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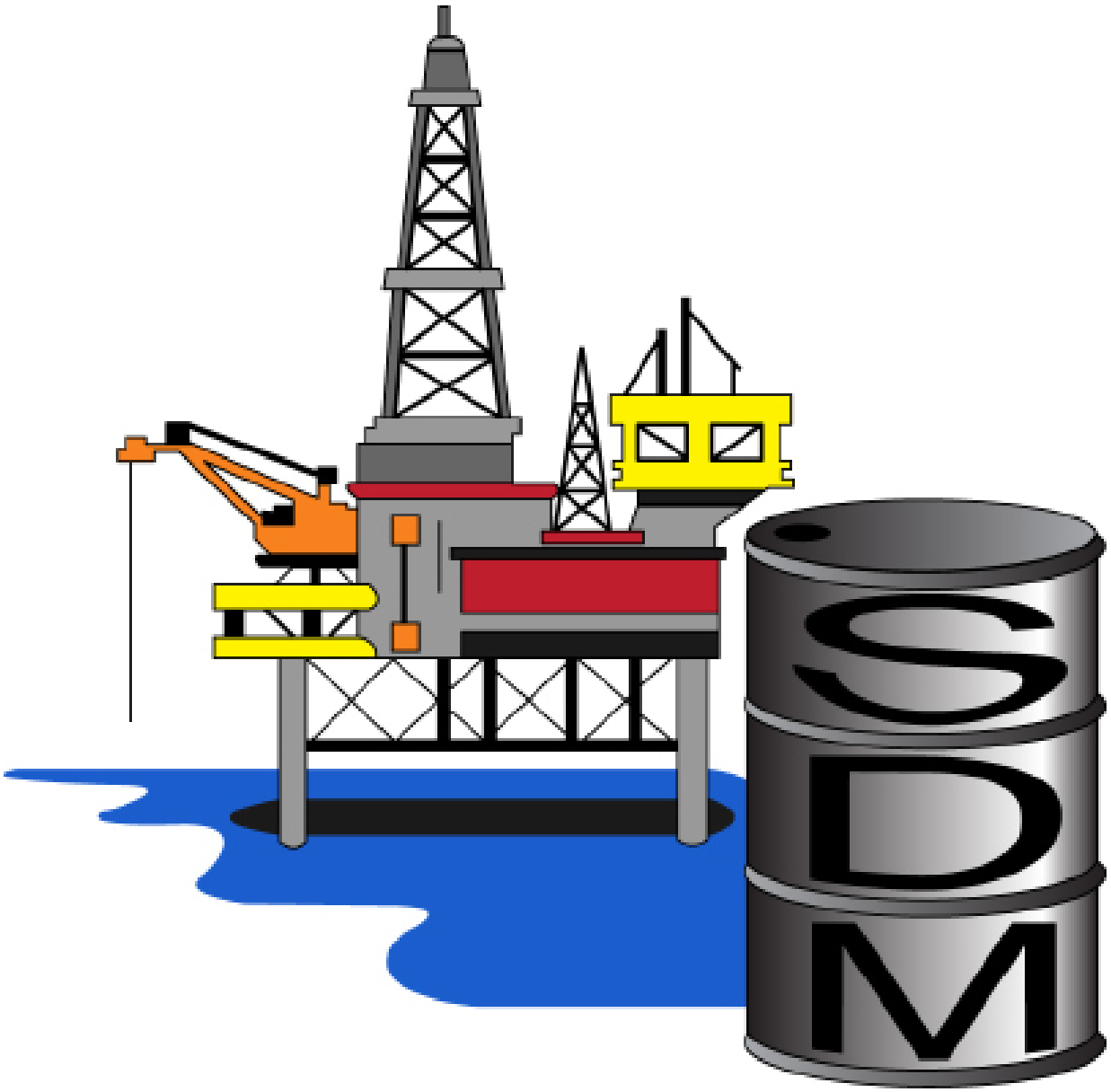
Catalogue 2015 ver.2



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REDWOOD

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.

Structure made of stainless steel, with front opened jacket, equipped with: bath with capacity of about 7 liters, calibrated brass oil cup with orifice no.1 or no.2, fitted with closing-ball-ended rod. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, external level indicator and safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 95°C (203°F) *for no.1*
  from ambient to 250°C (482°F) *for no.2*
- Stability: ±0.1°C
- Bath capacity: 7 about liters
- Power supply: 230V ±3% 50/60Hz
- Power: 800W *for no.1*
  1200W *for no.2*
- Dimensions: No.1 40x29x64 cm
  No.2 40x29x61 cm
- Weight: 12 kg

120 REDWOOD VISCOMETER NO.1

122 REDWOOD VISCOMETER NO.2

120/2 REDWOOD VISCOMETER NO.1 (2 POSITIONS)

122/2 REDWOOD VISCOMETER NO.2 (2 POSITIONS)

120/3 REDWOOD VISCOMETER NO.1 (3 POSITIONS)

122/3 REDWOOD VISCOMETER NO.2 (3 POSITIONS)

120 2012

CONSUMABLES x 2 YEARS

10-0103	KOHLRAUSCH RECEIVING FLASK 50 ml, pack of 3 pcs x1
15-0105	O-RING, pack of 5 pcs x1

ACCESSORIES ON REQUEST

10-0103	KOHLRAUSCH RECEIVING FLASK 50 ml, pack of 3 pcs
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
T-IP8C	THERMOMETER IP 8C
T-IP8F	THERMOMETER IP 8F
T-IP9C	THERMOMETER IP 9C
T-IP9F	THERMOMETER IP 9F
T-IP10C	THERMOMETER IP 10C
T-IP10F	THERMOMETER IP 10F

SPARE PARTS

15-0101	CALIBRATED OIL CUP WITH ORIFICE NO.1 Brass
15-0102	CALIBRATED OIL CUP WITH ORIFICE NO.2 Brass
15-0104	CLOSING-BALL-ENDED ROD
14-0001	PROBE PT100A
11-0008	HEATER 800W *(for no.1)*
11-0012/13	HEATER 1200W *(for no.2)*
15-0003/120	LEVEL SWITCH *(for no.1)*
15-0003/200	LEVEL SWITCH *(for no.2)*
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

STV (TAR)

IP 72 VISCOSITY CUTBACK BITUMEN
Measure of the viscosity by determining the time of efflux of 50ml of a cutback bitumen, at 40°C (104°F), through a 10 mm orifice with efflux times in the range 15 to 500 sec.

EN 12846-1 DETERMINATION OF EFFLUX TIME BY THE EFFLUX VISCOMETER - BITUMINOUS EMULSIONS
For the determination of the efflux time at 40°C (104°F) of bituminous emulsions in seconds using an efflux viscometer. Alternative test temperature is 50°C (122°F)

EN 12846-2 DETERMINATION OF EFFLUX TIME BY THE EFFLUX VISCOMETER - CUT-BACK AND FLUXED BITUMINOUS BINDERS
For the determination of the efflux time at 25°C (77°F) of petroleum cut-back and fluxed bituminous binders in seconds using an efflux viscometer. Alternative test temperatures are 40°C (104°F) 50°C (122°F) and 60°C (140°F)

EN 13357 DETERMINATION OF THE EFFLUX TIME OF PETROLEUM CUT-BACK AND FLUXED BITUMENS
Specifies a method for the determination of the efflux time of petroleum cut-back and fluxed bitumens in seconds using an efflux viscometer

Structure made of stainless steel, with front opened jacket, equipped with: bath with capacity of about 7 liters, calibrated brass oil cup with orifice Ø10mm, fitted with closing-ball-ended rod and level indicator. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, external level indicator and safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 60°C (140°F)
- Stability: ±0.1°C
- Bath capacity: 7 about liters
- Power supply: 230V ±10% 50/60Hz
- Power: 800W
- Dimensions: 40x29x64 cm
- Weight: 11 kg

140 **STV (TAR) VISCOMETER**

140/2 **STV (TAR) VISCOMETER (2 POSITIONS)**

140/3 **SYV (TAR) VISCOMETER (3 POSITIONS)**

140/4 **SYV (TAR) VISCOMETER (4 POSITIONS)**


140 2013

ACCESSORIES ON REQUEST

10-0140	CALIBRATED CUP WITH ORIFICE Ø2 mm Brass
10-0141	CALIBRATED CUP WITH ORIFICE Ø4 mm Brass
10-0143	100 ml RECEIVER, pack of 3 pcs Calibrated to 20, 25 and 75 ml.
10-0146	GO/NOT GO GAUGE Ø2 mm
10-0144	GO/NOT GO GAUGE Ø4 mm
10-0145	GO/NOT GO GAUGE Ø10 mm
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS17C	THERMOMETER ASTM 17C
T-AS17F	THERMOMETER ASTM 17F
T-AS19C	THERMOMETER ASTM 19C
T-AS19F	THERMOMETER ASTM 19F
T-IP8C	THERMOMETER IP 8C
T-IP8F	THERMOMETER IP 8F

CONSUMABLES x 2 YEARS

10-0143	100 ml RECEIVER, pack of 3 pcs x1
15-0140	O-RING, pack of 5 pcs x1

SPARE PARTS

15-0142	CALIBRATED CUP WITH ORIFICE Ø10 mm
15-0147/2	CLOSING-BALL-ENDED ROD Ø2 mm
15-0147/4	CLOSING-BALL-ENDED ROD Ø4 mm
15-0147/10	CLOSING-BALL-ENDED ROD Ø10 mm
14-0001	PROBE PT100A
11-0008	HEATER 800W
15-0003/120	LEVEL SWITCH
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

SAYBOLT

ASTM D88 SAYBOLT VISCOSITY
Covers the empirical procedures for determining the Saybolt Universal or Saybolt Furol viscosities of petroleum products at specified temperatures between 21 and 99°C (70 and 210°F).

ASTM E102 SAYBOLT FUROL VISCOSITY OF BITUMINOUS MATERIALS AT HIGH TEMPERATURES
This test method covers the empirical procedures for determining the Saybolt Furol viscosities of bituminous materials at specified temperatures between 120 and 240°C (248 and 464°F).

Structure made in stainless steel, with front opened jacket, equipped with: bath with capacity of about 10 liters, calibrated brass oil cup with stainless steel flowing orifice, polished and calibrated Ø1.76 mm Universal and Ø3.15 mm Furol, orifice wrench and thermometer support. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, external level indicator and safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 240°C (464°F)
- Stability: ±0.1°C
- Bath capacity: 10 about liters
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 40x29x61 cm
- Weight: 12 kg

180 **SAYBOLT VISCOMETER**

180/2 **SAYBOLT VISCOMETER (2 POSITIONS)**

180/3 **SAYBOLT VISCOMETER (3 POSITIONS)**

180/4 **SAYBOLT VISCOMETER (4 POSITIONS)**


180 2012

ACCESSORIES ON REQUEST

10-0161	FILTER FUNNEL With interchangeable 150 µm (No.100) and 75 µm (No.200) wire cloth
10-0162	SAYBOLT FLASK, 60 ml
10-0164	WITHDRAWAL TUBE
10-0167	DISPLACEMENT RING ASTM E102
10-0168	SUCTION PIPETTE
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
10-0371/20	SILICONE OIL 20 cSt, pack of 25 kg For temperature from ambient to 120°C (248°F)
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)

For ASTM D88

T-AS17C	THERMOMETER ASTM 17C
T-AS17F	THERMOMETER ASTM 17F
T-AS18C	THERMOMETER ASTM 18C
T-AS18F	THERMOMETER ASTM 18F
T-AS19C	THERMOMETER ASTM 19C
T-AS19F	THERMOMETER ASTM 19F
T-AS20C	THERMOMETER ASTM 20C
T-AS20F	THERMOMETER ASTM 20F
T-AS21C	THERMOMETER ASTM 21C
T-AS21F	THERMOMETER ASTM 21F
T-AS22C	THERMOMETER ASTM 22C
T-AS22F	THERMOMETER ASTM 22F

For ASTM E102

T-AS77F	THERMOMETER ASTM 77F
T-AS78F	THERMOMETER ASTM 78F
T-AS79F	THERMOMETER ASTM 79F
T-AS80F	THERMOMETER ASTM 80F
T-AS81F	THERMOMETER ASTM 81F
T-AS108F	THERMOMETER ASTM 108F
T-AS109F	THERMOMETER ASTM 109F

CONSUMABLES x 2 YEARS

10-0162	SAYBOLT FLASK, 60 ml x3

SPARE PARTS

15-0163	THERMOMETER SUPPORT
15-0165	UNIVERSAL ORIFICE
15-0166	FUROL ORIFICE
15-0165/W	ORIFICE WRENCH
15-0172/W	CUP WRENCH
15-0172	CALIBRATED OIL CUP WITHOUT ORIFICE
14-0001	PROBE PT100A
11-0012/13	HEATER 1200W
15-0003/200	LEVEL SWITCH
16-0007	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

FLOW CUP

ASTM D1200 D5125 EN 535 ISO 2431 DIN 53211 DIN 53224 VISCOSITY BY FORD VISCOSITY CUP
Covers the determination of the viscosity of Newtonian or near Newtonian paints, vamishes, lacquers and related liquid material.

ASTM D1200

200 FORD FLOW CUP
Anodized aluminium cup.


200 2010

ACCESSORIES ON REQUEST

10-0200/1	ORIFICE ASTM NO.1, Ø1.9 mm Stainless steel
10-0200/2	ORIFICE ASTM NO.2, Ø2.53 mm Stainless steel
10-0200/3	ORIFICE ASTM NO.3, Ø3.4 mm Stainless steel
10-0200/4	ORIFICE ASTM NO.4, Ø4.12 mm Stainless steel
10-0200/5	ORIFICE ASTM NO.5, Ø5.2 mm Stainless steel
10-0204	FLOW CUP STAND
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

DIN 53211

210 FLOW CUP DIN 53211
Anodized aluminium cup.

ACCESSORIES ON REQUEST

10-0210/2	ORIFICE NO.2, Ø2 mm Stainless steel
10-0210/3	ORIFICE NO.3, Ø3 mm Stainless steel
10-0210/4	ORIFICE NO.4, Ø4 mm Stainless steel
10-0210/5	ORIFICE NO.5, Ø5 mm Stainless steel
10-0210/6	ORIFICE NO.6, Ø6 mm Stainless steel
10-0210/7	ORIFICE NO.7, Ø7 mm Stainless steel
10-0210/8	ORIFICE NO.8, Ø8 mm Stainless steel
10-0204	FLOW CUP STAND
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

ASTM D5125 EN 535 ISO 2431 DIN 53224

220/2 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø2 mm

220/3 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø3 mm

220/4 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø4 mm

220/5 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø5 mm

220/6 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø6 mm

220/8 ISO FLOW CUP
Anodized aluminium cup, stainless steel orifice Ø8 mm

ACCESSORIES ON REQUEST

10-0204	FLOW CUP STAND
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

ASTM D816 (obs) RUBBER CEMENTS
These test methods cover tests to measure the properties of adhesives, commonly called rubber cements, that may be applied in plastic or fluid form and that are manufactured from natural rubber, reclaimed rubber, synthetic elastomers, or combinations of these materials.

ASTM D1084 (obs) VISCOSITY OF ADHESIVES
ASTM D4212 VISCOSITY BY DIP-TYPE VISCOSITY CUPS
Covers the determination of viscosity of paints, varnishes, lacquers, inks and related liquid materials by dip-type viscosity cups.

190/1 ZAHN FLOW CUP, NO.1
Brass,1.98 mm., 20 - 85 cP

190/2 ZAHN FLOW CUP, NO.2
Brass, 2.74 mm., 30 - 170 cP

190/3 ZAHN FLOW CUP, NO.3
Brass, 3.76 mm., 170 - 550 cP

190/4 ZAHN FLOW CUP, NO.4
Brass, 4.26 mm., 200 - 900 cP

190/5 ZAHN FLOW CUP, NO.5
Brass, 5.28 mm., 250 - 1200 cP


190 2008

ENGLER

ASTM D1665 IP 212 DIN 51560 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.

260 CONVENTIONAL ENGLER VISCOMETER

Brass test cup with stainless steel level-control of capillary flow outcropping, lid with PTFE tipped rod for closing the capillary hole, hand stirrer, bath with stainless steel heater regulated by table electronic regulator, tripod stand.
Technical specifications:
- Temperature: from ambient to 100°C (212°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 300W


260 2009

270 ENGLER VISCOMETER

Structure made in stainless steel, with front opened jacket, equipped with: bath with capacity of about 7 liters, calibrated brass cup, with stainless steel orifice, PTFE tipped closing rod. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, external level indicator and safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 100°C (212°F)
- Stability: ±0.1°C
- Bath capacity: 7 about liters
- Power supply: 230V ±10% 50/60Hz
- Power: 800W
- Dimensions: 40x29x64 cm
- Weight: 12 kg

270/2 ENGLER VISCOMETER (2 POSITIONS)


270 2012

ACCESSORIES ON REQUEST

10-0261	FILTER FUNNEL With stainless steel wire mesh
10-0265	TESTING FLASK 50 ml, pack of 3 pcs Graduate and calibrated at 20°C
10-0267	KOHLRAUSCH FLASK 200 ml, pack of 3 pcs Graduation mark and calibrated at 20°C
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS23C	THERMOMETER ASTM 23C
T-AS24C	THERMOMETER ASTM 24C
T-AS25C	THERMOMETER ASTM 25C
T-IP76C	THERMOMETER IP 76C

CONSUMABLES x 2 YEARS

10-0265	TESTING FLASK 50 ml ,pack of 3 pcs x1
10-0267	KOHLRAUSCH FLASK 200 ml, pack of 3 pcs x1

SPARE PARTS

15-0113	ELECTRONIC REGULATOR (for 260)
11-0261	HEATER 300W (for 260)
15-0270	ENGLER CUP
15-0271	ENGLER LEVEL-CONTROL
15-0165/W	ORIFICE WRENCH
14-0001	PROBE PT100A
11-0008	HEATER 800W (for 270)
15-0003/120	LEVEL SWITCH
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

HÖPPLER

DIN 53015 HÖPPLER
This standard specifies a method of determining the dynamic viscosity of Newtonian liquids using the Höppler falling-ball viscometer, including a method of calibrating the viscometer

Suitable for viscosity 0.5 a 100.000 mPa*s (cP). Mounted on support with levelling screws and bubble level, fitted with stop pin which allows the viscometer to reverse. Calibrated fall tube tube with two maximum level notches and an intermediate-level one, equipped with 6 gauged balls:
1+2=borosilicate glass, 3+4=Ni-Fe, 5+6=steel.
Pyrex glass jacket for thermostatic bath with covers, neoprene gaskets, connections for the circulation of the thermostated liquid from the thermostatic bath. With certificate at 20°C.
Technical specifications:
- Temperature: from -20 to +120°C (-4 to 248°F)
(with external unit)
- Power supply:230V ±10% 50/60Hz (*for 330)*
- Power: 110W (*for 330)*

320 HÖPPLER VISCOMETER

330 HÖPPLER HEATED VISCOMETER
With heater element regulated by electronic regulator table version. With certificate at 20°C.

ACCESSORIES ON REQUEST

722/P	CIRCULATING BATH ±0.02°C
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-0332	THERMOMETER 19° +21°C, DIV. 0.02°
T-0333	THERMOMETER -1° +26°C, DIV. 0.1°
T-0334	THERMOMETER 24° +51°C, DIV. 0.1°
T-0335	THERMOMETER 49° +76°C, DIV. 0.1°
T-0336	THERMOMETER 74 +101°C, DIV.0.1°
T-0337	THERMOMETER 99 +126°C, DIV.0.1°
T-0338	THERMOMETER 124 +151°C, DIV.0.1°

CONSUMABLES x 2 YEARS

15-0324	NEOPRENE GASKET, pack of 10 pcs

SPARE PARTS

15-0321	CALIBRATED FALL TUBE
15-0322	CLIBRATED BALLS 1+2=borosilicate glass, 3+4=Ni-Fe, 5+6=steel
11-0331	HEATER (*for 330*)
15-0113	ELECTRONIC REGULATOR *(for 330)*

VISCOMETER BATH

ASTM D445 IP 71 ISO 3104 KINEMATIC VISCOSITY OF TRANSPARENT AND OPAQUE LIQUIDS (AND CALCULATION OF DYNAMIC VISCOSITY)
Procedure for the determination of the kinematic viscosity of liquid petroleum products, both transparent and opaque, by measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer. The dynamic viscosity can be obtained by multiplying the kinematic viscosity by the density of the liquid.

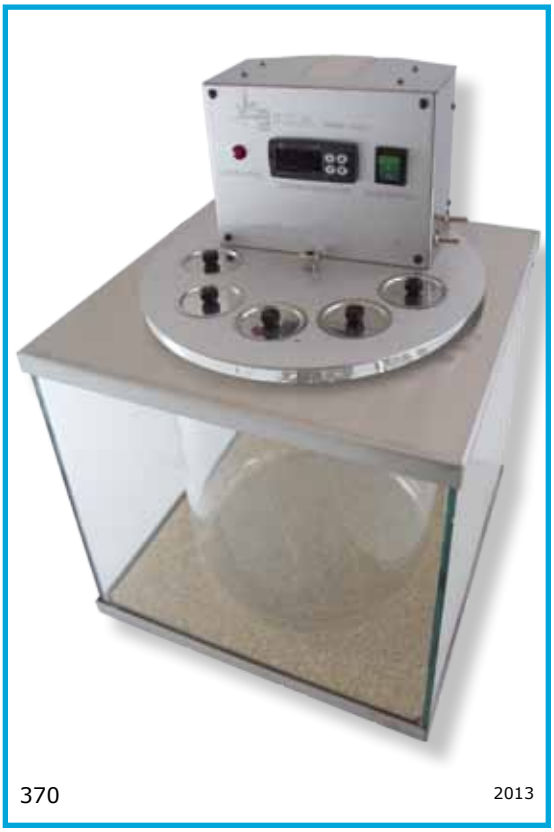
ASTM D446 IP 71 ISO 3105 STANDARD SPECIFICATIONS AND OPERATING INSTRUCTIONS FOR GLASS CAPILLARY KINEMATIC VISCOMETERS

ASTM D2170 IP 319 KINEMATIC VISCOSITY OF ASPHALTS (BITUMENS)
Procedure for the determination of kinematic viscosity of liquid asphalts (bitumens), road oils and distillation residues of liquid asphalts (bitumens) all at 60°C (140°F) and of asphalt cements at 135°C (275°F) in the range from 6 to 100.000 mm^2/s (cSt).

EN 12595 KINEMATIC VISCOSITY OF BITUMEN AND BITUMINOUS BINDERS
For the determination of the kinematic viscosity of bituminous binders at 60°C and 135 °C in the ranfge from 6 to 300.000 mm^2/s (cSt). Bituminous Emulsions are not covered within the scope of this method..

For the determination of the kinematic viscosity with glass capillary viscometer.
Borosilicate tank, cover with 5 holes 50.8 mm, leakage protection vessel made of tempered glass supplied with cork disk supporting and stainless steel base, stainless steel control box on the cover, temperature controlled by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil for improved control near to ambient temperature, motor stirrer, safety internal level for low liquid with warning lamp. With stand-by stainless steel covers.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±0.1°C
- Bath capacity: about 15 liters
- Power supply: 230V ±10% 50/60 Hz
- Power: 1200W
- Dimensions: 35x35x52 cm
- Weight: 15 kg.

370 VISCOMETER BATH 150°C ±0.1°



370 2013

ACCESSORIES ON REQUEST

10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
10-0372	VISCOSITY TEMPERATURE CHARTS For liquid petroleum products, charts I thru VII
10-0373	FILTER, 75 MICRON
10-0375	METALLIC SYRINGE
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
10-0371	BACK LIGHT

Glass capillary page from 12 to 18

SPARE PARTS

18-0001	JAR
18-0003/CONT/330	LEAKAGE PROTECTION VESSEL
15-0371	LAMP
14-0002	PROBE PT100A
11-0012/13	HEATER
15-0003/120	LEVEL SWITCH
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

Borosilicate tank, cover with 5 holes 50.8mm, leakage protection vessel made of tempered glass, supplied with cork disk supporting and stainless steel base, stainless steel control box on the cover. LCD touch display 4.3" with PID controller, independent timer for each position (total 5), PT100 probe class A, overtemperature alarm, stainless steel heater, cooling coil for improved control near to ambient temperature, motor stirrer, safety internal level for low liquid. With stand-by stainless steel covers, leakage protection vessel.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: up to +100°C (212°F) ±0.02°C over ±0.05°C
- Bath capacity: about 15 liters
- Power supply: 220V 50/60 Hz
- Power: 1200W
- Dimensions: 35x35x52 cm (wxdxh)
- Weight: 15 kg.

390 VISCOMETER BATH -HIGH PRECISION-150°C


390 2015

Structure made in stainless steel, cover with 5 holes 50.8mm, temperature control by LCD touch display 4.3" with PID controller, independent timer for each position (total 5), PT100 probe class A, overtemperature alarm, stainless steel heater, motor stirrer, safety internal level for low liquid. Refrigeration system with ecological compressor CFC free R404A, stand-by stainless steel and back light.
Technical specifications:
- Temperature: from -30° to +60°C (-22 +140°F)
- Stability: from 15° (59°F) to 60°C (140°F) ±0.02°C, da -30° (-22°F) to 15°C (59°F) ±0.05°C
- Bath capacity: 28 about liters
- Power supply: 230V ±10% 50Hz
- Power: 3500W

450 REFRIGERATED VISCOMETER BATH -30°+60°C ±0.01°

ACCESSORIES ON REQUEST

10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
10-0372	VISCOSITY TEMPERATURE CHARTS For liquid petroleum products, charts I thru VII
10-0373	FILTER, 75 MICRON
10-0375	METALLIC SYRINGE
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
10-0371	BACK LIGHT
T-AS28C	THERMOMETER ASTM 28C IP 31C
T-AS29C	THERMOMETER ASTM 29C IP 34C
T-AS44C	THERMOMETER ASTM 44C IP 29C
T-AS45C	THERMOMETER ASTM 45C IP 30C
T-AS46C	THERMOMETER ASTM 46C IP 66C
T-AS47C	THERMOMETER ASTM 47C IP 35C
T-AS48C	THERMOMETER ASTM 48C IP 90C
T-AS72C	THERMOMETER ASTM 72C IP 67C
T-AS73C	THERMOMETER ASTM 73C IP 68C
T-AS74C	THERMOMETER ASTM 74C IP 69C
T-AS110C	THERMOMETER ASTM 110C IP 83C
T-AS118C	THERMOMETER ASTM 118C
T-AS120C	THERMOMETER ASTM 120C IP 92C
T-AS121C	THERMOMETER ASTM 121C IP 32C
T-AS126C	THERMOMETER ASTM 126C IP 71C
T-AS127C	THERMOMETER ASTM 127C IP 99C
T-AS128C	THERMOMETER ASTM 128C IP 33C
T-AS129C	THERMOMETER ASTM 129C IP 36C
T-AS132C	THERMOMETER ASTM 132C IP 102C

Glass capillary page from 12 to 18

SPARE PARTS

15-0371	LAMP

BROOKFIELD - LOW TEMPERATURE

ASTM D2983 LOW-TEMPERATURE VISCOSITY OF LUBRICANTS MEASURED BY BROOKFIELD VISCOMETER
This test method covers the use of Brookfield viscometers of appropriate torque for the determination of the lowshear-rate viscosity of lubricants. The test is applied over the viscosity range of 500 to 900 000 mPa·s within a low temperature range appropriate to the capacity of the viscometer head.

Floor model with a stainless steel cold air cabinet and structure painted with anti-acid epoxidic products, fitted with 4 wheels with brake. Internal cabinet with turntable base at 4 rpm. rack for 3 test tube and 3 balsa woodcell carrier.
Cover with stop in aperture and automatic defrosting device, The temperature is controlled by digital thermoregulator PID fitted with a probe PT100 A, earth leakage circuit breaker, compressor CFC free refrigerant gases are used.
Technical specifications:
- Temperature: from ambient to -40°C (-40°F)
- Stability: ±0.3°C
- Power supply: 230V ±10% 50Hz
- Power: 1600W
- Dimensions: 82x88x160 cm
- Weight: 150 kg.

470 BROOKFIELD VISCOMETER BATH

ACCESSORIES ON REQUEST

230/DV2T	ORIGINAL BROOKFIELD VISCOMETER
10-0471	4B2 SPINDLE
10-0472	TEST CELL, pack of 12 pcs
10-0473	CELL STOPPER
10-0474	BALSE WOOD TEST CELL CARRIER
10-0475	SPINDLE CLIPS
T-AS122C	THERMOMETER ASTM 122C IP 94C
T-AS123C	THERMOMETER ASTM 123C IP 95C
T-AS124C	THERMOMETER ASTM 124C IP 96C
T-AS125C	THERMOMETER ASTM 125C IP 97C

CONSUMABLES x 2 YEARS

10-0471	4B2 SPINDLE x1
10-0472	TEST CELL, pack of 12 pcs x1
10-0473	CELL STOPPER x1
10-0474	BALSE WOOD TEST CELL CARRIER x1
10-0475	SPINDLE CLIPS x1

SPARE PARTS

15-0471	FAN
14-0006	PROBE PT100A
11-0470	HEATER
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0019	EARTH LEAKAGE CIRCUIT BREAKER

GLASS CAPILLARY VISCOMETERS

UBBELOHDE VISCOMETER
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 241 mm, minimum sample volume 11 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
340/0	0	0.001	0.3-1
340/0C	0C	0.003	0.6-3
340/0B	0B	0.005	1-5
340/1	1	0.01	2-10
340/1C	1C	0.03	6-30
340/1B	1B	0.05	10-50
340/2	2	0.1	20-100
340/2C	2C	0.3	60-300
340/2B	2B	0.5	100-500
340/3	3	1	200-1000
340/3C	3C	3	600-3000
340/3B	3B	5	1000-5000
340/4	4	10	2000-10000
340/4C	4C	30	6000-30000
340/4B	4B	50	10000-50000
340/5	5	100	20000-100000

On request uncalibrated with item 340/.../U, where "..." is the size

ACCESSORIES ON REQUEST
10-0340 VISCOMETER HOLDER
Metallic

CANNON-FENSKE ROUTINE VISCOMETER
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 203 mm, minimum sample volume 7 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
350/25	25	0.002	0.5-2
350/50	50	0.004	0.8-4
350/75	75	0.008	1.6-8
350/100	100	0.015	3-15
350/150	150	0.035	7-35
350/200	200	0.1	20-100
350/300	300	0.25	50-250
350/350	350	0.5	100-500
350/400	400	1.2	240-1200
350/450	450	2.5	500-2500
350/500	500	8	1600-8000
350/600	600	20	4000-20000
350/650	650	45	9000-45000
350/700	700	100	20000-100000

On request uncalibrated with item 350/.../U, where "..." is the Size

ACCESSORIES ON REQUEST
10-0350 VISCOMETER HOLDER, pack of 5 pcs
SH80 rubber

CANNON-FENSKE OPAQUE VISCOMETER
ASTM D445 D446 ASTM D2170 IP 71 ISO 3104 ISO 3105
For opaque liquids, with certificate.
Require liquid bath depth of 229 mm, minimum sample volume 12 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
360/25	25	0.002	0.5-2
360/50	50	0.004	0.8-4
360/75	75	0.008	1.6-8
360/100	100	0.015	3-15
360/150	150	0.035	7-35
360/200	200	0.1	20-100
360/300	300	0.25	50-250
360/350	350	0.5	100-500
360/400	400	1.2	240-1200
360/450	450	2.5	500-2500
360/500	500	8	1600-8000
360/600	600	20	4000-20000
360/650	650	45	9000-45000
360/700	700	100	20000-100000

On request uncalibrated with item 360/.../U, where "..." is the size

ACCESSORIES ON REQUEST

10-0350	VISCOMETER HOLDER, , pack of 5 pcs SH80 rubber

BS/IP/MSL MINIATURE SUSPENDED LEVEL
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 305 mm, minimum sample volume 4 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
342/1	1	0.003	0.6-3
342/2	2	0.001	2-10
342/3	3	0.03	6-30
342/4	4	0.1	20-100
342/5	5	0.3	60-300
342/6	6	1.0	200-1000
342/7	7	3.0	600-3000

ACCESSORIES ON REQUEST

10-0342	VISCOMETER HOLDER Metallic

BS/IP/SL SUSPENDED LEVEL
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 250 mm, minimum sample volume 11 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
344/1	1	0.01	0.35-10
344/1A	1A	0.03	6-30
344/2	2	0.1	20-100
344/2A	2A	0.3	60-300
344/3	3	1	200-1000
344/3A	3A	3	600-3000
344/4	4	10	2000-10000
344/4A	4A	30	6000-30000
344/5	5	100	20000-100000

ACCESSORIES ON REQUEST
10-0342 VISCOMETER HOLDER
Metallic

BS/U/M MINIATURE U-TUBE
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 230 mm, minimum sample volume 2 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
346/M1	M1	0.001	0.2-1
346/M2	M2	0.005	1-5
346/M3	M3	0.015	3-15
346/M4	M4	0.04	8-40
346/M5	M5	0.1	20-100

BS/U-TUBE
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 280 mm, minimum sample volume 7 ml. from size A to C, 12 ml. from D to F and 23 ml. from G to H.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
348/A	A	0.003	0.9-3
348/B	B	0.01	2.0-10
348/C	C	0.03	6-30
348/D	D	0.1	20-100
348/E	E	0.3	60-300
348/F	F	1	200-1000
348/G	G	3	600-3000
348/H	H	10	2000-10000

CANNON-MANNING SEMI-MICRO
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 200 mm, minimum sample volume 1 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
352/25	25	0.002	0.5-2
352/50	50	0.004	0.8-4
352/75	75	0.008	1.6-8
352/100	100	0.015	3-15
352/150	150	0.035	7-35
352/200	200	0.1	20-100
352/300	300	0.25	50-250
352/350	350	0.5	100-500
352/400	400	1.2	240-1200
352/450	450	2.5	500-2500
352/500	500	8	1600-8000
352/600	600	20	4000-20000

On request uncalibrated with item 352/.../U, where "..." is the size

ACCESSORIES ON REQUEST
10-0350 VISCOMETER HOLDER, , pack of 5 pcs
SH80 rubber

BS/IP/SL(S) SUSPENDED LEVEL
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 250 mm, minimum sample volume 11 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
354/1	1	0.008	1.05 minimo
354/2	2	0.003	2.1-3
354/3	3	0.01	3.8-10
354/4	4	0.03	6-30
354/5	5	0.1	20-100
354/6	6	0.3	60-300
354/7	7	1	200-1000
354/8	8	3	600-3000
354/9	9	10	2000-10000

ACCESSORIES ON REQUEST
10-0342 VISCOMETER HOLDER
Metallic

CANNON-UBBELOHDE DILUTION
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 305 mm, minimum sample volume of 8 mL can be diluted to 40 mL

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
356/25	25	0.002	0.5-2
356/50	50	0.004	0.8-4
356/75	75	0.008	1.6-8
356/100	100	0.015	3-15
356/150	150	0.035	7-35
356/200	200	0.1	20-100
356/300	300	0.25	50-250
356/350	350	0.5	100-500
356/400	400	1.2	240-1200
356/450	450	2.5	500-2500
356/500	500	8	1600-8000
356/600	600	20	4000-20000

On request uncalibrated with item 356/.../U, where "..." is the size

ACCESSORIES ON REQUEST
10-0356 VISCOMETER HOLDER, , pack of 5 pcs
SH80 rubber

CANNON-UBBELOHDE SEMI-MICRO
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate
Require liquid bath depth of 240 mm, sample volume 1 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
358/25	25	0.002	0.5-2
358/50	50	0.004	0.8-4
358/75	75	0.008	1.6-8
358/100	100	0.015	3-15
358/150	150	0.035	7-35
358/200	200	0.1	20-100
358/300	300	0.25	50-250
358/350	350	0.5	100-500
358/400	400	1.2	240-1200
358/450	450	2.5	500-2500
358/500	500	8	1600-8000
358/600	600	20	4000-20000

On request uncalibrated with item 358/.../U, where "..." is the size

ACCESSORIES ON REQUEST
10-0356 VISCOMETER HOLDER, , pack of 5 pcs
SH80 rubber

BS/IP/RF U-TUBE A SCOLAMENTO ROVESCIATO
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For opaque liquids, with certificate.
Require liquid bath depth of 280 mm, sample volume 7 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
361/1	1	0.003	0.6-3
361/2	2	0.01	2-10
361/3	3	0.03	6-30
361/4	4	0.1	20-100
361/5	5	0.3	60-300
361/6	6	1	200-1000
361/7	7	3	600-3000
361/8	8	10	2000-10000
361/9	9	30	6000-30000
361/10	10	100	20000-100000
361/11	11	300	60000-300000

ACCESSORIES ON REQUEST
10-0361 VISCOMETER HOLDER, pack of 5 pcs
SH80 rubber

ZEITFUCHS® CROSS-ARM
ASTM D445 D446 D2170 IP 71 ISO 3104 ISO 3105
For transparent and opaque liquids, with certificate.
With permanently attached round metal holder.
Require liquid bath depth of 230 mm, sample volume from 1 to 3 ml. minimun

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
364/1	1	0.003	0.6-3
364/2	2	0.01	2-10
364/3	3	0.03	6-30
364/4	4	0.1	20-100
364/5	5	0.3	60-300
364/6	6	1	200-1000
364/7	7	3	600-3000
364/8	8	10	2000-10000
364/9	9	30	6000-30000
364/10	10	100	20000-100000

ZEITFUCHS® TRANSPARENT
ASTM D445 D446 IP 71 ISO 3104 ISO 3105
For transparent liquids, with certificate and metallic viscometer holder
Require liquid bath depth of 292 mm, sample volume 15 ml.

Item	Size	Approx. constant mm^2/s^2 (cSt/s)	Kinematic viscosity range mm^2/s (cSt)
366/1	1	0.003	0.6-3
366/2	2	0.01	2-10
366/3	3	0.03	6-30
366/4	4	0.1	20-100
366/5	5	0.3	60-300
366/6	6	1	200-1000
366/7	7	3	600-3000

On request uncalibrated with item 366/.../U, where "..." is the size

Solvent cleaning-unit for washing and drying capillary-glass-tube viscometers. Washes and dries up to 6 capillary tubes at a time. Stainless steel case with 6 independent regulation valves fitted with holding-down spring, air filters, pressure regulator and pressure gauge, to be feed from one external air source. 7.5 litres capacity internal solvent tank with level indicator. Protection cover in stailess steel and window check.
Technical specifications:
- Capacity: about 7.5 liters
- Dimensions: 72x34x82 cm
- Weight: 32 kg.

380 VISCOMETER TUBE CLEANER AND DRYER

ACCESSORIES ON REQUEST
2460/CA3 PUMP

SPARE PARTS

15-0381/MAN	PRESSURE GAUGE 0/2.5 BAR
15-0381/REG	REGULATION SYSTEM 2 BAR
15-0381/RUB	SOLVENT/AIR SWITCH
15-2601	LEVEL INDICATOR
15-0382	SILICONE STOPPER, pack of 6 pcs


380 2012

CLOUD AND POUR POINT

ASTM D97 IP 15 ISO 3016 POUR POINT OF PETROLEUM PRODUCTS
This test method covers and is intended for use on any petroleum product. A procedure suitable for black specimens, cylinder stock, and nondistillate fuel oil

ASTM D2500 IP 219 EN 23015 ISO 3015 CLOUD POINT OF PETROLEUM PRODUCTS
This test method covers only petroleum products and biodiesel fuels that are transparent in layers 40 mm in thickness, and with a cloud point below 49°C (120°F)

ASTM D5853 IP 441 POUR POINT OF CRUDE OILS
This test method covers two procedures for the determination of the pour point temperatures of crude oils down to −36°C.

Resistant structure painted with anti-acid epoxidic products, fitted with 4 wheels with brake. Glossy-black PVC cover with small stand-by covers, aluminium blocks with holes for accomodate the graduated jars, equipped with a hole where the thermometer is placed. Temperature is controlled by digital thermoregulator fitted with a probe PT100 A. Automatic defrosting device under the cover, earth leakage circuit breaker, independent compressors CFC free refrigerant gases are used.

490/HS/140 CLOUD AND POUR POINT REFRIGERATOR UP TO -69°C (4 POSITIONS)

Heating element controlled by an independent switch for a quick return to a ambient temperature.
- Power supply: 230V ±10% 50Hz
- Power: 1300W
- Dimensions: 60x70x100 cm
- Weight: 110 kg

500/S CLOUD AND POUR POINT REFRIGERATOR 0° -18° -33° -51°C (4 POSITIONS FOR EACH TEMPERATURE)

- Power supply: 230V ±10% 50Hz
- Power: 2900W
- Dimensions: 133x72x100 cm
- Weight: 208 kg

510/S CLOUD AND POUR POINT REFRIGERATOR 0° -18° -33°C (4 POSITIONS FOR EACH TEMPERATURE)

- Power supply: 230V ±10% 50Hz
- Power: 2600W
- Dimensions: 104x72x100 cm
- Weight: 156 kg.

520/S CLOUD AND POUR POINT REFRIGERATOR 0° -18° -33° -51° -69°C (4 POSITIONS FOR EACH TEMPERATURE)

- Power supply: 230V ±10% 50Hz
- Power: 3700W
- Dimensions: 180x72x100 cm
- Weight: 285 kg

530/S CLOUD AND POUR POINT REFRIGERATOR +50° 0° -18° -33° -51° -69°C (4 POSITIONS FOR EACH TEMPERATURE)

- Power supply: 230V ±10% 50Hz
- Power: 3900W
- Dimensions: 210x72x100 cm
- Weight: 335 kg

ACCESSORIES ON REQUEST

10-0491	TEST JAR SET, pack of 4 pcs Graduated glassware ASTM. Complete with cork for thermometer, o-ring and cork disk for rest test jar
10-0490/S	FRAMEWORK FOR 490/HS/140 For lead up to 150 cm
10-0500/S	FRAMEWORK FOR cm 500/S For lead up to 150 cm
10-0510/S	FRAMEWORK FOR PER 510/S For lead up to 150 cm
10-0520/S	FRAMEWORK FOR PER 520/S For lead up to 150 cm
10-0530/S	FRAMEWORK FOR PER 530/S For lead up to 150 cm
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
15-1441/A	SUPPORT FOR VESSEL ASTM D130 D5853 For 4 pressure vessel
10-1441/B	PRESSURE VESSEL ASTM D130 D5853 Made of stainless steel, tested at 10 bar/21 psi
1230	WATER/OIL BATH Structure made of stainless steel, temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. Technical specifications: - Temperature: from ambient to 120°C (248°F) ±0.1°C - Bath capacity: 5 about liters - Power supply: 230V ±10% 50/60Hz - Power: 1200W - Dimensions: 27x39x45 cm - Weight: 8 kg
T-AS5C	THERMOMETER ASTM 5C IP 1C
T-AS6C	THERMOMETER ASTM 6C IP 2C
T-AS61C	THERMOMETER ASTM 61C IP63C

CONSUMABLES x 2 YEARS

15-0491	TEST JAR, pack of 4 pcs x2
15-0492	CORK, pack of 4 pcs x2
15-0493	CORK DISC, pack of 4 pcs x2
15-0494	O-RING, pack of 4 pcs x2

SPARE PARTS

14-0006	PROBE PT100A
11-0490	HEATER *(for 490/HS/140)*
16-0005	DIGITAL THERMOREGULATOR
11-0017	DEFROSTING HEATER 10W
11-0018	DEFROSTING HEATER 15W
15-0016/220	RELAY
15-0021	TIMER
15-0004	BIPOLAR GREEN SWITCH
15-0019	EARTH LEAKAGE CIRCUIT BREAKER
15-2412	EARTH LEAKAGE CIRCUIT BREAKER *(for 520/S and 530/S)*


500/S 2010


510/S 2011


520/S 2006


490/HS/140 2010

1 places conventional model with dry ice (CO_2) (not included) external cooling, consisting of Dewar flask fully silvered with metal protection and PVC cover, metal air jacket for support test jar.

Technical specifications:
- Temperature: up to -69°C (-92°F) with dry ice
- Dimensions: Ø130x310 mm
- Weight: 1.5 kg.

540 CONVENTIONAL CLOUD AND POUR POINT APPARATUS


540 2012

ACCESSORIES ON REQUEST

10-0491	TEST JAR SET, pack of 4 pcs Graduated glassware ASTM. Complete with cork for thermometer, o-ring and cork disk for rest test jar
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS5C	THERMOMETER ASTM 5C IP 1C
T-AS6C	THERMOMETER ASTM 6C IP 2C
T-AS61C	THERMOMETER ASTM 61C IP 63C

CONSUMABLES x 2 YEARS

15-0491	TEST JAR, pack of 4 pcs x2
15-0492	CORK, pack of 4 pcs x2
15-0493	CORK DISC, pack of 4 pcs x2
15-0494	O-RING, pack of 4 pcs x2

SPARE PARTS

15-0540	DEWAR Ø100x240
15-0541	METAL JACKET
15-0542	BRASS SUPPORT

BOILING POINT

ASTM D1120 BOILING POINT OF ENGINE COOLANTS

This test method covers the determination of the equilibrium boiling point of engine coolants. The equilibrium boiling point indicates the temperature at which the sample will start to boil in a cooling system under equilibrium conditions at atmospheric pressure.

Consisting of a heating mantle, a 100 ml flask having a neck with a 19/38 standard-taper, female ground-glass joint and a 10 mm outside diameter side-entering tube, so located as to permit the end of the thermometer device to be directly centered in the flask 6.5 mm from the bottom, a condenser having a jacket 200 mm in length with the bottom end of the condenser have a 19/38 standard-taper, drip-tip, male ground-glass joint.

Technical specifications:

- Power supply: 230V ±10% 50Hz
- Power: 150W
- Dimensions: 15x15x12 cm
- Weight: 3 kg

2320 BOILING POINT

ACCESSORIES ON REQUEST

10-2321	SILICON CARBIDE GRAINS, pack of 100 g
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS2C	THERMOMETER ASTM 2C

SPARE PARTS

1290/100	HEATING MANTLE
15-2321	FLASK, 100 ml
15-2322	CONDENSER
15-2323	STOPPER FOR THERMOMETER

ASTM D852 SOLIDIFICATION POINT OF BENZENE

Consisting of: 1 cooling bath cup (1 liter dewar with Ertalon stand), 1 cover for dewar, 1 air jacket tube 25x150 mm, 1 inner test tube 15x125 mm, stoppers, stirrer wire in stainless steel Ø1 mm

2340 SOLIDIFICATION POINT OF BENZENE

ACCESSORIES ON REQUEST

T-AS112C	THERMOMETER ASTM 112C

CONSUMABLES x 2 YEARS

15-2347	WIRE STIRRER x4

SPARE PARTS

15-2341	DEWAR
10-1441/D	AIR JACKET 25x150 mm, pack of 10 pcs
15-2343	INNER CONTAINER 15x125 mm, pack of 3 pcs
15-2344	SERIES OF 4 STOPPERS

2340 2014

ASTM D2386 IP 16 ISO 3013 DIN 51421 (obs) FREEZING POINT OF AVIATION FUELS
This test method covers the determination of the temperature below which solid hydrocarbon crystals may form in aviation turbine fuels and aviation gasoline.

2370 MANUAL FREEZING POINT

Consisting of: tripod stand with clamp the jacketed sample tube into the Dewar flask at the level required from method; Dewar flask Ø75x280 mm. int. for cooling medium, with stainless steel support; jacketed sample tube Dewar Ø20x234 mm. int.; silicone stopper with hole for thermometer and supporting the brass moisture-proof collar (with silica gel and glass wool) through which the manual brass stirrer passes.

2370/SEM SEMI-AUTOMATIC FREEZING POINT

Base painted with anti-acid epoxidic products supporting Dewar flask Ø75x280 mm. int. for cooling medium, with stainless steel support; jacketed sample tube Dewar Ø20x234 mm. int.; cork stopper with two holes one for thermometer and one for supporting the brass moisture-proof collar (with silica gel and glass wool) through which the manual brass stirrer passes joined to a geared motor for automatic stirrer at 70 rpm.
The base accommodate the stirrer switch.
Technical specifications:
- Power supply: 230V ±10% 50 Hz
- Dimensions: 26x35x115 cm
- Weight: 11 kg

2370/SEM/2 SEMI-AUTOMATIC FREEZING POINT (2 POSITIONS)

2 places stand-alone with base painted with anti-acid epoxidic products supporting two Dewar flask Ø75x280 mm. int. for cooling medium, with stainless steel support, each with; jacketed sample tube Dewar Ø20x234 mm. int.; cork stopper with two holes one for thermometer and one for supporting the brass moisture-proof collar (with silica gel and glass wool) through which the manual brass stirrer passes joined to a geared motor for automatic stirrer at 70 rpm.
The base accommodate two stirrer switch.
Technical specifications:
- Power supply: 230V ±10% 50 Hz
- Dimensions: 60x40x115 cm
- Weight: 38 kg

ACCESSORIES ON REQUEST

T-AS114C	THERMOMETER ASTM 114C IP 14C

CONSUMABLES x 2 YEARS

15-2371	JACKETED SAMPLE TUBE x2 Internal Ø20x234 mm, similar Dewar
15-2372	WIRE STIRRER x4 Made of brass, with three-loop spiral at the bottom

SPARE PARTS

15-2374	STOPPER, PACK OF 2 PCS Made of silicone with two holes: one for thermometer and one for stirrer
15-2375	MOISTURE-PROOF Collar through which the stirrer passes Made of brass, filled with silica gel and glass wool
15-2373	DEWAR Ø75x280 mm
15-2384	CLAMP
15-2070/MOR	DOUBLE CLAMP
15-0004	BIPOLAR GREEN SWITCH
12-0014/M	MOTOR
15-AZLAM3	CARD MOTOR, 3A


2370/SEM 2012


2370/SEM/2 2006

ASTM D1177 FREEZING POINT OF AQUEOUS ENGINE COOLANTS
This test method covers the determination of the freezing point of an aqueous engine coolant solution in the laboratory.

Base painted with anti-acid epoxidic products supporting Dewar flask Ø100x290mm. int. for cooling medium, fully silvered with metal protection; 200 mL freezing tube Dewar; cork with three holes one for PT100A probe one for stirrer and one for instroducing wire for seeding; five coil stirrer made of stainless steel wire joined to a geared motor for automatic stirrer at 70 rpm.
The base accommodate the main switch, stirrer switch and digital thermometer plug in to PT100A probe.

2380 FREEZING POINT
Technical specifications:
- Power supply: 230V ±10% 50Hz
- Dimensions: 26x35x85 cm
- Weight: 8 kg

2380/2 FREEZING POINT (2 POSITIONS)
Technical specifications:
- Power supply: 230V ±10% 50Hz


2380 2014

CONSUMABLES x 2 YEARS

15-2381	FREEZING TUBE x2 200 ml., Dewar
15-2382	WIRE STIRRER x4 Made of stainless steel, with five-loop spiral at the bottom
15-2383	STOPPER, pack of 2 pcs Made of cork, with 3 holes

SPARE PARTS

15-2385	DEWAR
14-0002	PROBE PT100A
16-0005	DIGITAL THERMOMETER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-2384	CLAMP
12-0014/M	MOTOR
15-AZLAM3	CARD MOTOR, 3A

Resistant structure painted with anti-acid epoxidic products, fitted with 4 wheels with brake. Glossy-black PVC cover with small stand-by covers aluminium block with 1 hole for accomodate the 200ml freezing tube, equipped with a hole where the thermometer is placed, heating element controlled by a indipendent switch for a quick return to a ambient temperature. Temperature is controlled by digital thermoregulator fitted with a probe PT100 A. Automatic defrosting device under the cover, earth leakage circuit breaker, double stage compressor CFC free refrigerant gases are used.
Consisting of: 200ml freezing tuber; cork with three holes one for PT100A probe one for stirrer and one for instroducing wire for seeding; five coil stirrer made of stainless steel wire joined to a geared motor for automatic stirrer at 70 rpm.
The temperature of sample is obtain by a PT100A probe plug in to a digital thermometer.
Technical specifications:
- Temperature: from ambient to -70°C (-94°F)
- Power supply: 230V ±10% 50Hz
- Power: 1300W
- Dimensions: 60x70x160 cm
- Weight: 118 kg

2380/SEM SEMI-AUTOMATIC FREEZING POINT

CONSUMABLES x 2 YEARS

15-2381	FREEZING TUBE x2 200 ml., Dewar
15-2382	WIRE STIRRER x4 Made of stainless steel, with five-loop spiral at the bottom
15-2383	STOPPER, pack of 2 pcs Made of cork, with 3 holes

SPARE PARTS

11-0490	HEATER
14-0002	PROBE PT100A
14-0006	PROBE PT100A *(for refrigerator bench)*
16-0005	DIGITAL THERMOMETER
11-0018	DEFROSTING HEATER 15W
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-2384	CLAMP
12-0014/M	MOTOR
15-AZLAM3	CARD MOTOR, 3A
15-0019	EARTH LEAKAGE CIRCUIT BREAKER
15-0021	TIMER

COLD FILTER PLUGGING POINT

ASTM D6371 IP 309 EN 116 DIN 51428 (obs) COLD FILTER PLUGGING POINT OF DIESEL AND HEATING FUELS
This test method covers the determination of the cold filter plugging point (CFPP) temperature of diesel and domestic heating fuels

2540 COLD FILTER PLUGGING POINT - CFPP

PVC structure fitted with: dewar flask with cover, brass jacket Ø48x115 mm outside, test jar Ø31x125 mm flat bottomed and mark at 45 ml level, insulating ring thickness 6 mm, to be placed in the bottom of the jacket, two spacers to be placed as around the test jar to provide insulation for the test jar from the sides of the jacket, a supporting ring for suspend the jacket, a pipet with a calibration mark corresponding to a contained volume of 20 mL at a point 149 mm from the bottom of the pipet, a metallic unit filter, a stopper with trhee holes one for thermometer one for pipet and one for vent, two 5 liters bottle with stopper, stopcock and U-manometer.
Technical specifications:
- Dimensions: 330x500 mm (Øxh)
- Weight: 9 kg.

2540/SEM SEMI-AUTOMATIC COLD FILTER PLUGGING POINT - CFPP

Resistant structure painted with anti-acid epoxidic products, fitted with 4 wheels with brake. Glossy-black PVC cover with small stand-by covers aluminium block with 1 hole for accomodate the test jar, equipped with a hole where the thermometer is placed, heating element controlled by a indipendent switch for a quick return to a ambient temperature. Temperature is controlled by digital thermoregulator fitted with a probe PT100 A. Automatic defrosting device under the cover, earth leakage circuit breaker, double stage compressor CFC free refrigerant gases are used.
Brass jacket Ø48x115 mm outside, test jar Ø31x125 mm flat bottomed and mark at 45 ml level, insulating ring thickness 6mm, to be placed in the bottom of the jacket, two spacers to be placed as around the test jar to provide insulation for the test jar from the sides of the jacket, a supporting ring for suspend the jacket, a pipet with a calibration mark corresponding to a contained volume of 20 mL at a point 149 mm from the bottom of the pipet, a metallic unit filter, a stopper with trhee holes one for thermometer one for pipet and one for vent, two 5 liters bottle with stopper, stopcock and U-manometer.
Technical specifications:
- Temperature: from ambient to -70°C (-94°F)
- Power supply: 230V ±10% 50Hz
- Power: 1300W
- Dimensions: 60x70x160 cm
- Weight: 118 kg

ACCESSORIES ON REQUEST

2460/RC4D	VACUUM PUMP
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS5C	THERMOMETER ASTM 5C IP 1C
T-AS6C	THERMOMETER ASTM 6C IP 2C x2

CONSUMABLES x 2 YEARS

15-2541	TEST JAR, 45 ml x2
15-2544/F	FILTER DISK, pack of 5 pcs x4
15-2544/OF	O-RING FOR THE FILTER SIEVE, pack of 5 pcs x1
15-2544/OP	O-RING FOR PIPETTE, pack of 5 pcs x1

SPARE PARTS

15-2540	U-MANOMETER
15-2541/S	SPACE
15-2542	BRASS JACKET
15-2543	PIPET
15-2544	FILTER UNIT
15-2545	STOPPER FOR PIPET
15-2546	3-WAY GLASS STOPCOCK
15-2547	GLASS BOTTLE, 5 l
15-2548/2	2 HOLES STOPPER FOR BOTTLE
15-2548/3	3 HOLES STOPPER FOR BOTTLE
15-2549	GLASS LINK, pack of 4 pcs
15-2549/P	AIR VENT TUBE FOR BOTTLE
15-2541/D	DEWAR

ASTM D287 API GRAVITY OF CRUDE PETROLEUM AND PETROLEUM PRODUCTS
This test method covers the determination by means of a glass hydrometer in conjunction with a series of calculations of the API gravity of crude petroleum and petroleum products normally handled as liquids and having a Reid vapor pressure (ASTM D323) of 101.325 kPa (14.696 psi) or less.

ASTM D1298 IP 160 ISO 3675 DENSITY, RELATIVE DENSITY, OR API GRAVITY OF CRUDE PETROLEUM AND LIQUID PETROLEUM PRODUCTS BY HYDROMETER METHOD
This test method covers the laboratory determination using a glass hydrometer in conjunction with a series of calculations, of the density, relative density, or API gravity of crude petroleum, petroleum products, or mixtures of petroleum and nonpetroleum products normally handled as liquids, and having a Reid vapor pressure of 101.325 kPa (14.696 psi) or less.

Borosilicate glass jar with cover with 5 holes Ø55 mm. or 4 Ø66 mm, leakage protection vessel made of tempered glass, included with cork plate and stainless steel base. Stainless steel control box on the cover with digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, safety internal level for low liquid with warning lamp, with test tubes blocking-system and stand-by stainless steel covers.
Technical specifications:
- Temperature: From ambient to+150°C (302°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz

550/300 DENSITY BATH
For hydrometer cylinders Ø54x300 mm
- Capacity: 16 liters about
- Power: 1200W
- Dimensions: 35x35x55 cm
- Weight: 20 kg

550/450 DENSITY BATH
For hydrometer cylinder Ø65x420 mm
- Capacity: 23 liters about
- Power: 2200W
- Dimensions: 35X35x70 cm
- Weight: 30 kg

550/300 2013

ACCESSORIES ON REQUEST

485/20	CIRCULATION COOLER UP TO -20°C (-4°F)
10-0554	HYDROMETER CYLINDER Ø65x420 mm, pack of 4 pcs
10-0556	HYDROMETER CYLINDER Ø54x300 mm, pack of 5 pcs
10-0555	HYDROMETER CYLINDER Bench model with foot, 1000 ml.
T-AS12C	THERMOMETER ASTM 12C IP 64C
T-AS17C	THERMOMETER ASTM 17C
T-AS22C	THERMOMETER ASTM 22C
T-AS63C	THERMOMETER ASTM 63C

CONSUMABLES x 2 YEARS

10-0554	HYDROMETER CYLINDER Ø65x420 mm, pack of 4 pcs
10-0556	HYDROMETER CYLINDER Ø54x300 mm, pack of 5 pcs

SPARE PARTS

18-0001	JAR Ø270x330 mm., *(for 550/300)*
18-0002	JAR Ø270X450 mm., *(for 550/450)*
18-0003/CONT/330	LEAKAGE PROTECTION VESSEL, *(for 550/300)*
18-0003/CONT/450	LEAKAGE PROTECTION VESSEL, *(for 550/450)*
14-0002	PROBE PT100A L=200 mm
11-0012/19	HEATER *(per 550/300)*
11-0016	HEATER *(per 550/450)*
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

DENSITY HYDROMETER BS 718 DIN 12791 SERIES L20
Without thermometer, div.0.0002 g/cm³, ref. temperature 20°C, lenght 430 mm

Art.	Type	Range g/cm³
550/L20/068	L20-068	0,6800-0,7000
550/L20/070	L20-070	0,7000-0,7200
550/L20/072	L20-072	0,7200-0,7400
550/L20/074	L20-074	0,7400-0,7600
550/L20/076	L20-076	0,7600-0,7800
550/L20/078	L20-078	0,7800-0,8000
550/L20/080	L20-080	0,8000-0,8200
550/L20/082	L20-082	0,8200-0,8400
550/L20/084	L20-084	0,8400-0,8600
550/L20/086	L20-086	0,8600-0,8800
550/L20/088	L20-088	0,8800-0,9000
550/L20/090	L20-090	0,9000-0,9200
550/L20/092	L20-092	0,9200-0,9400
550/L20/094	L20-094	0,9400-0,9600
550/L20/096	L20-096	0,9600-0,9800
550/L20/098	L20-098	0,9800-1,0000
550/L20/100	L20-100	1,0000-1,0200
550/L20/102	L20-102	1,0200-1,0400
550/L20/104	L20-104	1,0400-1,0600
550/L20/106	L20-106	1,0600-1,0800
550/L20/108	L20-108	1,0800-1,1000

DENSITY HYDROMETER BS 718 DIN 12791 SERIES L50
Without thermometer, div.0.0005 g/cm³, ref. temperature 20°C, lenght 335 mm

Art.	Type	Range g/cm³
550/L50/060	L50-060	0,600-0,650
550/L50/065	L50-065	0,650-0,700
550/L50/070	L50-070	0,700-0,750
550/L50/075	L50-075	0,750-0,800
550/L50/080	L50-080	0,800-0,850
550/L50/085	L50-085	0,850-0,900
550/L50/090	L50-090	0,900-0,950
550/L50/095	L50-095	0,950-1,000
550/L50/100	L50-100	1,000-1,050
550/L50/105	L50-105	1,050-1,100
550/L50/110	L50-110	1,100-1,150
550/L50/115	L50-115	1,150-1,200
550/L50/120	L50-120	1,200-1,250
550/L50/125	L50-125	1,250-1,300
550/L50/130	L50-130	1,300-1,350
550/L50/135	L50-135	1,350-1,400
550/L50/140	L50-140	1,400-1,450
550/L50/145	L50-145	1,450-1,500
550/L50/150	L50-150	1,500-1,550
550/L50/155	L50-155	1,550-1,600
550/L50/160	L50-160	1,600-1,650
550/L50/165	L50-165	1,650-1,700
550/L50/170	L50-170	1,700-1,750
550/L50/175	L50-175	1,750-1,800
550/L50/180	L50-180	1,800-1,850
550/L50/185	L50-185	1,850-1,900
550/L50/190	L50-190	1,900-1,950
550/L50/195	L50-195	1,950-2,000

DENSITY HYDROMETER BS 718 DIN 12791 SERIES L50 SP
Without thermometer, div.0.0005 g/cm³, ref. temperature 15°C, lenght 335 mm.

Art.	Type	Range g/cm³
550/L50BS/060	L50-060	0,600-0,650
550/L50BS/065	L50-065	0,650-0,700
550/L50BS/070	L50-070	0,700-0,750
550/L50BS/075	L50-075	0,750-0,800
550/L50BS/080	L50-080	0,800-0,850
550/L50BS/085	L50-085	0,850-0,900
550/L50BS/090	L50-090	0,900-0,950
550/L50BS/095	L50-095	0,950-1,000
550/L50BS/100	L50-100	1,000-1,050
550/L50BS/105	L50-105	1,050-1,100

DENSITY HYDROMETER BS 718 DIN 12791 SERIES M50
Without thermometer, div.0.001 g/cm³, ref. temperature 20°C, lenght 270 mm.

Art.	Type	Range g/cm³
550/M50/060	M50-060	0,600-0650
550/M50/065	M50-065	0,650-0,700
550/M50/070	M50-070	0,700-0,750
550/M50/075	M50-075	0,750-0,800
550/M50/080	M50-080	0,800-0,850
550/M50/085	M50-085	0,850-0,900
550/M50/090	M50-090	0,900-0,950
550/M50/095	M50-095	0,950-1,000
550/M50/100	M50-100	1,000-1,050
550/M50/105	M50-105	1,050-1,100
550/M50/110	M50-110	1,100-1,150
550/M50/115	M50-115	1,150-1,200
550/M50/120	M50-120	1,200-1,250
550/M50/125	M50-125	1,250-1,300
550/M50/130	M50-130	1,300-1,350
550/M50/135	M50-135	1,350-1,400
550/M50/140	M50-140	1,400-1,450
550/M50/145	M50-145	1,450-1,500
550/M50/150	M50-150	1,500-1,550
550/M50/155	M50-155	1,550-1,600
550/M50/160	M50-160	1,600-1,350
550/M50/165	M50-165	1,650-1,700
550/M50/170	M50-170	1,700-1,750
550/M50/175	M50-175	1,750-1,800
550/M50/180	M50-180	1,800-1,850
550/M50/185	M50-185	1,850-1,900
550/M50/190	M50-190	1,900-1,950
550/M50/195	M50-195	1,950-2000

DENSITY HYDROMETER BS 718 DIN 12791 SERIES M50 SP
Without thermometer, div.0.001 g/cm³, ref. temperature 15°C, lenght 270 mm.

Art.	Type	Range g/cm³
550/M50SP/060	M50-060	0,600-0,650
550/M50SP/065	M50-065	0,650-0,700
550/M50SP/070	M50-070	0,700-0,750
550/M50SP/075	M50-075	0,750-0,800
550/M50SP/080	M50-080	0,800-0,850
550/M50SP/085	M50-085	0,850-0,900
550/M50SP/090	M50-090	0,900-0,950
550/M50SP/095	M50-095	0,950-1,000
550/M50SP/100	M50-100	1,000-1,050
550/M50SP/105	M50-105	1,050-1,100

DENSITY HYDROMETER BS 718 DIN 12791 SERIES M100
Without thermometer, div.0.002 g/cm³, ref. temperature 20°C, lenght 250 mm.

Art.	Type	Range g/cm³
550/M100/060	M100-060	0,600-0,700
550/M100/070	M100-070	0,700-0,800
550/M100/080	M100-080	0,800-0,900
550/M100/090	M100-090	0,900-1,000
550/M100/100	M100-100	1,000-1,100
550/M100/110	M100-110	1,100-1,200
550/M100/120	M100-120	1,200-1,300
550/M100/130	M100-130	1,300-1,400
550/M100/140	M100-140	1,400-1,500
550/M100/150	M100-150	1,500-1,600
550/M100/160	M100-160	1,600-1,700
550/M100/170	M100-170	1,700-1,800
550/M100/180	M100-180	1,800-1,900
550/M100/190	M100-190	1,900-2,000

DENSITY HYDROMETER BS 718 DIN 12791 SERIES S50
Without thermometer, div.0.002 g/cm³, ref. temperature 20°C, lenght 190 mm.

Art.	Type	Range g/cm³
550/S50/060	S50-060	0,60-0,65
550/S50/065	S50-065	0,65-0,70
550/S50/070	S50-070	0,70-0,75
550/S50/075	S50-075	0,75-0,80
550/S50/080	S50-080	0,80-0,85
550/S50/085	S50-085	0,85-0,90
550/S50/090	S50-090	0,90-0,95
550/S50/095	S50-095	0,95-1,00
550/S50/100	S50-100	1,00-1,05
550/S50/105	S50-105	1,05-1,10
550/S50/110	S50-110	1,10-1,15
550/S50/115	S50-115	1,15-1,20
550/S50/120	S50-120	1,20-1,25
550/S50/125	S50-125	1,25-1,30
550/S50/130	S50-130	1,30-1,35
550/S50/135	S50-135	1,35-1,40
550/S50/140	S50-140	1,40-1,45
550/S50/145	S50-145	1,45-1,50
550/S50/150	S50-150	1,50-1,55
550/S50/155	S50-155	1,55-1,60
550/S50/160	S50-160	1,60-1,65
550/S50/165	S50-165	1,65-1,70
550/S50/170	S50-170	1,70-1,75
550/S50/175	S50-175	1,75-1,80
550/S50/180	S50-180	1,80-1,85
550/S50/185	S50-185	1,85-1,90
550/S50/190	S50-190	1,90-1,95
550/S50/195	S50-195	1,95-1,00

DENSITY HYDROMETER BS 718 DIN 12791 SERIES S50 SP
Without thermometer, div.0.001 g/cm³, ref. temperature 15°C, lenght 190 mm.

Art.	Type	Range g/cm³
550/S50SP/060	S50-060	0,60-0,65
550/S50SP/065	S50-065	065-0,70
550/S50SP/070	S50-070	0,70-0,75
550/S50SP/075	S50-075	0,75-0,80
550/S50SP/080	S50-080	0,80-0,85
550/S50SP/085	S50-085	0,85-0,90
550/S50SP/090	S50-090	0,90-0,95
550/S50SP/095	S50-095	0,95-1,00
550/S50SP/100	S50-100	1,00-1,05
550/S50SP/105	S50-105	1,05-1,10

HYDROMETER API ASTM
Without thermometer, div.0,1°API, ref. temperature 60°F

Art.	Type	Range °API	Lenght mm.
550/1H/62	1H-62	-1 +11	330
550/2H/62	2H-62	9 +21	330
550/3H/62	3H-62	19 +31	330
550/4H/62	4H-62	29 +41	330
550/5H/62	5H-62	39 +51	330
550/6H/62	6H-62	49 +61	330
550/7H/62	7H-62	59 +71	330
550/8H/62	8H-62	69 +81	330
550/9H/62	9H-62	79+ 91	330
550/10H/62	10H-62	89 +101	330
550/21H/62	21H-62	0 +6	163
550/22H/62	22H-62	5 +11	163
550/23H/62	23H-62	10 +16	163
550/24H/62	24H-62	15 +21	163
550/25H/62	25H-62	20 +26	163
550/26H/62	26H-62	25 +31	163
550/27H/62	27H-62	30 +36	163
550/28H/62	28H-62	35 +41	163
550/29H/62	29H-62	40 +46	163
550/30H/62	30H-62	45 +51	163
550/31H/62	31H-62	50 +56	163
550/32H/62	32H-62	55 +61	163
550/33H/62	33H-62	60 +66	163
550/34H/62	34H-62	65 +71	163
550/35H/62	35H-62	70 +76	163
550/36H/62	36H-62	75 +81	163
550/37H/62	37H-62	80 +86	163
550/38H/62	38H-62	85 +91	163
550/39H/62	39H-62	90 +96	163
550/40H/62	40H-62	95 +101	163

HYDROMETER API ASTM
With thermometer 0 +150°F, div.0,1°API, ref. temperature 60°F

Art.	Type	Range °API	Lunghezza mm.
550/51H/62	51H-62	-1 +11	380
550/52H/62	52H-62	9 +21	380
550/53H/62	53H-62	19 +31	380
550/54H/62	54H-62	29 +41	380
550/55H/62	55H-62	39 +51	380
550/56H/62	56H-62	49 +61	380
550/57H/62	57H-62	59 +71	380
550/58H/62	58H-62	69 +81	380
550/59H/62	59H-62	79 +91	380
550/60H/62	60H-62	89 +101	380

HYDROMETER ASTM
Without thermometer, div.0,0005 sp gr, ref. temperature 60/60°F, lenght 330 mm.

Art.	Type	Range
550/82H/62	82H-62	0.650-0.700
550/83H/62	83H-62	0.700-0.750
550/84H/62	84H-62	0.750-0.800
550/85H/62	85H-62	0.800-0.850
550/86H/62	86H-62	0.850-0.900
550/87H/62	87H-62	0.900-0.950
550/88H/62	88H-62L	0.950-1.000
550/89H/62	89H-62L	1.000-1.050
550/90H/62	90H-62L	1.050-1.100
550/98H/62	98H-62 alcohol	0.950-1.000
550/111H/62	111H-62H	1.000-1.050
550/112H/62	112H-62H	1.050-1.100
550/113H/62	113H-62	1.100-1.150
550/114H/62	114H-62	1.150-1.200
550/115H/62	115H-62	1.200-1.250
550/116H/62	116H-62	1.250-1.300
550/117H/62	117H-62	1.300-1.350
550/118H/62	118H-62	1.350-1.400
550/119H/62	119H-62	1.400-1.450
550/120H/62	120H-62	1.450-1.500

HYDROMETER ASTM
Without thermometer, div.0,001 sp gr, ref. temperature 60/60°F, lenght 260 mm.

Art.	Type	Range
550/102H/62	102H-62	0.650-0.700
550/103H/62	103H-62	0.700-0.750
550/104H/62	104H-62	0.750-0.800
550/105H/62	105H-62	0.800-0.850
550/106H/62	106H-62	0.850-0.900
550/107H/62	107H-62	0.900-0.950
550/108H/62	108H-62	0.950-1.000
550/125H/62	125H-62	1.000-1.050
550/126H/62	126H-62	1.050-1.100
550/127H/62	127H-62	1.100-1.150
550/128H/62	128H-62	1.150-1.200
550/129H/62	129H-62	1.200-1.250
550/130H/62	130H-62	1.250-1.300
550/131H/62	131H-62	1.300-1.350
550/132H/62	132H-62	1.350-1.400
550/133H/62	133H-62	1.400-1.450
550/134H/62	134H-62	1.450-1.500
550/135H/62	135H-62	1.500-1.550
550/136H/62	136H-62	1.550-1.600
550/137H/62	137H-62	1.600-1.650
550/138H/62	138H-62	1.650-1.700
550/139H/62	139H-62	1.700-1.750
550/140H/62	140H-62	1.750-1.800
550/141H/62	141H-62	1.800-1.850

HYDROMETER ASTM
With thermometer -20 +65°C div.1°, div.0.5 kg/m^3, ref. temeprature 15°C, lenght 380 mm

Art.	Type	Range
550/300H/82	300H-82	600-650
550/301H/82	301H-82	650-700
550/302H/82	302H-82	700-750
550/303H/82	303H-82	750-800
550/304H/82	304H-82	800-850
550/305H/82	305H-82	850-900
550/306H/82	306H-82	900-950
550/307H/82	307H-82	950-1000
550/308H/82	308H-82	1000-1050
550/309H/82	309H-82	1050-1100

HYDROMETER ASTM
Without thermometer, div.0.5 kg/m^3, ref. temperature 15°C, lenght 330 mm

Art.	Type	Range
550/311H/82	311H-82	600-650
550/312H/82	312H-82	650-700
550/313H/82	313H-82	700-750
550/314H/82	314H-82	750-800
550/315H/82	315H-82	800-850
550/316H/82	316H-82	850-900
550/317H/82	317H-82	900-950
550/318H/82	318H-82	950-1000
550/319H/82	319H-82	1000-1050
550/320H/82	320H-82	1050-1100

PENETROMETER

ASTM D5 IP 49 PENETRATION OF BITUMINOUS MATERIAL
This test method covers determination of the penetration of semi-solid and solid bituminous materials

EN 1426 BITUMEN AND BITUMINOUS BINDERS - DETERMINATION OF NEEDLE PENETRATION
For determining the consistency of bitumen and bituminous binders. Normal procedure is described for penetrations up to 330 but for penetrations above this value, up to 500, different operating parameters are necessary

ASTM D217 IP 50 CONE PENETRATION LUBRICATING GREASE
These test methods 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 ISO 2137 DIN 51580 CONE PENETRATION OF PETROLATUM
This test method 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
This test method 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 D1403 IP 310 ISO 2137 CONE PENETRATION OF LUBRICATING GREASE USING ¼ AND ½ SCALE CONE EQUIPMENT
These test methods cover two procedures for measuring the consistency of small samples of lubricating greases by penetration of a 1/4-scale cone or a 1/2-scale cone. These test methods include procedures for the measurement of unworked and worked penetrations.

ASTM D2884 YIELD STRESS OF HETEROGENEOUS PROPELLANTS BY CONE PENETRATION METHOD
This test method covers determination of the yield stress of heterogeneous propellants, both of the gel and emulsion types, containing from 0 to 70 % solid additives

PVC base with inset spirit level and adjustable feet, solid stainless steel column supporting a calibrated dial with 360 divisions corresponding to 1/10 of millimeter for penetration up to 720, release button with manual halting function. Micrometric regulation, magnifying glass and check light.
Technical specifications:
- Dimensions: 26x26x51 cm
- Weight: 7 kg

650 MANUAL PRECISION PENETROMETER

PVC base with inset spirit level and adjustable feet, solid stainless steel column supporting a calibrated dial with 360 divisions corresponding to 1/10 of millimeter for penetration up to 720, release button by a low voltage solenoid, controlled on its turn by a timer. Micrometric regulation, magnifying glass and check light.
Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 20W
- Dimensions: 26x26x62 cm
- Weight: 9 kg

650/SEM SEMI-AUTOMATIC PRECISION PENETROMETER

650/SEM 2014

PENETRATION

TEST SETS	
ASTM D5 <350	10-0652, 10-0661/47, 10-0651/50, 10-0651/100, 10-0660/5535, 10-0660/7570, 10-0660/M, 722/PEN, T-AS63C, T-AS64C, T-AS17C
ASTM D5 >350	10-0652/60, 10-0661/47, 10-0651/50, 10-0651/100, 10-0660/5570, 10-0660/M, 722/PEN, T-AS63C, T-AS64C, T-AS17C
EN 1426	10-0652, 10-0661/47, 10-0660/5535, 10-0660/7045, 10-0660/7060, 10-0660/AN20, 10-0660/AN30, 10-0660/M, 722/PEN, T-AS63C, T-AS64C, T-AS17C
ASTM D217	≤400 10-0654, ≤450 10-0655, 10-0661/47, 10-0660/765635, 670, 10-0671/ASTM, 10-0672, 722/PEN, T-0672
ASTM D937	10-0654, 10-0661/47, 10-0660/10065
ASTM D1321	10-0653, 10-0661/47, 10-0651/50, 10-0660/2532, 10-0660/BC, 10-0660/V, 722/PEN, T-AS64C
ASTM D1403	10-0656+10-0661/15, 10-0657+10-0661/8, 680/½, 680/¼
ASTM D2884	10-0658/MG, 10-0661/15, 10-0660/7664

ACCESSORIES ON REQUEST

10-0652 PENETRATION NEEDLE ASTM D5 IP 49 EN 1426
2.5 g., brass / stainless steel

10-0652/C CERTIFICATE PENETRATION NEEDLE ASTM D5 IP 49 EN 1426,

10-0652/60 PENETRATION NEEDLE
For penetration >350 and up to 500

10-0653 NEEDLE PENETRATION ASTM D1321 IP 376 DIN 51579
2.5 g., stainless steel

10-0654 CONE PENETRATION "OPTIONAL" ASTM D217 D937 IP 50 IP 179 DIN 51804 ISO 2137
102.5 g, Ø65 mm., brass body, stainless steel tip.

10-0655 CONE PENETRATION "STANDARD" ASTM D217 D937 IP 50 IP 179 ISO 2137
102.5 g., Ø69 mm., aluminum body, stainless steel tip

10-0656 CONE PENETRATION ½ ASTM D1403 IP 310
22.5 g., stainless steel body and tip.

10-0657 CONE PENETRATION ¼ ASTM D1403 IP 310
1.20 g., PMMA body, stainless steel tip.

10-0658/MG CONE PROPELLANTS ASTM D2884
15 g., Ø65 mm., magnesium

10-0658/PX CONE
15 g., Ø65 mm., PMMA

10-0658/5 MICRO-CONE ASTM
5 g., aluminum

10-0658/10 MICRO-CONE ASTM
10 g., stainless steel

10-0659/70 PERFORATED DISK
102.5 g., Ø70 mm., aluminum

10-0659/35 PERFORATED DISK
19.5 g., Ø35 mm., aluminum

10-0659/39 PERFORATED DISK
10 g., Ø39 mm., aluminum

10-0662/BALL BALL PENETRATION ASTM D3407 D3408 D5329
Made of stainless steel

10-0661/47 PLUNGER
47.5 g., stainless steel

10-0661/97 PLUNGER
97.5 g., stainless steel

10-0661/15 PLUNGER ½
15 g., aluminum *(per 10-0656)*

10-0661/8 PLUNGER ¼
8.18 g., magnesium *(per 10-0657)*

10-0661/10 PLUNGER
10 g., aluminum

10-0651/50 LOAD WEIGHT, 50 g

10-0651/100 LOAD WEIGHT, 100 g

10-0660/M TRANSFER DISH
Ø160x90 mm., metal, with internal serpentine heat exchanger and hose sockets, spacer plate with holes

10-0660/V TRANSFER DISH
Ø185x90 mm., glass, with internal serpentine heat exchanger and hose sockets, spacer plate with holes

10-0660/338 SAMPLE JAR Ø33x8 mm, pack of 5 pcs
For bitumen, penetration up to 40, steel

10-0660/5016 SAMPLE JAR Ø50x16 mm, pack of 5 pcs
For bitumen, penetration up to 40, steel

10-0660/5535 SAMPLE JAR Ø55x35 mm, pack of 5 pcs
For bitumen, penetration up to 200, steel

10-0660/5545 SAMPLE JAR Ø55x45 mm, pack of 5 pcs
For bitumen, penetration from 200 to 350, steel

10-0660/7570 SAMPLE JAR Ø75x70 mm, pack of 5 pcs
For bitumen, penetration from 200 to 350, steel

10-0660/7045 SAMPLE JAR Ø70x45 mm, pack of 5 pcs
For bitumen, penetration from 200 to 350, steel

10-0660/5570 SAMPLE JAR Ø55x70 mm, pack of 5 pcs
For bitumen, penetration from 350 to 500, steel

10-0660/7060 SAMPLE JAR Ø70x60 mm, pack of 5 pcs
For bitumen, penetration from 350 to 500, steel

10-0660/10065 SAMPLE JAR Ø100x65 mm, pack of 3 pcs
Steel, with cover

10-0660/765635 SAMPLE JAR Ø76.5x63.5 mm, pack of 3 pcs
Steel

10-0660/7664 SAMPLE JAR Ø76x64 mm, pack of 3 pcs
2-sections

10-0660/2532 WAX TEST CYLINTER Ø25x32 mm, pack of 2 pcs

10-0660/BC BASE PLATE 63.5x38 mm, pack of 2 pcs
Brass

10-0660/AL SAMPLE JAR Ø55x35 mm, pack of 100 pcs
Aluminum

10-0660/AN20 REDUCTION RING "20" EN 1426
Ring insert for reduce sample volume, for use on sample jar, ext. Ø53 int. Ø36 20 mm high, anodized aluminum

10-0660/AN30 REDUCTION RING "30" EN 1426
Ring insert for reduce sample volume, for use on sample jar, ext. Ø53 int. Ø36 30 mm high, anodized aluminum

722/PEN CIRCULATING BATH
Water bath for maitaining samples at constant temperature. Working temperature up to 80°C with decimal resolution. Digital thermoregulator with probe PT100, stainless steel heater, coiling coil, motor pump allowing the liquid circulation with sockets to connect at transfer dish, stainless steel plate for tempering directly in the bath the sample jar.
Technical specifications:
- Temperature: ambient to 80°C (176°F)
- Stability: ±0.1° C
- Power supply: 230V ±10% 50/60 Hz
- Power: 1200W.

10-0332 DIGITAL STOPWATCH
7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

T-AS17C THERMOMETER ASTM 17C

T-AS63C THERMOMETER ASTM 63C

T-AS64C THERMOMETER ASTM 64C

GREASE WORKER

Metal body, screw cover with air valve and thermometer pass, piston with ground-slideway brass handle.

670/MAN **MANUAL GREASE WORKER ASTM D217 IP 50 ISO 2137 FTM 791-373**

With base with lever

670/AUT **AUTOMATIC GREASE WORKER ASTM D217 IP 50 ISO 2137 FTM 791-373**

Automatic grease worker machine. Heavy base plate with monofase gear motor preset to make 60 strokes per minute, 6-digit counting mechanism and automatic stroke count and shut-off device. With one grease worker.
Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 800W
- Dimensions: 41x30x50 cm
- Weight: 37 kg

670/AUT/2 **AUTOMATIC GREASE WORKER 2 POSITIONS ASTM D217 IP 50 ISO 2137 FTM 791-373**

With two grease workers.
Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 800W

ACCESSORIES ON REQUEST

10-0671/ASTM	ASTM WORKER PLATE With 51 holes Ø6.35 mm, brass nickel-plated
10-0671/FTM	FTM WORKER PLATE With 270 holes Ø1.58 mm, brass nickel-plated
10-0672	GREASE CUTTER
T-0672	BI-METAL THERMOMETER Range 0 +60°C

SPARE PARTS

15-0670	GREASE WORKER Metal body, screw cover with air valve and thermometer pass, piston with ground-slideway brass handle.
15-0672	AUTOMATIC STROKE COUNT 6 digit

670/MAN + T-0672 2013

680/¼ **¼ SCALE GREASE WORKER ASTM D1403 IP 310 ISO 2137**

8 holes Ø3.17 mm plate, stainless steel

680/½ **½ SCALE GREASE WORKER ASTM D1403 IP 310 ISO 2137**

8 holes Ø6.35 mm plate, stainless steel

SPARE PARTS

15-0681/¼	PLATE ¼ 8 holes Ø3.17 mm.
15-0681/½	PLATE ½ 8 holes Ø6.35 mm.

670/AUT 2013

ROLL STABILITY

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

ASTM D7342 SHEAR STABILITY OF LUBRICATING GREASE IN PRESENCE OF WATER (WATER STABILITY TEST)
This test method covers two procedures for determining the shear stability of lubricating grease in the presence of water (wet shear stability) by a full scale grease worker or a roll stability test apparatus. Both procedures can be used to determine the relative wet shear stability of greases, but the results between procedures are not directly comparable. This test method is also known as the water stability test

Thermostatic cabin for up to 4 test cylinders, temperature is controlled by a PID digital thermoregulator with overtemperature alarm and PT100A, digital timer, 160 rpm speed geared motor, base with roller supports allowing the rotation.
Technical specifications:
- Temperature: from ambient to +200°C (392°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 2000W
- Dimensions: 62x62x48 cm
- Weight: 39 kg

700 ROLL STABILITY TESTER

ACCESSORIES ON REQUEST

10-0701	TEST CYLINDER WITH ROLLER Made of stainless steel

CONSUMABLES x 2 YEARS

15-0702	GASKET FOR TEST CYLINDER, pack of 5 pcs
15-0703	O-RING, pack of 10 pcs

SPARE PARTS

15-0701/C	TEST CYLINDER Made of stainless steel
15-0701/R	ROLLER Made of stainless steel

700 2014

10-0701

PENSKY-MARTENS

ASTM D93 E502 IP 34 EN 22719 ISO 15267 ISO 2719 DIN 51758 FLASH POINT BY PENSKY-MARTENS CLOSED CUP TESTER

This test method cover the determination of the flash point of petroleum products in the temperature range from 40 to 360°C by a manual Pensky-Martens closed-cup apparatus or an automated Pensky-Martens closed-cup apparatus, and the determination of the flash point of biodiesel in the temperature range of 60 to 190°C by an automated Pensky-Martens closed cup apparatus.
Procedure A is applicable to distillate fuels (diesel, biodiesel blends, kerosine, heating oil, turbine fuels), new and in-use lubricating oils, and other homogeneous petroleum liquids not included in the scope of Procedure B or Procedure C.
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.
Procedure C is applicable to biodiesel (B100). Since a flash point of residual alcohol in biodiesel is difficult to observe by manual flash point techniques, automated apparatus with electronic flash point detection have been found suitable

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Calibrated brass test cup, cover with gas or electric ignition device allowing to ignite the testing sample by a manual trip-opening. Motor stirrer for Procedure "A" and "B", air bath and cooling fan
Technical specifications:
- Temperature: from 40 to 360°C (104 +680°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 40x33x52 cm
- Weight: 11 kg.

750/E PENSKY-MARTENS
With gas ignition

750/E/IE PENSKY-MARTENS
With electric ignition

750/E 2014

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg. *(for 750/E)* Empty
10-0749	GAS REDUCER 30 mbar *(for 750/E)*
10-0747	GAS TUBE, L=5 m *(for 750/E)*
10-0751	STAINLESS STEEL TEST CUP
T-AS9C	THERMOMETER ASTM 9C IP 15C
T-AS10C	THERMOMETER ASTM 10C IP 16C
T-AS88C	THERMOMETER ASTM 88C IP 101C

CONSUMABLES x 2 YEARS

15-0754/PM	ELECTRIC IGNITION x4

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0751	BRASS TEST CUP
15-0752	COVER WITH MOVEMENT
15-0753/CT	THERMOMETER COLLAR
15-0753/FM	STIRRER FLEXIBLE DRIVE
15-0754/I	3-WAY SWITCH
15-0755	GAS IGNITION
17-0003	TRASFORMER *(for 750/E)*
17-0010	TRASFORMER *(for 750/E/IE)*
15-0756	COOLING FAN
11-0750	HEATER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
12-0750/BIS/MOT	GEARED MOTOR

FLASH POINT

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Calibrated brass test cup, cover with gas or electric ignition device allowing to ignite the testing sample by a manual trip-opening. Motor stirrer for Procedure "A" and "B", digital thermometer with glass PT100A probe, air bath and cooling fan
Technical specifications:
- Temperature: from 40 to 360°C (104 +680°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 40x33x52 cm
- Weight: 11 kg.

750/BIS DIGITAL PENSKY-MARTENS
With gas ignition

750/BIS/IE DIGITAL PENSKY-MARTENS
With electrical ignition

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg *(for 750/BIS)* Empty
10-0749	GAS REDUCER 30 mbar *(for 750/BIS)*
10-0747	GAS TUBE, L=5 m *(for 750/BIS)*
10-0751	STAINLESS STEEL TEST CUP

CONSUMABLES x 2 YEARS

15-0754/PM	ELECTRIC IGNITOR x4

SPARE PARTS

15-0750/S	TUBE L=3 m
15-0751	BRASS TEST CUP
15-0752	COVER WITH MOVEMENT
15-0753/CS	PROBE COLLAR
15-0753/FM	STIRRER FLEXIBLE DRIVE
15-0754/I	3-WAY SWITCH
15-0755	GAS IGNITION
17-0003	TRASFORMER *(for 750/BIS)*
17-0010	TRASFORMER *(for 750/BIS/IE)*
15-0756	FAN
11-0750	HEATER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
16-0005	DIGITAL THERMOMETER
14-0007	GLASS PT100A PROBE
12-0750/BIS/MOT	GEARED MOTOR

750/BIS/IE 2014

FLASH POINT

Apparatus with automatic temperature ramp, flash sensor, atmospheric pressure sensor with ±0.1 Kpa precision, glass PT100A probe, electrical and gas ignition system, ramp precision of 0.1°C, cooling fan. Real time operating system with S.D.M. software application, network conection and remote control of the instrument, USB port for printer and USB-key for data transfer, ethernet. TFT touch screen display, dual scale with °C and °F of choice, predefined ASTM and ISo method, custom method with ramp and setpoint test procedure,
Tested with certified product: FPRM2D. Friendly and easy to use application. Smart sense of flash point using vapor charge value. Safe use and diagnostics of the components and sensors. Over 500.000 guarantee test results memory.
Technical specifications:
- Temperature: da 40 a 360°C
- Power supply: 230V ±10% 50Hz
- Power: 800W
- Dimensions: 33X46X57 cm
- Weight: 26 kg

750/SEM **PENSKY-MARTENS SEMI-AUTOMATIC**
Without automatic flash point sensor and atmospheric pressure sensor

750/AUT **PENSKY-MARTENS AUTOMATIC**
With automatic flash point sensor and atmospheric pressure sensor

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
10-0751	STAINLESS STEEL TEST CUP
14-0007/C	GLASS PT100 PROBE CERTIFIED

CONSUMABLES x 2 YEARS

15-0754/PM	ELECTRIC IGNITOR x4

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0751	BRASS TEST CUP
15-0752/AUT	COVER WITH MOVEMENT
15-0753/CS	PROBE COLLAR
15-0753/FA	STIRRER FLEXIBLE DRIVE
15-0755	GAS IGNITION
17-0750	TRANSFORMER
15-0756	FAN
11-0750	HEATER
15-0004	BIPOLAR GREEN SWITCH
14-0007	GLASS PT100A PROBE
12-0750/BIS/MOT	GEARED MOTOR

750/AUT 2013

SMALL SCALE FLASH POINT

ASTM D3278 IP 534 FLASH POINT OF LIQUIDS BY SMALL SCALE CLOSED-CUP APPARATUS
These test methods cover procedures for determining whether a material does or does not flash at a specified temperature or for determining the lowest finite temperature at which a material does flash when using a small scale closedcup apparatus. The test methods are applicable to paints, enamels, lacquers, varnishes, and related products having a flash point between 0 and 110°C (32 and 230°F) and viscosity lower than 150 cSt at 25°C (77°F).

ASTM D3828 FLASH POINT BY SMALL SCALE CLOSED CUP TESTER
These test methods cover procedures for flash point tests, within the range of –30 to 300°C, of petroleum products and biodiesel liquid fuels, using a small scale closed cup tester. The procedures may be used to determine, whether a product will or will not flash at a specified temperature (flash/no flash Method A) or the flash point of a sample (Method B). When used in conjunction with an electronic thermal flash detector, these test methods are also suitable for flash point tests on biodiesels such as fatty acid methyl esters (FAME).

ASTM D7236 FLASH POINT BY SMALL SCALE CLOSED CUP TESTER (RAMP METHOD)
This test method covers the determination of the flash point of aviation turbine fuel, diesel fuel, kerosine and related products in the temperature range of 40 to 135°C by a small scale closed cup apparatus.

ASTM E502 SELECTION AND USE OF ASTM STANDARDS FOR THE DETERMINATION OF FLASH POINT OF CHEMICALS BY CLOSED CUP METHODS

IP 303 (obs)

IP 523 ISO 3679 DETERMINATION OF FLASH POINT - RAPID EQUILIBRIUM CLOSED CUP METHOD
This International Standard specifies a method for the determination of the closed cup flash point of paints (including water-borne paints), varnishes, paint binders, adhesives, solvents, petroleum, and related products having closed cup flash points within the range of -30 °C to 300 °C

IP 524 ISO 3680 DETERMINATION OF FLASH/NO FLASH - RAPID EQUILIBRIUM CLOSED CUP METHOD
This International Standard specifies a method for the determination of the ability of paints (including waterborne paints), varnishes, paint binders, adhesives, solvents and petroleum and related products, when maintained at a selected test temperature within the range of -30 °C to 300 °C, and under the conditions of test, to yield sufficient flammable vapour at this temperature to cause ignition on the application of a test flame in a standard manner.

Riscaldato elettricamente mediantre regolatore elettronico, montato su struttura verniciata con prodotti epossidici antiacido. Blocco in alluminio per campioni da 2 ml e 4 ml, coperchio con dispositivo manuale di apertura, rubinetto micrometrico alimentato a gas con fiamma pilota, termometro digitale con sonda PT100. Coibentato con serpentina refrigerante con attacchi per eventuale criostato esterno.
Specifiche tecniche:
- Temperatura: da -10 to 300°C
- Alimentazione: 230V ±10% 50/60Hz
- Potenza: 700W

780 SMALL-SCALE FLASH POINT APPARATUS

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m

780 2015

ABEL

IP 170 ISO 13736 DETERMINATION OF FLASH POINT - ABEL CLOSED CUP METHOD
For determination of the closed-cup flash point of combustible liquids having flash point between -30 and 70°C -(22 and 158°F)

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Calibrated brass crucible, cover with gas or electrical ignition device allowing to ignite the testing sample by a manual glide-opening. Motor stirrer, air bath and water bath are made in chromium-plated copper, internal cooling coil with external connection for possible cooling bath
Technical specifications:
- Temperature: from ambient to 70°C (158°F) (up to -30°C (-22°F) with external unit)
- Power supply: 230V ±10% 50Hz
- Power: 300W
- Dimensions: 26x32x37 cm
- Weight: 7 kg

820 ABEL
With gas ignition

820/IE ABEL
With electrical iginition

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
T-IP74C	THERMOMETER IP 74C
T-IP75C	THERMOMETER IP 75C

CONSUMABLES x 2 YEARS

15-0754/AB	ELECTRIC IGNITOR x2

SPARE PARTS

15-0750/S	TUBE, L=3 M.
15-0821	BRASS TEST CUP
15-0822	COVER WITH MOVEMENT
15-0828/CT	THERMOMETER COLLAR
15-0824/FM	STIRRER FLEXIBLE DRIVE
11-0820	HEATER
15-0755	GAS IGNITION
17-0003	TRASFORMER *(for 820*
17-0010	TRASFORMER *(for 820/IE)*
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0113	ELECTRONIC REGULATOR
12-0013	MOTOR STIRRER 30 RPM 24V

820 2013

FLASH POINT

Mounted on a case painted with anti-acid epoxidic products. Automatic temperature rise and fall, temperature control system with PID algorithm and SSR drive, both electric and gas ignition support automatically controlled, automatic opening system, peltier heat and cool system cooled with tap water circulation,
Aluminum block with brass test cup and cover block, temperature reading and control by glass PT100 class A sensor, detection system by ionization with mV electrostatic charge/discharge system, RTOS with S.D.M. system software operator panel with 32bit CPU, Ethernet with remote control support using integrated VNC server and backup/network printer server, USB with memory device support, keyboard, mouse, external device, Bar code reader, printer with PCL support, additional 8Gb SD card with 500.000 test results guaranteed, long life electric igniter, internal atmospheric absolute pressure sensor with 0.1kPa precision, automated calculated results, 10 usable test presets, predefined standards, custom standard with custom parameters, internal RTC, dual scale operation: Celsius/Fahrenheit, 3 selectable languages: English, French, Italian, operating range -30 to +75°C (-22 +167°F), Power consumption: 700W with 20A.
The automatic version, 820/AUT model, is supplied with a automatic sensor for flash point and atmospheric pressure sensor with ±0.1 Kpa precision

Technical specifications:
- Temperature: from -30°C (-22°F) to 70°C (158°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 33X46X57 cm
- Weight: 28 kg

820/SEM ABEL SEMI-AUTOMATIC
Without automatic flash point sensor and atmospheric pressure sensor

820/AUT ABEL AUTOMATIC
With automatic flash point sensor and atmospheric pressure sensor

Automatic apparatus with automatic temperature rise and fall, automatic detection and temperature control system with PID algorithm and SSR drive, both electric and gas ignition support automatically controlled, automatic opening system, peltier heat and cool system cooled with tap water circulation,
Aluminum block with brass test cup and cover block, temperature reading and control by glass PT100 class A sensor, detection system by ionization with mV electrostatic charge/discharge system, RTOS with S.D.M. system software operator panel with 32bit CPU, Ethernet with remote control support using integrated VNC server and backup/network printer server, USB with memory device support, keyboard, mouse, external device, Bar code reader, printer with PCL support, additional 8Gb SD card with 500.000 test results guaranteed, long life electric igniter, internal atmospheric absolute pressure sensor with 0.1kPa precision, automated calculated results, 10 usable test presets, predefined standards, custom standard with custom parameters, internal RTC, dual scale operation: Celsius/Fahrenheit, 3 selectable languages: English, French, Italian, operating range -30 to +75°C (-22 +167°F), Power consumption: 700W with 20A.

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
14-0007/C	GLASS PT100 PROBE CERTIFIED

CONSUMABLES x 2 YEARS

15-0754/AB	ELECTRIC IGNITOR x2

SPARE PARTS

15-0750/S	TUBE L=3 m
15-0821	BRASS TES CUP
15-0822/AUT	COVER WITH MOVEMENT
15-0828/CS	PROBE COLLAR (only for 820/SEM)
15-0824/FA	STIRRER FLEXIBLE DRIVE
11-0820	HEATER
15-0755	GAS IGNITION
15-0757/C	IONIZATION CABLE
15-0757/D	IONIZATION DETECTION
15-0004	BIPOLAR GREEN SWITCH
14-0007	GLASS PT100 PROBE
12-0013	MOTOR STIRRER 30 RPM 24V

CLEVELAND - COC

ASTM D92 IP 36 EN 22592 (obs.) ISO 2592 DIN 51376 (obs) FLASH AND FIRE POINTS BY CLEVELAND OPEN CUP TESTER

This test method describes the determination of the flash point and fire point of petroleum products by a manual Cleveland open cup apparatus or an automated Cleveland open cup apparatus.

This test method is applicable to all petroleum products with flash points above 79°C (175°F) and below 400°C (752°F) except fuel oils.

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Calibrated brass cup, gas ignition device fitted with a pivot manually or automatic passing on the cup. Fitted with pincers for thermometer.
Technical specifications:
- Temperature: from 79 to 400°C (from 175 to 752°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 29x33x30 cm
- Weight: 8 kg

880 CLEVELAND
With manually passing on the cup

890 CLEVELAND
With automatic passing on the cup by internal timer

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
T-AS11C	THERMOMETER ASTM 11C IP 28C

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0881	BRASS TEST CUP
15-0882	CENTERING RING FOR TEST CUP
15-0883	TEST FLAME APPLICATOR
15-0889	CLAMP FOR THERMOMETER
11-0022	HEATER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
15-0020	TIMER

890 2011

FLASH AND FIRE POINT

Mounted on a case painted with anti-acid epoxidic products. Calibrated brass cup, gas ignition device fitted with a pivot automatic passing on the cup. two electrical ignitor for automatic turn on of pivot.
Apparatus with automatic temperature ramp, flash sensor, glass PT100, electrical and gas ignition system, ramp precision of 0.1°C, Real time operating system with S.D.M. software application, network conection and remote control of the instrument, 2xUSB host+client ports, serial RS232 port, USB, ethernet and serial printer with PCL support, Custom method, ramp and setpoint test procedure, TFT touch screen display with 800x480 screen resolution. Dual scale with °C and °F of choice, Tested with certified product. Friendly and easy to use application. Safe use and diagnostics of the components and sensors.
Over 500.000 guarantee test results memory, long life electric igniter.
The automatic version, 880/AUT model, is supplied with a automatic sensor for flash point and atmospheric pressure sensor with ±0.1 Kpa precision
Technical specifications:
- Temperature: from 79 to 400°C (from 175 to 752°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 46x31x57 cm
- Weight: 20 kg

880/SEM CLEVELAND SEMI-AUTOMATIC
Without automatic flash point sensor and atmospheric pressure sensor

880/AUT CLEVELAND AUTOMATIC
With automatic flash point sensor and atmospheric pressure sensor

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
14-0007/C	GLASS PT100 PROBE CERTIFIED

CONSUMABLES x 2 YEARS

15-0754/CL	ELECTRIC IGNITOR x4

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0881	BRASS TEST CUP
15-0882	CENTERING RING FOR TEST CUP
15-0883	TEST FLAME APPLICATOR
11-0022	HEATER
14-0880/AUT/FIRE	SAFETY PIVOT THERMOCOUPLE
14-0880/AUT/TEMP	TEMPERATURE THERMOCOUPLE
17-0010	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
14-0007	GLASS PT100 PROBE
14-0880	THERMOCOUPLE

880/SEM 2013

TAG CLOSED CUP

ASTM D56 IP 491 IP 492 ISO 1516 ISO 1523 FLASH POINT BY TAG CLOSED CUP TESTER
This test method covers the determination of the flash point, by tag manual and automated closed testers, of liquids with a viscosity below 5.5 mm²/s (cSt) at 40°C (104°F), or below 9.5 mm²/s (cSt) at 25°C (77°F), and a flash point below 93°C (200°F)

ASTM D3934 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 point requirements in government regulations, or in specifications, or as agreed between the purchaser and the seller.
This test method is limited to a temperature range between 0 and 110°C (32 and 230°F)

ASTM D3941 FLASH POINT BY THE 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/vapor mixture above it are approximately in temperature equilibrium.
This test method is limited to a temperature range from 0 to 110°C (32 to 230°F)

ASTM E502

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Test copper cup equipped with glide device and gas or electrical ignition. Waterbath and support-jacket made in brass. With internal cooling coil.
Technical specifications:
- Temperature: from ambient to 110°C (230°F) (up to -30°C (-22°F) with external unit)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 18x20x20 cm
- Weight: 6 kg

930 TAG CLOSED
With gas ignition

930/IE TAG CLOSED
With electrical ignition

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
T-AS57C	THERMOMETER ASTM 57C
T-AS9C	THERMOMETER ASTM 9C IP 15C

CONSUMABLES x 2 YEARS

15-0754/AB	ELECTRIC IGNITOR x2

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0932	COPPER TEST CUP, pack of 2 pcs
15-0933	COVER WITH MOVEMENT
15-0753/CT	COLLAR FOR THERMOMETER
11-0022	HEATER
15-0934	GAS IGNITION
17-0750	TRASFORMER *(for 930/IE)*
15-0004	BIPOLAR GREEN SWITCH
15-0110	ELECTRONIC REGULATOR

930 2012

FLASH POINT

Mounted on a case painted with anti-acid epoxidic products. Test copper cup equipped with glide device with gas and electrical ignition. Heat and cool: Double action contrast PID algorithm; cooling system made by 2Xpeltier cells, up to -15°C; heating by contrast (reverse cooling).
Apparatus with automatic temperature ramp, sensor flash point, atmospheric pressure sensor with ±0.1 Kpa precision, glass PT100, electrical and gas ignition system, ramp precision of 0.3°C,
Real time operating system with S.D.M. software application, network conection and remote control of the instrument, 1xUSB, ethernet and PCL support, Ramp and setpoint test procedure, TFT touch screen display with 800x480 screen resolution. Dual scale with °C and °F of choice, Tested with certified product. Friendly and easy to use application. Safe use and diagnostics of the components and sensors.
Over 500.000 guarantee test results memory, long life electric igniter.
Technical specifications:
- Temperature: -15°C up to 110°C (5 +230°F)
- Power supply: 230V ± 10% 50Hz
- Power: 800W

930/SEM TAG CLOSED SEMI-AUTOMATIC
Without automatic flash point sensor and atmospheric pressure sensor

930/AUT TAG CLOSED AUTOMATIC
With automatic flash point sensor and atmospheric pressure sensor

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
14-0007/C	GLASS PT100 PROBE CERTIFIED

CONSUMABLES x 2 YEARS

15-0754/AB	ELECTRIC IGNITOR x2

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0932	COPPER TEST CUP, pack of 2 pcs
15-0933/AUT	COVER WITH MOVEMENT
11-0022	HEATER
15-0934	GAS IGNITION
15-0757/C	IONIZATION CABLE
15-0937/D	IONIZATION DETECTOR
17-0010	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
14-0007	GLASS PT100 PROBE

930/AUT 2015

TAG OPEN CUP

ASTM D1310 FLASH POINT AND FIRE POINT OF LIQUIDS BY TAG OPEN-CUP APPARATUS
This test method covers the determination by Tag Open-Cup Apparatus 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 325°F.

ASTM D3143 FLASH POINT OF CUTBACK ASPHALT)
This test method covers the determination of flash points by the Tag Open-Cup Apparatus of cutback asphalts having flash points of less than 93°C (200°F)

Electrically heated by electronic regulator, mounted on a case painted with anti-acid epoxidic products. Test cup made in moulded glass, gas ignition device with pivot passing manually over the cup. This item has a water bath fi tted with pincers for thermometer
Technical specifications:
- Temperature: from ambient 180°C (356°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 26x20x33 cm
- Weight: 8 kg

950 TAG OPEN

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 kg Empty
10-0749	GAS REDUCER 30 mbar
10-0747	GAS TUBE, L=5 m
T-AS9C	THERMOMETER ASTM 9C IP 15C
T-AS33C	THERMOMETER ASTM 33C IP 20C
T-AS34C	THERMOMETER ASTM 34C IP 21C
T-AS35C	THERMOMETER ASTM 35C IP 59C

CONSUMABLES x 2 YEARS

15-0951	GLASS CUP, pack of 2 pcs x1

SPARE PARTS

15-0750/S	TUBE, L=3 m
15-0952	TEST FLAME APPLICATOR, pack of 2 pcs
11-0022	HEATER
15-0004	BIPOLAR GREEN SWITCH
15-0110	ELECTRONIC REGULATOR

950 2010

DISTILLATION UNIT

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 light and middle distillates, automotive spark-ignition engine fuels with or without oxygenates (see Note 1), aviation gasolines, aviation turbine fuels, diesel fuels, biodiesel blends up to 20%, marine fuels, special petroleum spirits, naphthas, white spirits, kerosines, and Grades 1 and 2 burner fuels.

ASTM D216 (obs) METHOD OF TEST FOR DISTILLATION OF NATURAL GASOLINE)

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 (86 to 482°F)

ASTM D1078 IP 195 ISO 4626 DISTILLATION RANGE OF VOLATILE ORGANIC LIQUIDS
This test method covers the determination of the distillation range of liquids boiling between 30 and 350°C (86 to 662°F), 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 E133, IP 123, ISO 3405, DIN 51751 DISTILLATION STANDARD SPECIFICATION

Consisting of: an electric heating for temperature up 400°C (752°F) (distillation group 0-4), mounting on left side, made of stainless steel with inspection tempered window can be opened, electronic regulator, adjustable flask support with external control knob.
Stainless steel cooling bath with nickel-plated condenser tube inclined to the right, glossy-black PVC cover, connections allowing water circulation, drain valve.
Technical specifications:
- Temperature: from ambient to 400°C (752°F)
- Power supply: 230V ±10% 50Hz
- Power: 1000W
- Dimensions: 39x65x60 cm
- Weight: 9 kg

990 DISTILLATION UNIT

990 2015

Consisting of: two electric heating for temperature up to 400°C (752°F) (distillation group 0-4), made of stainless steel with inspection tempered window can be opened, electronic regulator, adjustable flask support with external control knob.
Stainless steel cooling bath with nickel-plated condenser tube, glossy-black PVC cover, connections allowing water circulation, drain valve.
Technical specifications:
- Temperature: from ambient to 400°C (752°F)
- Power supply: 230V ±10% 50Hz
- Power: 2000W
- Dimensions: 80x65x60 cm
- Weight: 20 kg

1000 DISTILLATION UNIT (2 POSITIONS)

ACCESSORIES ON REQUEST

For ASTM D86

10-1171/100	SERIES OF 6 STOPPERS For flask 100 and 125 ml, 3 silicone stopper with thermometer hole and 3 silicone stopper with hole Ø7 mm
10-1176	FLASK TYPE A 100 ml, pack of 3 pcs
10-1177	FLASK TYPE B 125 ml, pack of 3 pcs
10-1187/P	PRECISION CYLINDER TYPE B 100 ml Graduated 1-100:0.1 ml
10-1192	GLASS CERAMIC FLASK SUPPORT BOARD Ø32 mm
10-1193	GLASS CERAMIC FLASK SUPPORT BOARD Ø38 mm
10-1194	GLASS CERAMIC FLASK SUPPORT BOARD Ø50 mm
T-AS7C	THERMOMETER ASTM 7C IP 5C
T-AS8C	THERMOMETER ASTM 8C IP 6C

For ASTM D850

10-1171/200	SERIES OF STOPPER, pack of 6 pcs For flask 200 ml, 3 silicone stopper with thermometer hole and 3 silicone stopper with hole Ø7 mm
10-1179	FLASK TYPE C 200 ml, pack of 3 pcs
10-1187/P	PRECISION CLINDER TYPE B 100 ml Graduated 1-100:0.1 ml
10-1191	GLASS CERAMIC FLASK SUPPORT BOARD Ø25 mm
10-1193	GLASS CERAMIC FLASK SUPPORT BOARD Ø38 mm
10-1194	GLASS CERAMIC FLASK SUPPORT BOARD Ø50 mm
T-AS39C	THERMOMETER ASTM 39C IP 79C
T-AS40C	THERMOMETER ASTM 8C IP 80C
T-AS41C	THERMOMETER ASTM 41C IP 81C
T-AS42C	THERMOMETER ASTM 42C IP 82C

For ASTM D1078

10-1171/200	SERIES OF STOPPER, pack of 6 pcs For flask 200 ml, 3 silicone stopper with thermometer hole and 3 silicone stopper with hole Ø7 mm
10-1179	FLASK TYPE C 200 ML, pack of 3 pcs
10-1187/P	PRECISION CLINDER TYPE B 100 ML Graduated 1-100:0.1 ml
10-1192	GLASS CERAMIC FLASK SUPPORT BOARD Ø32 mm
10-1193	GLASS CERAMIC FLASK SUPPORT BOARD Ø38 mm
T-AS2C	THERMOMETER ASTM 2C IP 62C
T-AS3C	THERMOMETER ASTM 3C IP 73C
T-AS14C	THERMOMETER ASTM 14C
T-AS37C	THERMOMETER ASTM 37C IP 77C
T-AS38C	THERMOMETER ASTM 38C IP 78C
T-AS39C	THERMOMETER ASTM 39C IP 79C
T-AS40C	THERMOMETER ASTM 8C IP 80C
T-AS41C	THERMOMETER ASTM 41C IP 81C
T-AS42C	THERMOMETER ASTM 42C IP 82C
T-AS102C	THERMOMETER ASTM 102C IP 83C
T-AS103C	THERMOMETER ASTM 103C IP 84C
T-AS104C	THERMOMETER ASTM 104C IP 85C
T-AS105C	THERMOMETER ASTM 105C IP 86C
T-AS106C	THERMOMETER ASTM 106C IP 87C
T-AS107C	THERMOMETER ASTM 107C IP 88C

SPARE PARTS

11-0990	HEATER
15-0111	ELECTRONIC REGULATOR
15-0990/VET	TEMPERED GLASS
15-0991	STATIC RELAY
17-0990	TRANSFORMER

PARAFFIN WAX CONTENT - METOD BY DISTILLATION

IP 459-1 EN 12606-1 DETERMINATION OF PARAFFIN WAX CONTENT BY DISTILLATION
Procedure for determining the paraffin wax content of bitumen and bituminous binder.

Consisting of a distillation unit with a 100 ml distillation flask with cork stopper, 100 ml Erlenmeyer flask with a bored cork stopper, glass vessel, gas burner, support stand and adjustable table; liquid cooling bath with sockets for external cooling unit or adding directly in the bath with solid carbon dioxide, cover for accomadate: 3 test tubes Ø38x160 mm 29/32 with wash bottle, 3 test tubes Ø38x160 mm with a spout and bored cork stopper, two openings one for insertion for solid carbon dioxide and one for insertion of thermometer; filtration unit with a 500 ml suction flask, 500 ml glass wash bottle, funnel Ø70x200 mm and vacuum manometer with valve

1040 DITILLATION UNIT FOR DETERMINATION OF PARAFFIN WAX CONTENT

ACCESSORIES ON REQUEST

10-1041	ROUND FILTER, pack of 100 pcs Ø110 mm
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
2460/1040	VACUUM PUMP
2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110
T-1040/B	BATH THERMOMETER Scale -30 +50°C, div.0.5°, L=360 mm, imm. total
T-1040/S	SAMPLE THERMOMETER Scale -38 +50°C, div.1°, L=360 mm, imm.180 mm
T-1040/C	CONGEALING POINT THERMOMETER Scale 0 +100°C, div.0.5°, L=300 mm, total imm.

CONSUMABLES x 2 YEARS

10-1041	ROUND FILTER, pack of 100 pcs

SPARE PARTS

15-1156/V	FILTRATION FLASK, 500 ml
15-1041	DISTILLATION FLASK, 100 ml
15-1042	ERLENMEYER FLASK, 100 ml
15-1043	EVAPORATION BASIN
15-1044	TEST TUBE, pack of 3 pcs
15-1045	TEST TUBE WITH WASH BOTTLE, pack of 3 pcs
15-1046	FUNNEL
15-1047	STOPPERS SERIES
15-1048	CONNECTION TUBES SERIES
15-1049	GLASS WASH BOTTLE, 500 ml

1040 2014

CUTBACK ASPHALTIC

ASTM D402 IP 27 DISTILLATION OF CUTBACK ASPHALTIC (BITUMINOUS) PRODUCTS

Consisting of: 500 ml side arm distillation flask, Ø117 mm chimney with insulated metal shield, insulated cover split in two halves, Ø100 mm lamp screen, two sheets of 16 mesh gauze, 100 ml cylinder lamp, empty tube glass cooler, nozzle extensor made in glass. Supported on a height adjustable platform.
Gas or electrical heted suitable model.

1050/G **GAS DISTILLATION OF CUT-BACK ASPHALTIC APPARATUS**

Technical specifications:
- Temperature: up to 360°C (680°F)
- Weight: 6 kg

1050/E **ELECTRIC DISTILLATION OF CUT-BACK ASPHALTIC APPARATUS**

Technical specifications:
- Temperature: up to 360°C (680°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W
- Weight: 8 kg

ACCESSORIES ON REQUEST

T-AS8C	THERMOMETER ASTM 8C IP 6C

CONSUMABLES x 2 YEARS

15-1059	SHEETS OF 16 mesh, pack of 6 pcs

SPARE PARTS

15-1187	GRADUATED CYLINDER 100 ml, pack of 2 pcs
15-1050	FLASK 500 ml, pack of 2 pcs
15-1051	SHIELD
15-1051/C	COVER TWO PARTS
15-1052	CLAMP
15-1054	RING
15-1055	WATER JACKET CONDENSER
15-1056	ADAPTER
15-1057	INTERNAL TUBE
15-0823	MEKER LAMP *(for 1050/G)*
15-0110	ELECTRONIC REGULATOR *(for 1050/E)*
11-0022	HEATER *(for 1050/E)*
15-0004	BIPOLAR GREEN SWITCH

1050/G 2012

1050/E 2010

GASOLINE DILUENT

ASTM D322 IP 23 GASOLINE DILUENT IN USED GASOLINE ENGINE OILS BY DISTILLATION

This test method covers determination of the amount of dilution in crankcase oils of engines when gasoline has been used as the fuel.

Consisting of a mantle heater with steel rod and clamp, 1000 ml flask, 400 mm condeser Liebig and graduated 5 ml trap graduated tube 0-5.0:0.1, tapered joints 29/32

1120 GASOLINE DILUENT DISTILLATION

Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 300W

RICAMBI

15-1101	FLASK, 1000 ml 29/32, pack of 3 pcs
15.1092	LIEBIG CONDENSER, 400 mm., 29/32,
15-1124/5	TRAP, 5 ml Joint 29/32, graduated to 0-5.0:0.1
1290/1000	HEATING MANTLE For 1000 ml flask

DISTILLATION AT REDUCED PRESSURE

ASTM D1160 DISTILLATION OF PETROLEUM PRODUCTS AT REDUCED PRESSURE
This test method covers the determination, at reduced pressures, of the range of boiling points for petroleum products that can be partially or completely vaporized at a maximum liquid temperature of 400°C (752°F).

Consisting of 500 ml distillation flask with insulating mantle, vacuum jacketed distillation column with fused and condenser, a 200 ml jacket receiver, vacuum connections and cold trap. Electric heater with electronic regulator, digital indicator temperature with thermocouple for measurement vapor temperature, vacuum pump, manostate, vacuum gauge with mercury manometer (without mercury), transfer bath. The instrument is enclosed in a anodixed aluminum structure with PMMA protection.
Technical specifications:
- Temperature: up to 400°C (752°F)

1070 DISTILLATION UNIT AT REDUCED PRESSURE

Consisting of 500 ml distillation flask with insulating mantle, vacuum jacketed distillation column with fused and condenser, a 200 ml jacket receiver, vacuum connections and cold trap. Electric heater with electronic regulator, digital indicator temperature with thermocouple for measurement vapor temperature, vacuum pump, vacuum sensor range 100-1 mmHg ±0.1mmHg, vacuum digital display, manually vacuum control valve, transfer bath. The instrument is enclosed in a anodixed aluminum structure with PMMA protection.

1070/SEM SEMI-AUTOMATIC DISTILLATION UNIT AT REDUCED PRESSURE

CONSUMABLES x 2 YEARS

15-1073	ANTI-DRIP CHAIN x2
15-1074	FLASK, 500 ml., with insulating mantle x2

SPARE PARTS

15-1071	MERCURY MANOVACUOMETER (without mercury) *(only for 1070)*
15-1075	SILVERED VACUUM JACKETED COLUMN
15-1077	RECEIVER, 200 ml
15-1078	COLD TRAP
15-1079	MANOSTATE *(only for 1070)*
14-1070/150	THERMOCOUPLE
14-1070/250	THERMOCOUPLE
16-0005	DIGITAL THERMOREGULATOR
15-0004	BIPOLAR GREEN SWITCH
15-0110	ELECTRONIC REGULATOR
11-0990/3	QUARTZ HEATER, pack of 2 pcs
2460/1070	VACUUM PUMP

1070/SEM 2015

DEAN & STARK

ASTM D95 IP 74 EN 1428 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

ASTM D244 STANDARD TEST METHODS AND PRACTICES FOR EMULSIFIED ASPHALTS
This test method measures the amount of water present in the emulsified asphalt, as distinguished from either bitumen or petroleum solvent.

Consisting of a mantle heater with steel rod and clamp, 500 ml flask, 400 mm condeser Liebig and graduated 10 ml receiver type "A" conical bottom graduated tube 0-1.0:0.1 1.0-10:0.2, tapered joints 29/32.
Technical specifications:
- Power supply: 230V ±10% 50/60Hz

1090 DEAN & STARK APPARATUS
- Power: 300W

1090/2 DEAN & STARK APPARATUS (2 POSITIONS)
- Power: 600W

1090/3 DEAN & STARK APAPRATUS (3 POSITIONS)
- Power: 900W

SPARE PARTS

15-1091	FLASK, 500 ml 29/32, pack of 3 pcs
15.1092	LIEBIG CONDENSER, 400 mm., 29/32
15-1093/10A	RECEIVER TYPE "A" 10 ml Conical joint 29/32, conical bottom, graduated to 0-1.0:0.1, 1.0-10:0.2
1290/500	HEATING MANTLE For 500 ml flask

ACCESSORIES ON REQUEST

10-1093/25A	RECEIVER TYPE "A", 25 ml Conical joint 29/32, conical bottom, graduated to 0-1.0:0.1, 1.0-25:0.2
10-1093/5E	RECEIVER TYPE "E", 5 ml Conical joint 29/32, round bottom, graduated to 0-5.0:0.1
10-1093/5EP	RECEIVER TYPE "E", 5 ml Conical joint 29/32, roundl bottom, graduated to 0-5.0:0.05
10-1093/10A	RECEIVER TYPE "A" 10 ml Conical joint 29/32, conical bottom, with syphon, graduated to 0-1.0:0.1, 1.0-10:0.2
10-1093/10E	RECEIVER TYPE "E", 10 ml Conical joint 29/32, round bottom, graduated to 0-10:0.1
10-1093/2F	RECEIVER TYPE "F", 2 ml Conical joint 29/32, roundl bottom, graduated to 0-2.0:0.05
10-1093/244	RECEIVER 25 ml ASTM D244 Conical joint 29/32, conical bottom, graduated to 0-2.0:0.1, 2.0-25:0.2

1090 2005

WATER IN CRUDE OIL

ASTM D4006 IP 358 ISO 9029 WATER IN CRUDE OIL BY DISTILLATION

Consisting of a mantle heater with steel rod and clamp, 1000 ml flask, 400 mm condeser Liebig and graduated 5 ml receiver type "E" round bottom graduated tube 0-5.0:0.05, tapered joints 29/32 and drying tube.
Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 300W
- Dimensions: Ø35x135 cm
- Weight: 4 kg

1100 WATER IN CRUDE OIL DISTILLATION UNIT

SPARE PARTS

15-1101	FLASK, 1000 ml 29/32, pack of 3 pcs
15-1102	DRYING TUBE, pack of 3 pcs
15-1092	LIEBIG CONDENSER, 400 mm., 29/32,
15-1103	RECEIVER TYPE "E", 5 ml Joint 29/32, round bottom, graduated to 0-5.0:0.05
1290/1000	HEATING MANTLE For 1000 ml flask

1100 2013

CRUDE OIL AND FUEL OIL SEDIMENT

ASTM D473 IP 53 ISO 3735 SEDIMENT IN CRUDE OILS AND FUEL OILS BY THE EXTRACTION METHOD
This test 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.

Consisting of: 1000 ml Erlenmeyer flask, stainless steel basket supporting an extraction thimble of alundum, cooling metal coil, glass water cup.

1130 SEDIMENT IN CRUDE AND FUEL OILS BY EXTRACTION APPARATUS

ACCESSORIES ON REQUEST

1280/S6	HEATING DEVICE
2470/BCA120	ANALYTICAL BALANCE Range 120 g., readout 0.0001, pan Ø80

CONSUMABLES x 2 YEARS

15-1133	EXTRACTION THIMBLE, pack of 3 pcs x2

SPARE PARTS

15-1131	STAINLESS STEEL BASKET
15-1132/1000	ERLENMEYER FLASK, 1000 ml
15-1134	WATER CUP, pack of 3 pcs
15-1135	CONDENSER

ASPHALTENES

ASTM D6560 IP 143 DIN 51595 DETERMINATION OF ASPHALTENES (HEPTANE INSOLUBLES) IN CRUDE PETROLEUM AND PETROLEUM PRODUCTS
This test method 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 (500°F)

Consisting of: an electric heater with support rod and clamps, a reflux extractor with 24/40 and 34/45 ground-glass joint, an 500 ml Erlenmeyer flask 24/40 and a condenser 34/45 and one glass stopper.

1140 DETERMINATION ASPHALTENES APPARATUS

Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

ACCESSORIES ON REQUEST

10-1141	FILTER PAPER, pack of 100 pcs Grade 42, Ø110 mm
15-1132/1000	ERLENMEYER FLASK, 1000 ml 24/40
15-1132/250	ERLENMEYER FLASK, 250 ml 24/40
15-1132/150	ERLENMEYER FLASK, 150 ml 24/40
15-1132/100	ERLENMEYER FLASK, 100 ml 24/40
2470/BCA250	ANALYTICAL BALANCE Range 250 g., readout 0.0001, pan Ø80
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

CONSUMABLES x 2 YEARS

10-1141	FILTER PAPER, pack of 100 pcs x4 Grade 42, Ø110 mm

SPARE PARTS

15-1141	REFLUX EXTRACTOR
15-1142	GLASS STOPPER
15-1144	CONDENSER
15-0110	ELECTRONIC REGULATOR
11-0022	HEATER
15-0004	BIPOLAR GREEN SWITCH

LEAD AND SALT

ASTM D2547 (obs) IP 248 ISO 2083 LEAD IN GASOLINE, VOLUMETRIC CHROMATE METHOD
This method covers the volumetric determination of the total lead content of gasoline and other volatile distillates blended with lead alkyls within the concentration range of 0.2 to 4.2 g of lead/US gal or 0.04 to 1.1 g of lead/litre.

IP 77 DETERMINATION OF SALT CONTENT - EXTRACTION AND VOLUMETRIC TITRATION METHOD
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 DETERMINATION OF INORGANIC ACIDITY OF PETROLEUM PRODUCTS - COLOUR INDICATOR TITRATION METHOD
This standard specifies a method for determining the water soluble inorganic (strong) acid content of used and unused lubricating oils, fuel oils, and petrolatum

Dual extractor apparatus with structure supports two independent sets of glassware: 2x boiling flask, 2x reflux condenser, 2x graduated funnel, 2x 600 ml beaker; controlled by two independent elecronic regulator and cooling water supply.

2440 LEAD AND SALT EXTRACTION APPARATUS

Technical specifications:
- Power supply: 230V ±10% 50Hz
- Power: 500W
- Dimensions: 36x43x72 cm
- Weight: 15 kg

SPARE PARTS

11-2441	HEATER, pack of 2 pcs
15-2442	BOILING FLASK, 500 ml
15-2443	REFLUX CONDENSER
15-2444	THISTLE TUBE
15-2172	BEAKER, 600 ml
15-0110	ELECTRONIC REGULATOR
15-0004	BIPOLAR GREEN SWITCH

CONRADSON - CCR

ASTM D189 IP 13 ISO 6615 DIN 51551 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

LPG-heated by Meker lamp fitted with safety valve. Insulating ring block, metal tripod holder with Nichrome triangle, stainless steel chimney. Inner porcelain crucible, middle iron crucible fitted with Skidmore lid and external iron crucible fitted with lid.

960 GAS CONRADSON

ACCESSORIES ON REQUEST

2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110

CONSUMABLES x 2 YEARS

15-0961	PORCELAIN CRUCIBLE, pack of 5 pcs x2
15-0964	SKIDMORE COVER, pack of 2 pcs x2

SPARE PARTS

15-0962	MEDIUM IRON CRICIBLE
15-0963	EXTERNAL IRON CRUCIBLE
15-0966	WIRE SUPPORT, NiCr
15-0967	COVER FOR EXTERNAL IRON CRUCIBLE
15-0968	MEKER LAMP

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%

Muffle furnace, insulating ring block, stainless steel chimney. Inner porcelain crucible, middle iron crucible fitted with Skidmore lid and external iron crucible fitted with lid.

970 ELECTRIC CONRADSON

Technical specifications:
- Temperature: up to 1100°C (2012°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 4500W
- Dimensions: 56x66x65+34 cm
- Weight: 75 kg

RAMSBOTTOM - RCRT

ASTM D524 IP 14 ISO 4262 RAMSBOTTOM 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 it is intended to provide some indication of relative coke-forming propensity.

980 2008

Heating block made of casting iron to 5 cells, external structure made of stainless steel, heating unit controlled by a digital thermoregulator PID with thermocouple J and overtemperature alarm., front digital thermometer with ceramic thermocouple J into a stainless steel crucible control. Cavity insulation with high efficiency.
Technical specifications:
- Temperature: from ambient to 600°C (1112°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50Hz
- Power: 1700W
- Dimensions: 50x50x70 cm
- Weight: 38 kg

980 RAMSBOTTOM

ACCESSORIES ON REQUEST

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-0981	COKING BULB, pack of 10 pcs Borosilicate glass
10-0982	LUER-LOCK SYRINGE 10 ml
10-0983	TONG To handle glass coking bulb
10-0984	FILLING DEVICE 5 positions, for filling coking bulb

CONSUMABLES x 2 YEARS

10-0981	COKING BULB, pack of 10 pcs x10

SPARE PARTS

15-0982/A	NEEDLE
15-0982/S	SYRINGE, 10 ml
15-0985	CONTROL BULB Made of stainless steel
14-0980	THERMOCOUPLE TYPE J
14-0980/CR	CONTROL THERMOCOUPLE TYPE J Made of ceramic, for control bulb
11-0980	HEATER
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH

ASTM D4072 TOULENE-INSOLUBLE CONTENT OF TAR AND PITCH

Flask with metal cap condenser, wire support, extraction thimble of alundum. Without filter paper.

1110 DETERMINATION OF TOULENE IN TAR AND PITCH APPARATUS

ACCESSORIES ON REQUEST

10-1112/30	ASTM SIEVE NO.30 600 µm, Ø200 mm
10-1112/60	ASTM SIEVE NO.60 250 µm, Ø200 mm
1280/S6	HEATING DEVICE

CONSUMABLES x 2 YEARS

15-1111	ALUNDUM THIMBLE, pack of 2 pcs x2

SPARE PARTS

15-1112	FLASK

TOTAL SEDIMENT

ASTM D4870 IP 375 IP 390 (PROC.A) ISO 10307-1-2 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 (212°F)

Stainless steel structure with two filtration groups comnprises two sintered brass disk, circuit of heating with steam and cooling with water,; vacuum circuit complete with regulation valve, 500 ml flask fitted with protection mesh and vacuum manometer.
Technical specifications:
- Temperature: from ambient to 100°C (212°F)

1150 TOTAL SEDIMENT

CONSUMABLES x 2 YEARS

10-1153	GFA FILTER, pack of 100 pcs. x2
15-1158	SINTERED DISC, pack of 2 pcs x2

Only for IP 390 ISO 10307-2

10-1156	CONICAL FLASK, pack of 10 pcs x1
10-1157	AIR CONDENSER TUBE, pack of 10 pcs x1

SPARE PARTS

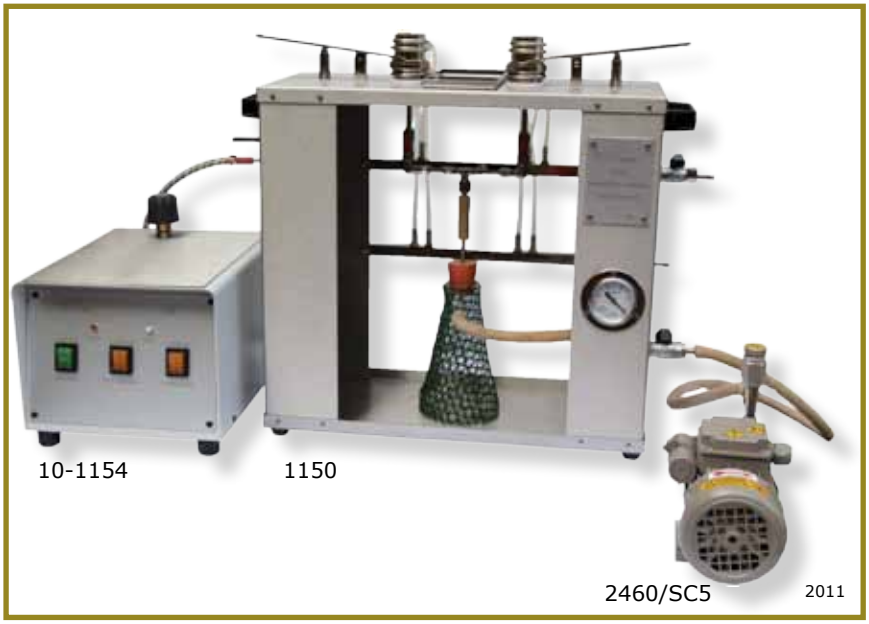
15-1156	VACUUM FLASK, 500 ml, pack of 2 pcs With protection mesh
15-1157	VACUUM GAUGE
15-1159/T	SETS OF TUBES For vacuum and water/steam

ACCESSORIES ON REQUEST

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-1152	PETRI DISH, pack of 2 pcs Ø60x20 mm
10-1153	GFA FILTER, pack of 100 pcs Ø47 mm
10-1154	STEAM GENERATOR
2460/SC5	VACUUM PUMP
T-4870	THERMOMETER Scale 95° +105°C, div.0.5°

Only for IP 390 ISO 10307-2

10-1155	AGEING BATH With 6 air wells
10-1156	CONICAL FLASK, pack of 10 pcs 50 ml, with cork
10-1157	AIR CONDENSER TUBE, pack of 10 pcs Made of glass
T-AS22C	THERMOMETER ASTM 22C IP 24C
T-AS1C	THERMOMETER ASTM 1C



ANILINE

ASTM D611 (MET.A) IP 2 (MET.A) ANILINE POINT AND MIXED ANILINE POINT OF PETROLEUM PRODUCTS AND HYDROCARBON SOLVENTS

Test 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.

Consisting of: electric heater device with rod ans clamp, Pyrex jacket Ø40x175 mm, Pyrex test tube Ø25x150 mm, manual stirrer, two corks.
Technical specifications:
- Temperature: from ambient to 200°C (392°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W
- Dimensions: 13x21x55 cm
- Weight: 3 kg

2150/A ANILINE POINT METHOD "A"

ACCESSORIES ON REQUEST

2470/BC160	ANALYTICAL BALANCE Range 160 g., readout 0.001, pan Ø110
T-AS33C	THERMOMETER ASTM 33C IP 20C
T-AS34C	THERMOMETER ASTM 34C IP 21C
T-AS35C	THERMOMETER ASTM 35C IP 59C

CONSUMABLES x 2 YEARS

10-1441/D	TEST TUBE, pack of 10 pcs x1 Ø25x150 mm
15-2153	MANUAL STIRRER, pack of 3 pcs x1
15-2154	CORK, pack of 2 pcs, x2

SPARE PARTS

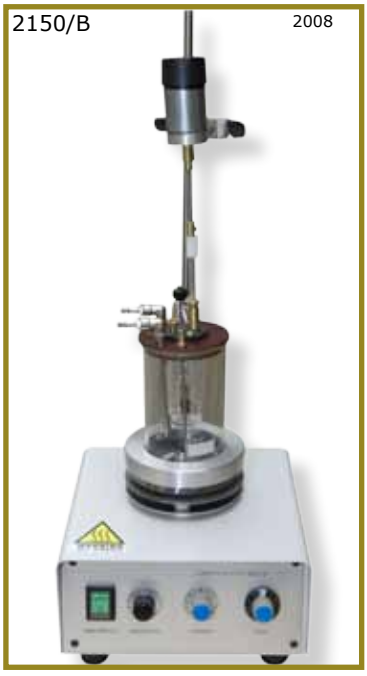
15-2151	JACKET TUBE, pack of 2 pcs
15-0110	ELECTRONIC REGULATOR
11-0022	HEATER

ASTM D611 (MET.B) IP 2 (MET.B) ANILINE POINT AND MIXED ANILINE POINT OF PETROLEUM PRODUCTS AND HYDROCARBON SOLVENTS

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

ACCESSORIES ON REQUEST

2470/BC160	ANALYTICAL BALANCE Range 160 g., readout 0.001, pan Ø110
T-AS33C	THERMOMETER ASTM 33C IP 20C (2 thermometers request for working)
T-AS34C	THERMOMETER ASTM 34C IP 21C (2 thermometers request for working)
T-AS35C	THERMOMETER ASTM 35C IP 59C (2 thermometers request for working)



Consisting of: electric heater device with electronic regulator, speed regulator for pumping and stirrer of sample and light low voltage regulator; 800 ml Pyrex jar, adjustable support for pumping motor, Pyrex tube, Pyrex pump body, stainless steel pump rotor. Blocking cover with manual bath stirrer and cooling coil for external connection.
Technical specifications:
- Temperature: from ambient to 200°C (392°F)
- Power supply: 230V ±10% 50Hz
- Power: 700W
- Dimensions: 26x26x62 cm
- Weight: 6 kg

2150/B ANILINE POINT METHOD "B"

CONSUMABLES x 2 YEARS

15-0033	LAMP, pack of 10 pcs x1

SPARE PARTS

15-2155	JAR, pack of 2 pcs
15-2156	TUBE
15-2157	MANUAL STIRRER FOR BATH
15-2158	STAINLESS STEEL PUMP ROTOR
15-2159	PUMP BODY
15-0110	ELECTRONIC REGULATOR
15-2151/L	LIGHT REGULATOR
15-2151/P	SPEED REGULATOR
11-0022	HEATER

ASTM D611 (MET.C) IP 2 (MET.C) ANILINE POINT AND MIXED ANILINE POINT OF PETROLEUM PRODUCTS AND HYDROCARBON SOLVENTS

Test Methods C is for samples that may vaporize appreciably at the aniline point.

ACCESSORIES ON REQUEST

T-AS33C	THERMOMETER ASTM 33C IP 20C (2 thermometers request for working)
T-AS34C	THERMOMETER ASTM 34C IP 21C (2 thermometers request for working)
T-AS35C	THERMOMETER ASTM 35C IP 59C (2 thermometers request for working)

CONSUMABLES x 2 YEARS

15-2152/C	TEST TUBE, pack of 2 pcs x1
15-2151/C	THERMOMETER TUBE
15-2154/C	CORK x2

SPARE PARTS

15-0110	ELECTRONIC REGULATOR
11-0022	HEATER

Consisting of: electric heater device, test tube Ø22x150 mm, corks, support and clamp.
Technical specifications:
- Temperature: from ambient to 200°C (392°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

2150/C **ANILINE POINT METHOD "C"**

ASTM D611 (MET.D) IP 2 (MET.D) ANILINE POINT AND MIXED ANILINE POINT OF PETROLEUM PRODUCTS AND HYDROCARBON SOLVENTS

Test Methods C and D are for samples that may vaporize appreciably at the aniline point; particularly suitable where only small quantities of sample are available.

ACCESSORIES ON REQUEST

T-AS33C	THERMOMETER ASTM 33C IP 20C
T-AS34C	THERMOMETER ASTM 34C IP 21C
T-AS35C	THERMOMETER ASTM 35C IP 59C

CONSUMABLES x 2 YEARS

15-2152/D	BULB, pack of 2 pcs x1
15-2154/D	CORK x2

SPARE PARTS

15-0110	ELECTRONIC REGULATOR
11-0022	HEATER

Consisting of: electric heater device, 2 ml bulb, corks, support and clamp
Technical specifications:
- Temperature: from ambient to 200°C (392°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

2150/D **ANILINE POINT METHOD "D"**

IP 2 (MET.F) - Ed. 1956 - ANILINE POINT AND MIXED ANILINE POINT OF PETROLEUM PRODUCTS AND HYDROCARBON SOLVENTS

ACCESSORIES ON REQUEST

2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110

CONSUMABLES x 2 YEARS

15-0033	LAMP, pack of 10 pcs
15-2152/F	U-TUBE, pack of 2 pcs

SPARE PARTS

15-2155	JAR, 600 ml
15-0110	ELECTRONIC REGULATOR
11-0022	HEATER

For IP 2 (Ed.1956). Electric heater device with electric motor stirrer, 600 ml Pyrex jar, "U-tube" in glass with metallic screen, low voltage lamp, cover in material plastic resistant to the heat, auction with helix helical inox, cooling coil, manual stirrer for the bath.
Technical specifications:
- Temperature: from ambient to 200°C (392°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

2150/F **ANILINE POINT METHOD "F"**

FIA

ASTM D1319 IP 156 ISO 3837 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 (599°F).

Flat support made in black material equipped with spring connections that block the standard column with spherical joint 28/12 with analyzer replaceable, 1000 mm stainless steel ruler with sliding pointers, socket places fitted with a reducer and manometer for controlling the nitrogen pumped into the columns, stainless steel lamps holder with 365nm UV light source.

2240/S/2 FIA STANDARD (2 POSITIONS)

Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 36W

2240/S/4 FIA STANDARD (4 POSITIONS)

Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 72W
- Dimensions: 78x40x216 cm
- Weight: 37 kg

Flat support made in black material equipped with spring connections that block the precision bore column with spherical joint 28/12 with analyzer, 1000 mm stainless steel ruler with sliding pointers, socket places fitted with a reducer and manometer for controlling the nitrogen pumped into the columns, stainless steel lamps holder with 365nm UV light source.

2240/P/2 FIA PRECISION (2 POSITIONS)

Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 36W

2240/P/4 FIA PRECISION (4 POSITIONS)

Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 72W
- Dimensions: 78x40x216 cm
- Weight: 37 kg

ACCESSORIES ON REQUEST

10-2241	PORTABLE VIBRATOR
10-2242	SYRINGE 1 ml., div. 0.01 ml.
10-2242/A	NEEDLE , pack of 6 pcs L=102 mm.
10-2243	SILICA GEL 923, pack of 2 kg Grade 923, 100-200 mesh
10-2244	FLUORESCENT INDICATOR DYED GEL, pack of 40 g
10-2245	ATTAPULGITE, pack of 2 kg RVM 30-60 mesh
10-2246	CLEANING CAPILLARY Made of stainless steel AISI 304 L=1.3 m

CONSUMABLES x 2 YEARS

10-2243	SILICA GEL 923, pack of 2 kg x1
10-2244	FLUORESCENT INDICATOR DYED GEL, x2 pack of 40 g
10-2245	ATTAPULGITE, pack of 2 kg x2
15-2240/S	STANDARD COLUMN, pack of 2 pcs x2
15-2240/P	PRECISION BORE COLUMN, pack of 2 pcs x2
15-2241	ANALYSER TUBE 1.5X1220 MM, conf.25 pz. x4

SPARE PARTS

15-2242	SPHERICAL JOINT "28", pack of 2 pcs
15-2244	CLAMP FOR SPHERICAL "28", pack of 2 pcs
15-2245	TIP OF PRECISION BORE "12", pack of 2 pcs
15-2246	CLAMP FOR SHERICAL "12", pack of 2 pcs
15-2247	REGULATOR
15-2243/L	ULTRAVIOLET LIGHT LAMP
15-2243/S	STARTER FOR LAMP, pack of 2 pcs
15-2248/R	STAINLESS STEEL RULE, 1000 mm
15-2248/P	POINT, pack of 4 pcs

2240/S/4 2014

DEPENTANIZATION

ASTM D2001 DEPENTANIZATION OF GASOLINE AND NAPHTHAS
This test method covers the removal of pentanes and lighter hydrocarbons from gasolines, naphthas, and similar petroleum distillates to prepare samples suitable for the determination of hydrocarbon types in accordance with Test Method D2789. In addition, this test method determines the volume percent of bottoms remaining after depentanization.

Consisting of: distillation column, reflux condenser head, light-ends trap, 12.5ml graduated receiver, clamp for spherical pieces, Dewar jar, thermometer tapered cap, electric heater jacket.
Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 300W

2280 DEPENTANIZATION "PONA"


2280 2000

ACCESSORIES ON REQUEST

10-2281	HELI-PAK B+C, pack of 100+100 ml.
T-AS38C	THERMOMETER ASTM 38C

CONSUMABLES x 2 YEARS

10-2281	HELI-PAK B+C, pack of 100+100 ml.. x2

SPARE PARTS

15-2282	DISTILLATION COLUMN
15-2283	REFLUX CONDENSER HEAD
15-2284	LIGHT-ENDS TRAP
15-2285	RECEIVER GRADUATED
15-2286	FLASK 100 ml
15-2287	CONICAL STOPPER FOR THERMOMETER
15-2288	CLAMP FOR SPHERICAL
15-2289	DEWAR

ISOLATION

ASTM D2002 (obs) ISOLATION OF REPRESENTATIVE SATURATES FRACTION FROM LOW-OLEFINIC PETROLUEM NAPHTHAS
Procedure for determination of isolation of representative saturates fraction from low-olefinic petroleum naphthas with distillation below at 240°C (400°F) with <1% olefinic petroleum


2290 2000

Consisting of: adsorption column with upper female tapered linkage and male tapered cap equipped with connection, structure made of aluminum.

2290 FRACTIONAL COLUMN

ACCESSORIES ON REQUEST

10-2291	RECEIVER GRADUATED, 11 ml
10-2241	PORTABLE VIBRATOR
10-2242	SYRINGE 1 ml., div. 0.01 ml.
10-2242/A	NEEDLE, pack of 6 pcs L=102 mm.
10-2243	SILICA GEL 923, pack of 2 kg Grade 923, 100-200 mesh
10-2244	FLUORESCENT INDICATOR DYED GEL, pack of 40 g
15-2243	ULTRAVIOLET LIGHT LAMP
15-2223	REDUCER GAUGE

CONSUMABLES x 2 YEARS

10-2243	SILICA GEL 923, pack of 2 kg x1
10-2244	FLUORESCENT INDICATOR DYED GEL, x2 pack of 40 g

SPARE PARTS

15-2292	ADSORPTION COLUMN
15-2293	CONICAL STOPPER

ASH

ASTM D482 IP 4 ISO 6245 ASH FROM PETROLEUM PRODUCTS
This test method covers the determination of ash in the range 0.001–0.180 mass %, from distillate and residual fuels, gas turbine fuels, crude oils, lubricating oils, waxes, and other petroleum products, in which any ash-forming materials present are normally considered to be undesirable impurities or contaminants. The test method is limited to petroleum products which are free from added ash-forming additives, including certain phosphorus compounds.

ASTM D874 IP 163 ISO 3987 SULFATED ASH FROM LUBRICATING OILS AND ADDITIVES
This test method covers the determination of the sulfated ash from unused lubricating oils containing additives and from additive concentrates used in compounding. These additives usually contain one or more of the following metals: barium, calcium, magnesium, zinc, potassium, sodium, and tin. The elements sulfur, phosphorus, and chlorine can also be present in combined form. Application of this test method to sulfated ash levels below 0.02 mass % is restricted to oils containing ashless additives. The lower limit of the test method is 0.005 mass % sulfated ash.

ASTM D4422 ASH IN ANALYSIS OF PETROLEUM COKE

The heat insulation is 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 refractary cordieletic material to provide for thermic joilts. Resistors in KANTHAL screened. Lateral opening door with pressure wedge and with a stop device for electric feeding when it opens, allowing the worker, during the loading and unloading of the muffle, to act with the utmost safety avoiding the contact with the burning part. Natural draught posterior exhaust of the smokes. Control panel is positioned onthe furnace bottom containing a digital visualized thermoregulator and magnetic thermic for protection system.
Technical specifications:
- Temperature: from ambient to 1100°C (2012°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 2300W
- Dimensions: 40x58x54 cm external
  14.5x25x10 cm internal
- Weight: 40 kg


2720 2006

2720 ASH DETERMINATION APPARATUS

ACCESSORIES ON REQUEST

For ASTM D482 IP 4

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2722	CRUCIBLE 100 ml, pack of 5 pcs Made of porcelain
15-0745	MEKER LAMP

For ASTM D874 IP 163

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2722	CRUCIBLE Made of porcelain, 100 ml., pack of 5 pcs
10-2723	CRUCIBLE Made of porcelain, 150 ml, pack of 5 pcs

For ASTM D4422

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2724	CRUCIBLE Made of porcelain, 30 ml., pack of 5 pcs

CENTRIFUGE

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 BY CENTRIFUGE METHOD (FIELD PROCEDURE)

ASTM D893 INSOLUBLES IN USED LUBRICATING OILS
This test method covers the determination of pentane and toluene insolubles in used lubricating oils.

ASTM D1290 SEDIMENT IN WATER-EMULSION POLISHES BY CENTRIFUGE

ASTM D1796 WATER AND SEDIMENT IN FUEL OILS
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 D1966 (obs) FOOTS IN RAW LINSEED OIL (GRAVIMETRIC METHOD)

ASTM D2273 TRACE SEDIMENT IN LUBRICATING OILS
This test method covers the determination of trace amounts (less than 0.05 volume %) of sediment in lubricating oils.

ASTM D2709 WATER AND SEDIMENT IN MIDDLE DISTILLATE FUELS
This test method covers the determination of the volume of free water and sediment in middle distillate fuels having viscosities at 40°C (104°F) in the range of 1.0 to 4.1 mm^2/s (1.0 to 4.1 cSt) and densities in the range of 770 to 900 kg/m^3.

ASTM D2711 DEMULSIBILITY CHARACTERISTICS OF LUBRICATING OILS
This test method covers the measurement of the ability of oil and water to separate from each other. It is intended for use in testing medium and high-viscosity lubricating oils.

ASTM D4007 WATER AND SEDIMENT IN CRUDE OIL
This test method describes the laboratory determination of water and sediment in crude oils by means of the centrifuge procedure.

IP 75 (obs); IP 359; DIN 51793 WATER AND SEDIMETN IN CRUDE OIL BY CENTRIFUGE

Four places model for anti-vibration table, is equipped with a star wheel that has 4 rings swinging up to 90°, max. 2000 rpm speed, 482.6 mm maximun rotation diameter. Speed is regulated electronically and shown on a digital display. Centrifuging time is set by a digital timer which operates an electric brake (that can be excluded) when the test is finished, electric heating (that can be excluded) controlled by digital thermoregulator PID and overtemperature alarm. Max. temperature 80°C. The heater and the brake can be cut out. Lid fitted with safety device which stops the motor when the lid opens
Technical specifications:
- Temperautre: from ambient to 80°C (176°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 2200W
- Dimensions: 60x76x62 (120 with cover open) cm
- Weight: 75 kg

1220 CENTRIFUGE

1220 2006

ACCESSORIES ON REQUEST

For ASTM D91

1230	WATER BATH
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25
10-1225/W	WATER BATH RACK For 10-1225, 4 poitions

For ASTM D96

1230	WATER BATH
10-1221	BUCKET FOR PEAR-SHAPED TUBE, pack of 4 pcs For 10-1224, made of aluminum, included Polyurethane support for tube
10-1224	PEAR-SHAPED TUBE, pack of 4 pcs 100 ml, div. from 0 to 1.5:0.1, from 2 to 10:0.1, from 10 to 25:5, 50, 100
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane supportfor tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25
10-1223	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1227, made of aluminum, included Polyurethane support for tube
10-1227	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 152 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, 50, 100
10-1224/W	WATER BATH RACK For 10-1224, 4 positions
10-1225/W	WATER BATH RACK For 10-1225, 4 positions
10-1227/W	WATER BATH RACK For 10-1227, 4 positions

For ASTM D893

2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25

For ASTM D1796

1230	WATER BATH
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane suppor for tubet
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25
10-1225/W	WATER BATH RACK For 10-1225, 4 positions

For ASTM D2273

1230	WATER BATH
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1226	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.01:0.005, from 0.01 to 0.05:0.01, from 0.05 to 0.5:0.05, 50, 100
10-1226/W	WATER BATH RACK For 10-1226, 4 positions

For ASTM D2709

1230	WATER BATH
10-1221	BUCKET FOR PEAR-SHAPED TUBE, pack of 4 pcs For 10-1224, made of aluminum, included Polyurethane support for tube
10-1224	PEAR-SHAPED TUBE, pack of 4 pcs 100 ml, div. from 0 to 1.5:0.1, from 2 to 10:0.1, from 10 to 25:5, 50, 100
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1226	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.01:0.005, from 0.01 to 0.05:0.01, from 0.05 to 0.5:0.05, 50, 100
10-1224/W	WATER BATH RACK For 10-1224, 4 positions
10-1226/W	WATER BATH RACK For 10-1226, 4 positions

For ASTM D2711

10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25

For ASTM D4007

1230	WATER BATH
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25
10-1225/W	WATER BATH RACK For 10-1225, 4 positions

CONSUMABLES x 2 YEARS

15-1223	POLYURETHANE SUPPORT, pack of 4 pcs x2

SPARE PARTS

11-1220	HEATER
16-0005	DIGITAL THERMOREGULATOR
16-0039	DIGITAL RPM
16-0080	DIGITAL TIMER
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH

SULFONATION

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 butenes

Consisting of 4 places shaking machine, centrifuge, 4 standard sulfonation flask 100% graduated 2% (10 ml graduated 0.2ml), 4 buckets with rubber pads, 4 ice water jar.

1200 SULFONATION NUMBER APPARATUS

ACCESSORIES ON REQUEST

2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110
480/40	CRYOSTAT UP TO -40°C
10-1230	PRECISION FLASK FOR SULFONATION 10 ml., pack of 4 pcs
10-1231	PRECISION FLASK FOR SULFONATION 5 ml., pack of 4 pcs
10-1232	BUCKET FOR PRECISION FLASK, pack of 4 pcs

CONSUMABLES x 2 YEARS

15-1223	POLYURETHANE SUPPORT, pack of 4 pcs x2
15-1233	STANDARD SULFONATION FLASK, pack of 4 pcs
15-1202	ICE WATER JAR, pack of 4 pcs x2

UNSULFONATED RESIDUE

ASTM D483 UNSULFONATED RESIDUE OF PETROLEUM PLANT SPRAY OILS
This test method covers the determination of unsulfonated residue in plant spray oils of petroleum origin and applies only to the petroleum oil content. It provides a measure of the degree of refinement of plant spray oils by determining the extent to which the oil is attacked by 98.61 % sulfuric acid under closely standardized conditions.

Consisting of:
- four places centrifuge model for anti-vibration table, is equipped with a star wheel that has 4 rings swinging up to 90°, max. 2000 rpm speed, 482.6 mm maximun rotation diameter. Speed is regulated electronically and shown on a digital display. Centrifuging time is set by a digital timer which operates an electric brake (that can be excluded) when the test is finished, electric heating (that can be excluded) controlled by digital thermoregulator PID and overtemperature alarm. Max. temperature 80°C. The heater and the brake can be cut out. Lid fitted with safety device which stops the motor when the lid opens
- Structure in painted sheet composed of a water bath in stainless steel for temperatures up to 100°C ± 0.1°, 4 positions shaker with removable media for a fast and easy transfer of sulfonation flask to and from the bathroom, adjustment cycles per minute from 300 to 500 ±10 cycles/min, stopwatch for setting the shaking time,
- 4 Sulfonation flask 50% graduated 0.5% (5 ml graduated 0.05 ml) 50 ±5 ml to base of neck
- 4 buckets with Polyurethane support

CONSUMABLES x 2 YEARS

15-1223	POLYURETHANE SUPPORT, pack of 4 pcs x2
15-1211	SULFONATION FLASK, pack of 4 pcs

ACCESSORIES ON REQUEST

2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110
1230	WATER/OIL BATH Structure made of stainless steel, temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall,. safety internal level for low liquid with warning lamp.

1210 UNSULFONATED RESIDUE

1210 2014

HEAT OF COMBUSTION

ASTM D240 IP 12 HEAT OF COMBUSTION OF LIQUID HYDROCARBON FUELS BY BOMB CALORIMETER
This test method covers the determination of the heat of combustion of liquid hydrocarbon fuels ranging in volatility from that of light distillates to that of residual fuels.

ASTM D4809 ASTM D2382 (obs) HEAT OF COMBUSTION OF LIQUID HYDROCARBON FUELS BY BOMB CALORIMETER (PRECISION METHOD)
This test method covers the determination of the heat of combustion of hydrocarbon fuels. It is designed specifically for use with aviation turbine fuels when the permissible difference between duplicate determinations is of the order of 0.2 %. It can be used for a wide range of volatile and nonvolatile materials where slightly greater differences in precision can be tolerated.

ASTM D5865 ASTM D3286 (obs) GROSS CALORIFIC VALUE OF COAL AND COKE
This test method pertains to the determination of the gross calorific value of coal and coke by either an isoperibol or adiabatic bomb calorimeter.

ISO 1716 REACTION TO FIRE TESTS FOR PRODUCTS -- DETERMINATION OF THE GROSS HEAT OF COMBUSTION (CALORIFIC VALUE)
Method for the determination of the gross heat of combustion of products at constant volume in a bomb calorimeter.

ASTM D129 IP 61 DIN 51577 SULFUR IN PETROLEUM PRODUCTS (GENERAL BOMB METHOD)
This test method covers the determination of sulfur in petroleum products, including lubricating oils containing additives, additive concentrates, and lubricating greases that cannot be burned completely in a wick lamp. The test method is applicable to any petroleum product sufficiently low in volatility that it can be weighed accurately in an open sample boat and containing at least 0.1% sulfur.

ASTM D808 CHLORINE IN NEW AND USED PETROLEUM PRODUCTS (BOMB METHOD)
This test method covers the determination of chlorine in lubricating oils and greases, including new and used lubricating oils and greases containing additives, and in additive concentrates. Its range of applicability is 0.1 to 50 m% chlorine.

Capacity 300ml, completely made of stainless steel included the two electrodes, cover with threaded displacing ring, gasket around the cover edge, an automatic inlet valve, a pin exhaust valve. Tested at 200 bar/20 MPa.
Technical specifications:
- Dimensions: Ø10x22 cm
- Weight: 4.5 kg

2060 CYLINDER MAHLER

Handle for extraction, 2 sectors polycarbonate cover with holes for the passing of stirrer, blade stirrer, motor stirrer 100 rpm 24V with support, double pliers for thermometer, connection for Mahler bomb electrodes. The vessel is fitted with Ignition Device including: low voltage outlet, start pushbutton, 24V socket for motor stirrer, ammeter.
Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Dimensions: 40x40x82 cm
- Weight: 29 kg

2070 CALORIMETER VESSEL

CONSUMABLES x 2 YEARS

10-2061/A	QUARTZ DISH Cap.3 ml
10-2067	BENZOIC ACID FOR PASTILS, pack of 100 g
10-2068	BENZOIC ACID PASTILS, pack of 10 pcs 1 g ±0.1
10-2071/A	IGNITION WIRE CHROMEL C, 5 m., pack of 10 pcs
10-2071/B	PLATINUM IGNITION WIRE, 10 cm.

SPARE PARTS

15-2070/PINZA	PLIERS
15-2070/VAS	INTERNAL VESSEL
15-2070/COP	POLYCARBONATE COVER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0010	MOTOR STIRRER 100 RPM 24V
10-0044	AMMETER 0-5A

ACCESSORIES ON REQUEST

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2061/A	QUARTZ CRUCIBLE Cap.3 ml.
10-2061/B	STAINLESS STEEL CRICIBLE
10-2061/C	CRUCIBLE IP 12 made of stainless steel AISI 316 (25/20) without rim
10-2063	REDUCER GEAR For O_2, with pressure gauge, safety valve and junction Hy-Flex for high pressure L=150 cm 1/4"-3/8"
10-2064	SUPPORT FOR COVER
10-2065	PRESS FOR PASTILS
10-2067	BENZOIC ACID FOR PASTILS, pack of 100 g
10-2068	BENZOIC ACID PASTILS, pack of 10 pcs 1 g ±0.1
10-2074	SIEVE ASTM 70 mesh, Ø100 mm
10-2071/A	IGNITION WIRE CHROMEL C, 5 m., pack of 10 pcs
10-2071/B	PLATINUM IGNITION WIRE, 10 cm.
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS116C	THERMOMETER ASTM 116C
T-AS117C	THERMOMETER ASTM 117C
T-AS56C	THERMOMETER 56C
T-BECK	BECKMANN THERMOMETER 6-6.5:0.01, UPPER PART 420 mm

For ASTM D129 D808 pair with 2060

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2062	IGNITION DEVICE
10-2061/D	PLATINUM CRUCIBLE
10-2063	REDUCER GEAR For O_2, with pressure gauge, safety valve and junction Hy-Flex for high pressure L=150 cm 1/4"-3/8"
10-2064	SUPPORT FOR COVER
10-2071/B	PLATINUM IGNITION WIRE, 10 cm.
10-2071/D	COTTON WIRE, pack of 3 mt.

2060 2013

2070 2009

SULFUR - QUARTZ TUBE METHOD

ASTM D1551 (obs) IP 63 DIN 51768 SULFUR IN PETROLEUM OILS (QUARTZ-TUBE METHOD)
Procedure for the determination of sulfur in petroleum oils and related materials. The method is applicable to sulfur in concentrations ranging from 0.01 to 5.0%.

This two-place instrument is mounted on a plate painted with epoxidy products and consists of an electric stainless steel furnace with two independent places, two digital thermoregulators with thermocouple, two scrubbers, a trap equipped with two inlet cocks for air or oxygen and two outlet cocks for combustion tubes made in transparent quartz.
The tubes are 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 fl ow-off valves, two LPG Meker lamps, flame filter mesh for combustion tubes.
Technical specifications:
- Temperature: up to 1100°C (2012°F)
- Power supply: 230V ±10% 50/60Hz

1460 APPARATUS QUARTZ TUBE

1460 2011

ACCESSORIES ON REQUEST

10-1464	COMBUSTION BOAT, pack of 3 pcs
2460/SC5	VACUUM PUMP

CONSUMABLES x 2 YEARS

10-1464	COMBUSTION BOAT, pack of 3 pcs x2

SPARE PARTS

15-1461	QUARTZ TUBE
15-1462/A	PRIMARY ABSORBER
15-1462/B	SECONDARY ABSORBER
15-1463	SCRUBBER
15-1465	SPRAY TRAP
16-0005	DIGITAL THERMOREGULATOR
14-0003	THERMOCOUPLE K
15-0004	BIPOLAR GREEN SWITCH

SULFUR - LAMP METHOD

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 is described in Annex A1 that permits the determination of sulfur in concentrations as low as 5 mg/kg.

Consisting of: structure made in plate painted with epoxidy products , lamps, Pyrex regulators, a valve on the vacuum regulator, metallic collectors for the vacuum lines, glass burners, chimneys, gate valves for vacuum and gas, valves on the vacuum lines, valves on the burners line, valve on the chimney line, traps for the chimney line, flowmeter on the vacuum line, 25 ml flask, absorber U tube, spray trap.

1490/A/2 **SULFUR - LAMP METHOD FOR AROMATICS (2 POSITIONS)**

1490/L/2 **SULFUR - LAMP METHOD FOR NONAROMATICS (2 POSITIONS)**

Technical specifications:
- Dimensions: 57x60x102 cm
- Weight: 26 kg

1490/A/6 **SULFUR - LAMP METHOD FOR AROMATICS (6 POSITIONS)**

1490/L/6 **SULFUR - LAMP METHOD FOR NONAROMATICS (6 POSITIONS)**

Technical specifications:
- Dimensions: 110x60x102 cm
- Weight: 45 kg

ACCESSORIES ON REQUEST

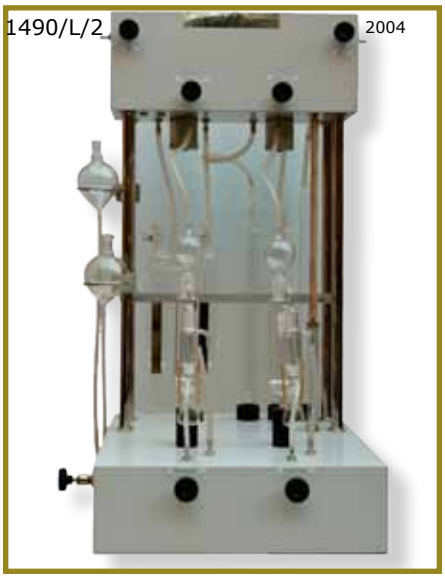
10-1500	CO_2 O_2 APPARATUS (SECTION A) CO_2 reducer for very low pressures distribution, direct connection to commercial cylinders, primary manometer 0-315 bar, secondary manometer double stage 0-2.5 bar. O_2 reducer low pressures distribution, direct connection to commercial cylinders, primary manometer 0-315 bar, secondary manometer double stage 0-2.5 bar. Electric heater for CO_2 connectable to commercial cylinders.
10-1510	CO_2 O_2 APPARATUS (SECTION B) Central station completes of electric safety device that operates in absence of CO_2, flowmeter for O_2 and for CO_2 with relative valves of regulation.
2460/SC5	VACUUM PUMP
10-1507	DRECHSEL

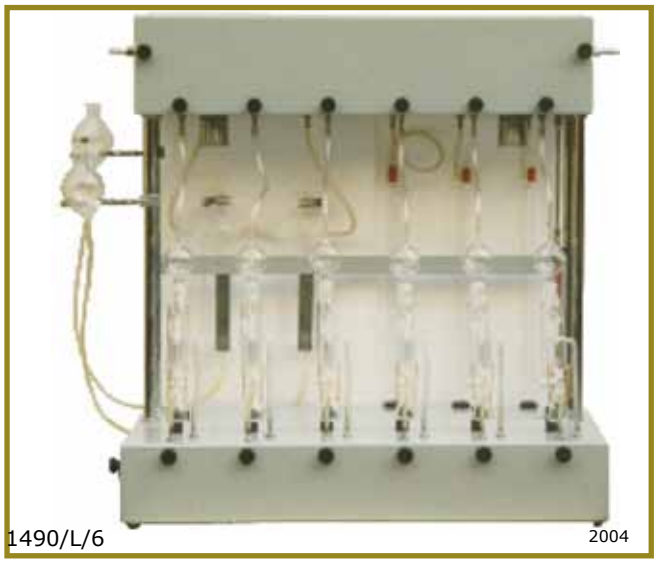
CONSUMABLES x 2 YEARS

15-1492/A	COTTON WICKING FOR AROMATICS SAMPLES, pack of 10 m. x2
15-1492/L	COTTON WICKING FOR NONAROMATICS SAMPLES, pack of 10 m. x2

SPARE PARTS

15-1491/A	FLASK FOR AROMATICS SAMPLES
15-1491/L	FLASK FOR NONAROMATICS SAMPLES
15-1493/A	BURNER FOR AROMATICS SAMPLES
15-1493/L	BURNER FOR NONAROMATICS SAMPLES
15-1494	CHIMNEY
15-1495	ABSORBER
15-1496	SPRAY TRAP
15-1497	SCRUBBER
15-1497/T	SCRUBBER ONLY STOPPER
15-1498	LEVEL FLASK


1490/L/2 2004


1490/L/6 2004

CONTAMINATION

ASTM D5452 IP 423 PARTICULATE CONTAMINATION IN AVIATION FUELS BY LABORATORY FILTRATIONS
This test method covers the gravimetric determination by filtration of particulate contaminant in a sample of aviation turbine fuel delivered to a laboratory

1550 2013

Metallic structure conforming to method, metallic filter funnel supported by a base with support for closing of the tightness membrane, 5 litres filling container made in stainless steel with stopper for spillage, one receiving and one security 5 litres filtering flask. Connection flaske to flaske by vacuum tube nad the flask are provided with grounding system. Rubber stoppers and tubes for connection.
Technical specifications:
- Dimensions: 40x40x90 cm
- Weight: 13 kg

1550 PARTICULATE CONTAMINATION IN AVIATION FUELS

ACCESSORIES ON REQUEST

2460/8103	VACUUM PUMP
10-1553	MENBRANE FILTERS, pack of 100 pcs Ø47 mm, 0.8 µm, cellulose acetate
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80

CONSUMABLES x 2 YEARS

10-1553	MENBRANE FILTERS, pack of 100 pcs x2

SPARE PARTS

15-1551	RECEIVING/SAFETY FLASK, 5 LITERS
15-1552	STAINLESS STEEL SAMPLE CONTAINER, 5 LITER
15-1554	METALLIC FILTER FUNNEL
15-1555	VACUUM HOSE, pack of 2 pcs

IP 440 EN 12662 LIQUID PETROLEUM PRODUCTS - DETERMINATION OF CONTAMINATION IN MIDDLE DISTILLATES
For determining contamination as the content of undissolved substances in middle distillates containing up to 5% (V/V) fatty acid methyl esters (FAME) and in 100% (V/V) FAME. This method can be applied for contaminant content from 6 mg/kg to 30 mg/kg.

Consisting of: filtering apparatus with glass funnel 250 ml and flask 1000 ml., one pack of 100 pcs of membrane filter of cellulose nitrate Ø47 mm 0.8 µm and vacuum pump

1560 DETERMINATION OF CONTAMINATION IN MIDDLE DISTILLATES

ASTM D4176 FREE WATER AND PARTICULATE CONTAMINATION IN DISTILLATE FUELS
This test method covers two procedures for estimating the presence of suspended free water and solid particulate contamination in distillate fuels having distillation end points below 400°C and an ASTM color of 5 or less.

Beaker 1000 ml., high shape without spout, bar chart, haze rating chart.

SPARE PARTS

15-1171	BEAKER, 1000 ml
15-1174	DISTILLATE FUEL BAR CHART
15-1175	DISTILLATE FUEL HAZE RATING STANDARD

1170 FREE WATER & PARTICULATE CONTAMINATION IN DISTILLATE FUELS

ASTM D6468 HIGH TEMPERATURE STABILITY OF MIDDLE DISTILLATE FUELS
This test method covers relative stability of middle distillate fuels under high temperature aging conditions with limited air exposure.

Structure made of stainless steel, support for six aging tubes, temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 150°C (302°F) ±0.1°C
- Bath capacity: 5 about liters
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 27x39x45 cm
- Weight: 8 kg

1180 BATH FOR HIGH TEMPERATURE STABILITY OF MD

ASTM D270 (obs) D4057 IP 51 (obs) ISO 3170 DIN 51750 STANDARD PRACTICE FOR MANUAL SAMPLING OF PETROLEUM AND PETROLEUM PRODUCTS

All in brass, capacity 946 ml., Ø80 mm., total height 350 mm., cork stoppr with ring

1330/40 BRASS SAMPLING CANS 38
For heavy crude and heavy fuel oil, lubricating oils, heavy gas oils and non-transparent.
Opening Ø38 mm.

1330/20 BRASS SAMPLING CANS 19
For light crude oils, light lubricating oils, kerosene, gasoline, transparent gas oils.
Opening Ø19 mm.

All in stainless steel, capacity 946 ml., Ø80 mm., total height 350 mm., cork stoppr with ring

1335/40 STAINLESS STEEL SAMPLING CANS 38
For heavy crude and heavy fuel oil, lubricating oils, heavy gas oils and non-transparent.
Opening Ø38 mm.

1335/20 STAINLESS STEEL SAMPLING CANS 19
For light crude oils, light lubricating oils, kerosene, gasoline, transparent gas oils
Opening Ø19 mm.

1340 BACON SAMPLING VESSEL
Made of brass, capacity 1 l, Ø80 mm, total height 250 mm, weight 1750 g, bottom opening valve

710 ml overal capacity, 102 cm height , Ø3.2 cm

1350/O BRASS SAMPLING TUBE

1350/A STAINLESS STEEL SAMPLING TUBE

1390/700 WINDER, 700 g
Made in steel, support strut and carrying handle, fitted with stopping system. 30 m length, 700 g. brass counterweight that is millimeter graduated for measuring light products.

1390/1200 WINDER, 1200 g
Made in steel, support strut and carrying handle, fitted with stopping system. 30 m length, 1200 g. brass counterweight that is millimeter graduated for measuring light products.

1410 RED PASTE, pack of 10 pcs
To detect the height of water that is deposited on the bottom of the tanks of petroleum products

1420 GASOLINE PAPER, pack of 200 papers
Point out, with a test to the stain, the presence of oil in the gasoline

1430 LEVEL PASTE, pack of 10 pcs
50 g
To detect the level of liquids in tanks

Mde of brass, this item protects sampling glass bottles

1360 SAMPLING CAGE FOR SAMPLING BOTTLE

ACCESSORI ON REQUEST

10-1365/C	CLEAR GLASS SAMPLING BOTTLE Capacity 1 l, equipped with cork with ring.
10-1365/S	DARK GLASS SAMPLING BOTTLE Capacity 1 l, equipped with cork with ring.
10-1421	BRASS CHAIN, 5 m
T-AS58C	THERMOMETER ASTM 58C
T-AS59C	THERMOMETER ASTM 59C
T-AS60C	THERMOMETER ASTM 60C
T-IP48C	THERMOMETER IP 48C
T-IP49C	THERMOMETER IP 49C
T-IP50C	THERMOMETER IP 50C
T-IP51C	THERMOMETER IP 51C
T-IP52C	THERMOMETER IP 52C
T-IP53C	THERMOMETER IP 53C


1330/40 2004


1335/20 2012


1340 2009

SAMPLING CYLINDER

ASTM D 1265 GPA 2140 SAMPLING LIQUEFIED PETROLEUM (LP) GASES, MANUAL METHOD

Produced from cold drawn AISI 316L stainless steel tube and seamless construction, ¼" gas tapered connection and ¼" gas charge, fitted with 2 stainless steel AISI 316 valves and a 20% outage tube. 124 bar/1800 PSI pressure certificate.

1630/50	**SAMPLING CYLINDER 50 ML**
1630/75	**SAMPLING CYLINDER 75 ML**
1630/150	**SAMPLING CYLINDER 150 ML**
1630/300	**SAMPLING CYLINDER 300 ML**
1630/400	**SAMPLING CYLINDER 400 ML**
1630/500	**SAMPLING CYLINDER 500 ML**
1630/1000	**SAMPLING CYLINDER 1000 ML**
1630/2250	**SAMPLING CYLINDER 2250 ML**

ACCESSORIES ON REQUEST

10-1631	HANDLE For transport
10-1635	PROTECTION COLLAR Prevents damage to valves and cylinder
10- 1670	CONNECTOR FILTER This item is to be connected to the cylinders. Its body is of brass and has a filtering Perlon mass with ¼" connections.
10-1680	CONNECTOR PIPE With two valves and connection

SPARE PARTS

15-1820	NEEDLE VALVE Made of stainless steel AISI 316, ¼" - ¼"

COPPER AND SILVER CORROSION

ASTM D130 IP 154 ISO 2160 ISO 22160 DIN 51759 CORROSIVENESS TO COPPER FROM PETROLEUM PRODUCTS BY COPPER STRIP TEST
This test method covers the determination of the corrosiveness to copper of aviation gasoline, aviation turbine fuel, automotive gasoline, cleaners (Stoddard) solvent, kerosine, diesel fuel, distillate fuel oil, lubricating oil, and natural gasoline or other hydrocarbons having a vapor pressure no greater than 124 kPa (18 psi) at 37.8°C (100°F)

ASTM D4048 DETECTION OF COPPER CORROSION FROM LUBRICATING GREASE

ASTM D4814 AUTOMOTIVE SPARK-IGNITION ENGINE FUEL

ASTM D7667 DETERMINATION OF CORROSIVENESS TO SILVER BY AUTOMOTIVE SPARK-IGNITION ENGINE FUEL—THIN SILVER STRIP METHOD
This test method covers the determination of the corrosiveness to silver by automotive spark-ignition engine fuel (for example, gasoline), as defined by Specification D4814 or similar specifications in other jurisdictions, having a vapor pressure no greater than 124 kPa (18 psi) at 37.8°C (100°F) by one of two procedures.

ASTM D7671 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, as defined by Specification D4814, or similar specifications in other jurisdictions, 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.

IP 227 (obs) SILVER CORROSION AVIATION TURBINE FUELS
This test method describes a procedure for the detection of corrosiveness of aviation turbine fuels towards silver

Fully made in stainless steel, this bath has a capacity of about 13 liters for 4 copper corrosion test vessel. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. The bath includes a cover with 4 lids and hooks for suspending the corrorion test vessel.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±0.1°
- Capacity: about 13 liters
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 27x37x46 cm
- Weight: 8 kg

1440 "COPPER/SILVER" CORROSION BATH

ACCESSORIES ON REQUEST

For ASTM D130

10-1441/B	CORROSION VESSEL Made of stainless steel, supplied with testing certificate at 145 psi (10 bar)
10-1441/D	TEST TUBE, pack of 10 pcs Made of glass, Ø25x150 mm
10-1441/T	TEST TUBE HOLDER Made of brass nickel-plated
10-1441/E	RACK FOR 8 TEST TUBES
10-1441/F	VIEWING TEST TUBE For holding tarnished copper strips for inspection or for storage
10-1441/G	COPPER STRIPS, pack of 10 pcs 75x12.5x2 mm.
10-1441/I	3 POSITIONS POLISHING VISE
10-1441/M	COPPER STRIP CORROSION STANDARD
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, pack of 1 kg
10-1441/S	SILICONE CARBIDE PAPER 220 GRIT, pack of 50 pcs
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS12C	THERMOMETER ASTM 12C IP 64C

For ASTM D7667

10-1441/B	CORROSION VESSEL Made of stainless steel, supplied with testing certificate at 145 psi (10 bar)
10-1441/D	TEST TUBE, pack of 10 pcs Made of glass, Ø25x150 mm
10-1441/E	RACK FOR 8 TEST TUBES
10-1441/R	SILVER STRIPS, pack of 5 pcs 38x6.30x0.53 mm, 99.9%
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS12C	THERMOMETER ASTM 12C IP 64C

For ASTM D7671

10-1441/B	CORROSION VESSEL Made of stainless steel, supplied with testing certificate at 145 psi (10 bar)
10-1441/D	TEST TUBE, pack of 10 pcs Made of glass, Ø25x150 mm
10-1441/E	RACK FOR 8 TEST TUBES
10-1442/A	SILVER STRIPS, pack of 5 pcs 19x12.7x2.5 mm., 99.9%
10-1442/E	SILVER STRIP SUSPENSION ASSEMBLY PROCEDURE ”A”
10-1441/F	VIEWING TEST TUBE For holding tarnished copper strips for inspection or for storage
10-1441/I	3 POSITIONS POLISHING VISE
10-1442/D	SILVER STRIP CORROSION STANDARD ASTM D1660 D3241 IP 323
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS12C	THERMOMETER ASTM 12C IP 64C

For IP 227 ASTM D4814

10-1442/A	SILVER STRIPS, pack of 5 pcs 19x12.7x2.5 mm.
10-1442/B	GLASSWARE Test tube 350 ml made of heat resistant amber glass, cold finger condenser fitted trough a stopper with a glass hook from which the silver strip can be suspended, glass cradle for suspension of the silver strip
10-1442/C	SUSPENSION COVER Made of stainless steel, 6 positions with spring clip
10-1442/D	SILVER STRIP CORROSION STANDARD ASTM D1660 D3241 IP 323

CONSUMABLES x 2 YEARS

10-1441/G	COPPER STRIPS, pack of 10 pcs x5
10-1441/R	SILVER STRIPS, pack of 5 pcs x5
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, x2 pack of 1 kg
10-1441/S	SILICONE CARBIDE PAPER 220 GRIT, x4 pack of 50 pcs
15-1441/R	O-RING, pack of 10 pcs x1

SPARE PARTS

15-1441/A	SUPPORT FOR CORROSION VESSEL For 4
15-1442/BT	AMBER TEST TUBE, 350 ml
15-1442/BS	CONDENSER STOPPER
15-1442/BC	CRADLE
14-0001	PROBE PT100A
11-0012/19	HEATER
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

HYDROCARBONS CORROSION

ASTM D849 COPPER STRIP CORROSION BY INDUSTRIAL AROMATIC HYDROCARBONS

Structure made of stainless steel, bath with capacity of about 26 liters. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, external level indicator and safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W

1450 COPPER CORROSION BATH OF INDUSTRIAL AROMATIC HYDROCARBONS (2 POSITIONS)
- Capacity: about 18 liters
- Dimensions: 45x30x56 cm
- Weight: 17 kg

1450/4 COPPER CORROSION BATH OF INDUSTRIAL AROMATIC HYDROCARBONS (4 POSITIONS)
- Capacity: about 26 liters
- Dimensions: 45x40x56 cm
- Weight: 21 kg

1450/4 + 10-1452 + 10-1453 2011

ACCESSORIES ON REQUEST

10-1452	250 ml FLASK
10-1453	250 mm CONDENSER
10-1454	COPPER WIRE Ø1.6 mm x 1 m.
10-1441/F	VIEWING TEST TUBE For holding tarnished copper strips for inspection or for storag
10-1441/G	COPPER STRIPS, pack of 10 pcs 75x12.5x2 mm.
10-1441/I	3 POSITIONS POLISHING VISE
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, conf.50 pz.
10-1441/M	COPPER STRIP CORROSION STANDARD
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, conf.1 kg
T-AS12C	THERMOMETER ASTM 12C IP 64C

CONSUMABLES x 2 YEARS

10-1454	COPPER WIRE Ø1.6 mm x 1 m. x4
10-1441/G	COPPER STRIPS, pack of 10 pcs x4
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, pack of 50 pcs x4
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, pack of 1 kg x2

SPARE PARTS

14-0001	PROBE PT100A, L=200
11-0012/19	HEATER
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

LPG CORROSION

ASTM D1838 IP 411 ISO 6251 COPPER STRIP CORROSION BY LIQUEFIED PETROLEUM (LP) GASES
This test method covers the detection of the presence of components in liquefied petroleum gases which can be corrosive to copper

Stainless steel vessel with two needle valves in stainless steel. Screwtop closure and O-ring sealing gasket. Tested at 1015 psi (70 bar)

1690 LPG CORROSION VESSEL

CONSUMABLES x 2 YEARS

10-1692	COPPER STRIPS, pack of 10 pcs x4
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, pack of 50 pcs
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, conf.1 kg
15-1691	GASKET, pack of 10 pcs x1


1770 2010

ACCESSORIES ON REQUEST

1770	THERMOSTATIC BATH External frame painted with epoxy acid-proof stainless steel tank stainless 90 liters about, insulated interspace. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. Allows the immersion of 6 cylinders RVP, 6 cylinders corrosion or hydrometers 2, 6 cylinders Reid Technical specifications: - Temperature: from ambient to 90°C (194°F) ±0.1°C - Bath capacity: 90 liters about - Power supply: 230V ±10% 50/60Hz - Power: 3200W - Dimensions: 54x50x89 cm. - Weight: 39 kg.
10-1692	COPPER STRIPS, pack of 10 pcs 75x12.5x2mm, with hole
10-1441/F	VIEWING TEST TUBE For holding tarnished copper strips for inspection or for storag
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, pack of 50 pcs
10-1441/O	SILICON CARBIDE GRAIN 150 MESH, conf.1 kg
10-1441/I	3 POSITIONS POLISHING VISE
10-1441/M	COPPER STRIP CORROSION STANDARD
T-AS12C	THERMOMETER ASTM 12C IP 64C


1690 2009

CAST IRON CORROSION

IP 125 DIN 51360-1 DETERMINATION OF CAST IRON CORROSION CHARACTERISTICS OF PETROLEUM PRODUCTS

100x100x6 mm thick cast-iron plate, 250 g 6x1.5-3 mm steel millings, desicator test chamber, pipette, sieve 600 µm

2210/125 CAST IRON CORROSION

CONSUMABLES x 2 YEARS

15-2211	CAST IRON PLATE x1 100x100x6 mm.
15-2212	STEEL MILLINGS, pack of 250 g. x2

IP 287 DIN 51360-2 TESTING OF COOLING LUBRICANTS; DETERMINATION OF CORROSION PREVENTING CHARACTERISTICS OF COOLING LUBRICANTS MIXED WITH WATER; CHIP/FILTER PAPER METHOD

2 liters beaker, 120x19x1.5 mm stainless steel stirrer palette, 250 g. cast iron drillings, 50 ml syringe with needle, 70 mm filter with 40 mm centering ring, sieves: one 2 mm and one 4 mm

2210/287 CAST IRON CORROSION

CONSUMABLES x 2 YEARS

15-2215	CAST IRON DRILLING, conf.250 g. x2

SPARE PARTS

15-2216	SYRINGE, 50 ML
15-2216/A	NEEDLE
15-2217	PALETTE

CORROSION OF CAST ALUMINUM ALLOYS

ASTM D4340 CORROSION OF CAST ALUMINUM ALLOYS IN ENGINE COOLANTS UNDER HEAT-REJECTING CONDITIONS

Apparatus composed of gearcase with electrical part thermoregulator a with thermocouple J and digital timer
Safety screen surrounding cell, truss with plates and stainless steel tie rods at the center, which is placed in a Pyrex glass tube, with related fittings, safety valve, pressure manometer 0-400 KPa, tap and plug load, 950W heater.
Technical specifications:
- Temperature: from ambient to 160°C (320°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz

2220 CORROSION CAST ALLUMINUM ALLOYS APPARATUS

- Power: 950W
- Dimensions: 26x34x110 cm
- Weight: 18 kg

2220/2 CORROSION CAST ALLUMINUM ALLOYS APPARATUS (2 POSITIONS)

Technical specifications:
- Power: 1900W
- Dimensions: 35x43x118 cm
- Weight: 35 kg

ACCESSORIES ON REQUEST

10-2221	ALUMINUM TEST SPECIMEN Ø6.5x1.3 cm
2460/2220	PUMP

CONSUMABLES x 2 YEARS

10-2221	ALUMINUM TEST SPECIMEN x2
15-2221	VITON GASKET, pack of 10 pcs x5

SPARE PARTS

15-2220	PYREX TUBE
15-2222	PRESSURE GAUGE 0-400 KPa
14-0004	THERMOCOUPLE J
11-2220	HEATER
16-0005	DIGITAL THERMOREGULATOR
16-0080	TIMER DIGITALE
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH

CORROSION ENGINE COOLANTS

ASTM D1384 CORROSION TEST FOR ENGINE COOLANTS IN GLASSWARE

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

Thermoregulated electric-plate heater, 1-liter beckers fitted with a rubber stopper, condenser, tube for air diffusion, flowmeter system complete with flowmeter 6 l/h air flow with pin valves and internal pump, clamp to support the glassware.
Technical specifications:
- Temperature: from ambient to 160°C (320°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz

2330 CORROSION TESTER FOR ENGINE ANTIFREEZE

- Power: 700W
- Dimensions: 25x150 cm
- Weight: 6 kg

2330/4 CORROSION TESTER FOR ENGINE ANTIFREEZE (4 POSITIONS)

System at 4 independent positions
- Power: 2400W
- Dimensions: 75x25x150 cm
- Weight: 15 kg

ACCESSORIES ON REQUEST

10-2330	METAL TEST SPECIMENS SET Material: copper, solder, brass, steel, cast iron, cast aluminum
10-2331	DEWAR WITH TRAP For 2330
10-2331/4	DEWAR WITH 4 TRAP For 2330/4
T-AS1C	THERMOMETER ASTM 1C

CONSUMABLES x 2 YEARS

10-2330	METAL TEST SPECIMENS SET x2

SPARE PARTS

15-2331	CONDENSER
15-2331/T	RUBBER STOPPER
15-2332	AIR DIFFUSION TUBE
15-2333	TRAP
11-0022	HEATER
15-0110	ELECTRONIC REGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH

2330 2011

2330/4 2012

OXIDATION STABILITY - TOST

ASTM D943 ISO 4263 DIN 51587 OXIDATION CHARACTERISTICS OF INHIBITED MINERAL OILS
This test method covers the evaluation of the oxidation stability of inhibited steam-turbine oils in the presence of oxygen, water, and copper and iron metals at an elevated temperature. This test method is limited to a maximum testing time of 10 000 h. This test method is also used for 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 (203°F)

ASTM D2893 OXIDATION CHARACTERISTICS OF EXTREME-PRESSURE LUBRICATION OILS
*These test methods (a and b) cover the determination of the oxidation characteristics of extreme-pressure fluid lubricants, gear oils, or mineral oils***.**

ASTM D4310 IP 157 DETERMINATION OF SLUDGING AND CORROSION TENDENCIES OF INHIBITED MINERAL OILS
This test method covers and 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.

ASTM D7462 IP 388 ISO 12205 OXIDATION STABILITY OF BIODIESEL (B100) AND BLENDS OF BIODIESEL WITH MIDDLE DISTILLATE PETROLEUM FUEL (ACCELERATED METHOD)
This test method covers a measurement of the oxidation stability of biodiesel (B100) blendstock as specified in Specification D6751 and blends of biodiesel with middle distillate petroleum fuels, including B6 to B20 blends as specified in Specification D7467 under specified oxidizing conditions at 95°C (203°F). Specifically, the oxidation stability is assessed by the formation and measurement of insoluble degradation materials.

6-places stainless steel tank, insulated double wall, double bottom for supporting the cells, a 6-place refrigerating system with pipelines for water inlet and outlet. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 130°C (266°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz

1920 OXIDATION STABILITY BATH

1920/S/4 OXIDATION STABILITY DRY BATH (4 POSITIONS)
Aluminum block, 4 posistions
Technical specifications:
- Temperature: from ambient to 130°C (266°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power 1800W
- Dimensions: 51x55x66 cm
- Weight: 77 kg

1920/S/8 OXIDATION STABILITY DRY BATH (8 POSITIONS)
Aluminum block, 8 posistions
Technical specifications:
- Temperature: from ambient to 130°C (266°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz

1920/S/4 2011

ACCESSORIES ON REQUEST

For ASTM D943

10-1983	FLOWMWTER 0.6-4 l/h For oxygen at 3 l/h
10-1921	OXIDATION CELL Consisting of a test tube, condenser and oxygen delivery tube
10-1922	COPPER/STEEL CATALYST WIRES, L=3 m pack of 5 pcs
10-1922/CU	COPPER CATALYST WIRES, L=3 m, pack of 5 pcs
10-1922/SS	STEEL CATALYST WIRES, L=3 m, pack of 5 pcs
10-1923	OXIDATION CELL THERMOMETER BRACKET
10-1924/10	SYRINGE LUER-LOCK 10 ml. with needle L=560 mm, for sample
10-1924/50	SYRINGE LUER-LOCK 50 ml. with needle L=560 mm, for water
10-1925	SAMPLING TUBE SPACER Made of plastic, Ø3x50 mm
10-1926	SAMPLING TUBE HOLDER Made of PMMA, Ø38x76 mm
10-1927	MANDREL For winding catalyst coils
10-1928	REDUCER MANOMETER FOR O_2 Cylinder fitting
10-1929	REDUCER MANOMETER FOR AIR Cylinder fitting
10-1441/P	SILICONE CARBIDE CLOTH 100 GRIT, pack of 25 m
10-0371/20	SILICONE OIL 20 cSt, pack of 25 kg For temperature from ambient to 120°C (248°F)
T-AS40C	THERMOMETER ASTM 40 IP 70C
T-AS137C	THERMOMETER ASTM 137C For oxidation cell

For ASTM D2274 IP 388

10-1983	FLOWMWTER 0.6-4 l/h For oxygen at 3 l/h
10-1921	OXIDATION CELL Consisting of a test tube, condenser and oxygen delivery tube
10-1921/SUP	DARKENED OXIDATION TEST TUBE RACK 8 positions, made of balck painted metallic structure with cover and ventilation
15-1560/F	FILTER ASSEMBLY With clamp
10-1560/2274	MEMBRANE FILTERS, pack of 100 pcs Ø47 mm., 0.8 µm, cellulose ester
15-1561/500	FILTERING FLASK, 500 ml
10-1560/2274/2	MATCHED WEIGHT PAIR FILTERS, pack of 50 pcs Ø47 mm., 0.8 µm, miste ester
10-1174/200	BEAKER, 200 ml Tall style
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
2460/RC4M	VACUUM PUMP
1280/S6	ELECTRICAL HEATER DEVICE
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
T-AS40C	THERMOMETER ASTM 40 IP 70C

For ASTM D2893

10-1920/2893	FLOWMETER AIR 10 l/h
15-1921/T	TEST TUBE
10-1921/BA	AIR DELIVERY TUBE
T-AS40C	THERMOMETER ASTM 40C

For ASTM D4310

10-1983	FLOWMWTER 0.6-4 l/h For oxygen at 3 l/h
10-1921	OXIDATION CELL Consisting of a test tube, condenser and oxygen delivery tube
10-1922	COPPER/STEEL CATALYST WIRES, L=3 m pack of 5 pcs
10-1922/CU	COPPER CATALYST WIRES, L=3 m, pack of 5 pcs
10-1922/SS	STEEL CATALYST WIRES, L=3 m, pack of 5 pcs
15-1560/F	FILTER ASSEMBLY With clamp
10-1560/4310	MEMBRANE FILTERS, pack of 100 pcs Ø47 mm., 5 µm, miste ester, white, plain
15-1561/1000	FILTERING FLASK, 1000 ml
10-1923	OXIDATION CELL THERMOMETER BRACKET
10-1924/50	SYRINGE LUER-LOCK 50 ml. with needle L=560 mm, for water
10-1927	MANDREL For winding catalyst coils
10-1928	REDUCER MANOMETER FOR O_2 Primary 0-250 bar, reducer 0-1 bar
10-1929	REDUCER MANOMETER FOR AIR Primary 0-250 bar, reducer 0-1 bar
10-1441/P	SILICONE CARBIDE CLOTH 100 GRIT, pack of 25 m
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
2460/RC4M	VACUUM PUMP
T-AS40C	THERMOMETER ASTM 40 IP 70C
T-AS137C	THERMOMETER ASTM 137C For oxidation cell

For ASTM D7462

10-1983	FLOWMWTER 0.6-4 l/h For oxygen at 3 l/h
10-1921	OXIDATION CELL Consisting of a test tube, condenser and oxygen delivery tube
10-1921/SUP	DARKENED OXIDATION TEST TUBE RACK 8 positions, made of balck painted metallic structure with cover and ventilation
15-1560/F	FILTER ASSEMBLY With clamp
10-1560/7462	MEMBRANE FILTERS, pack of 100 pcs Ø47 mm., 0.7 µm
15-1561/500	FILTERING FLASK, 500 ml
10-1174/200	BEAKER, 200 ml Tall style
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
2460/RC4M	VACUUM PUMP
1280/S6	ELECTRICAL HEATER DEVICE
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
T-AS40C	THERMOMETER ASTM 40 IP 70C

For ISO 12205

10-1560/12205	MEMBRANE FILTERS, pack of 100 pcs Ø47 mm., 0.8 µm, nylon

CONSUMABLES x 2 YEARS

10-1922	COPPER/STEEL CATALYST WIRES, L=3 m pack of 5 pcs x4
10-1922/CU	COPPER CATALYST WIRES, L=3 m, pack of 5 pcs x4
10-1922/SS	STEEL CATALYST WIRES, L=3 m, pack of 5 pcs x4
10-1441/P	SILICONE CARBIDE CLOTH 100 GRIT, pack of 25 pcs x2
10-1560/2274	MEMBRANE FILTERS, pack of 100 pcs x4
10-1560/2274/2	MATCHED WEIGHT PAIR FILTERS, pack of 50 pc x8
10-1560/4310	MEMBRANE FILTERS, pack of 100 pcs x4
10-1560/7462	MEMBRANE FILTERS, pack of 100 pcs x4
10-1560/12206	MEMBRANE FILTERS, pack of 100 pcs x4
15-1924/A	SYRINGE SAMPLING TUBE Made of stainless steel, L=560 mm

SPARE PARTS

15-1921/B	OXYGEN DELIVERY TUBE
15-1921/F	MUSHROOMCONDENSER
15-1921/T	TEST TUBE
14-0002	PROBE PT100A
11-0012/13	HEATER (for oil bath)
11-1920	HEATER (for dry bath)
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

OXIDATION STABILITY - RPVOT (RBOT)/TFOUT

ASTM D2112 OXIDATION STABILITY OF INHIBITED MINERAL INSULATING OIL BY PRESSURE VESSEL
This test method covers and 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 mineral insulating oils of more than 12 cSt at 40°C (104°F) (approximately 65 SUS at 100F) has not been established.

ASTM D2272 OXIDATION STABILITY OF STEAM TURBINE OILS BY ROTATING PRESSURE VESSEL
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 (302°F)

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 (320°F), 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 mm^2/s (cSt) to 21 mm^2/s (cSt) at 100°C (212°F), including re-refined oils

ASTM D7098 OXIDATION STABILITY OF LUBRICANTS BY THIN-FILM OXYGEN UPTAKE (TFOUT) CATALYST B

IP 229 DETERMINATION OF THE RELATIVE OXIDATION STABILITY BY ROTATING BOMB OF MINERAL TURBINE OIL
This standard specifies a method for the estimation of the oxidation stability of unused turbine oils having the same composition (base stock and additives) and for controlling the continuity of this property from batch to batch

Available in two versions both two positions, bench version and floor version.
External frame painted with epoxy acid-proof stainless steel tank stainless 70 liters about where the oxidation vessels are turned at 100rpm with a 30° angle according to ASTM specifications.
The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 180°C (356°F)
- Stability: ±0.1°C
- Capacity: 70 liters about
- Power supply: 230V ±10% 50Hz
- Power: 3200W

1970/B RPVOT BATH (RBOT)/TFOUT
Bench model
Technical specifications:
- Dimensions: 90x60x70 cm
- Weight: 85 kg

1970/P RPVOT BATH (RBOT)/TFOUT
Floor model
Technical specifications:
- Dimensions: 90x60x120 cm
- Weight: 105 kg

1970/B + 10-MANDIG/30 2014

ACCESSORIES ON REQUEST

For ASTM D2112

10-1971	OXIDATION VESSEL RPVOT (RBOT)/TFOUT Made of stainless steel AISI 316L. Complete of a lid, cap, stem and needle valve ¼". Tested at 100 bar / 1450 psi @25°C
10-1973/A	RECORDING MANOMETER Chart, 0-200 psi
10-MANDIG/30	DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-MANDIG/30/C	CERTIFICATE DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-1974/A	SAMPLE CONTAINER Made of glass, 175 ml, for copper catalyst
10-1974/C	GLASS COVER Ø50.8 mm.
10-1922/CU	COPPER CATALYST, pack of 5 pcs L=3 m.
10-1441/P	SILICON CARBIDE ABRASIVE CLOTH 100 GRIT, pack of 25 m
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
2470/EL200	ELECTRONIC BALANCE Range 200 g, readout 0.01, pan Ø130
T-AS96C	THERMOMETER ASTM 96C

For ASTM D2272

10-1971	OXIDATION VESSEL RPVOT (RBOT)/TFOUT Made of stainless steel AISI 316L. Complete of a lid, cap, stem and needle valve ¼". Tested at 100 bar / 1450 psi @25°C
10-1973/A	RECORDING MANOMETER Chart, 0-200 psi
10-MANDIG/30	DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-MANDIG/30/C	CERTIFICATE DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-1974/A	SAMPLE CONTAINER Made of glass, 175 ml, for copper catalyst
10-1974/B	PTFE DISK Ø57.2x1.6 mm., with 4 holes Ø3.2 mm.
10-1974/D	HOLD-DOWN SPRING Bwtween PTFE disk and oxidation vessele for ensure rotation of the sample container
10-1922/CU	COPPER CATALYST, pack of 5 pcs L=3 m.
10-1441/P	SILICON CARBIDE ABRASIVE CLOTH 100 GRIT, pack of 25 m
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
2470/EL200	ELECTRONIC BALANCE Range 200 g., readout 0.01, pan Ø130
T-IP37C	THERMOMETER IP37C

For ASTM D4742 D7098

10-1971	RECIPIENTE RPVOT (RBOT)/TFOUT Costruito in acciaio inox AISI 316L. Completo di coperchio, stelo e rubinetto a spillo da ¼". Testata a 100 bar / 1450 psi @25°C
10-1973/A	RECORDING MANOMETER Chart, 0-200 psi
10-MANDIG/30	DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-MANDIG/30/C	CERTIFICATE DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-1974/E	ALUMINUM INSERT Ø6.03x7.46 cm
10-1974/F	SAMPLE CONTAINER Made of glass
10-1974/G	PTFE COVER Ø57.2x0.8 mm., with central hole Ø3.2 mm.
10-1974/D	HOLD-DOWN SPRING Bwtween PTFE disk and oxidation vessele for ensure rotation of the sample container
10-1977/A	CATALYST "A", pack of 3 kit *(ASTM D4742)* For about 39 test, consisting of: lead, copper, iron, manganese, tin
10-1977/B	CATALYST "B", pack of 3 kit *(ASTM D7098)* For about 39 test, consisitng of: lead, iron, manganese, tin
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
2470/BC160	ELECTRONIC BALANCE Range 160 g., readout 0.001, pan Ø110
T-AS102C	THERMOMETER ASTM 102C

CONSUMABLES x 2 YEARS

10-1922/CU	COPPER CATALYST, pack of 5 pcs x4
10-1977/A	CATALYST "A", pack of 3 kit *(ASTM D4742)* For about 39 test
10-1977/B	CATALYST "B", pack of 3 kit *(ASTM D7098)* For about 39 test
10-1441/P	SILICON CARBIDE ABRASIVE CLOTH 100 GRIT, pack of 25 m x2
15-1973/B	CHART FOR RECORDING MANOMETER, 0-200 psi pack of 100 pcs x4
15-1973/C	PENS FOR RECORDING MANOMETER, pack of 10 pcs x1
15-2066	O-RING VITON FOR COVER, pack of 10 pcs x1
15-1979/S	O-RING PTFE FOR STEM, pack of 10 pcs x1

SPARE PARTS

14-0002	PROBE PT100A
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

OXIDATION STABILITY - MINERAL INSULATING OIL

ASTM D2440 IP 307 (obs) ISO 7624 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

IP 48 DETERMINATION OF OXIDATION CHARACTERISTICS OF LUBRICATING OIL
This method indicates the tendency of a lubricating oil to deteriorate on oxidation under specified conditions

IP 280 PETROLEUM PRODUCTS AND LUBRICANTS - INHIBITED MINERAL TURBINE OILS - DETERMINATION OF OXIDATION STABILITY
This International Standard specifies a method for the determination of the resistance to oxidation under specified conditions of unused inhibited mineral turbine oils. The method is also applicable to other types of oil, such as hydraulic oil.

IP 306 DETERMINATION OF OXIDATION STABILITY OF STRAIGHT MINERAL OIL
This method is designed to give a measure of the tendency of straight (i.e. plain) mineral lubricating oil to oxidise under specified conditions

IP 335 (obs) STABILITA' ALL'OSSIDAZIONE DEGLI OLI MINERALI ISOLANTI INIBITI

EN 61125-A TEST FOR EVALUATING THE OXIDATION STABILITY OF UNUSED UNINHIBITED MINERAL INSULATING OIL

EN 61125-B TEST FOR EVALUATING THE OXIDATION STABILITY OF UNUSED INHIBITED MINERAL INSULATING OILS BY MEASUREMENT OF THE INDUCTION PERIOD.

EN 61125-C TEST FOR EVALUATING THE OXIDATION STABILITY OF UNUSED HYDROCARBON BASED INSULATING LIQUIDS UNDER ACCELERATED CONDITIONS REGARDLESS OF WHETHER OR NOT ANTIOXIDANT ADDITIVES ARE PRESENT

6-positions oil bath with double bottom. Stainless steel structure with insulation double wall, cover with 6 holes. support for the flowmeters and absorption tubes. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, motor stirrer, safety internal level for low liquid with warning lamp, drain cock
Technical specifications:
- Temperature: from ambient to 210°C (410°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 2400W
- Dimensions: 60x57x52 cm
- Weight: 35 kg

1980 OXIDATION STABILITY BATH


1980 2010

1980/S/4 OXIDATION STABILITY DRY BATH (4 POSITIONS)
With aluminum block dry model, 4 positions
Technical specifications:
- Temperature: from ambient to 210°C (410°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz

1980/S/8 OXIDATION STABILITY DRY BATH (8 POSITIONS)
With aluminum block dry model, 8 positions
Technical specifications:
- Temperature: from ambient to 210°C (410°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1900W
- Dimensions: 45x45x52 cm
- Weight: 45 kg


1980/S/8 2008

ACCESSORIES ON REQUEST

10-1980	OXIDATION/ABSORPTION TUBE Borosilicate glass Ø26x210 mm with Drechsel head and inlet tube 24/29 ground joint ***The test mehod "B" and "C" required two oxidation tube***
10-1981	CONNECTION SET For connections the oxidation tube and absorption tube and flowmwter. Consisting of: 3 m silicone tube and 10 glass tubing.
10-1983	FLOWMWTER 0.6-4 l/h For oxygen at 1 l/h For methods: ASTM D2440, IP 280, IP 306, IP 307, IP 335, EN 61125-A EN 61125-B
10-1984	FLOWMETER 0.1-1.55 l/h For air at 0.15 l/h For method: EN 61125-C
10-1985	FLOWMETER 2.5-25 l/h For air at 15 l/h For method: IP 48
10-1987	SOAP BUBBLE FLOWMETER Graduated from 0 to 10 ml
10-1928	REDUCER MANOMETER FOR O_2 Cylinder fitting
10-1929	REDUCER MANOMETER FOR AIR Primary 0-250 bar, reducer 0-1 bar
10-1988	COPPER CATALYST, pack of 5 pcs L=3 m., (not necessary for IP 48)
10-1441/P	SILICON CARBIDE ABRASIVE CLOTH 100 GRIT, pack of 25 m (not necessary for EN 61125)
10-1988/P	SILICON CARBIDE ABRASIVE CLOTH 220 GRIT, pack of 25 m (not necessary for EN 61125)
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
10-0371/50	SILICONE OIL 50 cSt, pack of 25 kg For temperature from 100°C (212°F) to 200°C (392°F)
10-1986	PORCELAIN CRUCIBLE, pack of 5 pcs 50 ml
10-BUR/10	BURETTE 10 ml., div.0.01 ml.
10-1989	FILTER FUNNEL 125 ml.
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-IP22C	THERMOMETER IP22C For method IP 48
T-AS9C	THERMOMETER ASTM 9C IP 15C For method IP 280, IP 307, IP 335
T-AS40C	THERMOMETER ASTM 40C IP 80C For method IP 307, IP 335, EN 61125-A,
T-AS41C	THERMOMETER ASTM 41C IP 81C For method ASTM D2440, IP 280, IP 306, IP 335, EN 61125-B, EN 61125-C

CONSUMABLES x 2 YEARS

10-1988	COPPER CATALYST, pack of 5 pcs x4
10-1441/P	SILICON CARBIDE ABRASIVE CLOTH 100 GRIT, pack of 25 m x2
10-1988/P	SILICON CARBIDE ABRASIVE CLOTH 220 GRIT, pack of 25 m x2

SPARE PARTS

15-1980/P	OXIDATION/ABSORPTION TUBE
15-1980/D	DRECHSEL HEAD With inlet tube
14-0002	PROBE PT100A
11-0016	HEATER (for oil bath)
11-1980/S	HEATER (for dry bath)
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

GREASE

ASTM D942 IP 142 DIN 51808 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

Oil bath or dry bath with structure in stainless steel, insulated double wall, cover with two holes for oxidation pressure vessel. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, motor stirrer, safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature:from ambient to 120°C (248°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 55x36x45 cm
- Weight: 26 kg

2020 OXIDATION STABILITY GREASES BATH
Oil bath

2020/S OXIDATION STABILITY GREASES BATH
Dry bath, with aluminum block

ACCESSORIES ON REQUEST

10-2020	OXIDATION PRESSURE VESSEL In acciaio inox 18/8, capacità 185 ml., dotata di uno stelo per l'immissione dell'ossigeno, collegato al coperchio con flangia di sospensione al bagno, guarnizione O-Ring, anello di chiusura a vite. Testata a 13 bar / 180 psi at 25°C.
10-2021	DISH, pack of 5 pcs Made of glass, Ø41 mm.
10-2022	PRESSURE GAUGE Scale 0-160 psi / 1100 kPa, div.0.5
10-MANDIG/30	DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-2023	DISH HOLDER Made of stainless steel, for 5 dishes
10-0371/20	SILICONE OIL 20 cSt pack of 25 kg For temperature from ambient to 120°C (248°F)
15-2063/R	HY-FLEX JUNCTION FOR O_2
2470/EL200	ELECTRONIC BALANCE Range 200 g., readout 0.01, pan Ø130
T-AS22C	THERMOMETER ASTM 22C IP 24C

CONSUMABLES x 2 YEARS

10-2021	DISH, pack of 5 pcs x2

SPARE PARTS

15-2021	O-RING, pack of 5 pcs
15-2022	O-RING IN PTFE, pack of 10 pcs

OXIDATION STABILITY OF GASOLINE

ASTM D525 IP 40 ISO 7536 DIN 51780 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 method2 covers the determination of the tendency of aviation reciprocating, turbine, and jet engine fuels to form gum and deposits under accelerated aging conditions

Completely made in stainless steel. Temperature regulation by thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. The cover works as a condenser with connections for water circulation

2010/2 OXIDATION STABILITY BATH (2 POSITIONS)

Oil bath
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.1°C
- Capacity: 30 liters
- Power supply: 230V ±10% 50/60Hz
- Power: 2400W
- Dimensions: 62x38x100 cm
- Weight: 35kg

2010/4 OXIDATION STABILITY BATH (4 POSITIONS)

Oil bath
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.1°C
- Capacity: 50 liters
- Power supply: 230V ±10% 50/60Hz
- Power: 3000W
- Dimensions: 58x47x98 cm

2010/6 OXIDATION STABILITY BATH (6 POSITIONS)

Oil bath
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.1°C
- Capacità: 60 liters
- Power supply: 230V ±10% 50/60Hz

2010/S/2 OXIDATION STABILITY BATH (2 POSITIONS)

Dry bath, with aluminum block
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz

2010/S/4 OXIDATION STABILITY BATH (4 POSITIONS)

Dry bath, with aluminum block
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz

2010/S/6 OXIDATION STABILITY BATH (6 POSITIONS)

Dry bath, with aluminum block
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz


2010/2 2011


10-2010 2011

ACCESSORIES ON REQUEST
For ASTM D525 D873

10-2010	OXIDATION PRESSURE VESSEL Made of stainless steel, with safety burst disc assembly and discarge tube with valve, quick connection, 15 bar / 220 psi burst disc.
10-2011/2	RECORDING MANOMETER, 2-IN 2 pens, 0-200 psi, div.2
10-2011/3	RECORDING MANOMETER, 3-IN 3 pens, 0-200 psi, div.2
10-MANDIG/30	DIGITAL MANOMETER 30 bar / 435 psi / 3000 kPa, data logger, RS232C
10-2002	GLASS SAMPLE CONTAINER With cover
10-2012	COPPER JUNCTION FROM RECORDER MANOMETER AND PRESSURE VESSEL
10-2013	HY-FLEX JUNCTION FOR O_2
10-2014	PRESSURE REDUCER
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
T-AS22C	THERMOMETER ASTM 22C IP 24C

Only for ASTM D873

10-2016	COOLING TANK

CONSUMABLES x 2 YEARS

15-2005	BURST DISC 15 bar / 220 psi x1
15-2001/P	PEN FOR RECORDING MANOMETER, x2 pack of 10 pcs
15-2001/C	CHART FOR RECORDING MANOMETER, x4 pack of 100 pcs
15-2003	O-RING, pack of 10 pcs
15-2004	O-RING IN PTFE, pack of 10 pcs

SPARE PARTS

14-0002	PROBE PT100A
11-0016	HEATER *(for oil bath)*
11-2010/S	HEATER *(for dry bath)*
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

CORROSIVENESS AND OXIDATION STABILITY OF OILS

ASTM D4636 CORROSIVENESS AND OXIDATION STABILITY OF HYDRAULIC OILS, AIRCRAFT TURBINE ENGINE LUBRICANTS, AND OTHER HIGHLY REFINED OILS
This test method covers the testing of 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.

ASTM D5968 EVALUATION OF CORROSIVENESS OF DIESEL ENGINE OIL AT 121°C
This test method is used to test diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings

ASTM D6594 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

6 positions dry bath. Stainless steel structure with aluminum block with 6 holes for sample tubes, one digital thermoregulator PID with overtemperature alarm, 6 digital thermometers with 6 thermocouples for the sample tube, 6 flowmeters for air 10 l/h with relative valves of regulation, support for glasswares.
Technical specifications:
Temperature: from ambient to 400°C (752°F)
Stability: ±0.5°C
Alimentazione: 230V ±10% 50/60Hz
Dimensioni: 86z32z120 cm
Peso:54 kg

1990 STABILITY OXIDATION AND CORROSION BATH

1990 2013

CONSUMABLES x 2 YEARS

10-1992	SQUARE SHAPED METAL SPECIMENS x4
10-1993	WASHER SHAPED METAL SPECIMENS x4
10-1994	SQUARE METAL SPECIMENS x4
0-1997	SQUARE METAL SPECIMENS x4
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, x4
10-1441/O	SILICON CARBIDE GRAINS 150 MESH, x2
10-1441/Q	SILICON CARBIDE PAPER 400 GRIT, x4
10-1996	ALUMINUM OXIDE PAPER 240 GRIT, x4

ACCESSORIES ON REQUEST

10-1991	SAMPLE TUBE Consisting of: main sample tube, air tube, Allihn condenser, 6x borosilicate glass spacers and sample tube head with 3 holes: one for air tube, one for condenser and one for thermocouple
For ASTM D4636	
10-1992	SQUARE SHAPED METAL SPECIMENS Consisting of: copper, steel grade 1010, aluminum alloy 2024, magnesium and cadmium
10-1993	WASHER SHAPED METAL SPECIMENS Consisting of: titanium, magnesium, steel M50, steel grade 1010, silicon-iron-bronze, silver, alluminum alloy 2024
1220	CENTRIFUGE
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25
10-1441/L	SILICON CARBIDE PAPER 240 GRIT, pack of 50 pcs
10-1441/O	SILICON CARBIDE GRAINS 150 MESH, pack of 1 kg
10-1441/Q	SILICON CARBIDE PAPER 400 GRIT, pack of 50 pcs
2470/BCA250	ANALYTICAL BALANCE Range 250 g., readout 0.0001, pan Ø80
2470/EL3000	ELECTRONIC BALANCE Range 3000 g., readout 0.01, pan Ø130
For ASTM D5968	
10-1997	SQUARE METAL SPECIMENS Set of 4 metals: copper, lead, tin, phosphor bronze
10-1996	ALUMINUM OXIDE PAPER 240 GRIT, pack of 50 pcs
10-1441/Q	SILICON CARBIDE PAPER 400 GRIT, pack of 50 pcs
2470/BCA250	ANALYTICAL BALANCE Range 250 g., readout 0.0001, pan Ø80
2470/EL3000	ELECTRONIC BALANCE Range 3000 g., readout 0.01, pan Ø130
For ASTM D6594	
10-1994	SQUARE METAL SPECIMENS Set of 4 metals: copper, lead, tin, phosphor bronze
10-1995	HANGER Made of stainless steel
10-2574	SIRYNGE 100 ml, needle L=100 mm
10-1996	ALUMINUM OXIDE PAPER 240 GRIT, pack of 50 pcs
10-1441/Q	SILICON CARBIDE PAPER 400 GRIT, pack of 50 pcs

SPARE PARTS

15-1991/AT	AIR TUBE
15-1991/C	ALLIHN CONDESER
15-1991/ST	MAIN SAMPLE TUBE
15-1991/STH	SAMPLE TUBE HEAD
15-1991/D	SPACERS, pack of 6 pcs
14-1990/B	BATH THERMOCUPLE
14-1990/T	TEST TUBE THERMOCOUPLE

RUST-PREVENTING OF OILS

ASTM D665 IP 135 RUST-PREVENTING CHARACTERISTICS OF INHIBITED MINERAL OIL IN THE PRESENCE OF WATER
This test method covers the evaluation of the ability of inhibited mineral oils, particularly steam-turbine oils, to aid in preventing the rusting of ferrous parts should water become mixed with the oil. This test method is also used for testing other oils, such as hydraulic oils and circulating oils. Provision is made in the procedure for testing heavier-than-water fluids.

ASTM D3603 RUST-PREVENTING CHARACTERISTICS OF STEAM TURBINE OIL IN THE PRESENCE OF WATER (HORIZONTAL DISK METHOD)
This test method covers the ability of steam-turbine oils to prevent the rusting of horizontal and vertical ferrous surfaces when water becomes mixed with the oil.

ASTM D5534 VAPOR-PHASE RUST-PREVENTING CHARACTERISTICS OF HYDRAULIC FLUIDS
This test method covers the ability of hydraulic fluids to prevent the rusting of steel in the vapor phase over the hydraulic fluid and water

ISO 7120 PETROLEUM PRODUCTS AND LUBRICANTS -- PETROLEUM OILS AND OTHER FLUIDS -- DETERMINATION OF RUST-PREVENTING CHARACTERISTICS IN THE PRESENCE OF WATER
Defines a method for evaluating these products to indicate the effectiveness in preventing the rusting of ferrous parts should water becomes mixed the oil/fluid. The methodis for application to inhibited oils including steam turbine oils, circulating oils and hydraulic oils and non-hydrocarbon fluids including fluids denser than water.

Oil bath completely made of stainless steel, with double insulated wall. Temperature regulation by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, motor stirrer, safety internal level for low liquid with warning lamp.
T-shaped stainless steel stirrers rotate in their glasses at a constant speed of 1000 ±50 rpm. Transmission frame and upper weir with bearings block and pulley.
Technical specifications:
- Temperature: from ambient to 120°C (248°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1800W

1940/4 RUST PREVENTION BATH (4 POSITIONS)
- Dimensions: 65x22x60 cm
- Weight: 35 kg

1940/6 RUST PREVENTION BATH (6 POSITIONS)
- Dimensions: 115x22x60 cm
- Weight: 40 kg

1940/4 2011

1940/6 2011

ACCESSORIES ON REQUEST
For ASTM D665 IP 135 ISO 7120

10-1172 BEAKER, 400 ml
Tall form
10-1942/665 TEST ROD
Made of steel
10-1947 ALUMINUM OXIDE CLOTH 150, pack of 50 pcs
CAMI 150 / FEPA P150
10-1948 ALUMINUM OXIDE CLOTH 280, pack of 50 pcs
CAMI 240 / FEPA P280
10-1940 GRINDING AND POLISHING DEVICE
With suitable chuck for holding the test rod ASTM/IP and one for ISO.
Rotation 1750 ±50 rpm
10-0371/20 SILICONE OIL 20 cSt pack of 25 kg
For temperature from ambient to 120°C (248°F)
T-AS9C THERMOMETER ASTM 9C IP 15C
T-IP21C THERMOMETER IP 21C

Only for Procedure "A" and "B"
10-1941/665AB BEAKER COVER
Made of PMMA
10-1943/AB HOLDER
Made of PMMA
10-1945/AB "T" STIRRER
Made of stainless steel
Only for Procedure "C"
10-1941/665C BEAKER COVER
Made of PCTFE
10-1943/C HOLDER
Made of PTFE
10-1945/C AUXILIARY STIRRER
Made of stainless steel

For ASTM D3603 D5534
10-1172 BEAKER, 400 ml
Tall form
10-1958 BEAKER, 25 ml (solo per ASTM D5534)
10-1941/3603 BEAKER COVER
Consisting of: PMMA cover with two stainless steel rods and PTFE specimen holder.
10-1942/3603 TEST SPECIMENS

10-1945/AB "T" STIRRER
Made of stainless steel
10-1947 ALUMINUM OXIDE CLOTH 150, pack of 50 pcs
CAMI 150 / FEPA P150
10-1948 ALUMINUM OXIDE CLOTH 280, pack of 50 pcs
CAMI 240 / FEPA P280
10-1940 GRINDING AND POLISHING DEVICE
With suitable chuck for holding the test rod ASTM/IP and one for ISO.
Rotation 1750 ±50 rpm
10-0371/20 SILICONE OIL 20 cSt pack of 25 kg
For temperature from ambient to 120°C (248°F)
T-AS9C THERMOMETER ASTM 9C IP 15C

CONSUMABLES x 2 YEARS
For ASTM D665 IP 135 ISO 7120

10-1942/665 TEST ROD x4
10-1947 ALUMINUM OXIDE CLOTH 150, pack of 50 pcs x4
10-1948 ALUMINUM OXIDE CLOTH 280, pack of 50 pcs x4

For ASTM D3603 D5534
15-1942/3603O HORIZONTAL SPECIMEN
15-1942/3603V VERTICAL SPECIMEN
15-1942/3603W PTFE WASHER
10-1947 ALUMINUM OXIDE CLOTH 150, pack of 50 pcs x4
10-1948 ALUMINUM OXIDE CLOTH 280, pack of 50 pcs x4

SPARE PARTS

15-1941/C BELT
12-1940 MOTOR
14-0002 PROBE PT100A
11-0018 HEATER
16-0005 DIGITAL THERMOREGULATOR
15-0015 STATIC RELAY
15-0004 BIPOLAR GREEN SWITCH
15-0005 BIPOLAR YELLOW SWITCH

ASTM D1748 RUST PROTECTION BY METAL PRESERVATIVES IN THE HUMIDITY CABINET
This test method covers the evaluation of the rust-preventive properties of metal preservatives under conditions of high humidity

Thermostatic 18/8 stainless steel tank with double wall. Hinged cover consists of layer of desized cotton cloth secured to an aluminium frame, basket rotating at 1/3 rpm housing 33 sample plates. Air is distributed through 20 diffuser ball-shape placed on the tank bottom. Flowmeter with valve throttling at 15 l/min air. Level is kept constant by a compensating system. Electric heating with 2 armoured stainless steel heaters, controlled by a digital thermoregulator PID with overtemperature alarm.Two thermometers, bottle for feeding the tank and 33 hooks left and 33 right.
Technical specifications:
- Temperature: from ambient to 50°C (122°F)
- Stability: ±1.1°C
- Power supply: 230V ±10% 50Hz
- Power: 1000W
- Dimensions: 100x80x98 cm
- Weight: 95 kg

2500 HUMIDITY CABINET

ACCESSORIES ON REQUEST

10-1172	BEAKER, 400 ml Tall form
10-2501	AIR SYSTEM 0-30 psi pressure regulator and Fresenius column
10-2502	PANEL pack of 5 pcs Made of steel, 51x102x3.2 mm
10-2504	DUMMY PANEL Made of PMMA, 51x102x3.2 mm
10-2505	TEMPERAURE AND HUMIDITY RECORDING
10-2507	ALUMINUM OXIDE CLOTH 240, pack of 50 pcs 240 grit
10-2509	pH PAPER, pack of 20 pcs

CONSUMABLES x 2 YEARS

10-2507	ALUMINUM OXIDE CLOTH 240, pack of 50 pcs x4
10-2509	pH PAPER, pack of 20 pcs x2

SPARE PARTS

15-2501	FRESENIUS COLUMN
15-2503/S	LEFT SUSPENSION HOOK, pack of 33 pcs
15-2503/D	RIGHT SUSPENSION HOOK, pack of 33 pcs
15-1903	DIFFUSER BALL-SHAPE
15-2504	COTTON CLOTH FOR COVER
15-2507	TANK
15-1132/2000	ERLENMEYER FLASK, 2000 ml
15-2508	FLOWMETER
11-2501	HEATER
14-0001	PROBE PT100A
14-2500	TEPERATURE AND HUMIDITY PROBE
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-2500	MOTOR

2500 2009

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 vapor 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 extraneous materials weathering above 38°C (100°F) that are present in liquefied petroleum gases. The extraneous materials will generally be dissolved in the LPG, but may have phase-separated in some instances

18/8 stainless steel bath with double wall, copper cooling coil with one ¼" and one ⅛" valve, internal support for tube.
Technical specifications:
- Dimensions: 36x15x40 cm
- Weight: 3 kg

1700 VOLATILITY OF LPG APPARATUS

ACCESSORIES ON REQUEST

For ASTM D1837

10-1701	WEATHERING TUBE With cork, 100 ml, 203 mm, div. 0-0.5:0.05, 0.5-3:0.1, 3-5:0.5, 5-100:1
10-1702	SUPPORT WITH BATH Made of stainless steel, for 3 weathering tube
10-1187/P	PRECISION CYLINDER TYPE B 100 ml Graduated 1-100:0.1 ml
T-AS99C/ARM	THERMOMETER ASTM 99C CORAZZATO

For ASTM D2158 IP 317

10-1701	TUBWEATHERING TUBE With cork, 100 ml, 203 mm, div. 0-0.5:0.05, 0.5-3:0.1, 3-5:0.5, 5-100:1
10-1702	SUPPORT WITH BATH Made of stainless steel, for 3 weathering tube
10-1703	SYRINGE Cap.2 ml., div.0.1, needle L=200 mm.
10-1704	FILTER PAPER Medium grade, Ø125 mm., pack of 100 pcs
10-1705	COPPER WIRE Ø1.5 mm., L=300 mm.
T-AS5C	THERMOMETER ASTM 5C IP 1C
T-AS6C	THERMOMETER ASTM 6C IP 2C
T-AS57C	THERMOMETER ASTM 57C

CONSUMABLES x 2 YEARS

10-1701	WEATHERING TUBE x2
15-1703	CORK, pack of 5 pcs x1

Per ASTM D2158 IP 317

10-1703	SYRINGE x1
10-1704	FILTER PAPER x4
10-1705	COPPER WIRE x4

SPARE PARTS

15-1702	COPPER COOLING COIL
15-1704	WEATHERING TUBE SUPPORT

1700 2013

EN 15469 FREE WATER IN LIQUEFIED PETROLEUM GAS BY VISUAL INSPECTION

This test method covers the use of a pressure cylinder to determine the presence of free water in liquefied petroleum gas (LPG) by visual inspection below 0°C (32°F).

Tubular chamber made of acrylic resins 250 ml. capacity, metallic headers coupled stainless steel tierods, neoprene gaskets, fitted with a inlet bottom valve and a top vent valve, hole for thermometer. Tested at 15 bar hydraulic pressure.

1760 FREE WATER IN LPG APPARATUS

1760 2010

ASTM D1657 DENSITY OR RELATIVE DENSITY OF LIGHT HYDROCARBONS BY PRESSURE HYDROMETER
his test method covers the determination of the density or relative density of light hydrocarbons including liquefied petroleum gases (LPG) having Reid vapor pressures exceeding 101.325 kPa (14.696 psi).

IP 235 ISO 3993 DETERMINATION OF DENSITY OF LIGHT HYDROCARBONS - PRESSURE HYDROMETER METHOD
This method provides a procedure for determining the density of light hydrocarbons including liquefied petroleum gases. The prescribed apparatus should not be used for materials having vapour pressures higher than 14 bar at the test temperature.

Chamber made of polymethylmethacrylate Ø50X36 mm L=440 mm with mesh for safety, metallic headers coupled with six stainless steel tierods, neoprene gaskets, three ¼" pin valves: inlet and outlet valves are mounted in the base and third valve on the top of instrument for connection to the LPG line, stainless steel manometer Ø100 mm scale 0-400 psi/ 2758 kPa.
Working pressure max. 14 bar / 200 psi / 1379 kPa
With hydraulic testing ceritificate at 28 bar / 400 psi / 2758 kPa
Technical specifications:
- Dimensions: Ø17x66 cm
- Weight: 3.2 kg

1750 HYDROMETER APPARATUS

ACCESSORIES ON REQUEST

1770	THERMOSTATIC BATH External frame painted with epoxy acid-proof stainless steel tank stainless 90 liters about, insulated interspace. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. For 4 hydrometers. Technical specifications: - Temperature: from ambient to 90°C (194°F) ±0.1°C - Bath capacity: 90 liters about - Power supply: 230V ±10% 50/60Hz - Power: 3200W - Dimensions: 54x50x89 cm - Weight: 39 kg

For ASTM D1657

10-1751	THERMOHYDROMETER ASTM 310H 500-650 kg/m³, div.1, L=390 mm, ref. temperature 15°C, thermometer 0 +35°C div.0.5°
10-1752	THERMOHYDROMETER ASTM 101H 0.500-0.650 sp g, div.0.001, L=360 mm, ref. temperature 60/60°F, thermometer 30 +90°F div.1°

For IP 235 ISO 3993

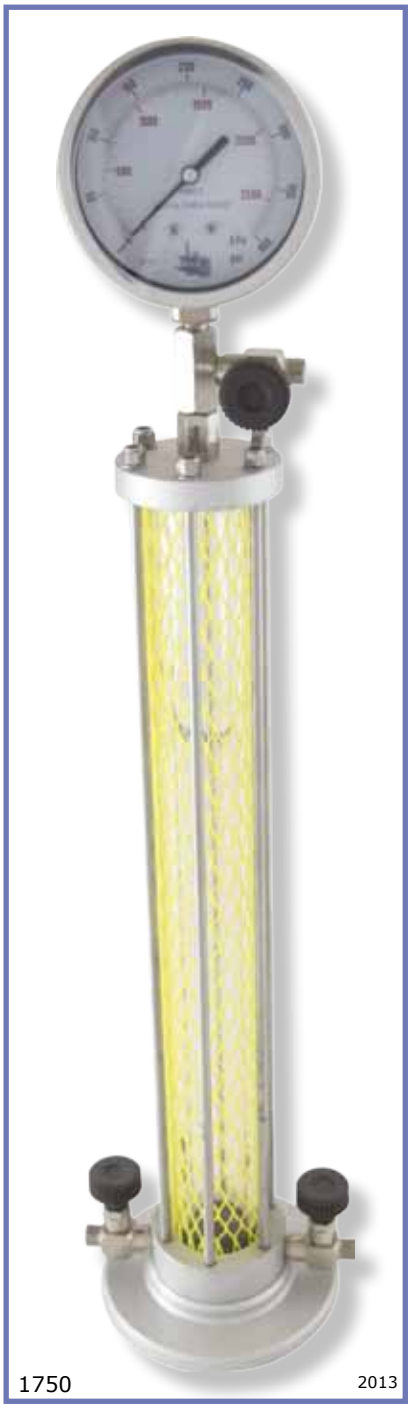
10-1765	HYDROMETER 0.500-0.580 sp g, div.0.001, L=330 mm, ref. temperature 15°C
10-1766	HYDROMETER 0.570-0.650 sp g, div.0.001, L=330 mm, ref. temperature 15°C
T-1750/BS	THERMOMETER BS593 B60C/TOTAL Scale -20 +60°C, div.0.2°, L=400 mm., total imm.
T-1750/ISO	THERMOMETER ISO R653 Scale -15° +45°C

CONSUMABLES x 2 YEARS

15-1752	GASKET, pack of 10 pcs x1

SPARE PARTS

15-1753	POLYMETHYLMETHACRYLATE CYLINDER Ø50x36 mm, L=440 mm
15-1754	SAFETY MESH
15-1758	MANOMETER 0-400 psi/2758 kPa


1750 2013

Consists of an indicator with nickel-plated brass protective sheath with flow-off orifice on the header, fitted with a screw cap, tightness-proof Pyrex capillary tube placed on neoprene gaskets containing the bromide indicator; a copper cooling coil with threaded T-shaped connection ¼" and ¼" needle valve, a manometer ¼" connection, 0-15 bar/232 psi scale, a Ø130x230 mm, borosilicate jar.

1780 COBALT BROMIDE APPARATUS GPA 2140

ACCESSORIES ON REQUEST

10-1784	COBALT BROMIDE, pack of 50 g.

CONSUMABLES x 2 YEARS

10-1784	COBALT BROMIDE, pack of 50 g. x2
15-1785	NEOPRENE GASKET, pack of 10 pcs x1

SPARE PARTS

15-1780	INDICATORE Con guaina e orifizio di sfogo
15-1782	MANOMETER 0-16 bar/232 psi
15-1783	BOROSILICATO JAR
15-1786	CAPILLARY TUBE

1780 2011

ASTM D2420 HYDROGEN SULFIDE IN LIQUEFIED PETROLEUM (LP) GASES (LEAD ACETATE METHOD)

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

Consisting of: stainless steel cylinder of 500 ml. with needle valve connected to a glass cylinder with caps means a stainless steel tube interrupted half from a needle valve, water bath controlled by a thermostat for temperature and stainless steel elettric heater, flowmeter 0.2-3 l/min, watch glass with its holder, glass hook full for the suspended particles of lead acetate

Technical specifications:
- Temperature: from ambient to 80°C (176°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50Hz
- Power: 1200W
- Capacity: 12 liters
- Dimensions: 42x27x65 cm
- Weight: 14 kg

2300 HYDROGEN SULFIDE APPARATUS

ACCESSORIES ON REQUEST

10-2301	LEAD ACETATE TEST PAPER, pack of 5 m

CONSUMABLES x 2 YEARS

10-2301	LEAD ACETATE TEST PAPER, pack of 5 m x4

SPARE PARTS

15-2302	WATCH GLASS , pack of 4 pcs
15-2303	GLASS CYLINDER, pack of 3 pcs
15-2304	GLASS ROD, pack of 3 pcs
15-2305	GLASS TUBE Ø3x6 MM
15-2306	500 ml CYLINDER WITH NEEDLE VALVE
15-2307	RUBBER STOPPER, pack of 2 pcs

2300 2010

DEW POINT

ASTM D1142 WATER VAPOR CONTENT OF GASEOUS FUELS BY MEASUREMENT OF DEW-POINT TEMPERATURE
This test method covers the determination of the water vapor content of gaseous fuels by measurement of the dew-point temperature and the calculation therefrom of the water vapor content.

60 mm dia. pressure gauge with 0-160 bar/2320 psi scale, cooling chamber with ¼" gas valve, stainless steel block with ¼" gas valves, plexiglass window, external mirror.
Technical specifications:

1730 DEW-POINT APPARATUS


1730 + 10-1735 2011

ACCESSORIES ON REQUEST

10-1732	CASE Robust plastic case with foam inserts, protection IP67
10-1733	HY-FLEX JUNCTION For CO_2 . ¼"/ ¼" female, for high pressure
10-1734	FIELD TRIPOD SUPPORT Made of aluminum with carrying strap
10-1735	LABORATORY TRIPOD SUPPORT
T-AS33C	THERMOMETER ASTM 33C

CONSUMABLES x 2 YEARS

15-1730/30	O-RING, pack of 10 pcs x1
15-1730/PT	O-RING IN PTFE, pack of 10 pcs x1

SPARE PARTS

15-1731	BODY WITH STAINLESS STEEL MIRROR
15-1732	THERMOMETER JACKET
15-1733	MANOMETER 0-160 BAR/2320 PSI
15-1735	EXTERNAL MIRROR
15-1736	WINDOW
15-1737	STAINLESS STEEL MIRROR
15-1738	COOLING CHAMBER

SCHILLING

IP 59 METHOD "C" (Obs) DENSITY AND RALATIVE DENSITY OF GASES - THE EFFUSION METHOD
This method is based on the fact that the times taken by equal volumes of gases to flow through a small orifice under the same conditions are proportional to the square roots of the densities of the gases.

Consisting of: glass cylinder, cylinder cover fitted with three sphere valves for gas charge and flow-off, stainless steel orifice plate Ø0.45 mm, internal tube fitted with two calibration lines, support for internal tube, metal stand with carrying handle.
Technical specifications:
- Dimensions: Ø13X70 cm
- Weight: 5 kg

2310 SCHILLING EFFUSIOMETER


2310 2010

ACCESSORIES ON REQUEST

10-2311	CASE Robust plastic case with foam inserts, protection IP67
T-IP39C	THERMOMETER IP39C

CONSUMABLES x 2 YEARS

15-2314	O-RING FOR ORIFICE, pack of 10 pcs x1

SPARE PARTS

15-2311	GLASS CYLINDER
15-2312	INTERNAL TUBE
15-2313/H	HOLDER FOR CALIBRATED ORIFICE
15-2313/P	PLATE CALIBRATED ORIFICE
15-2315	DISCHARGE TUBE WITH 3 COCK
15-2316	COVER
15-2317	SUPPORT

ASTM D1267 IP 161 IP 410 EN ISO 4256 GAGE VAPOR PRESSURE OF LIQUEFIED PETROLEUM (LP) GASES (LP-GAS METHOD)

This test method covers the determination of the gage vapor 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)

Stainless steel upper chamber with threaded lower neck which allows the connection to the valve, and ¼" threaded upper head for pressure gauge fitting a ¼" discharge pin valve.
With hydraulic testing certificate at 70 bar/1015 psi/7000 kPa

1740/U **VAPOR PRESSURE CYLINDER UPPER CHAMBER**

Stainless steel 20% lower chamber two opening.
With straight-through valve and ¼" inlet valve.
With hydraulic testing certificate at 70 bar/1015 psi/7000 kPa

1740/L20 **VAPOR PRESSURE CYLINDER 20% LOWER CHAMBER**

Stainless steel 33$^{1}/_{3}$% lower chamber one opening.
With hydraulic testing certificate at 70 bar/1015 psi/7000 kPa

1740/L33 **VAPOR PRESSURE CYLINDER 33$^{1}/_{3}$% LOWER CHAMBER**

CONSUMABLES x 2 YEARS

15-1743	NEOPRENE GASKET CHAMBER, pack of 10 pcs x1
15-1744	NEOPRENE GASKET FOR PRESSURE GAUGE, pack of 10 pcs x1

SPARE PARTS

15-1740/R	VALVE FF ¾"
15-1745	TOTAL FLOW VALVE

ACCESSORIES ON REQUEST

1770	THERMOSTATIC BATH External frame painted with epoxy acid-proof stainless steel tank stainless 90 liters about, insulated interspace. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. For 6 vapor pressure cylinder. Technical specifications: - Temperature: from ambient to 90°C (194°F) ±0.1°C - Bath capacity: 90 liters about - Power supply: 230V ±10% 50/60Hz - Power: 3200W - Dimensions: 54x50x89 cm. - Weight: 39 kg.
10-1741/10	PRESSURE GAUGE 10 BAR/145 PSI Double scale 0-10 bar/0-145 psi, made of stainless steel Ø100, ¼" male
10-1741/25	PRESSURE GAUGE 25 BAR/360 PSI Double scale 0-25 bar/0-360 psi, made of stainless steel Ø100, ¼" male
10-1741/40	PRESSURE GAUGE 40 BAR/580 PSI Double scale 0-40 bar/0-580 psi, made of stainless steel Ø100, ¼" male
10-1741/100	PRESSURE GAUGE 100 PSI/700 KPA Double scale 0-100 psi/0-700 kPa, made of stainless steel Ø100, ¼" male
10-1741/250	PRESSURE GAUGE 250 PSI/1750 KPA Double scale 0-250 psi/0-1750 kPa, made of stainless steel Ø100, ¼" male
10-1741/500	PRESSURE GAUGE 500 PSI/3500 KPA Double scale 0-500 psi/0-3500 kPa, made of stainless steel Ø100, ¼" male
10-1733	HY-FLEX JUNCTION ¼"/ ¼" female, for high pressure
T-AS18C	THERMOMETER ASTM 18C IP 23C
T-AS65C	THERMOMETER ASTM 65C

1740/U 2013

1740/L20 2013

1740/L33 2013

1770 2010

RVP - REID

ASTM D323 IP 69 ISO 3007 VAPOR PRESSURE OF PETROLEUM PRODUCTS (REID METHOD)
This test method covers procedures for the determination of vapor pressure (see Note 1) of gasoline, volatile crude oil, and other volatile petroleum products.
Procedure A is applicable to gasoline and other petroleum products with a vapor pressure of less than 1,8 bar/26 psi/180 kPa.
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
Procedure C is for materials with a vapor pressure of greater than 1,8 bar/26 psi/180 kPa.
Procedure D for aviation gasoline with a vapor pressure of approximately 0.5 bar/7 psi/50 kPa.
This test method is not applicable to liquefied petroleum gases or fuels containing oxygenated compounds other than methyl t-butyl ether (MTBE).

ASTM D4953 VAPOR PRESSURE OF GASOLINE AND GASOLINE-OXYGENATE BLENDS (DRY METHOD)
This test method covers and is applicable to gasolines and gasoline-oxygenate blends with a vapor pressure range from 35 to 100 kPa (5 to 15 psi)

For a pressure less that 1,8/26/180 bar/psi/kPa. Made of chromium-plated brass consisting of a liquid chamber valveless ½" BSP male for coupling with the vapor chamber with two ½" BSP female for coupling with the liquid chamber and presure gauge
Testet at 220 psi (1520 kPa)

1790/ABD REID VAPOR PRESSURE CYLINDER <26

2013

1790/ABD + 10-1793/1

1770/B 2014

ACCESSORIES ON REQUEST

1770	THERMOSTATIC BATH External frame painted with epoxy acid-proof stainless steel tank stainless 90 liters about, insulated interspace. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. For 6 reid cylinder Technical specifications: - Temperature: from ambient to 90°C (194°F) ±0.1°C - Bath capacity: 90 liters about - Power supply: 230V ±10% 50/60Hz - Power: 3200W - Dimensions: 54x50x89 cm - Weight: 39 kg
1770/B	AUTOMATIC THERMOSTATIC BATH FOR PROCEDURE "B" Horizontal bath. External frame painted with epoxy acid-proof, stainless steel tank. LCD 7" control panel with PID regulation temperature, overtemperature alarm, 3 independent pressure transducer, stainless steel heater, pump stirrer, insulated double wall, safety internal level for low liquid, motor for rotate the cylinders on axis 350° in one direction and then 350° in the opposite direction in repetitive fashion. Included 3x stopper for vapor chamber and 3x quick connection with outage tube. Allows the immersion of 3 cylinders
10-1791	U-TUBE MANOMETER Glass tube fitted on a wood, mercury model, double graduated scale up to 800 mm. Mercury is not included
10-1793/06	PRESSURE GAUGE ISO 0.6 BAR/8.7 PSI Double scale 0-0.6 bar/0-8.7 psi, made of stainless steel Ø100, ½" male
10-1793/1	PRESSURE GAUGE ISO 1 BAR/14.5 PSI Double scale 0-1 bar/0-14.5 psi, made of stainless steel Ø100, ½" male
10-1793/2.5	PRESSURE GAUGE ISO 2.5 BAR/36.2 PSI Double scale 0-2.5 bar/0-36.2 psi, made of stainless steel Ø100, ½" male
10-1793/5	PRESSURE GAUGE ASTM 5 PSI/35 KPA Double scale 0-5 psi/0-35 kPa, made of stainless steel Ø100, ½" male
10-1793/15	PRESSURE GAUGE ASTM 15 PSI/100 KPA Double scalea 0-15 psi/0-100 kPa, in made of stainless steel Ø100, ½" male
10-1793/30	PRESSURE GAUGE ASTM 30 PSI/200 KPA Double scale 0-30 psi/0-200 kPa, made of stainless steel Ø100, ½" male
10-1794	SAMPLE CONTAINER Made of brass with double walled and internal weight, ground joint, Ø40 mm head, screwing metal cap
10-1795	SAMPLE TRANSFER CONNECTION For removing liquid from the sample container without interfering with the vapor space.
10-1796	COOLING BATH 0°C For sample containers and the liquid chambers can be completely immersed at temperature between 0 and 1°C (32 and 34°F).
T-AS18C	THERMOMETER ASTM 18C

CONSUMABLES x 2 YEARS

15-1792/A	NEOPRENE GASKET CYLINDER, pack of 10 pcs x1
15-1792/B	NEOPRENE GASKET FOR PRESSURE GAUGE, pack of 10 pcs x1

SPARE PARTS

15-1790/A	LIQUID CHAMBER - ONE OPENING <26 For a pressure less that 26 psi (180 kPa). Made of chromium-plated brass consisting of a liquid chamber valveless ½" BSP male for coupling with the vapor chamber.
15-1790/B	VAPOR CHAMBER Made of chromium-plated brass consisting of a vapor chamber with two ½" BSP female for coupling with the liquid chamber and presure gauge.

For a pressure above 26 psi (180 kPa). Made of chromium-plated brass consisting of a liquid chamber with two valves: one valve ½" BSP male coupling with vapor chamber and one valve ¼" BSP male for inlet line and vapor chamber with two ½" BSP female for coupling with the liquid chamber and pressure gauge.
Testet at 220 psi (1520 kPa)

1790/C REID VAPOR PRESSURE CYLINDER >26

CONSUMABLES x 2 YEARS

15-1792/A	NEOPRENE GASKET CYLINDER, pack of 10 pcs x1
15-1792/B	NEOPRENE GASKET FOR PRESSURE GAUGE, pack of 10 pcs x1

SPARE PARTS

15-1790/C	LIQUID CHAMBER - TWO OPENING >26 For a pressure above 26 psi (180kPa). Made of chromium-plated brass consisting of a liquid chamber with two valves: one valve ½" BSP male coupling with vapor chamber and one valve ¼" BSP male for inlet line.
15-1790/B	VAPOR CHAMBER Made of chromium-plated brass consisting of a vapor chamber with two ½" BSP female for couplin

ACCESSORIES ON REQUEST

1770	THERMOSTATIC BATH External frame painted with epoxy acid-proof stainless steel tank stainless 90 liters about, insulated interspace. The temperature control is a thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil, motor stirrer, insulated double wall, safety internal level for low liquid with warning lamp. For 6 reid cylinder Technical specifications: - Temperature: from ambient to 90°C (194°F) ±0.1°C - Bath capacity: 90 liters about - Power supply: 230V ±10% 50/60Hz - Power: 3200W - Dimensions: 54x50x89 cm - Weight: 39 kg
10-1791	U-TUBE MANOMETER Glass tube fitted on a wood, mercury model, double graduated scale up to 800 mm. Mercury is not included
10-1793/4	PRESSURE GAUGE ISO 4 BAR/58 PSI Double scale 0-4 bar/0-58 psi, made of stainless steel Ø100, ½" male
10-1793/6	PRESSURE GAUGE ISO 6 BAR/87 PSI Double scale 0-6 bar/0-87 psi, made of stainless steelØ100, ½" male
10-1793/10	PRESSURE GAUGE ISO 10 BAR/145 PSI Double scale 0-10 bar/0-145 psi, made of stainless steel Ø100, ½" male
10-1793/45	PRESSURE GAUGE ASTM 45 PSI/300 KPA Double scale 0-45 psi/0-300 kPa, made of stainless steel Ø100, ½" male
10-1793/60	PRESSURE GAUGE ASTM 60 PSI/400 KPA Double scale 0-60 psi/0-400 kPa, made of stainless steel Ø100, ½" male
10-1793/100	PRESSURE GAUGE ASTM 100 PSI/700 KPA Double scale 0-100 psi/0-700 kPa, made of stainless steel Ø100, ½" male
10-1794	SAMPLE CONTAINER Made of brass with double walled and internal weight, ground joint, Ø40 mm head, screwing metal cap.
10-1795	SAMPLE TRANSFER CONNECTION For removing liquid from the sample container without interfering with the vapor space.
10-1796	COOLING BARTH 0°C For sample containers and the liquid chambers can be completely immersed at temperature between 0 and 1°C (32 and 34°F).
T-AS18C	THERMOMETER ASTM 18C

HERSCHEL

ASTM D1401 ISO 6614 DIN 51599 (obs) 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. Although developed specifically for steam-turbine oils having viscosities of 28.8–90 mm²/s at 40°C, this test method may be used to test oils of other types having various viscosities and synthetic fluids at other test temperatures. It is recommended, however, that the test temperature be raised to 82 ±1°C when testing products more viscous than 90 mm²/s at 40°C. For higher viscosity oils where there is insufficient mixing of oil and water, Test Method D2711 is recommended.

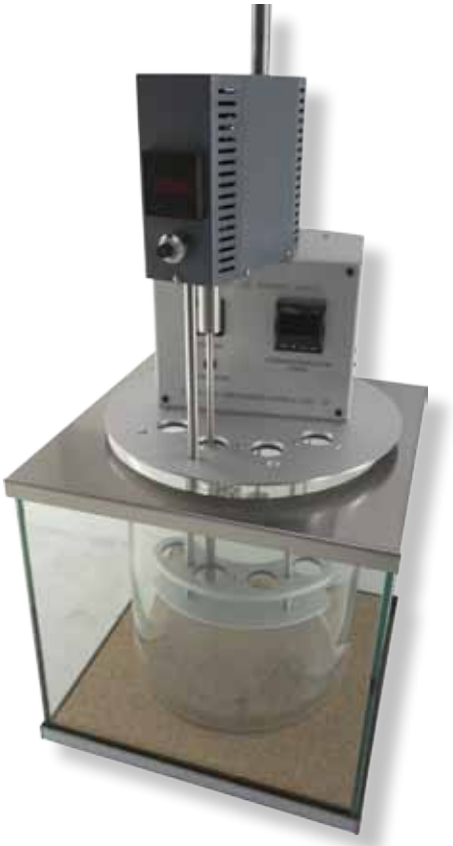
Borosilicate tank, cover with 4 holes for test cylinder, leakage protection vessel made of tempered glass, supplied with cork disk supporting and stainless steel base, stainless steel heater controlled by a digital thermoregulator PID and probe PT100A, ovetemperature alarm, programmable digital timer for duration of the test, motor stirrer for bath, centering for 4 emulsion cylinders, bar supporting the stirrer motor with stop system allowing the exact immersion of the blade agitator, variable speed controller 150 to 1999 rpm, stainless steel blade agitator 19x1.5mm L=120 mm connected to a stainless steel 6 mm shaft.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 35x35x92 cm
- Weight: 28 kg

1850/MAN MANUAL HERSCHEL

Structure with 3 independent positions and rear illumination, stainless steel heater controlled by a digital thermoregulator PID and probe PT100A, ovetemperature alarm, 3x independent variable stirrer motor and is lowered and raised automatically, 3x programmable digital timers for duration of the test, motor stirrer for bath, variable speed controller 150 to 1999 rpm, stainless steel blade agitator 19x1.5mm L=120 mm connected to a stainless steel 6 mm shaft. Max temperature 150°C

1850/SEM SEMI-AUTOMATIC HERSCHEL EMULSIFIER

1850/MAN 2015



ACCESSORIES ON REQUEST

10-1851	CYLINDER 100 ml., div.1
T-AS19C	THERMOMETER ASTM 19C
T-AS21C	THERMOMETER ASTM 21C

CONSUMABLES x 2 YEARS

10-1851	CYLINDER x8 100 ml., div.1

SPARE PARTS

15-1850	STIRRING PADDLE
15-1852	SUPPORT FOR 6 CYLINDER
14-0001	PROBE PT100A
11-1850	HEATER
16-0005	DIGITAL THERMOREGULATOR
15-0003/120	LEVEL SWITCH PPS
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

1850/SEM 2014

DEMULSIBILITY

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

3 positions bath, Ø270x450 mm tank, leakage protection vessel made of tempered glass, cover with three 55 mm holes for separatory funnels. Temperature is controlled by a digital thermoregulator PID with overtemperature alarm and probe PT100A, cooling coil for external joint, stirrer motor, safety internal level for low liquid with warning lamp, stainless steel bar supporting the agitator turbine, programmable digital timer for duration of the test, plate base painted with anti-acid epoxidy products, 300 to 5,000 rpm turbine agitator electronically regulated and digitally read.
Technical specifications:
- Temperature: from ambient to 90°C (194°F)
- Stability: ±0.1°
- Capacity 23 liters about
- Power supply: 230V ±10% 50/60Hz
- Power: 2200W

1870 DEMULSIBILITY APPARATUS

ACCESSORIES ON REQUEST

10-1871	SEPARATORY FUNNEL Borosilicate glass Ø54 mm, 500 ml., div.5.
T-AS21C	THERMOMETER ASTM 21C
1220	CENTRIFUGE
10-1222	BUCKET FOR CONE-SHAPED TUBE, pack of 4 pcs For 10-1225 and 10-1226, made of aluminum, included Polyurethane support for tube
10-1225	CENTRIFUGE TUBE CONE-SHAPED, pack of 4 pcs 100 ml, 203 mm, div. from 0 to 0.5:0.05, from 0.5 to 2:0.1, from 2 to 3:0.2, from 3 to 5:0.5, from 5 to 10:1, from 10 to 25:5, from 25 to 100:25

CONSUMABLES x 2 YEARS

10-1871	SEPARATORY FUNNEL x2

SPARE PARTS

15-1872	STIRRER
15-1873	SERIES OF STIRRER BEARING
14-0002	PROBE PT100A
11-0016	HEATER
16-0005	DIGITAL THERMOREGULATOR
16-0080	TIMER
15-0003/120	LEVEL SWITCH PPS
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

IP 19 DETERMINATION OF DEMULSIBILITY CHARACTERISTICS OF LUBRICATING OIL
This method gives a measure of the ability of the oil to separate from an emulsion. It is commonly applied to turbine oils, but it may be used for other lubricating oils. The test is commonly applied to used turbine oils but since it is sensitive to aging and contamination of the oil, precision will be lower than that stated.

1840 DEMULSIBILITY APPARATUS

Consisting of: a steam generator including: 1 electric-heater units with electronic-power regulators, 1 support boards with ceramic plate with an hole Ø 51 mm, 1 steam generator flask capacity:1 litre, 1 stopper for flask, 1 ventilation tube, 2 steam pipings, 1 hose connection of 2 m, 3 clamps for hose, 1 support rod, 1 boss head, 1 clamp.
An Emulsifying Bath including: 1 tripod stand: Ø 100 mm, 1 support boards made of ceramic glass, 1 glass jar as bath of 3000 ml, 1 cover for bath with stopper, 1 oil test tube made of glass, 1 stopper for oil test tube, 1 steam inlet tube.
A Separating Bath including: 1 electric-heater units with electronic-power regulators, 1 support boards made of cast iron, 1 glass jar of 3000 ml as bath, 1 cover for bath with stopper, 1 steam inlet tube

AIR RELEASE

ASTM D3427 IP 313 ISO 9120 DIN 51381 AIR RELEASE PROPERTIES OF PETROLEUM OILS
This test method covers the ability of turbine, hydraulic, and gear oils to separate entrained air.

Consisting of: structure made in plate painted with epoxidy products with upper base for density balance (optional), air pump with heating system controlled by PID digital thermo-regulator and PT100 probe, reducer pressure, manometer, hole for thermometer (optional), test vessel with jacketed sample tube for connection to circulating bath (optional).
Not included: oven, density balance with platinum wire and sinker, circulating bath and thermometer.
Technical specifications:
- Temperature: from ambient to 80°C (176°F)
- Stability: ±0.1°
- Power supply: 230V ±10% 50/60Hz
- Power: 500W
- Dimensions: 40x35x57 cm
- Weight: 25 kg

1880 AIR RELEASE APPARATUS

ACCESSORIES ON REQUEST

722	CIRCULATING BATH
2470/PS	DENSITY BALANCE
10-1881	PLATINUM WIRE
10-1882/10	SINKER 10 ml
10-1882/5	SINKER 5 ml
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS12C	THERMOMETER ASTM 12C

SPARE PARTS

15-1881	TEST VESSEL
15-1881/T	JACKETED SAMPLE TUBE In and out water connection
15-1881/F	AIR SYSTEM HEAD With an air inlet capillary, baffle plate, and air outlet tube
15-1882	PRESSURE GAUGE
15-1883	SILICONE TUBE, pack of 5 m

1880+2470/PS+T-AS12C 2015

FOAMING

ASTM D892 (I, II, III) IP 146 ISO 6247 DIN 51566 FOAMING CHARACTERISTICS OF LUBRICATING OILS
This test method covers the determination of the foaming characteristics of lubricating oils at 24°C (75.2°F) and 93.5°C (200.3°F). Means of empirically rating the foaming tendency and the stability of the foam are described

ASTM D6082 (IV) HIGH TEMPERATURE FOAMING CHARACTERISTICS OF LUBRICATING OILS
This test method describes the procedure for determining the foaming characteristics of lubricating oils (specifically transmission fluid and motor oil) at 150°C (302°F)

Consists of a tank fitted with cover with two hole, which allows two cylinders to get through, and a cooling coil, leakage protection vessel made of tempered glass supplied with cork disk supporting and stainless steel base. Stainless steel control box on the cover, temperature controlled by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil for improved control near to ambient temperature, motor stirrer, safety internal level for low liquid with warning lamp. Plate base painted with anti-acid epoxidy products which houses two indipendents blowing pumps connected to two flowmeters 25-250 ml/min. Complete with: 2x flowmeters, 2x graduated cylinders, 2x diffuser ball-shape, 2x rubber plug and diffuser tubes.
Technical specifications:
- Temperature: from ambient to +150°C (302°F)
- Stability: ±0.1°C
- Capacity: about 23 l
- Power supply: 230V ±10% 50/60Hz
- Power: 2200W

1900/2 FOAMING BATH (2 POSITIONS)

Consists of two tanks, one for working 24°C (75.2°F) and one for working up to 150°C (302°F), fitted with cover with two hole, which allows two cylinders to get through, and a cooling coil, leakage protection vessel made of tempered glass supplied with cork disk supporting and stainless steel base. Stainless steel control box on the cover, temperature controlled by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, cooling coil for improved control near to ambient temperature, motor stirrer, safety internal level for low liquid with warning lamp. Plate base painted with anti-acid epoxidy products which houses four indipendents blowing pumps connected to four flowmeters 25-250 ml/min. Complete with: 4x flowmeters, 4x graduated cylinders, 4x diffuser ball-shape, 4x rubber plug and diffuser tubes.
Technical specifications:
- Temperature: from ambient to +150°C (302°F)
- Stability: ±0.1°C
- Capacity: about 23+23 l
- Power supply: 230V ±10% 50/60Hz
- Power: 1200+2200 W
- Dimensions: 76x50x77 cm
- Weight: 65 kg.

1900/4 FOAMING BATH (4 POSITIONS)

SPARE PARTS

15-1902	DIFFUSER TUBE, pack of 2 pcs
15-1905	RUBBER STOPPER, pack of 2 pcs
15-1906	FLOWMETER
15-1907	PUMP
14-0002	PROBE PT100A
11-0012/19	HEATER
15-0003/120	LEVEL SWITCH
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
12-0001	MOTOR STIRRER

ACCESSORIES ON REQUEST

10-1901	CERTIFIED DIFFUSER BALL-SHAPE Made of Alundum
10-1904	DIFFUSER CYLINDRICAL-SHAPE Made of stainless steel
10-1904/C	CERTIFIED DIFFUSER CYLINDRICAL-SHAPE Made of stainless steel
10-1905	DRYING TOWER, 300 mm 20-mm layer of cotton, 180-mm layer of indicating desiccant, 20-mm layer of cotton
10-1905/V	EMPTY DRYING TOWER, 300 mm
10-1906	AIR VOLUME METER 1-60 l/h
10-1907	GAS VOLUME METER 5-360 l/h
10-1908	DIFFUSER TEST APPARATUS For maximum pore diameter and permeability diffusers. Consisting of: U-tube manometer, gas volume meter 5-360 l/h, 500 ml vacuum flask, 250 ml cylinder, needle valve
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS12C	THERMOMETER ASTM 12C IP 64C
T-AS41C	THERMOMETER ASTM 41C IP 81C

CONSUMABLES x 2 YEARS

15-1904	GRADUATED CYLINDER, 1000 ml. x2
15-1903	DIFFUSER BALL-SHAPE x2 Made of alundum

1900/4 2014

COOLANTS

ASTM D1881 FOAMING TENDENCIES OF ENGINE COOLANTS IN GLASSWARE
This test method covers a simple glassware test for evaluating the tendency of engine coolants to foam under laboratory-controlled-conditions of aeration and temperature.

Consisting of a small electric heater, borosilicate glass 4 l, 500 ml graduated cylinder with metal ballast on the bottom, a porous stone with a diffuser ball-shape, a 3-way stopcock, blowing pump and flowmeter 60 l/h
Technical specifications:
- Temperature: from ambient to 100°C (212°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

1915 COOLANTS FOAMING APPARATUS

ACCESSORIES ON REQUEST

10-1901	CERTIFIED DIFFUSER BALL-SHAPE Made of Alundum
10-1905	DRYING TOWER, 300 mm 20-mm layer of cotton, 180-mm layer of indicating desiccant, 20-mm layer of cotton
10-1905/V	EMPTY DRYING TOWER, 300 mm
10-1908	DIFFUSER TEST APPARATUS For maximum pore diameter and permeability diffusers. Consisting of: U-tube manometer, gas volume meter 5-360 l/h, 500 ml vacuum flask, 250 ml cylinder, needle valve
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS1C	THERMOMETER ASTM 1C

CONSUMABLES x 2 YEARS

15-1915/C	GRADUATED CYLINDER, 500 ml. x2
15-1903	DIFFUSER BALL-SHAPE x2 Made of alundum

SPARE PARTS

15-1902	DIFFUSER TUBE, pack of 2 pcs
15-1915/F	FLOWMETER
15-1915/T	SILICONE STOPPER, pack of 2 pcs
15-1915/J	JAR, 4 l
15-1915/R	3-WAY STOPCOCKE

1915 2013

SEPARATION

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

Painted metallic structure with stainless steel level at 4 stand-alone places, inlet stabilizing reducer for low pressures, control manometer for cells, 4 pin valve, air pump, quick connection for additional external source air.
Technical specifications:
- Delivery: 6 l/min
- Operating pressure: 2.4 bar
- Power supply: 230V ±10% 50Hz
- Power: 60W
- Dimensions: 44x35x18 cm
- Weight: 6 kg

2030 GREASES SEPARATION APPARATUS

CONSUMABLES x 2 YEARS

15-2032	O-RING
15-2031/A	SIEVE STRINER FOR TEST CELL TYPE "A" Made of stainless steel 75 µm (200 mesh)
15-2031/B	SIEVE STRINER FOR TEST CELL TYPE "B" Made of stainless steel 75 µm (200 mesh)

SPARE PARTS

2460/2030	AIR PUMP
15-2031	REDUCER PRESSURE
15-2034	MANOMETER

ACCESSORIES ON REQUEST

10-2031/A	TEST CELL TYPE "A" Made of chrome plated copper with a 75 µm (200 mesh) stainless steel sieve strainer for supporting the grease.
10-2031/B	TEST CELL TYPE "B" Made of aluminumr with a 75 µm (200 mesh) stainless steel sieve strainer for supporting the grease.
10-2032	BEAKER 20 ML, pack of 4 pcs
2470/EL600	ELECTRONIC BALANCE Range 600 g., readout 0.01, pan Ø130

2030 + 10-2031/A + 10-2031/B 2013

SEPARATION

IP 121 DIN 51817 DETERMINATION OF OIL SEPARATION FROM LUBRICATING GREASE - PRESSURE FILTRATION METHOD

Consisting of: a brass separation cup having a cone of stainless steel woven wire; cloth 240 mesh aperture 63 µm, wire diameter 40 µm soldered to the bottom, 100 g metal weight and oil cup.

2035/IP **GREASES SEPARATION APPARATUS IP**

CONSUMABLES x 2 YEARS
15-2035/IP/A CONE WITH WOVEN WIRE x2

SPARE PARTS
15-2035/IP/B OIL CUP
15-2035/IP/C METAL WEIGHT, 100 g


2035/IP 2009

ASTM D6184 FTM 791-321 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 (212°f) for 30 h unless other conditions are required by the grease specification

Consisting of: a stainless steel cone-shaped sieve 60 mesh, a 200 ml tall form beaker, cover fitted with gasket and crane hook for the cone.

2035/ASTM **GREASES SEPARATION APPARATUS ASTM**

CONSUMABLES x 2 YEARS
15-2035/ASTM/A CONE WITH FILTER x2

SPARE PARTS
15-2035/ASTM/B BEAKER, 200 ml
15-2035/ASTM/C COVER


2035/ASTM 2010

EVAPORATION

ASTM D972 IP 183 EVAPORATION LOSS OF LUBRICATING GREASES AND OILS
his 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)

ASTM D2878 ESTIMATING APPARENT VAPOR PRESSURES AND MOLECULAR WEIGHTS OF LUBRICATING OILS
This test method covers a calculation procedure for converting data obtained by Test Method D972 to apparent vapor pressures and molecular weights. It has been demonstrated to be applicable to petroleum-based and synthetic ester lubricating oils, at temperatures of 395 to 535K (250 to 500°F). However, its applicability to lubricating greases has not been established.

Stainless steel oil bath with insulated double wall, cover with two holes for evaporation cells, two flowmeters. stainless steel control box on the cover, temperature controlled by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater, motor stirrer, safety internal level for low liquid with warning lamp.
Technical specifications:
- Temperature: from ambient to 180°C (356°F)
- Stability: ±0.3°C
- Power supply: 230V ±10% 50/60Hz
- Power: 3200W
- Dimensions: 58x46x54 cm
- Weight: 27 kg

2050 EVAPORATION GREASES BATH

ACCESSORIES ON REQUEST

10-2050	EVAPORATION CELL Stainless steel cylindrical body with neck flange and three cell connections for the tight cover closure, double bottom with 3.17 mm orifice, brass pre-heating coil with cell connections and air inlet tube, stainless steel cover with PTFE gaskets fitted with 3 blocking screws. Central air flow-off connected to an 18/8 stainless steel tube with lower threaded junction for connection with the test cup.
10-2051/G	GREASE SAMPLE CUP For greases
10-2051/O	OIL SAMPLE CUP For lubricating oil
10-2052	FILTERING PIPE Ø25x400 mm, with glass wool
10-2053	AIR PUMP
2470/EL600	ELECTRONIC BALANCE Range 600 g., readout 0.01, pan Ø130
T-AS22C	THERMOMETER ASTM 22C IP 24C
T-AS67C	THERMOMETER ASTM 67C

CONSUMABLES x 2 YEARS

15-2051	PTFE GASKET, pack of 10 pcs

SPARE PARTS

15-2052	FLOWMETER
14-0001	PROBE PT100A
11-0016	HEATER
15-0003/200	LEVEL SWITHC
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
12-0001	MOTOR STIRRER

2050 2009

10-2050 + 10-2051/G/O 2009

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 and 316°C (200 and 600°F). This test method is intended to augment Test Method D972, which is limited to 149°C (300°F)

Dry bath with aluminum block and stainless steel structure, cover, cover with two holes for evaporation cells, two flowmeters. stainless steel control box on the cover, temperature controlled by digital thermoregulator PID with PT100 probe class A and overtemperature alarm, stainless steel heater.
Included two digital thermometer with two thermocouple for connection to evaporation cell.
Technical specifications:
Temperature: from ambient to 320°C (608°F)
- Stability: ±1°c
- Power supply: 230V ±10% 50/60Hz

2050/S **EVAPORATION GREASES DRY BATH**

ACCESSORIES ON REQUEST

10-2055	EVAPORATION CELL Made of stainless steel AISI 304, consisting of a sample cup, hood, cover and eduction tube
10-2052	FILTERING PIPE Ø25x400 mm, with glass woo
10-2053	AIR PUMP
2470/EL600	ELECTRONIC BALANCE Range 600 g., readout 0.01, pan Ø130
T-AS3C	THERMOMETER ASTM 3C IP73C

CONSUMABLES x 2 YEARS

15-2055	PTFE GASKET, pack of 10 pcs

SPARE PARTS

15-2052	FLOWMETER
15-2056	THERMOCOUPLE K
14-0001/A	PROBE PT100A
11-2050/S	HEATER
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH

10-2055 2013

WHEEL BEARING GREASE

ASTM D1263 (obs) 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 conditions

Thermostatic cabin equipped with thermic insulator, rotating pivot with spindle, electric heating with digital thermoregulator and probe PT100A, digital timer, motor with pulley and V-type belt controlling the hub rotation. The hub carries bearings with a pulley suitable for 660 rpm speed. Two bearings (tapered roller) Timken 09074 and 15118, grease collection tank.
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1400W

2580 WHEEL BEARING APPARATUS

ACCESSORIES ON REQUEST

2470/BC8000	ELECTRONIC BALANCE Range 8000 g., readout 0.1, pan 175x200 mm
10-2054/A	TORQUE WRENCH For 6.8 Nm
T-AS7C	THERMOMETER ASTM 7C IP 5C

CONSUMABLES x 2 YEARS

15-2055/A	BEARING (TAPERED ROLLER) 09074 Timken 09074=No.09196
15-2055/B	BEARING (TAPERED ROLLER) 15118 Timken 15118=No.15250

SPARE PARTS

15-2581	V-BELT DRIVE
12-2582	MOTOR
14-0001/A	PROBE PT100A
11-0990/3	HEATER
16-0080	DIGITAL TIMER
16-0005	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH

2580 2011

WATER WASHOUT

ASTM D1264 IP 215 ISO 11009 DIN 51807-2 DETERMINING THE 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

Made of stainless steel with of a thermostatic cabin with electric stainless steel heater controlled by a digital thermoregulator, digital timer, two bearings type 6204, a thermometer determining water temperature in the cabin, an electric motor with direct coupling to the pump and drive belt for the shaft pulley 600 rpm, a bearings block, a flowmeter measuring water delivery, delivery and back-flow gates with by-pass and regulator valves.
Technical specifications:
- Temperature: from ambient to 90°C (194°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 900W
- Dimensions: 58x39x65 cm
- Weight: 39 kg

2590 WATER WASHOUT APPARATUS

ACCESSORIES ON REQUEST

2470/EL200	ELECTRONIC BALANCE Range 200 g., readout 0.01, pan Ø130
T-AS34C	THERMOMETER ASTM 34C IP 21C

CONSUMABLES x 2 YEARS

15-2591	BEARING x2

SPARE PARTS

15-2590/FL	FLOWMETER
15-2590/CIN	DRIVE BELT
11-2590	HEATER
14-0006	PROBE PT100A
16-0080	DIGITAL TIMER
16-0005	THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-2460/2590	PUMP
12-2590	MOTOR

2590 2012

CORROSION

ASTM D1743 DETERMINING CORROSION PREVENTIVE PROPERTIES OF LUBRICATING GREASES)
This test method covers the determination of the corrosion preventive properties of greases using grease-lubricated tapered roller bearings stored under wet conditions. This test method is based on CRC Technique L 412 that shows correlations between laboratory results and service for grease lubricated aircraft wheel bearings

ASTM D4950 STANDARD CLASSIFICATION AND SPECIFICATION FOR AUTOMOTIVE SERVICE GREASES

This instrument it's used to determine the anti-corrosive properties of the grease-lubricated bearings using fat stored in wet conditions.
The instrument consists of a head mounted on the rotating assembly to 1750 rpm a workpiece mounted on a controller with built-in digital timer, bearing Timken LM11949 and LM 11910 and bearing assembly that would support the blocking test bearing.
Technical specifications:
- Power supply: 230V ±10% 50Hz

2570/P **CORROSION PREVENTIVE PROPERTIES APPARATUS (MAIN PROCEDURE)**


2570_P 2012

ACCESSORIES ON REQUEST

10-2571	BEARING ASSEMBLY Consisting of a upper and lower plastic collar, a metal screw and a plastic collar for the cup
10-2574	SIRYNGE 100 ml, needle L=100 mm
10-2575	PLIER
10-2573	PLASTIC JAR, pack of 10 pcs
10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm

CONSUMABLES x 2 YEARS

15-2574/S	SYRINGE x4
15-2574/A	NEEDLE x4

SPARE PARTS

15-2571	INTERNAL O-RING VITON, pack of 10 pcs
15-2066	EXTERNAL O-RING VITON, pack of 10 pcs
15-2572	BEARING HOLDER

Consists of a group rotating at 1.750 rpm mounted on a bed-plate, a calibrated thrust device with spring for placing the bearing against the rotating support. Mechanical device for the test grease inlet onto the bearing, bearings Timken LM11949 and LM 11910
- Power supply: 230V ±10% 50Hz

2570/A **CORROSION PREVENTIVE PROPERTIES APPARATUS (ALTERNATE PROCEDURE)**


2570_A 2011

ACCESSORIES ON REQUEST

10-2575	PLIER
10-2576	GLASS JAR With cover

DROPPING POINT

ASTM D566 IP 132 ISO 2176 DIN 51801-1 DROPPING POINT OF LUBRICATING GREASE
This test method covers the determination of the dropping point of lubricating grease.
This test method is not recommended for use at bath temperatures above 288°C (550°F). For higher temperatures Test Method D2265 should be used.

ASTM D4950 STANDARD CLASSIFICATION AND SPECIFICATION FOR AUTOMOTIVE SERVICE GREASES

Consists of a chromium-plated brass cup, test tube with projection cap and cork ring, thermometer depth gage, cup plug gage, cover of anticorodal, a polished metal rod Ø1.5x150mm dia., 400ml beaker, heating device unit with motor stirrer.
Technical specifications:
- Temperature: from ambient to 290°C (554°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W
- Dimensions: 18x21x52 cm
- Weight: 3 kg

2110 DROPPING POINT

2110 + T-AS2C 2010

ACCESSORIES ON REQUEST

T-AS2C	THERMOMETER ASTM 2C IP 62C x2

CONSUMABLES x 2 YEARS

15-2113	GREASE CUP x4 A chromium-plated brass
15-2114	TEST TUBE x2 Ø12x100 mm inside, provided with three indentations

SPARE PARTS

15-2111	POLISHED METAL ROD Ø1.5x150 mm
15-2112	THERMOMETER DEPTH GAGE A chromium-plated brass
15-2115	CUP PLUG GAGE
15-2116	SERIES OF CORK FOR THERMOMETER Cork for vent and cork ring guide
15-2118	BEAKER, 400 ml
11-0022	HEATER
17-0003	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
12-0002	MOTOR STIRRER

ASTM D2265 DIN 51825 ISO 6299 DROPPING POINT OF LUBRICATING GREASE OVER WIDE TEMPERATURE RANGE

Composed by a furnace to aluminum block to 6 places, structure in stainless steel, insulating thermal; in the block 6 vertical holes are systematized for the support of the pipes of test while in the back part 6 horizontal holes for the observation with a light cold lamp for the illumination of the zone in correspondence of the cap of test. The lamp is assembled with a reflector in the superior part. The control of the temperature is effected by a digital thermoregulator PID with over-temperature alarm and probe PT100A. Supplied with: 6 grease cup, 6 test tube, 6 thermometer clamp, 6 upper bushing, 6 lower bushing, 6 bushing support ring, 6 thermometer depth gage, 6 cup support, 6 metal rod Ø1.5x150 mm, and one cup plug gage
Technical specifications:
- Temperature: from ambient to 400°C (752°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz
- Power: 800W
- Dimensions: 36x16x30 cm

2140 DROPPING POINT HIGH TEMPERATURE

2140 + T-AS3C + T-AS11C 2004

ACCESSORIES ON REQUEST

T-AS3C	THERMOMETER ASTM 3C IP73C x6 For grease cup (6 thermometers request for working)
T-AS11C	THERMOMETER ASTM 11C IP 28C For aluminum block

CONSUMABLES x 2 YEARS

15-2113	GREASE CUP x6 A chromium-plated brass
15-2141	TEST TUBE x6

SPARE PARTS

15-2111	METAL ROD Ø1.5x150 mm
15-2112	THERMOMETER DEPTH GAGE A chromium-plated brass
15-2115	CUP PLUG GAGE
15-2142	THERMOMETER CLAMP
15-2143	UPPER BUSHING
15-2144	LOWER BUSHING
15-2145	BUSHING SUPPORT RING
15-2146	CUP SUPPORT
15-2147	LAMP
11-2140	HEATER
14-0006	PROBE PT100A
16-0080	DIGITAL TIMER
16-0005	THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH

IP 31 (obs) IP 371 DROP POIN OF PETROLATUM

Consisting of: a chromium-plated brass cup, a Ø40x240 mm test tube, a cap, a 400 ml beaker, an anticorodal cover, heating device unit and motor stirrer
Technical specifications:
- Temperature: from ambienti to 150°C (302°F)
- Stability: 2±°C
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

2120 DROP POINT PETROLATUM

ACCESSORIES ON REQUEST

T-IP40C	THERMOMETER IP 40C
T-IP41C	THERMOMETER IP 41C

CONSUMABLES x 2 YEARS

15-2123	CUP

SPARE PARTS

15-2125	TEST TUBE
15-2118	BEAKER, 400 ml
11-0022	HEATER
17-0003	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
12-0002	MOTOR STIRRER

DIN 51801-2 (obs) DETERMINATION OF DROPPING POINT UBBELOHDE METHOD FOR BITUMINOUS BINDERS

Procedura per determinare la temperatura alla quale i grassi passano da uno stato semisolido ad uno liquido.

Consisting of: a chromium-plated brass cup, a Ø40x240 mm test tube, a cap, a 1000 ml beaker, an anticorodal cover, heating device unit and motor stirrer
Technical specifications:
- Temperature: from ambienti to 150°C (302°F)
- Stability: 2±°C
- Power supply: 230V ±10% 50/60Hz
- Power: 700W

2130 DROPPING POINT UBBELHODE

ACCESSORIES ON REQUEST

T-2132/A	THERMOMETER UBBELOHDE 0° +110°C, div.1°, i.t.
T-2132/B	THERMOMETER UBBELOHDE 100° +230°C, div.1°, i.t

CONSUMABLES x 2 YEARS

15-2123	CUP

SPARE PARTS

15-2125	TEST TUBE
15-2131	BEAKER, 1000 ml
11-0022	HEATER
17-0003	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
12-0002	MOTOR STIRRER

SAYBOLT CHROMOMETER

ASTM D156 DIN 51411 SAYBOLT COLOR OF PETROLEUM PRODUCTS (SAYBOLT CHROMOMETER METHOD)
This test method covers the determination of the color of refined oils such as undyed motor and aviation gasoline, jet propulsion fuels, naphthas and kerosine, and, in addition, petroleum waxes and pharmaceutical white oils

Black structure supporting two glass tubes one of which graduated, optical glass disc, no.3 Whole color standard and no.1 Half color standard, petcock and mirror located on a base, prismatic eyepiece

2080 SAYBOLT CHROMOMETER

Model for wax with heater back on the tubes and electronic regulator device.

2080/P HEATED SAYBOLT CHROMOMETER
Technical specifications:
- Power supply: 230V ±10% 50/60Hz

ACCESSORIES ON REQUEST

10-2080	"DAYLIGHT" LAMP Base with orientable support, 60W 230V ±10%.

CONSUMABLES x 2 YEARS

15-2087	GASKET FOR TUBE, pack of 10 pcs x1

SPARE PARTS

15-2081	DAYLIGHT FILTER
15-2082	LAMP 60W 230V ±10%, pack of 3 pcs
15-2083	OPTICAL VIEWER
15-2083/O	PRISMS
15-2084	GRADUATED TUBE
15-2084/M	GRADUATED TUBE Mounting on metallic support with drain valve
15-2085	DRAIN VALVE
15-2086	PLAIN TUBE
15-2086/M	PLAIN TUBE Mounting on metallic support
15-2088	ONE-HALF COLOR STANDARD
15-2089	WHOLE COLOR STANDARD, pack of 3 pcs

2080 + 10-2080 2012

MELTING POINT

ASTM D87 IP 55 ISO 3841 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.

Consisting of: air bath with brass cylinder Ø51x114 mm for hold the test tube firmly in a vertical position in the center of the air bath, test tube Ø25x100 mm with reference line for sample filling at 51 mm above the bottom and a reference line for positioning of the bottom of the thermometer at 10 mm above the bottom, a chromium-plated metal water bath Ø130x152 mm. Complete of cork

2090 WAX MELTING POINT APPARATUS

2090 2012

ACCESSORIES ON REQUEST

10-0332	DIGITAL STOPWATCH 7 digit LCD, max.10 hours, 1/100 sec, digit h=8 mm
T-AS14C	THERMOMETER ASTM 14C IP 17C For the sample
T-AS34C	THERMOMETER ASTM 34C IP 21C For the water bath

CONSUMABLES x 2 YEARS

15-2091	TEST TUBE, pack of 5 pcs x2

SPARE PARTS

15-2092	SERIES OF CORK One for test tube, one for water bath, one for thermometer sample and one for thermometer water bath.

DROP MELTING POINT

ASTM D127 IP 133 DROP MELTING POINT OF PETROLEUM WAX, INCLUDING PETROLATUM
his test method covers the determination of the drop melting point of petroleum wax. It is used primarily for petrolatums and other microcrystalline wax

Consisting of: electric heater, 1500 ml glass jar, test tube Ø25x150 mm, two stoppers in corks for test tubes and one in PVC for the glass jar.
Technical specifications:
- Power supply: 230V ±10% 50/60Hz
- Power: 700W
- Dimensions: 26x26x35 cm
- Weight: 4 kg.

2100 DROP MELTING POINT APPARATUS

2100 2014

ACCESSORIES ON REQUEST

T-AS61C	THERMOMETER ASTM 61C IP 63C For the sample
T-AS34C	THERMOMETER ASTM 34C IP 21C For the water bath

CONSUMABLES x 2 YEARS

10-1441/D	TEST TUBE, pack of 10 pcs x1

SPARE PARTS

15-2102	BEAKER, 1500 ml
15-2103	SERIES OF CORK Two for the test tube
15-2104	PVC COVER With thermometer collar
11-0022	HEATER
15-0004	BIPOLAR GREEN SWITCH
15-0110	ELECTRONIC REGULATOR

OIL CONTENT

ASTM D721 IP 158 ISO 2908 DIN 51571 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 DIN 51572 SOLVENT EXTRACTABLES IN PETROLEUM WAXES

Consisting of a 3 positions cooling bath made of stainless steel with internal tank with cooling coil and external sockets for cooling unit, insulated double wall, springs climp for the filter stick assembly.
Thermostatically heater evaporation cabinet made of stainless steeel by PID digital regulator with PT100A probe, 4 positions for weighing bottles, double bottom perforated, air inlet tube, heater, glass door, manifold assembly is adjustable for positioning of 4 jets at the correct heigh.
Technical specifications:
- Temperature: from ambient to 50°C (122°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50/60Hz
- Power: 50W

2180 OIL CONTENT OF PETROLEUM WAXES APAPRATUS

ACCESSORIES ON REQUEST

10-2181	FILTER STICK ASSEMBLY Consisting of a 10 mm diameter sintered glass filter stick of 10-15 µm maximum pore and test tube Ø25x180 mm
10-2182	AIR PRESSURE REGULATOR Consisting of a 250 ml glass cylinder and a T-tube held in the cylinder by means of a rubber stopper". Without mercury and cotton..
10-2183	FLOWMETER 100-1100 l/h
10-2185	WEIGHING BOTTLES 15 ml, pack of 4 pcs Made of glass, with stopper
10-2186	DRYING TOWER, 200 mm
2460/2180	AIR PUMP
2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
T-AS71C	THERMOMETER ASTM 71C IP 72C

CONSUMABLES x 2 YEARS

10-2185	MWEIGHING BOTTLES 15 ml, pack of 4 pcs x2

SPARE PARTS

15-2181/C	AIR INLET TUBE WITH FILTER
15-2181/T	TEST TUBE
11-2180	HEATER
14-0001	PROBE PT100A
16-0005	THERMOREGULATOR
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH

2180 + 10-2181+ 10-2185 2015

GUM CONTENT IN FUELS

ASTM D381 IP 131 IP 540 EN 26246 (obs) ISO 6246 DIN 51784 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 additivessee Note 7 for additional information) at the time of test.

5 concentric pre-heating coils with 5 wells connected to the central collector with socket for steam measurer, 5 mobile jets, insulated air gap. Built-in steam overheater with regulator and condensate discharge valves. Heating and overheater are controlled by a digital thermoregulator PID with overtemperature alarm. The bath is fitted with a flowmeter 700-6500 ml/s wrapped in a protection covering, steam flowmetric manometer. The overheater for steam can be disconnect.
Technical specifications:
- Temperature: from ambient to 250°C (482°F)
- Stability: ±3°C
- Power supply: 230V ±10% 50/60Hz
- Power: 3500W
- Dimensions: 75x52x90 cm
- Weght: 65 kg

2410 EVAPORATION BATH "AIR AND STEAM JET"

ACCESSORIES ON REQUEST

2470/BCA200	ANALYTICAL BALANCE Range 220 g., readout 0.0001, pan Ø80
10-2411	BEAKER, conf.5 pz Ø50x78 mm
10-2412	TONG For use in handling the beakers, PTFE covered
10-2413	STEAM GENERATOR
2460/CB25	AIR PUMP
T-AS3C	THERMOMETER ASTM 3C IP 73C

CONSUMABLES x 2 YEARS

10-2411	BEAKER, pack of 5 pcs x2

SPARE PARTS

15-2415	FLOWMETER
15-2416	JET, pack of 5 pcs
15-2417	PRESSURE GAUGE
11-2411	HEATER
11-2412	STRIP HEATER
14-0001/A	PT100A PROBE
16-0007	DIGITAL THERMOREGULATOR
15-0015	STATIC RELAY
15-0019	EARTH LEAKAGE CIRCUIT BREAKER
15-0005	BIPOLAR YELLOW SWITCH

2410 2010

SCOTT

ASTM D454 RUBBER DETERIORATION BY HEAT AND AIR PRESSURE
his test method covers a procedure to determine the influence of elevated temperature and air pressure on the physical properties of vulcanized rubber. The results of this test may not give an exact correlation with service performance since performance conditions vary widely. The test may, however, be used to evaluate rubber compounds on a laboratory comparison basis. It will be most applicable to performance under conditions of increased temperature and air pressure.

ASTM D572 RUBBER-DETERIORATION BY HEAT AND OXYGEN
This test method covers a procedure to determine the relative deterioration resistance of vulcanized rubber in a high temperature and high pressure oxygen environment. There may be no exact correlation between this accelerated test and natural aging of rubber because of the varied conditions of natural aging. This accelerated test is suitable for laboratory compound or product comparisons.

Fully made in stainless steel, this bath has a capacity of about 15 l and is thermostated by a digital thermoregulator PID, with overtemperature alarm. The uniformity of thermostating is controlled by a stirrer motor. The bath includes a cooling coil and a double bottom used as bearing surface for cylinders and test-piece holders
Technical specifications:
- Temperature: from ambient to 150°C (302°F)
- Stability: ±0.1°
- Capacity: 15 l about
- Power supply: 230V ±10% 50/60Hz

2390 SCOTT BATH

ACCESSORIES ON REQUEST

10-2390	SCOTT CYLINDER Completely made in 18/8 stainless steel, 300 ml capacity, PTFE gaskets, 3 internal hooks for testing, cover tted with central column, stainless steel pin valve for recharge, pressure gauge 0-435 psi / 3000 kPa

CONSUMABLES x 2 YEARS

15-2391	PTFE GASKET, pack of 10 pcs x1

SPARE PARTS

15-2392	HOOK
15-2393	PIN VALVE
15-2394	PRESSURE GAUGE
11-2390	STRIP HEATER
15-0003/150	LEVEL SWITCH
14-0002	PROBE PT100A L=200 mm
16-0005	DIGITAL THERMOREGULATO
15-0015	STATIC RELAY
15-0004	BIPOLAR GREEN SWITCH

SOFTERING POINT - RING AND BALL

ASTM D36 IP 58 EN 1427 SOFTENING POINT OF BITUMEN (RING-AND-BALL APPARATUS)
This test method covers the determination of the softening point of bitumen in the range from 30 to 157°C (86 to 315°F) using the ring-and-ball apparatus immersed in distilled water (30 to 80°C) (86 to 186°F) or USP glycerin (80 to 157°C) (186 to 315°F).

ASTM E28 SOFTENING POINT OF RESINS DERIVED FROM NAVAL STORES BY RING-AND-BALL APPARATUS

Consisting of: a beaker Ø85x130 mm, two-place brass cage adjustable for height, 2 hardened steel balls Ø9.5 mm, 2 rings with collar for centering the balls, heating device unit and motor stirrer.
Technical specifications:
- Temperature: from ambient to 250°C (482°F)
- Power supply: 230V ±10% 50/60Hz
- Power: 700W
- Dimensions: 13x21x55 cm
- Weight: 3 kg

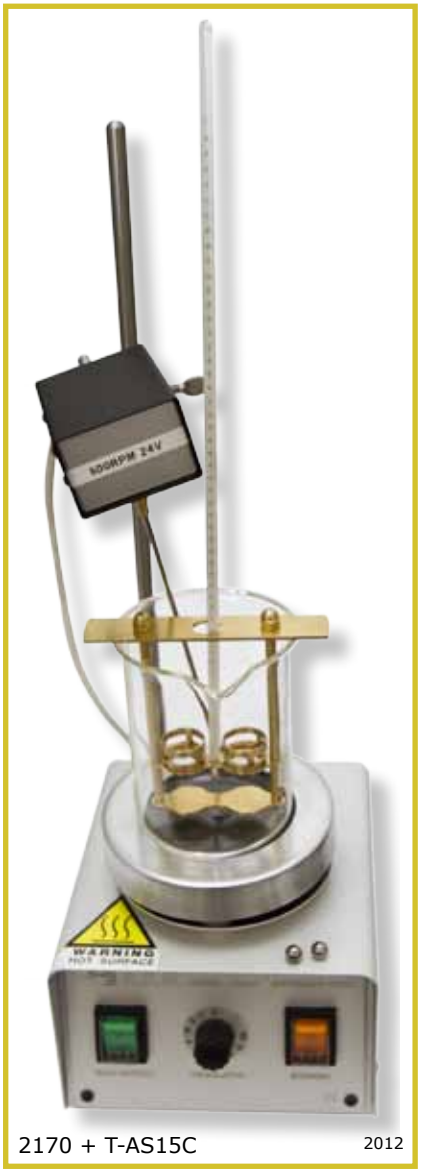
2170 RING AND BALL APPARATUS

ACCESSORIES ON REQUEST

10-2170/IP1	RING AND COLLAR IP fig.1, pack of 2 pcs
10-2170/IP2	RING AND COLLAR IP fig.2, pack of 2 pcs
10-2170/IP3	RING IP fig.3, pack of 2 pcs
10-2172/5	GLYCERIN 99.5%, pack of 5 kg
10-2172/10	GLYCERIN 99.5%, pack of 10 kg
10-2172/25	GLYCERIN 99.5%, pack of 25 kg
T-AS15C	THERMOMETER ASTM 15C IP 60C
T-AS16C	THERMOMETER ASTM 16C IP 61C
T-AS5C	THERMOMETER ASTM 5C IP 1C (for ASTM E28)
T-AS7C	THERMOMETER ASTM 7C IP 5C (for ASTM E28)

SPARE PARTS

15-2170/B	RING AND BALL SET Beaker Ø85x130 mm., two-place brass cage adjustable for height, 2 hardened steel balls Ø9.5 mm, 2 rings with collar for centering the balls.
15-2171	BALLS, pack of 20 pcs
15-2172	BEAKER
15-2173	CAGE
15-2176	RING ASTM, pack of 2 pcs
15-2177	COLLAR ASTM, pack of 2 pcs
11-0022	HEATER
17-0003	TRANSFORMER
15-0004	BIPOLAR GREEN SWITCH
15-0005	BIPOLAR YELLOW SWITCH
15-0110	ELECTRONIC REGULATOR
12-0002	MOTOR STIRRER



2170 + T-AS15C 2012

BREAKING POINT - FRAASS

IP 80 EN 12593 DIN 52012 BITUMEN AND BITUMINOUS BINDERS - DETERMINATION OF THE FRAASS BREAKING POINT

This standard specifies a method for determining the Fraass breaking point which provides a measure of the brittleness of bitumen and bituminous binders at low temperature.

Comprises 2 concentric resin tubes topped by two clamps for the plate and the flexing brass system, harmonic steel plate 41x20x0.15mm, a cooling system by dry ice with 3 concentric glass tubes and funnel, a cork stopper.

2520 FRAASS APPARATUS

2520/BIS FRAASS APPARATUS
With Dewar

Bench model with refrigeration group system up to -30°C (-22°F), external frame painted with epoxy acid-proof and internal aluminum block with inspection window with light. Glass probe PT100A, color touch screen front panel, automatic ramp at 1°C/min, heating element for a quick return to a ambient temperature, automatic movement electric system for plate, inspection window for visual determination of the breaking point
Technical specifications:
- Temperature: from ambient to -30°C (-22°F)
- Power supply: 230V ±10% 50Hz
- Power: 1300W
- Dimensions: 60x80x82 cm
- Peso: 80 kg

2520/SEM SEMI-AUTOMATIC FRAASS

ACCESSORIES ON REQUEST

10-2521	PLATE, pack of 25 pcs Made of armonic steel, 41x20x0.5 mm
10-2522	HEATING/COOLING DEVICE With bubble level and and level adjustment screws. two distinct zones: one temperature regulated and controlled, the other one cooled by water circulation. Magnet block with a flat and smooth surface holding one to three plates with a suitable cover.
T-IP42C	THERMOMETER IP 42C

CONSUMABLES x 2 YEARS

10-2521	PLATE, pack of 25 pcs x2

SPARE PARTS

15-2522/E	OUTER GLASS TUBE
15-2522/M	MEDIAN GLASS TUBE
15-2522/I	INNER GLASS TUBE
15-2523	LAMP
15-2524/B	MEGNET BLOCK
15-2524/C	HOLDING COVER
15-2525	FILLER FUNNEL
15-2526	CORK SERIES, pack of 3 pcs
15-2527	BRASS SYSTEM BENDING
15-2528	DEWAR
15-2529/G	OUTER TUBE
15-2529/P	INNER TUBE

2520/BIS 2006

2520/SEM 2011

DUCTILOMETER

ASTM D113 IP 32 (obs) DUCTILITY OF BITUMINOUS MATERIALS
This test method describes the procedure for determining the ductility of a bituminous material measured by the distance to which it will elongate before breaking when two ends of a briquet specimen of the material, of the form described in Section 4, are pulled apart at a specified speed and at a specified temperature. Unless otherwise specified, the test shall be made at a temperature of 25 ± 0.5°C and with a speed of 5 cm/min ±5.0%. At other temperatures the speed should be specified.

ASTM D6084 ELASTIC RECOVERY OF BITUMINOUS MATERIALS BY DUCTILOMETER
This test method covers the elastic recovery of a bituminous material measured by the recoverable strain determined after severing an elongated briquet specimen of the material of the form described in . The specimens are pulled to a specified distance at a specified speed and at a specified temperature. Unless otherwise specified, the test shall be made at a temperature of 25 0.5°C (77 0.9°F) and with a speed of 5 cm/min ±5%

EN 13398 DETERMINATION OF THE ELASTIC RECOVERY OF MODIFIED BITUMEN
This standard specifies a method for the determination of the elastic recovery of bituminous binders in a ductilometer at a given temperature. It is especially applicable to bituminous binders modified with thermoplastic elastomers, but can also be used with other bituminous binders which generate only small recovery

EN 13589 DETERMINATION OF THE TENSILE PROPERTIES OF MODIFIED BITUMEN BY THE FORCE DUCTILITY METHOD
This European Standard specifies a method for determining the tensile properties of a bituminous binder, in particular those of polymer-modified bitumens by means of a force ductility test.

EN 13703 DETERMINATION OF DEFORMATION ENERGY
This European Standard specifies a method for determining the conventional energy of bituminous binders from tensile characteristics

Three-places stainless steel structure with a 1.500 mm stroke, transmission of 10 revolutions on square-thread traction rod, 5 cm/min speed, ¼ Hp one-phase geared motor, stainless steel tank, insulated walls, armoured stainless steel heater controlled by a digital thermoregulator with overtemperature alarm and probe PT100A, cooling coil, traction brass carriage holding moulds, circulation pump for stirring the liquids.

730 DUTTILOMETER
Technical specifications:
- Temperature: from ambient to 50°C (122°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50Hz
- Power: 1300W
- Dimensions: 185x40x67 cm
- Weight: 55 kg

730/R REFRIGERATED DUCTILOMETER
Technical specifications:
- Temperature: from 5 to 50°C (41 +50°F)
- Stability: ±0.1°C
- Power supply: 230V ±10% 50Hz
- Power: 1800W
- Dimensions: 185x40x67 cm
- Weight: 75 kg

730/AUT AUTOMATIC REFRIGERATED DUCTILOMETER
Three-places stainless steel structure with a 1.500 mm briquette capacity, a 2 phase step motor with a built in line encoder, maximum load of 1500N (3x500N load cell), PLC temperature controlled with advanced PID algorithm 2 x cross contrast heat and cool for refrigerated ductilometer.
This is a stand alone unit with a 12'' TFT touch screen display with a resolution of 1024X768, Barcode reader support, serial, USB, Serial RS232 and network printers support, keyboard, mouse and other input devices support, email system support to directly email results from the instrument, repeatability and deviation test reports and calculations of the conventional energy (EN 13703), traction speed from 10 mm/min. to 200 mm/min., automatic position for molds based on selected method, automatic recognition of a test positioned ductility mould, real time graphics (elongation, speed, force, time) real time live position and live speed given by encoder, over temperature security system including bath and motor drive temperature.
Automatic recognition of a new load cell kit (load cell + programed module) after reboot or startup.
Automatic calculations, algorithms and results.
Download and printing support for any test report file, graph, repeatability for 2 / 3 tests (successive, user selected or simultaneous).
The instrument comes equipped with 3 load cell 500N Temperature controller precision of 0.1°C 0 +50°C (32 +122°F)

730/AUT 2015

ACCESSORIES ON REQUEST

10-0731/113	MOLD ASTM D113 Made of brass
10-0731/6084	MOLD ASTM D6084 Made of brass
10-0731/13398	MOLD EN 13398 Made of brass
10-0731/13589	MOLD EN 13589 Made of brass
10-0732	MOLD HOLDER
T-AS63C	THERMOMETER ASTM 63C

FLOAT TEST

ASTM D139 FLOAT TEST FOR BITUMINOUS MATERIALS

Aluminum cup with 3 standard brass collars.

2700 FLOAT TEST APPARATUS

2700 2008

ACCESSORIES ON REQUEST

T-AS15C	THERMOMETER ASTM 15C

SPARE PARTS

15-2701	CUP
15-2702	COLLAR, pck of 3 pcs

EMULSIFIED ASPHALTS

ASTM D244 STANDARD TEST METHODS AND PRACTICES FOR EMULSIFIED ASPHALTS

ASTM D6997 DISTILLATION OF EMULSIFIED ASPHALT

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.

Aluminium alloy boiler with ring burner for heating, connection glass tube with protection shield, glass condenser for water circulation, 100 ml graduated cylinder, supporting ring, bases with rods, pliers.

2710 RESIDUE BY DISTILLATION APPARATUS FOR EMULSIFIED ASPHALTS

2710 2007

ACCESSORIES ON REQUEST

10-0748	GAS CYLINDER 2 KG. Empty
10-0749	GAS REDUCER 30 MBAR
10-0747	GAS TUBE, L=5 M.
10-2711	SIEVE
T-AS7C	THERMOMETER ASTM 7C x2

SPARE PARTS

15-2711	RING BURNER
15-2712	CONNECTION GLASS TUBE
15-2713	CONDENSER
15-2714	INNER TUBE CONDENSER
10-1187/P	CYLINDER
15-2715	BOILER
15-2716	DRAINING TUBE

ROLLING THIN FILM - RTFOT

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 12607-1 DETERMINATION OF THE RESISTANCE TO HARDENING UNDER INFLUENCE OF HEAT AND AIR. RTFOT METHOD

Completely made in stainless steel, aluminum carriage rotating at 15 rpm - circular and vertical - with 8 places for glass containers, internal fan controlled by a 1725 rpm motor, copper coil with nozzle pre-heating the air, flowmeter with regulator valve, digital thermoregulator with PID function and probe PT100, double wall locking door with toughned glass window, internal light.
Technical specifications:
- Temperature: from ambient to 170°C (338°F)
- Stability: ±0.5°C
- Power supply: 230V ±10% 50Hz
- Power: 1500W
- Weight: 90 kg

2550 RTFOT OVEN ASTM

ACCESSORIES ON REQUEST

10-2551	CONTAINER Made of glass
T-AS13C	THERMOMETER ASTM 13C IP 47C

CONSUMABLES x 2 YEARS

15-2552/ASTM	BELT, pack of 2 pcs x1
15-2552/EN	BELT, pack of 2 pcs x1

SPARE PARTS

15-2555	BEARING FOR FAN
12-2550/CAR	CARRIAGE MOTOR
12-2550/FAN	FAN MOTOR

2550 2014

"LOSS ON HEATING" E "TFOT"

ASTM D6 IP 45 EN 13303 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 as hereinafter prescribed.

ASTM D1754 EN 12607-2 EFFECT OF HEAT AND AIR ON ASPHALTIC MATERIALS (THIN-FILM OVEN TEST)
This test method covers the determination of the effects of heat and air on a film of semisolid asphaltic materials. The effects of this treatment are determined from measurements of selected asphalt properties before and after the test.

Completely made in stainless steel, natural ventilation, internal support (on request) rotating at 5-6 rpm controlled by a geared motor located on the oven top, digital thermoregulator PID with overtemperature alam and probe PT100A, double wall locking door with toughned glass window, internal light.
Technical specifications:
- Temperature: from ambient to 180°C (356°F)
- Stability: ±1°C
- Power supply: 230V ±10% 50/60Hz
- Power: 1200W
- Dimensions: 59x51x77 cm
- Weight: 24 kg

2560 LOSS AND TFOT OVEN

ACCESSORIES ON REQUEST

10-2561/6	SUPPORT ASTM D6 9 positions
10-2562/6	CONTAINER ASTM D6 Made of brass
10-2561/1754	SUPPORT ASTM D1754 4 posistions
10-2562/1754	CONTAINER ASTM D1754 Made of stainless steel
10-2563	PALETTE FOR CONTAINER ASTM D1754 Made of stainless steel, for remove the container on the support
T-AS13C	THERMOMETER ASTM 13C IP 47C

SPARE PARTS

12-2560	MOTOR

2560 2014

SMOKE POINT

ASTM D1322 IP 57 SMOKE POINT OF KEROSINE AND AVIATION TURBINE FUEL
This test method covers two procedures for determination of the smoke point of kerosine and aviation turbine fuel, a manual procedure and an automated procedure, which give results with different precision.

Brass lamp painted in black, millimetric white scale on a black background, window with mobile glass, brass candle with oil tank and cotton wick 180mm long, micrometric setting.
Technical specifications:
- Dimensions: 35x25x20 cm
- Weight: 5 kg

2530 SMOKE POINT APPARATUS

ACCESSORIES ON REQUEST

10-2531	WICK, pack of 100 pcs
T-AS13C	THERMOMETER ASTM 13C IP 47C

CONSUMABLES x 2 YEARS

10-2531	WICK, pack of 100 pcs x2

SPARE PARTS

15-2532	CANDLE
15-2533	CURVED GLASS WINDOW
15-2535	SCALE
15-2536	MIRROR

WATER REACTION

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 interface

Composed by a cylinder in glass from 100ml div.1ml with cork of closing, shacker to horizontal movement with varying speed from 60 to 350rpm, move of the axle 20mm, timer 0-120min., plain of support with support for adjustable bars of xing in height and width.

2730 WATER REACTION AVIATION FUELS APPARATUS

2470/... **BALANCE**

Analytical from 120 to 310 g, 0.0001
Electronic from 160 to 1200 g, 0.001
Electronic from 200 to 3000 g, 0.01
Electronic from 1500 to 6200 g, 0.01
Electronic from 4500 to 30000 g, 0.1

2480/F/... **OVEN - FORCED VENTILATION**

Forced ventilation. Made in stanless steel, thermic insulation provided by mineral natural fiber. Temperature is controlled by a digital thermoregulator, temperature range from ambient to 200°C. In order to improve the protection, this item is provided with a safety thermostat with visual warning. Internal steel shelves adjustable for height, breather chimney with manual flow-setting. Heating elements touch the pre-chamber and not the internal chamber in order to give an evenly spread heating. Dimensions on request

2480/N/... **OVEN - NATURAL VENTILATION**

Dimensions on request

1290/... **HEATING MANTLE**

Cylindrical body from painted plate resistant to more commons chemical aggressors, internal resistance in nickel-chromium wire, steatite lined, for high electric insulation, internal thermal insulation in glass fibre and mineral rock wool, control unit in separate chamber at base of device. Max. temperature range 350°C (662°F)
Precision ± 5°C.
Capacity: 50, 100, 150, 250, 500, 1000, 2000, 3000, 5000, 6000, 10000 cc.

ASTM THERMOMETERS

ARTICLE	ASTM	IP	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-AS1C	1C	-	Partial immersion	-20 +150°C	1	76	322
T-AS1F	1F	-	Partial immersion	0 +302°F	2	76	322
T-AS2C	2C	-	Partial immersion	-5 +300°C	1	76	390
T-AS2F	2F	-	Partial immersion	20 +580°F	2	76	390
T-AS3C	3C	-	Partial immersion	-5 +400°C	1	76	415
T-AS3F	3F		Partial immersion	20 +760°F	2	76	415
T-AS5C	5C	1C	Cloud and Pour	-38 +50°C	1	108	230
T-AS5F	5F	1F	Cloud and Pour	-36 +120°F	2	108	230
T-AS6C	6C	2C	Low Cloud and Pour	-80 +20°C	1	76	230
T-AS6F	6F	2F	Low Cloud and Pour	-112 +70°F	2	76	230
T-AS7C	7C	5C	Low Distillation	-2 +300°C	1	Total	385
T-AS7F	7F	5F	Low Distillation	30 +580°F	2	Total	385
T-AS8C	8C	6C	High Distillation	-2 +400°C	1	Total	385
T-AS8F	8F	-	High Distillation	30 +760°F	2	Total	385
T-AS9C	9C	15C	Low Pensky-Martens	-5 +110°C	0.5	57	290
T-AS9F	9F	15F	Low Pensky-Martens	20 +230°F	1	57	290
T-AS10C	10C	16C	High Pensky-Martens	90 +370°C	2	57	290
T-AS10F	10F	16F	High Pensky-Martens	200 +700°F	5	57	290
T-AS11C	11C	28C	Cleveland Open Flash	-6 +400°C	2	25	310
T-AS11F	11F	28F	Cleveland Open Flash	20 +760°F	5	25	310
T-AS12C	12C	64C	Density-Wide Range	-20 +102°C	0.2	Total	420
T-AS12F	12F	64F	Density-Wide Range	-5 +215°F	0.5	Total	420
T-AS13C	13C	47C	Loss on Heat	155 +170°C	0.5	Total	155
T-AS14C	14C	17C	Wax Melting Point	38 +82°C	0.1	79	375
T-AS14F	14F	17F	Wax Melting Point	100 +180°F	0.2	79	375
T-AS15C	15C	60C	Low Softening Point	-2 +80°C	0.2	Total	395
T-AS15F	15F	-	Low Softening Point	30 +180°F	0.5	Total	395
T-AS16C	16C	61C	High Softening Point	30 +200°C	0.5	Total	395
T-AS16F	16F	-	High Softening Point	85 +392°F	1	Total	395
T-AS17C	17C	-	Saybolt Viscosity	19 +27°C	0.1	Total	275
T-AS17F	17F	-	Saybolt Viscosity	66 +80°F	0.2	Total	275
T-AS18C	18C	23C	Reid Vapour Pressure	34 +42°C	0.1	Total	275
T-AS18F	18F	23F	Reid Vapour Pressure	94 +108°F	0.2	Total	275
T-AS19C	19C	-	Saybolt Viscosity	49 +57°C	0.1	Total	275
T-AS19F	19F	-	Saybolt Viscosity	120 +134°F	0.2	Total	275
T-AS20C	20C	-	Saybolt Viscosity	57 +65°C	0.1	Total	275
T-AS20F	20F	-	Saybolt Viscosity	134 +148°F	0.2	Total	275
T-AS21C	21C	-	Saybolt Viscosity	79 +87°C	0.1	Total	275
T-AS21F	21F	-	Saybolt Viscosity	174 +188°F	0.2	Total	275
T-AS22C	22C	24C	Oxidation Stability	95 +103°C	0.1	Total	275
T-AS22F	22F	24F	Oxidation Stability	204 +218°F	0.2	Total	275
T-AS23C	23C	-	Engler Viscosity	18 +28°C	0.2	90	212
T-AS24C	24C	-	Engler Viscosity	39 +54°C	0.2	90	237
T-AS25C	25C	-	Engler Viscosity	95 +105°C	0.2	90	212
T-AS26C	26C	-	Stability Test	130 +140°C	0.1	Total	463
T-AS27C	27C	-	Turpentine Distillation	147 +182°C	0.5	76	301
T-AS28C	28C	31C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305
T-AS28F	28F	31F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305
T-AS29C	29C	34C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305
T-AS29F	29F	34F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305
T-AS30F	30F	32F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305

ARTICLE	ASTM	IP	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-AS33C	33C	20C	Low Aniline Point	-38 +42°C	0.2	50	420
T-AS33F	33F	-	Low Aniline Point	-36.5 +107.5°F	0.5	50	420
T-AS34C	34C	21C	Medium Aniline Point	25 +105°C	0.2	50	420
T-AS34F	34F	-	Medium Aniline Point	77 +221°F	0.5	50	420
T-AS35C	35C	59C	High Aniline Point	90 +170°C	0.2	50	420
T-AS35F	35F	-	High Aniline Point	194 +338°F	0.5	50	420
T-AS36C	36C	-	Titer Test	-2 +68°C	0.2	45	405
T-AS37C	37C	77C	Solvents Distillation	-2 +52°C	0.2	100	395
T-AS38C	38C	78C	Solvents Distillation	24 +78°C	0.2	100	395
T-AS39C	39C	79C	Solvents Distillation	48 +102°C	0.2	100	395
T-AS40C	40C	80C	Solvents Distillation	72 +126°C	0.2	100	395
T-AS41C	41C	81C	Solvents Distillation	98 +152°C	0.2	100	395
T-AS42C	42C	82C	Solvents Distillation	95 +255°C	0.5	100	395
T-AS43C	43C	65C	Kinematic Viscosity	-51.6 -34°C	0.1	Total	420
T-AS43F	43F	65F	Kinematic Viscosity	-61 -29°F	0.2	Total	420
T-AS44C	44C	29C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305
T-AS44F	44F	29F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305
T-AS45C	45C	30C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305
T-AS45F	45F	30F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305
T-AS46C	46C	66C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
T-AS46F	46F	66F	Kinematic Viscosity	119.5 +124.5°	0.1	Total	305
T-AS47C	47C	35C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305
T-AS47F	47F	35F	Kinematic Viscosity	137.5 +142.5°F	0.1	Total	305
T-AS48C	48C	90C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
T-AS48F	48F	90F	Kinematic Viscosity	177.5 +182.5°F	0.1	Total	305
T-AS49C	49C	-	Stormer Viscosity	20 +70°C	0.2	65	305
T-AS50F	50F	-	Gas Calorimeter Inlet	54 +101°F	0.1	Total	468
T-AS51F	51F	-	Gas Calorimeter Inlet	69 +116°F	0.1	Total	468
T-AS52C	52C	-	Butadiene Boiling Point	-10 +5°C	0.1	Total	162
T-AS54C	54C	18C	Congealing Point	20 +100.6°F	0.2	Total	310
T-AS54F	54F	18F	Congealing Point	68 +213°F	0.5	Total	310
T-AS56C	56C	-	Bomb Calorimeter	19 +35°C	0.02	Total	585
T-AS56F	56F	-	Bomb Calorimeter	66 +95°F	0.05	Total	585
T-AS57C	57C	-	Tag Closed	-20 +50°C	0.5	57	287
T-AS57F	57F	-	Tag Closed	-4 +122°F	1	57	287
T-AS58C	58C	-	Tank	-34 +49°C	0.5	Total	303
T-AS58F	58F	-	Tank	-30 +120°F	1	Total	303
T-AS59C	59C	-	Tank	-18 +82°C	0.5	Total	303
T-AS59F	59F	-	Tank	0 +180°F	1	Total	303
T-AS60C	60C	-	Tank	77 +260°C	1	Total	303
T-AS60F	60F	-	Tank	170 +500°F	2	Total	303
T-AS61C	61C	63C	Petrolatum Melting Point	32 +127°C	0.2	79	380
T-AS61F	61F	-	Petrolatum Melting Point	90 +260°F	0.5	79	380
T-AS62C	62C	-	Precision	-38 +2°C	0.1	Total	379
T-AS62F	62F	-	Precision	-36 +35°F	0.2	Total	379
T-AS63C	63C	-	Precision	-8 +32°C	0.1	Total	379
T-AS63F	63F	-	Precision	18 +89°F	0.2	Total	379
T-AS64C	64C	-	Precision	25 +55°C	0.1	Total	379
T-AS64F	64F	-	Precision	77 +131°F	0.2	Total	379
T-AS65C	65C	-	Precision	50 +80°C	0.1	Total	379
T-AS65F	65F	-	Precision	122 +176°F	0.2	Total	379
T-AS66C	66C	-	Precision	75 +105°C	0.1	Total	379
T-AS66F	66F	-	Precision	167 +221°F	0.2	Total	379

ARTICLE	ASTM	IP	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-AS67C	67C	-	Precision	95 +155°C	0.2	Total	379
T-AS67F	67F	-	Precision	203 +311°F	0.5	Total	379
T-AS68C	68C	-	Precision	145 +205°C	0.2	Total	379
T-AS68F	68F	-	Precision	293 +401°F	0.5	Total	379
T-AS69C	69C	-	Precision	195 +305°C	0.5	Total	379
T-AS69F	69F	-	Precision	383 +581°F	1	Total	379
T-AS70C	70C	-	Precision	295 +405°C	0.5	Total	379
T-AS70F	70F	-	Precision	563 +761°F	1	Total	379
T-AS71C	71C	72C	Oil in Wax	-37 +21°C	0.5	76	355
T-AS71F	71F	72F	Oil in Wax	-35 +70°F	1	76	355
T-AS72C	72C	67C	Kinematic Viscosity	-19.4 -16.6°C	0.05	Total	305
T-AS72F	72F	67F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
T-AS73C	73C	68C	Kinematic Viscosity	-41.4 -38.6°C	0.05	Total	305
T-AS73F	73F	68F	Kinematic Viscosity	-42.5 -37.5°F	0.1	Total	305
T-AS74C	74C	69C	Kinematic Viscosity	-55.4 -52.6°C	0.05	Total	305
T-AS74F	74F	69F	Kinematic Viscosity	-67.5 -62.5°F	0.1	Total	305
T-AS75F	75F	-	Anti-freeze Freezing Point	-35 +35°F	0.5	100	408
T-AS76F	76F	-	Anti-freeze Freezing Point	-65 +5°F	0.5	100	408
T-AS77F	77F	-	Saybolt Viscosity	245 +265°F	0.5	Total	275
T-AS78F	78F	-	Saybolt Viscosity	295 +315°F	0.5	Total	275
T-AS79F	79F	-	Saybolt Viscosity	345 +365°F	0.5	Total	275
T-AS80F	80F	-	Saybolt Viscosity	395 +415°F	0.5	Total	275
T-AS81F	81F	-	Saybolt Viscosity	445 +465°F	0.5	Total	275
T-AS82C	82C	-	Fuel Rating. Engine	-15 +105°C	1	30	162
T-AS82F	82F	-	Fuel Rating. Engine	0 +220°F	2	30	162
T-AS83C	83C	-	Fuel Rating. Air	15 +70°C	1	40	171
T-AS83F	83F	-	Fuel Rating. Air	60 +160°F	1	40	171
T-AS84C	84C	-	Fuel Rating. Orifice Tank	25 +80°C	1	249	382
T-AS84F	84F	-	Fuel Rating. Orifice Tank	75 +175°F	1	249	382
T-AS85C	85C	-	Fuel Rating. Surge	40 +150°C	1	181	310
T-AS85F	85F	-	Fuel Rating. Surge	100 +300°F	2	181	310
T-AS86C	86C	-	Fuel Rating. Mix	95 +175°C	1	35	167
T-AS86F	86F	-	Fuel Rating. Mix	200 +350°F	2	35	167
T-AS87C	87C	-	Fuel Rating. Coolant	150 +205°C	1	40	172
T-AS87F	87F	-	Fuel Rating. Coolant	300 +400°F	1	40	172
T-AS88C	88C	101C	Vegetable Oil Flash	10 +200°C	1	57	287
T-AS88F	88F	-	Vegetable Oil Flash	50 +392°F	2	57	287
T-AS89C	89C	-	Solidification Point	-20 +10°C	0.1	76	370
T-AS90C	90C	-	Solidification Point	0 +30°C	0.1	76	370
T-AS91C	91C	-	Solidification Point	20 +50°C	0.1	76	370
T-AS92C	92C	-	Solidification Point	40 +70°C	0.1	76	370
T-AS93C	93C	-	Solidification Point	60 +90°C	0.1	76	370
T-AS94C	94C	-	Solidification Point	80 +110°C	0.1	76	370
T-AS95C	95C	-	Solidification Point	100 +130°C	0.1	76	370
T-AS96C	96C	-	Solidification Point	120 +150°C	0.1	76	370
T-AS97C	97C	-	Tank	-18 +49°C	0.5	Total	302
T-AS97F	97F	-	Tank	0 +120°F	1	Total	302
T-AS98C	98C	-	Tank	16 +82°C	0.5	Total	302
T-AS98F	98F	-	Tank	60 +180°F	1	Total	302
T-AS99C	99C	-	Weathering Test	-50 +5°C	0.2	35	302
T-AS99F	99F	-	Weathering Test	-58 +41°F	0.5	35	302
T-AS100C	100C	-	Solidification Point	145 +205°C	0.2	76	370
T-AS101C	101C	-	Solidification Point	195 +305°C	0.5	76	370

ARTICLE	ASTM	IP	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-AS102C	102C	83C	Solvents Distillation	123 +177°C	0.2	100	395
T-AS 103C	103C	84C	Solvents Distillation	148 +202°C	0.2	100	395
T-AS104C	104C	85C	Solvents Distillation	173 +227°C	0.2	100	395
T-AS105C	105C	86C	Solvents Distillation	198 +252°C	0.2	100	395
T-AS106C	106C	87C	Solvents Distillation	223 +277°C	0.2	100	395
T-AS107C	107C	88C	Solvents Distillation	248 +302°C	0.2	100	395
T-AS108F	108F	-	Saybolt Viscosity	270 +290°F	0.5	Total	275
T-AS109F	109F	-	Saybolt Viscosity	320 +340°F	0.5	Total	275
T-AS110C	110C	93C	Kinematic Viscosity	133.6 +136.4°C	0.05	Total	305
T-AS110F	110F	-	Kinematic Viscosity	272.5 +277.5°F	0.1	Total	305
T-AS111C	111C	-	Tar Acids Distllation	170 +250°C	0.2	100	395
T-AS112C	112C	-	Solidification Point of Benzene	4 +6°C	0.02	Total	215
T-AS113C	113C	89C	Softening Point Wide Range	-1 +175°C	0.5	Total	405
T-AS113F	113F	89F	Softening Point Wide Range	30 +350°F	1	Total	405
T-AS114C	114C	14C	Aviation Fuel Freezing Point	-80 +20°C	0.5	Total	300
T-AS116C	116C	-	Bomb Calorimeter	18.9 +25.1°C	0.01	Total	609
T-AS117C	117C	-	Bomb Calorimeter	23.9 +30.1°C	0.01	Total	609
T-AS118C	118C	-	Kinematic Viscosity	28.6 +31.4°C	0.05	Total	305
T-AS118F	118F	-	Kinematic Viscosity	83.5 +88.5°F	0.1	Total	305
T-AS119C	119C	-	Anti-Freeze Freezing Point	-38.3 -30°C	0.1	100	420
T-AS119F	119F	-	Anti-Freeze Freezing Point	-37 -22°F	0.2	100	420
T-AS120C	120C	92C	Kinematic Viscosity	38.6 +41.4°C	0.05	Total	305
T-AS121C	121C	32C	Kinematic Viscosity	98.6 +101.4°C	0.05	Total	305
T-AS122C	122C	94C	Brookfield Viscosity	-45 -35°C	0.1	Total	300
T-AS123C	123C	95C	Brookfield Viscosity	-35 -25°C	0.1	Total	300
T-AS124C	124C	96C	Brookfield Viscosity	-25 -15°C	0.1	Total	300
T-AS125C	125C	97C	Brookfield Viscosity	-15 -5°C	0.1	Total	300
T-AS126C	126C	71C	Kinematic Viscosity	-27.4 -24.6°C	0.05	Total	305
T-AS126F	126F	71F	Kinematic Viscosity	-17.5 -12.5°F	0.1	Total	305
T-AS127C	127C	99C	Kinematic Viscosity	-21.4 -18.6°C	0.05	Total	305
T-AS128C	128C	33C	Kinematic Viscosity	-1.4 +1.4°C	0.05	Total	305
T-AS128F	128F	33F	Kinematic Viscosity	29.5 +34.5°F	0.1	Total	305
T-AS129C	129C	36C	Kinematic Viscosity	91.6 +94.4°C	0.05	Total	305
T-AS129F	129F	36F	Kinematic Viscosity	197.5 +202.5°F	0.1	Total	305
T-AS130C	130C	-	TANK	-7 + 105°C	0.5	Total	303
T-AS130F	130F	-	TANK	20 + 220°F	1	Total	303
T-AS132C	132C	102C	Kinematic Viscosity	148.6 + 151.4°C	0.05	Total	305
T-AS133C	133C	-	Precision	-38 + 2°C	0.1	76	379
T-AS134C	134C	37C	Sludge	144 + 156°C	0.2	100	270
T-AS135C	135C	-	Fuel Rating Air-High	38 + 93°C	1	40	171
T-AS135F	135F	-	Fuel Rating Air-High	100 + 200°F	1	40	171
T-AS136C	136C	-	Avitation fuel density	-20 + 60°C	0.2	Total	290
T-AS136F	136F	-	Avitation fuel density	-5 + 140°F	0.5	Total	290
T-AS137C	137C	-	Oxidation Cell test	80 + 100°C	0.1	76	255

IP THERMOMETERS

Article	IP	ASTM	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-IP1C	1C	5C	Cloud and Pour	-38 +50°C	1	108	230
T-IP1F	1F	5F	Cloud and Pour	-36 +120°F	2	108	230
T-IP2C	2C	6C	Low Cloud and Pour	-80 +20°C	1	76	230
T-IP2F	2F	6F	Low Cloud and Pour	-112 +70°F	2	76	230
T-IP3C	3C	-	Demulsification	-1 +105°C	0.5	Total	280
T-IP3F	3F	-	Demulsification	30 +220°F	1	Total	-
T-IP4C	4C	-	Crude Oil Distillation	-4 +360°C	2	Toatl	310
T-IP5C	5C	7C	Low Distillation	-2 +300°C	1	Total	385
T-IP6C	6C	8C	High Distillation	-2 +400°C	1	Total	385
T-IP8C	8C	-	Flushing Case Low	0 +45°C	0.2	65	340
T-IP9C	9C	-	Flushing Case Low	40 +85°C	0.2	65	340
T-IP14C	14C	114C	Aviation Fuel freezing Point	-80 +20°C	0.5	Total	300
T-IP15C	15C	9C	Low Pensky-Martens	-5 +110°C	0.5	57	290
T-IP15F	15F	9F	Low Pensky-Martens	20 +230°F	1	57	290
T-IP16C	16C	10C	High Pensky-Martens	90 +370°C	2	57	290
T-IP16F	16F	10F	High Pensky-Martens	200 +700°F	5	57	290
T-IP17C	17C	14C	Wax Melting Point	38 +82°C	0.1	79	375
T-IP17F	17F	14F	Wax Melting Point	100 +180°F	0.2	79	375
T-IP18C	18C	54C	Congealing Point	20 +100.6°C	0.2	Total	310
T-IP20C	20C	54C	Low aniline Point	-38 +42°C	0.2	50	420
T-IP21C	21C	34C	Medium Aniline Point	25 +105°C	0.2	50	420
T-IP22C	22C		Oxidation	195 +205°C	0.1	100	300
T-IP23C	23C	18C	Reid Vapour Pressure	34 +42°C	0.1	Total	275
T-IP23F	23F	18F	Reid Vapour Pressure	94 +108°F	0.2	Total	275
T-IP24C	24C	22C	Oxidation Stability	95 +103°C	0.1	Total	275
T-IP24F	24F	22F	Oxidation Stability	204 +218°F	0.2	Total	275
T-IP28C	28C	11C	Cleveland Open Flash	-6 +400°C	2	25	310
T-IP28F	28F	11F	Cleveland Open Flash	20 +760°F	5	25	310
T-IP29C	29C	44C	Kinematic Viscosity	18.6 +21.4°C	0.05	Total	305
T-IP29F	29F	44F	Kinematic Viscosity	66.5 +71.5°F	0.1	Total	305
T-IP30C	30C	45C	Kinematic Viscosity	23.6 +26.4°C	0.05	Total	305
T-IP30F	30F	45F	Kinematic Viscosity	74.5 +79.5°F	0.1	Total	305
T-IP31C	31C	28C	Kinematic Viscosity	36.6 +39.4°C	0.05	Total	305
T-IP31F	31F	28F	Kinematic Viscosity	97.5 +102.5°F	0.1	Total	305
T-IP32C	32C	121C	Kinematic Viscosity	98.6 +101.4°C	0.05	Total	305
T-IP32F	32F	30F	Kinematic Viscosity	207.5 +212.5°F	0.1	Total	305
T-IP33C	33C	128C	Kinematic Viscosity	-1.4 +1.4°C	0.05	Total	305
T-IP33F	33F	128F	Kinematic Viscosity	29.5 +34.5°F	0.1	Total	305
T-IP34C	34C	29C	Kinematic Viscosity	52.6 +55.4°C	0.05	Total	305
T-IP34F	34F	29F	Kinematic Viscosity	127.5 +132.5°F	0.1	Total	305
T-IP35C	35C	47C	Kinematic Viscosity	58.6 +61.4°C	0.05	Total	305
T-IP35F	35F	47F	Kinematic Viscosity	137.5 +142.5°F	0.1	Total	305
T-IP36C	36C	129C	Kinematic Viscosity	91.6 +94.4°C	0.05	Total	305
T-IP36F	36F	129F	Kinematic Viscosity	197.5 +202.5°F	0.1	Total	305
T-IP37C	37C	134C	Sludge	144 +156°C	0.2	100	270
T-IP38C	38C	-	Penetration	23 +27°C	0.1	Total	260
T-IP39C	39C	-	Density	-1 -38°C	0.1	Total	440
T-IP39F	39F	-	Relative Density	30 +100°F	0.2	Total	440
T-IP40C	40C	-	Drop Point Low	20 +120°C	1	100	250
T-IP41C	41C	-	Drop Point Low	100 +230°C	1	100	250
T-IP42C	42C	-	Breaking Point	-30 +30°C	0.5	250	370

Article	IP	ASTM	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-IP43C	43C	-	FP Cut-Back (Int)	10 +110°C	0.5	-	305
T-IP43F	43F	-	FP Cut-Back (Int)	50 +230°F	1	-	305
T-IP44C	44C	-	FP Cut-Back (Ext)	15 +121°C	0.5	-	305
T-IP44F	44F	-	FP Cut-Back (Ext)	60 +250°F	1	-	305
T-IP45C	45C	-	Refractometer	15 +30°C	0.2	22	160
T-IP46C	46C	-	Gravity Balance	14.5 +21°C	0.1	Total	160
T-IP46F	46F	-	Gravity Balance	58° +70°F	0.2	Total	160
T-IP47C	47C	13C	Loss on Heating	115 +170°C	0.5	Total	155
T-IP48C	48C	-	Tank Low	-38 +30°C	0.5	Total	310
T-IP49C	49C	-	Tank Medium	-15 +40°C	0.5	Total	310
T-IP50C	50C	-	Tank High	10 +65°C	0.5	Total	310
T-IP51C	51C	-	Tank Heated Fuel	35 +120°C	0.5	Total	310
T-IP52C	52C	-	Tank Bitumen	90 +260°C	1	Total	310
T-IP53C	53C	-	Tank Cargo	0 +80°C	0.5	Total	310
T-IP59C	59C	35C	High Aniline Point	90 +170°C	0.2	50	420
T-IP60C	60C	15C	Low Softening Point	-2 +80°C	0.2	Total	395
T-IP61C	61C	16C	High Softening Point	30 +200°C	0.5	Total	395
T-IP62C	62C	-	Partial immersion	-5 +300°C	1	76	390
T-IP62F	62F	-	Partial immersion	20 +580°F	2	76	390
T-IP63C	63C	61C	Petrolatum Melting Point	32 +127°C	0.2	79	380
T-IP64C	64C	12C	Density-Wide Range	-20 +102°C	0.2	Total	420
T-IP64F	64F	12F	Density-Wide Range	-5 +215°F	0.5	Total	420
T-IP65C	65C	43C	Kinematic Viscosity Low	-51.6 -34°C	0.1	Total	417
T-IP65F	65F	43F	Kinematic Viscosity	-61 -29°F	0.2	Total	420
T-IP66C	66C	46C	Kinematic Viscosity	48.6 +51.4°C	0.05	Total	305
T-IP66F	66F	46F	Kinematic Viscosity	119.5 +124.5°F	0.1	Total	305
T-IP67C	67C	72C	Kinematic Viscosity	19.4 -16.6°C	0.05	Total	305
T-IP67F	67F	72F	Kinematic Viscosity	-2.5 +2.5°F	0.1	Total	305
T-IP68C	68C	73C	Kinematic Viscosity	-41.4 -38.6°C	0.05	Total	305
T-IP68F	68F	73F	Kinematic Viscosity	42.5 -37.5°F	0.1	Total	305
T-IP69C	69C	74C	Kinematic Viscosity	-55.4 -52.6°C	0.05	Total	305
T-IP69F	69F	74F	Kinematic Viscosity	67.5 -62.5°F	0.1	Total	305
T-IP71C	71C	126C	Kinematic Viscosity	-27.4 -24.6°C	0.05	Total	305
T-IP71F	71F	126F	Kinematic Viscosity	17.5 -12.5°F	0.1	Total	305
T-IP72C	72C	71C	Oil in Wax	-37 +21°C	0.5	76	355
T-IP72F	72F	71F	Oil in Wax	-35 +70°F	1	76	355
T-IP73C	73C	-	Partial Immersion	-5 +400°C	1	76	415
T-IP73F	73F	-	Partial Immersion	20 +760°F	2	76	415
T-IP74C	74C	-	Abel Oil Cup Wide Range	-35 +70°C	0.5	61	310
T-IP74F	74F	-	Abel Oil Cup Wide Range	-35 +160°F	1	61	310
T-IP75C	75C	-	Abel Water Bath Wide Range	-30 +80°C	0.5	89	310
T-IP75F	75F	-	Abel Water Bath Wide Range	-25° +180°F	1	89	310
T-IP76C	76C	-	Engler Viscosity	10 +55°C	0.5	93	240
T-IP77C	77C	37C	Solvents Distillation	-2 +52°C	0.2	100	395
T-IP78C	78C	38C	Solvents Distillation	24 +78°C	0.2	100	395
T-IP79C	79C	39C	Solvents Distillation	48 +102°C	0.2	100	395
T-IP80C	80C	40C	Solvents Distillation	72 +126°C	0.2	100	395
T-IP81C	81C	41C	Solvents Distillation	98 +152°C	0.2	100	395
T-IP82C	82C	42C	Solvents Distillation	95 +255°C	0.5	100	395
T-IP83C	83C	102C	Solvents Distillation	123 +177°C	0.2	100	395
T-IP84C	84C	103C	Solvents Distillation	148 +202°C	0.2	100	395
T-IP85C	85C	104C	Solvents Distillation	173 +227°C	0.2	100	395
T-IP86C	86C	105C	Solvents Distillation	198 +252°C	0.2	100	395

Article	IP	ASTM	NAME	RANGE	DIV. (T°)	IMM. (mm)	LENGTH (mm)
T-IP87C	87C	106C	Solvents Distillation	223 +277°C	0.2	100	395
T-IP88C	88C	107C	Solvents Distillation	248 +302°C	0.2	100	395
T-IP89C	89C	113C	Softening Point Wide Range	-1 +175°C	0.5	Total	405
T-IP89F	89F	113F	Softening Point Wide Range	30 +350°F	1	Total	405
T-IP90C	90C	48C	Kinematic Viscosity	80.6 +83.4°C	0.05	Total	305
T-IP90F	90F	48F	Kinematic Viscosity	177.5 +182.5°F	0.1	Total	305
T-IP91C	91C	-	Rapid Flash	0 +110°C	1	44	198
T-IP92C	92C	120C	Kinematic Viscosity	38.6 +41.4°C	0.05	Total	305
T-IP93C	93C	110C	Kinematic Viscosity	133.6 +136.4°C	0.05	Total	305
T-IP94C	94C	122C	Brookfield Viscosity	-45 -35°C	0.1	Total	300
T-IP95C	95C	123C	Brookfield Viscosity	-35 -25°C	0.1	Total	300
T-IP96C	96C	124C	Brookfield Viscosity	-25 -15°C	0.1	Total	300
T-IP97C	97C	125C	Brookfield Viscosity	-15 -5°C	0.1	Total	300
T-IP98C	98C	-	Rapid Flash (High)	100 +300°C	2	44	197
T-IP99C	99C	127C	Kinematic Viscosity	-21.4 -18.6°C	0.05	Total	305
T-IP100C	100C	-	Kinematic Viscosity	78.6 81.4°C	0.05	Total	305
T-IP101C	101C	88C	Medium Pensky-Martens	20 +150°C	1	57	290
T-IP102C	102C	132C	Kin Visk 150°C	148.6 + 151.4°C	0.05	Total	305

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