × 350 × 630	1500	20	-10° C
LT/CB-40800/M-20	8	300 × 150 × 150	490 × 350 × 630	1500	20	-20° C
LT/CB-40800/M-30	8	300 × 150 × 150	490 × 350 × 630	1500	20	-30° C
LT/CB-41800/M-10	18	300 × 150 × 150	515 × 400 × 630	1500	20	-10° C
LT/CB-41800/M-20	18	300 × 150 × 150	515 × 400 × 630	1500	20	-20° C

Muffle Furnace

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CE

Muffle Furnace for Laboratory and Tempering Application

- 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.
- 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.
- Control panel is positioned on the furnace bottom containing a digital visualized thermoregulator and safety switch for system protection – Gefran 1200.
- Internal chamber made with ceramic fibres with direct-welded posterior exhaust for fume extraction.
- Max. temperature +1100°C in 40 minutes (heating rate 26-27 °C/min).

LT/FT-273000/M

- Single Phase Tension: 220 Vac
- Power: 2.2 Kw
- Max. temperature + 1100°C
- Encumbrance dimensions:
  Width 375 mm
  Depth 510 mm
  Height 580 mm
  Weight 35 Kg
- Useful inside dimensions:
  Width 100 mm
  Depth 300 mm
  Height 100 mm

LT/FT-274000/M

- Single Phase Tension: 220 Vac
- Power: 2.7 Kw
- Max. temperature + 1100°C
- Encumbrance dimensions:
  Width 375 mm
  Depth 605 mm
  Height 580 mm
  Weight 40 Kg
- Useful inside dimensions:
  Width 100 mm
  Depth 400 mm
  Height 100 mm

LT/FT-275000/M

- Single Phase Tension: 220 Vac
- Power: 3.5 Kw
- Max. temperature + 1100°C
- Encumbrance dimensions:
  Width 375 mm
  Depth 755 mm
  Height 580 mm
  Weight 50 Kg
- Useful inside dimensions:
  Width 100 mm
  Depth 500 mm
  Height 100 mm

LT/FT-276000/M

- Single Phase Tension: 220 Vac
- Power: 4.2 Kw
- Max. temperature + 1100°C
- Encumbrance dimensions:
  Width 375 mm
  Depth 855 mm
  Height 580 mm
  Weight 60 Kg
- Useful inside dimensions:
  Width 100 mm
  Depth 600 mm
  Height 100 mm

Oven

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LT/DO-248000/N

LT/DO-248000/T

LT/DO-248000/F

LT/DO-248000/N
Natural Ventilation Oven
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 ± 1.5°C at +105°C, model from 40 to 120 litres forced ventilation
- Accuracy to ± 2°C at +105°C, model from 40 to 120 litres natural ventilation
- Accuracy to ± 1°C at +105°C model from 8 to 20 litres
- Display precision ±1°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

LT/DO-248000/N-8

- Mini-oven
- 8 liters capacity
- Natural convection
- For temperature from +5° ambient up to +200°C
- With one SS shelve

LT/DO-248000/N-20

- Mini-oven
- 20 liters capacity
- Natural convection
- For temperature from +5° ambient up to +200°C
- With one SS shelve

LT/DO-248000/T-8

- Mini-incubator
- 8 liters capacity
- Natural convection
- For temperature from +5° ambient up to +80°C
- Tempered glass window 17 × 17 cm
- With one SS shelve

LT/DO-248000/T-20

- Mini-incubator
- 20 liters capacity
- Natural convection
- For temperature from +5° ambient up to +80°C
- Tempered glass window 24 × 24 cm
- With one SS shelve

Power supply

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

Accessories

- LAB-248000/1: tempered inspection glass window 200 × 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 × D × H in mm	External dimensions W × D × H in mm	Included shelves	Watt	Weight Kg
LT/DO-248000/N-8	8	208 × 202 × 220	465 × 400 × 370	1	240	16
LT/DO-248000/N-20	20	285 × 252 × 285	550 × 450 × 433	1	400	22
LT/DO-248000/N-40	40	348 × 312 × 367	686 × 515 × 575	1	700	35
LT/DO-248000/N-60	60	408 × 372 × 422	746 × 605 × 605	2	1000	40
LT/DO-248000/N-80	80	458 × 372 × 472	796 × 605 × 680	2	1000	45
LT/DO-248000/N-120	120	498 × 477 × 512	836 × 710 × 720	2	1600	50
LT/DO-248000/F-40	40	348 × 312 × 367	686 × 515 × 575	1	700	35
LT/DO-248000/F-60	60	408 × 372 × 422	746 × 605 × 605	2	1000	40
LT/DO-248000/F-80	80	458 × 372 × 472	796 × 605 × 680	2	1000	45
LT/DO-248000/F-120	120	498 × 477 × 512	836 × 710 × 720	2	1600	50

Thermostatic Bath

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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

LT/TB-220000/M
High Temperature Thermostatic Bath

- Bench top steel structure painted with anti-epoxy products
- Internal bath made in stainless steel with a depth of approx. 375 mm
- Liquid capacity of approx. 45 liters with atmospheric drain for easy clean
- Stainless steel heaters with total 4000 W heating power
- Motor stirrer with propeller for grant uniformity and stability
- Digital thermoregulatory with PID function with 0,1 °C resolution, PT100 A class temperature sensor
- Manually settable overtemperature safety device with red alarm lamp
- Integrated cooling coil for external water/cooling circuit connection
- Temperature range: ambient up to +250°C
- Temperature uniformity:
  · 0,10°C < +50°C
  · 0,25°C < +100°C
  · 0.50°C > +100°C
  uniformity and stability are granted with cover installed
- Security feature available on request: liquid level sensor
- Instrument supplied with:
  · Power cable 3 wire without plug
  · Stainless steel cover
- Bench dimensions: 70 × 35 × 60 cm
- Gross weight 43 Kg

LT/TB-177000/M
Thermostatic Bath Floor Model

- Completely made in 18/8 stainless steel with double bottom
- Internal bath made in stainless steel with a depth of approx. 610 mm
- Liquid capacity of approx. 70 liters with atmospheric drain for easy clean
- Stainless steel heaters with total 4000 W heating power
- Motor stirrer with propeller for grant uniformity and stability
- Digital thermoregulatory with PID function with 0,1 °C resolution, PT100 A class temperature sensor
- Manually settable overtemperature safety device with red alarm lamp
- Integrated cooling coil for external water/cooling circuit connection
- Temperature range: ambient up to +120°C
- Temperature uniformity:
  · 0,10°C < +50°C
  · 0,25°C < +100°C
  · 0.50°C > +100°C
  uniformity and stability are granted with cover installed
- Security feature available on request: liquid level sensor
- Instrument supplied with:
  · Power cable 3 wire without plug
  · Stainless steel cover
  · 3 positions support
- Floor dimensions: 50 × 50 × 90 cm
- Gross weight 30 Kg

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