# PLASTIC AND RUBBER

# TESTING

RAW MATERIAL CHARACTERIZATION
THERMAL PROPERTIES
DEGRADATION TESTS
PHYSICAL MECHANICAL TESTS
SPECIMEN PREPARATION

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ENGLISH

noselab ats
ADVANCED TESTING SOLUTIONS

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**NOSELAB ATS**, forty years of experience in the field of instrumentation. We have been able to develop a range of Instruments that are the starting point of the laboratory of every company in the industrial and manufacturing world of plastics and composites.

## Technology

Always new technological solutions linked, however, to the experiences and methods dictated by the most widely used international standards: ASTM, ISO,DIN, UNI.
Thus, we have prepared ourselves to give an overall service to the laboratory technicians of the industry. We guarantee the most suitable solution to the various measurement needs and enable the study of the intrinsic appearance of products and artifacts. With the aim of maintaining a high level of instrumental management to also support the demands of Industry 4.0.

## Certification and Quality

Certification of instruments is performed following ISO 17025 methods and procedures, by comparison with primary samples verified and certified periodically by ACCREDIA Institutes or Centers.

## Technical Consulting

A Consultation to laboratory technicians necessary to be able to ensure the most effective and targeted solution to identify the test methods, which each material requires.

**Web Catalog**

The equipment listed in the catalog is grouped into SECTIONS functional to the various tests. Further information is available on the website in addition to news and Exhibition Calendars.



Testing machines play a significant role in the verifications carried out in the laboratory, they must be both simple and flexible, be able to have many accessories and variants.
This catalog groups by type the machines that deal with from the realization of specimens both for mold and cutting, that the definition of the type of test to test the plastic material or artifact **the Destructive and mechanical Tests**.
Exemplifying these are the **TCS** Universal Testing Machine that offers many possibilities, it can be equipped with a range of grips or loads that allow the behavior and deformation of the material to be studied. The **Charpy** and **Izod** resilience test that researches the property of resisting dynamic forces applied in a very short time, again there are many variants, so it is very important to go in-depth and evaluate in parallel the standards that have always addressed all technical aspects of thermoplastics and elastomers. This is followed by proposals for equipment for tests of **Abrasion, Hardness, Friction, Pressure, Thickness** Range of **Plastometers**
for the determination of the 'fluidity index of plastic materials - defined and known as Melt Flow Rate (M.F.R.) - for the acceptance and study of polymeric grain in both quality and research and development.
Performing these tests provides information on material behavior, including thermal stability, knowledge of which is needed in processing steps such as molding or extrusion. The Melt Index is a value related to the fluid state that allows an estimate of the average molecular weight. Versions are available for performing tests on highly corrosive thermoplastics such as PTFE, PVC, PVDC, etc. made with hastelloy steel all parts in contact with polymers.

# MELT INDEX

Extrusion plastometer using the gravimetric method, that is, the amount in grams of extrudate in 10 minutes. The heated material is extruded, manually cut at regular intervals, and weighed with a precision scale.


| | |
|---|---|
| 10002013 | MELT INDEX manual cutting |
| 10002017 | MELT INDEX manual cutting - Hastelloy |

**Standard**

| | |
|---|---|
| ASTM | D 1238 method A, D 2116, D 3159 |
| ISO | 1133 |
| UNI | 5640 |

**Main features:**
Equipped with mechanical device for manual cutting of extrudate
Electronic temperature control system, microprocessor with 5" color TFT TOUCH Screen (0.1°C resolution) for temperature setting and control
Heating system: 2 heating elements
Working temperature: 50° - 400°C (0.2°C)
Thermal stability: 0.2°C in the test area

**Size and material: Nozzle - Matrix - Piston**
**Matrix:** int. 9.55 mm, steel (52/55 HRC)
**Plunger:** 9.474 mm diam. 6.35 mm pressing base height, steel (45/50 HRC), weight 325 g., complete with weight-bearing head
**Nozzle:** bore 2.095 mm, height 8 mm, steel (60/65 HRC)

| Mass (kg.) | Weights | Code |
|---|---|---|
| 0.325 | Piston with weight holder | Included in basic configuration |
| 1.000 | g. 675 | 10002034 |
| 1.050 | g. 725 | 10002033 |
| 1.200 | g. 875 | 10002032 |
| 2.160 | g. 1835 | 10002031 |
| 3.800 | g. 3475 | 10002030 |
| 5.000 | g. 4675 | 10002029 |
| 10.00 | 10002029 + g.5000 | 10002029 + 10002092 |
| 12.500 | g.4675 + g. 5000+ g. 2500 | 10002029 + 10002092 + 10002091 |
| 21.600 | g 4.675 + 3 x g. 5000+ g.1600 | 10002029 + 3 x 10002092 + 10002090 |

# AUTOMATIC MELT

Automatic-cut extrusion plastometer for determining the hot melt fluidity index of thermoplastic materials
The instrument in addition to the gravimetric procedure (MFR) also performs the volumetric procedure (MVI) and uses a linear piston displacement detection system, hence the volume of the extruded material in a known time.
The microprocessor acquires the data and processes it by automatically calculating up to 12 MFR values; the values and their average are shown on the display.

| | |
|---|---|
| 10002410 | A MELT automatic cut |
| 10002412 | A MELT automatic cutting - Hastelloy |


Dimensions: 420x300x530 h mm Weight: 30 kg (approx.)

In addition to features common with the Melt Index Electromechanical device for automatic cutting of the extrudate, according to the times specified in ASTM D 1238
Linear piston displacement detection system
USB interface for connection to PC

**Accessories**

| | |
|---|---|
| 00100107 | SOFTWARE A-Mep/ A-MELT Link Standard |
| 10002074 | Go-no-go nozzle gauge (code 10002023) with Report (UKAS) |
| 40300725 | Digital spirit level |
| 10002023 | Nozzle 8 mm length - hole diam - 2.09 mm |
| 10002056 | Calibration certificate for nozzle |

# MEP
# AUTO INDEX

Automatic Extrusion Plastometer - is a highly reliable instrument that can meet the most sophisticated laboratory requirements for Production Quality Control, determines with automated procedures the Hot Melt Flow Index - Melt Flow Rate, a fundamental test of characterization of thermoplastic materials, in accordance with various international standards. The loading of weights is manual. Default masses 2.16 - 5 - 10 - 21.6 kg, other weights can be included upon request.
The instrument is equipped with an extruded material cutting device consisting of an electronic timer that operates the blade automatically according to the intervals set by program, or manually and at any time by pressing a button.


Dimensions: 600x330x530 h mm Weight: 35 kg (approx.)

| | |
|---|---|
| 10002216 | Automatic MeP |
| 10002218 | Hastelloy Automatic MEP |

**Main features:**
Touch-screen interface, color LCD
Built-in microprocessor for test management
PID-action, digital
and microprocessor-based electronic temperature control system - 0.1°C resolution
Operating temperature: 80° ÷ 400°C
Configuration of test parameters (temperature, preheating time, acquisition space, material density, applied weight) storable: 28 pre-set configurations
Measurement sampling from 10 to 50 determinations
Preheating with or without weight
Repeatability of test starting position
Thermal stability: ± 0.2°C in the test zone
Equipped with an extruded material cutting device, an electronic timer that operates the blade automatically according to set intervals, or manually and at any time by pressing a button
Cutting ranges according to ASTM D 1238: 15 - 30 - 60 - 120 - 180 - 360
Fold-down test fixture on the front for easy cleaning of the chamber
USB for connection to PC

**Standard**

| | |
|---|---|
| ASTM | D 1238 Method A & B, D 2116, D 3159 |
| ISO | 1133 |
| UNI | 5640 |

The Stove in both models can be tipped to the front, allowing better execution by the 'operator who has to perform cleaning of the test chamber after each test.

**Size and material: Nozzle - Matrix - Piston**
**Matrix:** int. 9.55 mm, steel (52/55 HRC)
**Plunger:** 9.474 mm diam. height of pressing base 6.35 mm, steel (45/50 HRC), weight 325 g., complete with weight-bearing head
**Nozzle:** bore 2.095 mm, height 8 mm, steel (60/65 HRC)

**Optional**
AMep Link Standard version software: graphical display of data, printing of graphs, archiving and recall of tests, printing of determinations made and/or archived, showing mean and standard deviation, comparison between 2 tests.
Code 00100105



# A-MEP
# AUTO INDEX MULTWEIGHT

Automatic Extrusion Plastometer - is the ideal instrument to meet the needs of major laboratories for both Quality Control and R&D. A-MeP makes it possible to determine with automated procedures the Hot Melt Flow Index - Melt Flow Rate, a fundamental test of characterization of thermoplastic materials, in accordance with various international standards having the possibility of preloading the masses and selecting them.
The automatic weight lifter (4 masses) directly slaved to the control electronics facilitates material compaction operations, preheating is done with or without weight.
The instrument is equipped with an extruded material cutting device consisting of an electronic timer that automatically operates the blade according to program-set intervals.


Dimensions: 600x330x1000 h mm Weight: 80 kg (approx.)

| | |
|---|---|
| 10002215 | Multi-weight automatic A-Mep |
| 10002217 | A-Mep Automatic Multiweight Hastelloy |

**Main features:**
Touch-screen interface, color LCD
Built-in microprocessor for test management
PID-action, digital, microprocessor-based electronic temperature control system - 0.1°C resolution
Operating temperature: 80° ÷ 400°C
Thermal stability: ± 0.2°C in the test zone
Preheating with or without weight
Configuration of test parameters (temperature, preheating time, acquisition space, material density, applied weight) storable: 28 pre-set configurations
Predefined masses 2.16 - 5 - 10 - 21.6 kg (different weights available upon request)
Equipped with an extruded material cutting device, an electronic timer that operates the blade automatically according to the set intervals, or manually and at any time by pressing a button
Cutting intervals according to ASTM D 1238: 15 - 30 - 60 - 120 - 180 - 360"
Measurement sampling from 10 to 50 determinations
USB for connection to PC

**Standard**

| | |
|---|---|
| ASTM | D 1238 Method A & B, D 2116, D 3159 |
| ISO | 1133 |
| UNI | 5640 |

| | MELT INDEX | A MELT | MEP | A MEP |
|---|---|---|---|---|
| Temperature range | 50° to 400°C | | 80° to 400°C | |
| Temperature control accuracy | ±0.2° C | | | |
| Temperature resolution | 0.1° C | | | |
| Heating time | < 30 min | | | |
| Automatic cutting system | | - | - | - |
| Linear positioning system | | - | - | - |
| Motorized lift | | | | - |
| High-resolution touch screen | 5" TFT | 5" TFT | LCD | LCD |
| Gravimetric Testing | - | - | - | - |
| Volumetric Test | | - | - | - |
| Masses Kg | From table | | 2,16/5/10/21,6 | |
| Consumption | 400W | 400W | 420W | 570W |
| Dimensions (mm) | 420x300x530 | 420x300x530 | 600x330x530 | 600x330x1000 |
| Weight | 30 Kg | 30 Kg | 35 Kg | 80 Kg |

# MELTING POINT

Detects the Point at which thermoplastics in powder form melt. The powdered material is sealed between two slides and heated according to the Fisher Johns method. The state transition of the material under test is observed under an illuminated magnifying glass that offers to perform observation of the phenomenon.


Dimensions: 310x230x220 h mm Weight: 5 kg (approx.)

10002500 Melting Point

**Standard**

| | |
|---|---|
| ASTM | D 2117 |
| ASTM | D 789 |

**Main features:**
Measuring range +30 to 300°C
Accuracy: ± 0.1°C
TFT color display, microprocessor with digital temperature indicator
Illuminated magnifying glass
The instrument comes with 1 pack of slides diam. 18 mm thickness 0.1 mm (100 Pcs)

# CURE TIME TESTING APPARATUS

Measures the curing time of two-component resins, e.g., epoxy or polyester resins. The presence of four cavities allows for multiple tests, reserving one of the cavities for a test conducted on the resin alone.


Dimensions: 260x260x260 h mm Weight: 8 kg (approx.)

10077000 Cure Time

**Standard**

| | |
|---|---|
| ISO | 8987 |
| DIN | 16916 02 |

**Main features:**
AISI 304 stainless steel top plate, provided with 4 hemispherical ø 20 mm copper seats complete with 4 separate heaters, enslaved to the temperature controller, insulated with refractory material
Digital PID electronic temperature controller with microprocessor and 4-digit liquid crystal display
Membrane keys for setting temperatures and light-emitting diode lights to indicate that temperature control is in effect
Scale from 0 to 300°C
Accuracy ± 0.1°C
Protection and safety cover

# FLUOMETERS

Fluometers for measuring bulk density and flowability of plastic materials.

The apparatus allows determination of the bulk density of granular plastic materials and flowing powders through a borehole of normalized dimensions.
Container with a hole diameter of 9.5 mm; equipped with a bottom closure,
load-bearing support and a cup for collecting the flowed material having capacity of 100 ± 0.5 cm according to ASTM D 1895 met. A - ISO 618660.

For determining the bulk density of molding materials consisting of a funnel of truncated cone shape with total height 115 mm, a funnel holder support and a collection cup, capacity 100 ± 0.5 ml and inner diameter 33 mm according to ISO 60.


| | |
|---|---|
| 10016000 | ASTM D 1895 method A FLUOMETER |
| 10016001 | FLUOMETER ISO 60 |
| 10016002 | ASTM D 1895 FLUOMETER method B |
| 10016003 | FLUOMETER ASTM D 1895 method C |

# GRADIENT DENSITY

**Density Gradient**
Allows determination of the density of solid materials at a temperature of 23°C according to the density gradient method. In a measuring range of 0.84 ÷ 2.6 g/cm$^3$ based on the use of spheres of known density. Small glass spheres of known density are dropped into the column and stop when their density coincides with the density of the solution in which they are immersed. To determine the density of a sample, it is necessary to immerse it in the same column and wait until it has stopped having reached equilibrium between its own density and that of the solution. The instrument is equipped with a motor-driven device for retrieving spheres and samples without altering the gradient.


| | |
|---|---|
| 10006000 | 2-column Density Gradient |
| 10006010 | 3-Column Density Gradient |
| 10006015 | Automatic filling system / 2 pumps |

**Standard**

| | | | |
|---|---|---|---|
| ASTM | D 1505 | BS | 2782 65 Meth. 509 |
| DIN | 53479 | ISO | 823 meth. D, 1183 |

**Main features:**
Bath capacity: 45 liters
Dependable from 2 or 3 columns 850 mm/55 diam-
thermostated and graduated for 700 mm, division 1 mm
Measuring range: 0.8 ÷ 3.3 g./3 cm (accuracy 0.0001 g./cm3at 23°C)
Thermostatting unit at 23°C (± 0.1°C) - cooling coil to be connected to water supply
Motorized system for recovery of density spheres and samples

Dimensions: 310 x 310 x 1280 h mm Weight: 13 Kg Dimensions: 600 x 450 x 1100 mm Weight: 25 Kg


COLUMN FILLING SYSTEM
The mixing equipment is controlled by " touch screen ", pump calibration and column filling with the set parameters is performed. The System with peristaltic pumps enables automatic column filling by adjusting the density with high precision. It defines filling with variable density and possibly a head and tail with fixed density (minimum and maximum). The control system allows three distinct working functions LOW, MIX and HIGH. Two methods (A- B-) with one or two pumps. A built-in magnetic stirrer acts under the conical flasks containing the solution.

**Accessories**

| | |
|---|---|
| 10006001 | Set of 8 certified balls / density 0.84xx÷1.59xx |
| 10006005 | Single certified sphere/ density 0.84xx÷1.59xx |
| 10006007 | Single certified sphere/ density 1.50xx÷2.30xx |

# HDT VICAT

Apparatus for determining bending temperature, HDT test and softening temperature, VICAT test.
Thermostatting is by diathermic liquid with accuracy ± 0.2°C While refrigeration of the test tank is achieved by forced circulation of water in the cavity.
Deformation detection by linear transducers with accuracy of 0.01 mm.
Starting the test and setting up the thermal rise via color TFT Touch Screen keyboard to display the deflection or penetration values of each specimen and bath temperature.


| | |
|---|---|
| 10001002 | HDT Vicat MP3 |
| 10001040 | HDT Vicat MP6 |
| 10001019 | Vicat MP3 |

**Standard configuration includes:**
3 heads for each VICAT and HDT test or 6 heads
Centralizer for HDT heads
VICAT testing weights, 2 weights of 910 and 4000 g
Binary weights for HDT testing, 12 weights of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512,1024 and 2048 g

**Main features:**
Operating temperature +20°C +300°C
Storage of the initial strain of the specimen
Deformation or penetration stroke presetting
Temperature stabilization of the bath with a capacity of about 7.75 liters
Data storage until the device is turned off
Automatic return to initial temperature at the end of the test


**MP3**
Dimensions: 600x710x540 h mm
Weight: 80 kg

**MP6**
Dimensions: 730x710x540 h mm
Weight: 135 Kg

**Standard**

| | |
|---|---|
| Vicat Softening Temperature (VST): | |
| ASTM | D 1525 |
| DIN | 53460 |
| UNI EN ISO | 306 |
| HDT (Heat Deflection Temperature): | |
| ASTM | D 648 |
| ISO | 75-2 |
| DIN | 53461 |

**Optional accessories**

| | |
|---|---|
| 10201903 | Silicone Oil 350 (5 kg) |
| 10001016 | TEMPERATURE CONTROL OPTION FOR HDT/Vicat MP3 per crew<br>Allows temperature control per individual test station via 3 separate PT100 probes |
| 10001081 | ADAPTER for flat specimens (FLAT WISE)<br>supports 64 mm according to ISO 75-2 -for each test station |
| 00100114 | VICAT HDT Data Link Software |

# OZONE CHAMBER

**AUTOMATIC APPARATUS FOR DETERMINATION OF OZONE RESISTANCE**
Allows evaluation of the resistance to the action of an ozone air concentration opposed by rubbers and elastomers in general.
Ozone concentration varying from 0 to 500 parts per hundred million air pphm, detected by an analyzer that allows continuous analysis of the amount of ozone in gaseous mixtures, electronically controlled and fully automatic, measures ozone contents in the range 0-500 pphm with extreme precision by determining absorption due to ozone present detected at a wavelength of 254 nm. Results are presented as pphm on a digital display and are free from interference due to the presence of other gases or moisture.


| | |
|---|---|
| 10047005 | Ozone chamber 100 lt - 0-500 pphm |
| 10047006 | Ozone chamber 100 lt + Humidity control |
| 10047008 | Ozone chamber 180 lt + Humidity control |

**Key features:**
Temperature controlled by a temperature controller that ensures ± 2°C uniformity throughout the test cell in the range of +10 +65 °C
Refrigeration unit cooling system
Ozone generator consisting of: silent discharge generator
Ozone concentration is detected by U.V. Analyzer in the range of 0-500 pphm
Air changes from 1/3 changes/minute
Continuous cycle filtration system using activated carbon
Planetary Rotational Support for the Testing Device
Rotational speed 1/10 up to 1 rotation/min
PLC Touch screen controller: program 100 groups 120 sections
Various safety functions and over current and over temperature protection
RS 232 communication port

**100 l**
Test chamber dimensions: 450x450x500 h mm
External dimensions: 1200x800x1600 h mm
Weight: 150 kg

**180 lt**
Test chamber dimensions: 600x500x750 h mm
External dimensions: 1200x1120x1810 h mm
Weight: 210 Kg

**Standard**

| | |
|---|---|
| ASTM | D 1149 |
| ASTM | B 117 |
| ASTM | B 268 |
| ISO | 1431 |

Rotating device "Carrier" for static testing with 12 tensioners according to ISO 1431-1
Other solutions available to perform dynamic testing according to ASTM D 3395.

**Optional accessories**

| | |
|---|---|
| 10047025 | Mobile "Carrier" device, rotary complete with 12 tensioners for single specimens |
| 10047022 | Tensioner for single specimen (additional) |
| 10047021 | Device for dynamic testing according to ASTM D3395 |

# CONTENT OF CARBON BLACK

System for determination of Carbon Black content in olefins: polyethylene, polypropylene, etc.
The method is based on pyrolytic decomposition of the material in a stream of inert gas (nitrogen), the remaining amount is burned again under forced ventilation, and the carbon black content determined by weight difference.
The Tubular Electric Furnace for burning the material reaches the maximum temperature of 1100°C.

| | |
|---|---|
| 11000015 | CARBON BLACK |

External dimensions of furnace only: 500x340x570 h mm
Heated tube length: 400 mm ± 5°C temperature uniformity in 196 mm length

Weight: 37 kg

| Standard | |
|---|---|
| ASTM | D 1603 |

**Main features:**
Inner size of the tubular chamber length 450 mm inner diameter 60 mm
Accuracy of furnace over 100°C = 1° C
Quartz test tube diam. 29 mm with rubber stoppers
Set of combustion shuttle 96x12x10 mm with ring
Nitrogen flowmeter with regulating valve
Glassware kit for nitrogen purification and bottles for filtration

**Accessories**

| | |
|---|---|
| 11000011 | Nitrogen purification kit 1 bott. (250 ml) |
| 11000012 | Discharge filtration kit 2 bott. (250 ml) dry ice bath 2000 ml |
| 40991074 | Glass dryer diam. 200 with lid and knob |
| 40991058 | Porcelain perforated plate for dryer c.s. |
| 40990059 | Granular silica gel with indicator 1000 g. |
| 40991075 | Quartz tube 29 x 570 mm |
| 17101023 | Quartz boats 76 x 10 x 16 mm with ring |

Chemicals for use with optional accessories: pyrogallic acid, potassium hydroxide, trichloroethylene.

# BRITTLENESS -TR TESTER

System for performing two of the most important tests for rubber and elastomers: low-temperature shrinkage (TR) and Brittleness Point for temperature-stabilized testing of both the effects of crystallization and springback of specimens. Equipped with an electronic incremental temperature programmer, the chiller unit allows temperatures of -75°C, and the test tank has a capacity of 20 liters. To implement the Brittleness Point impact , the instrument exploits a club constrained at one end that in free fall, rotating around the constrained end strikes the specimen. Repeatability and consistency are ensured by an automatic mallet release system.

| | |
|---|---|
| 10012006 | BRITTLENESS Refrigerated |
| 10012010 | BRITTLENESS + TR TESTER Refrigerated |
| 10012014 | BRITTLENESS + TR TESTER refrigerated and instr.ted |
| 10029005 | TR TESTER Refrigerated |
| 10029006 | TR TESTER Refrigerated and Instrumented |

Dimensions: 1300x810x1530 h mm Net weight: 250 kg

| Standard | |
|---|---|
| ASTM | D1329, D 2137 met. A and B |
| ISO | 2921, 974, 812 |
| DIN | 53546 |

**TR TEST**
ISO 2921 - ASTM D 1329
With this apparatus, both the effects of crystallization and springback of specimens can be evaluated.

**BRITTLENESS TESTER**
ISO 974 - ISO 812 - ASTM D 2137 met. A and B - DIN 53546
Allows the determination of the temperature at which 50% of the tested specimens break at the prescribed conditions, or have surface cracks.

**Integrated electronic detection system**
Signals originated from the transducers of the TR tester and Brittleness Tester are sent to the interfaced Personal Computer. The provided program allows data to be displayed and printed and/or transferred to an external system.

# IMPACT PENDULUM

Impact pendulum for energies up to 50 J.
The method is based on determining the energy value required to break a plastic specimen. Since the potential energy of the sledgehammer is known, depending on its shape, weight, and angle of release, the angle of rise of the sledgehammer after impact is measured and the energy absorbed by its rupture is determined. The test methods generally used are: Charpy, Izod and tensile impact. The three methods differ in the way the specimen is held and how the stress is applied.

| | |
|---|---|
| 16010200 | IMPACT 15J Touch Screen Pendulum |
| 16010204 | IMPACT Pendulum 25J Touch Screen |
| 16010207 | Pendulum IMPACT 50J Touch Screen |

Dimensions: 980x265x810 h mm
Weight: 125/150/200 Kg

| Standard | |
|---|---|
| ASTM | D256, D6110, D1822, D4812 |
| DIN | 51222 |
| ISO | 179, 180, 8256 |

**Main features:**
Electronic transverse leveling and centering system for Charpy specimens
Dual PULL-type sledgehammer release safety systems, side guard screens and brake for slowing down sledgehammer action after impact
Touch screen/7" operator interface for entering test parameters (up to 20 specimens) and for displaying energy and resilience after an impact with relative angle of ascent
Self-diagnosis of major functions and coding of any machine/operator errors
Storage of thousands of trials

**Accessories**

| | |
|---|---|
| 16010222 | Variable drop angle device (30° to 140°) motorized |
| 00100103 | Impact Link Software for report archiving and printing |

**Test methods**
NOSELAB ATS manufactures different types of mallets, guaranteed to be properly calibrated that cover an impact energy range up to about 25 joules, and Charpy impact test straps and shims mount in their seats with no possibility of error; the specimen is broken by swinging the mallet with the impact line centered between the two supports. Izod tests are performed with standard or quick-lock vices with the specimen upright with the impact line at a fixed distance. In tests using the tensile impact method, the specimen, normally butterfly shaped, is inserted into locking brackets and broken by a single swing of the pendulum mace that stresses the specimen by longitudinal tension.

**Test kits**

According to DIN 53453, ISO 179

| Code | Description |
|---|---|
| 16010271 | Shims + shims kit for Charpy test specimen |
| 16010231 | 1.00J Charpy hammer |
| 16010232 | Charpy hammer from 2.00J - 4.00J - 5.00J |
| 16010233 | Charpy hammer from 7.50J - 15.00J |
| 16010234 | Charpy hammer from 25.00J |
| 16010235 | Charpy hammer from 50.00J |

According to ASTM D 6110

| Code | Description |
|---|---|
| 16010270 | Shim kit + shims for Charpy test |
| 16010239 | 2.75J Charpy hammer |
| 16010240 | 5.50J Charpy hammer |
| 16010241 | Charpy hammer from 11.00J |
| 16010242 | Charpy hammer from 22.00J |

According to ASTM D 256, ASTM D 4812, ISO 180

| Code | Description |
|---|---|
| 16010280 | Izod Standard vice + shims |
| 16010281 | Izod Quick Closing Clamp + shims |
| 16010250 | Izod hammer 1.00J |
| 16010249 | Izod hammer from 2.75J |
| 16010251 | Izod hammer from 5.50J |
| 16010252 | Izod hammer from 11.00J |
| 16010253 | Izod hammer of 22.00J |

According to ISO 8256 method A, DIN 53448

| Code | Description |
|---|---|
| 16010290 | Complete impact/traction vise kit |
| 16010260 | 2-4 J impact/traction vise |
| 16010261 | 7.5-15 J impact/traction sledgehammer |
| 16010262 | 25 J impact/traction sledgehammer |

# NOTCHER


The quality of single-axis impact tests depends, to a large extent, on the accuracy of the notching performed on the specimen. With EASY 28, notching is achieved by the combination of the alternating movement of the knife (electronically adjustable) and the linear translation of the vice.

Dimensions: 400x200x400
h mm Weight: 10kg

**Main features:**
Linear carving speed: 0 ÷ 18 m/min,
electronically controlled
Specimen holder seat: 25x15 mm
Available notching clearance for 8 specimens 3.17 mm thick or 6 specimens 4 mm thick
Notch depth adjustment referred to the residual section of the specimen
Micrometer with digital reader, accuracy 0.001 mm

**Standard**

| | |
|---|---|
| ASTM | D 256, D 6110 |
| ISO | 179, 180 |

| | |
|---|---|
| 10013100 | EASY 28 NOTCHING MACHINE |
| 10013101 | COBALT "V" BLADE TYPE A |

# PUNCHING MACHINE

Die cutters are used in tests where the need arises to obtain specimens from sheets of plastics, rubbers, skins, foams, paper , technical fabrics, whose hardness and thickness characteristics allow the use of appropriate shaped blades (dies). Pneumatic or manually operated model available. NOSELAB ATS offers selection in a wide range of dies, of high quality.

| | |
|---|---|
| 10019000 | Pneumatic die cutter 55kN |
| 10020000 | Manual die cutting machine 5kN |


10019000 Dimensions:
500x370x510 h mm
Weight: 130 kg


10020000 Dimensions:
220x400x780 h mm
Weight: 35 Kg

**Main features:**
The pneumatic model: exerted force 5000 Kg, table size 320x200 mm, has double-acting piston,
the die is adjustable for 25 mm diameter tangs,
micrometric adjustment on axis provided with ball bearings
The manual model: load force 500 kg, support base size 200x200 mm, cast iron structure , working stroke 25 mm

# PUNCHES

The dies suitable for making specimens are made of high-quality steel , according to the shapes and dimensions prescribed by international standards: ASTM-DIN-ISO-BS-AFNOR-UNI.
The dies can be equipped with automatic ejectors to facilitate the release of the material.
The specimens obtained in this way can have different shapes: rectangular, round, "butterfly" shape generally for tensile tests.

| | |
|---|---|
| 10019XXX | FUSHER with ejector |
| 10019XXXXX | FUSTELLA without ejector |

# HOT PRESS FOR LABORATORY

The Press with thermal exposure controller is designed for the preparation of plastic and rubber sheets, from which standard samples can be cut for physical mechanical tests. The version with programmable cycles allows automatic adjustment of heating and cooling phases.
Pressure is realized by hydraulic circuit for moving the bottom plate.
It has accurate devices for operator control and safety.
Standard thickness molds or according to specific requirements are available. Uses molds up to 6 mm thick

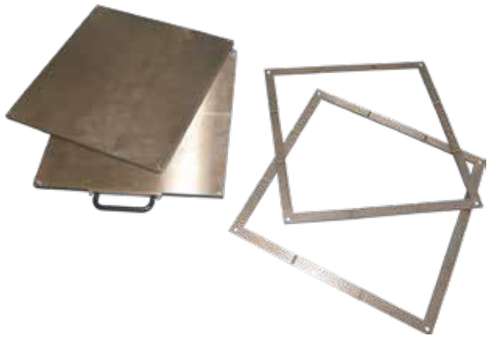

| | |
|---|---|
| 10026120 | Lab Hot press 10T |
| 10026100 | Lab Hot press 25T |
| 10026110 | Lab Hot press 25T Programmable cycles |
| 10026150 | Window mold (4mm thickness) |
| 10026142 | Mold holder |

**Key features:**
Press control panel with dual electronic temperature controller with digital display (temperature range 0 - 300°C), for independent thermoregulation of the plates. 2 heating plates of 300x300 mm made of special aluminum alloy on metal support for hot pressing, each plate equipped with 4 heating elements of 0.8 kVA , opening between plates 150 mm. A coil for air/water cooling is cut inside each plate. The plates are also equipped with a safety thermostat to prevent overheating.
The bottom plate is moved by the hydraulic piston, while the top plate is fixed. The molding area is insulated by a glass door to prevent contact by the operator, while when open a protection system inhibits heating and movement of the plate

Molds according to requirements of different sizes and mold holders.

**10T**
Pressure range: 10 to 100 kN
Dimensions: 900x750x1750 h mm
Weight: 280 kg

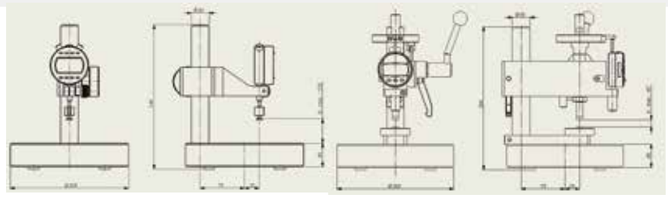
**25T**
Pressure range: 10 to 240 kN
Dimensions: 900x750x1750 h mm
Weight: 320 Kg



# THICKNESS MEASUREMENT OF RUBBERS AND PLASTIC FILMS

Contact thickness gauges for measuring and controlling thickness uniformity on films, sheets, rubbers and various materials.
Digital version with centesimal and millesimal resolution.
Design is modular with interchangeable holders and related weights allows use with reference to different Standards.
Constant force allows for repeatable readings.
Wide range of contact heads, sample bases, additional weights.

Power supply by battery
lithium 3V, autonomy 4000 h
Working temperature: +5°C +40°C
Overall dimensions: Ø 200 mm



**Main features:**
Measuring range: 12.5 mm
Resolution: 0.001/0.01 mm
Repeatability: 0.002 mm
Display: 5-digit liquid crystal
Measuring force: g. 20 ± 0.2
Zeroing: manual over the entire scale

| Code | Model | Standard | Application | Head (mm) | Weight (g) | Pressure (kPa) |
|---|---|---|---|---|---|---|
| 40307601 | HTG 1 A | ISO 23529 | Rubber | 4,0 | 28,0 | 22,0 |
| 40307602 | HTG 2 B | ISO4593<br>DIN 53370 | Films and sheets | R40,0 | 10...50 | - |
| 40307603 | HTG 4 A | ASTM D 3767 | Rubber Hardness<br>< 35 IRHD | 16,0 | 212,0 | 10,0 |
| 40307604 | HTG 6 C | DIN ISO 2589 | Synthetic skins | 10,0 | 393,0 | 49,1 |
| 40307605 | HTG 7 C | ASTM D 1777 | Miscellaneous films | 6,3 | 546,0 | 172,0 |
| 40307606 | HTG 8 C | ASTM D 5199 | Geosynthetics | 56,4 | 509,5 | 2,0 |

# ABRASIMETER

Allows evaluation of the abrasion behavior of a specimen having a diameter of 16 mm and a thickness of about 6 mm, which can be obtained with the help of die. The determination is made by checking the volume change after contact with an abrasive surface, for a path length of 40 m and a pressure on the specimen of 10 N. The abrasive paper support roller has a speed of 40 rpm


| | |
|---|---|
| 10075000 | ABRASIMETER for rubbers and elastomers |

| Standard | |
|---|---|
| DIN ISO | 4649 |
| ASTM | D 5963 |

**Main features:**
Device for rotating the specimen during lateral advancement
5 N counterweight
Device for conditioning the abrasive paper
Sheet of sandpaper (to be calibrated)

**Testing accessories**

| | |
|---|---|
| 10075010 | ISO Standard Compound Plate |
| 10075005 | Sandpaper 400 x 474 mm - DIN, ISO |
| 10019445 | 16 mm rotary die cutter for use with driller |

Dimensions: 600x300x400 h mm Weight: 20 kg (approx.)

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# DIGITAL and ANALOG SHORE DUROMETER

## SHORE A and D DIGITAL DUROMETER

The PosiTector SHD Shore is a digital instrument with color display that measures the hardness of nonmetallic materials. Two configurations STD and ADV and two probes for different degrees of hardness are available:

| | |
|---|---|
| Shore A | Soft materials, elastomers |
| Shore D | hard materials, rubber, PVC |


Calibration blocks

Stand dimensions: 150x230x430 h mm
Gage dimensions: 137x61x28 h mm

**Key features:**
Continuous reading functionality with instant calculation, standard deviation, min/max hardness and number of readings, instant RESET function
Auto-Ignore mode for hardness readings below 20 and above 90 according to international standards
HI-RES function for readings with decimal precision (0.1)
Calibration plate and NIST traceable certificate
Power supply: AAA-type batteries
Advanced model also allows storage of 100,000 readings up to 1,000 batches and - Sub-Batch Real-time graphing of measurement data, Batch / Reading annotation-adding notes and changing batch names with on-screen QWERTY keyboard
**WiFi technology synchronized with PosiSoft.net and Data transfer via USB to a PC or via wireless technology**

| | |
|---|---|
| 40220050 | SHORE A Standard |
| 40220051 | SHORE A Advanced |
| 40220052 | SHORE A Probe Only |
| 40220053 | SHORE D Standard |
| 40220054 | SHORE D Advanced |
| 40220055 | SHORE D Probe Only |
| 40220058 | Stand for SHORE A (Kg 1) |
| 40220059 | Stand for SHORE D (Kg 5) |
| 40220056 | SHORE A calibration blocks 30 - 50 -75 |
| 40220057 | SHORE D calibration blocks 25 - 46 - 75 |

## SHORE HARDOMETER A and D ANALOGUE

For measuring hardness of soft and natural rubbers, elastomers, neoprene, polyester, resins, soft PVC, leathers.

| | |
|---|---|
| 40220100 | SHORE A DUROMETER |
| 40220103 | DUROMETER SHORE D |


| Standard | |
|---|---|
| DIN | 53505 |
| ISO | 868, 7619 |
| ASTM | D 2240 |

**Key features:**
Offers the highest possible accuracy in an analog instrument: better than ½ point
Ergonomic design
360° dial
Truncated pyramid touch probe

## Optional Accessories.

OS-2 SUPPORT ideal for accurate measurements that ensure repeatability. Avoids errors due to different loads or application that is not perfectly vertical on the sample.

**Main features:**
The support acts on the principle of constant load. The specimen is placed, the hand lever for moving the durometer ensures a stress-free descent
Extension: 115 mm
Base: 98 mm
Maximum specimen thickness: 180 mm
Weight 19.8 kg

| | |
|---|---|
| 40221101 | OS2 support for Shore D |
| 40221102 | Additional weight 4000 g. |
| 40220131 | Calibration certificate for Shore A or D |

# IMPACT

Apparatus for impact resistance on plastic films by the free-falling dart method according to ASTM D 1709. Determines the rupture of polythene films and similar materials by means of a dart falling freely from a predetermined height; based on weight, the relative energy at which at least 50% of the specimens are torn is calculated.

| | |
|---|---|
| 16020005 | BALL DROP |

Dimensions: 700x700x2860 h mm Weight: 60 kg (approx.)
Compressed air 6 bar

**Main features:**
Pneumatic specimen clamping device acting on three points (127 mm diameter ring)
Electromagnetic release device, provided for drop height 660 mm or 1520 mm
Protection screen in front of the dart trajectory

Leveling feet and dart verticality control device

**Accessories**

| | |
|---|---|
| 16020100 | Test on film ASTM D 1709 method A<br>Dart hemispherical head diameter 38.1 + 0.13 mm<br>weights from 5 g. to 60 g. |
| 16020101 | Film test ASTM D 1709 method B<br>Dart hemispherical head diameter 50.8 + 0.13 mm<br>weights from 15 g. to 90 g. |

# C.O.F. DS - Coefficient of Friction Slip tester

Slip tester for determinations of static and dynamic coefficients of friction between two materials in contact on films, leaves and sheets, plastic-coated paper and similar surfaces. Peel tester mode (90° - 180°) can be used to test the holding force and properties of plastic films, adhesives, labels, packaging material.

| | |
|---|---|
| 10021003 | Slip tester |

Standard

| | |
|---|---|
| ASTM | D 1709 Method A and B |
| ISO | 7765-1 |

Dimensions: 950x260x240 h mm Weight: 30 kg (approx.)

**Main features:**
200 g movable slide with dimensions 63.5x63.5 mm 200x400 mm support surface
Measurement of slide force by 2000 g. load cell, with accuracy ± 0.2 g
"Touch Screen" display for setting parameters and displaying results
Constant Uniform Speed adjustment from 1 to 900 mm/min, complete with limit of corse
USB output for connection to Personal Computer

**Optional accessories**

| | |
|---|---|
| 00100112 | Data Link software with USB connection cable |
| 10021021 | Platen heated from ambient temperatures to 120°C |
| 10021023 | Peel test, clamps for pressure-sensitive material 180° attack |
| 10021024 | Peel test, accessory and clamps for pressure-sensitive material 90° attack |
| 10021025 | Templates for sample preparation |



# UNIVERSAL TESTING MACHINE TCS

Dynamometer suitable for high-precision testing of the characteristics of a wide range of plastic and composite materials.

It allows tests of:
Tension with and without preload Compression Flexion
Datalink software performs detailed analysis and related statistical processing: detects specimen breaking load and maximum load, strain stroke in millimeters calculated on crosshead displacement. Tensile tests at constant load and graphical presentation of the test with automatic full scale dimensioning (force and strain in tension or compression).
Cycles between two limits
Creep and load relaxation
Peeling


**Main features:**
Load channel accuracy: + 1%
Selectable traverse speed: 0.001 - 1000 mm/min under rapid load
Rapid return speed 2000 mm/min
Course of travel (excluding clamps etc.): 1000/1200 mm
Automatic load cell recognition

**Accessories**
Wide availability of load cells up to 20kN
Pneumatic clamps
Tensile test clamps
Compression plates
Temperature-controlled thermostat chambers between - 70 + 200° C Interfaceable contact strain gauges
Bending devices
Bending test

| | |
|---|---|
| 16000200 | U.T.M.TCS 200 2 kN |
| 16000210 | U.T.M.TCS 1000 10 kN |
| Universal testing machines must be equipped with at least 1 load cell and many dedicated accessories.Always request a configuration according to specification. | |
| 16004103 | Cacic cell 1.1 kN |
| 16004104 | Cacic cell 2.2 kN |
| 16004105 | Cacic cell 5.5 kN |
| 16004106 | Cacic cell 10 kN |

| Features | TCS - 200 | TCS- 1000 | TCS - 3000 |
|---|---|---|---|
| Maximum load | 2200 N | 10000 N | 30000 N |
| Maximum speed at maximum load (mm/min) | 1000 | 1000 | 1000 |
| Total traverse stroke (mm) | 1000 | 1000 | 1000 |
| Space between columns (mm) | single column | 400 | 400 |
| Dimensions (mm) | 560x430x1200 h | 700x500x1350 h | 700x500x1350 h |
| Weight (Kg) | 60 | 120 | 150 |
| Code | 16000200 | 16000210 | 16000215 |

# PIPER DARD IMPACT 500 - 900

Dart designed to carry out impact tests in accordance with prescribed methods on plastic pipes with diameters up to 500 mm or 900 mm. Both the striker carriage and the V-shaped support (for positioning the sample tube) are driven by a motorized system. The heights are adjusted by encoder. After the impact of the striker on the specimen, the anti-rebound device automatically kicks in. The equipment is equipped with separate Controller with color touch screen control panel and pair of safety buttons to perform dart release. Standard configuration includes the slide for maximum firing pin diameter 90 mm , encoder for the drop height (6 to 200 cm); "V" support suitable for the ag-justment of the tube specimen to be tested (optional intermediate sizes)

**Standard**

| | |
|---|---|
| ISO | 3127 ( EN 744) |
| ISO | 11173 |

The gravity drop tower for performing high-energy pulse impact testing is ideal for product development and quality control within research and development laboratories.
It amply meets the testing requirements of testing agencies.

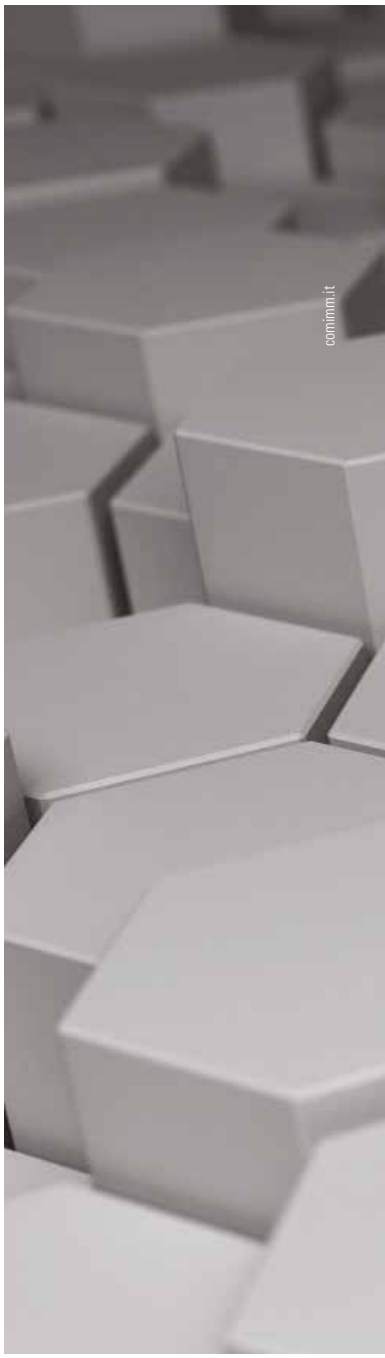
**Piper 500 :**
1000 x 700 x 3400
mm Weight 300 kg

**Piper 900:**
1400 x 700 x 3800
mm Weight 380 kg

The test is used to examine pipe and tube sections for impact resistance properties as complete pipe segments. Samples with diameters from Ø 20 mm up to Ø 900 mm can be tested on the standard machine. The pipe is supported by a 120° angled "V" as it is struck by the impactor in one fall. Mounting brackets can be made according to any test standard or customer requirement.

**Configurations:**

| | |
|---|---|
| 16021000 | Piper 500 dart impact on pipes up to 500 mm dia. with no.1 V-bracket - Height 3400 mm |
| 16021002 | Piper 900 dart impact on pipes up to 900 mm dia. with no.2 V-shaped supports - Height 3800 mm |
| 16021009 | Stricker 35 mm dia. 6.3 kg-weights (3) to achieve 9.1 kg, 13.6 kg.(IEC 61386) |
| 16021013 | Striker Ø 35 mm 1kg weights (2) up to 5 kg ( IEC 61386) |
| 16021010 | Striker Ø 25 mm 0.25 kg weights (4) up to 0.8 kg ( ISO 3127) |
| 16021012 | Striker Ø 90 mm weights (4 ) 3.2 up to 8 kg ( ISO 3127) |
| 16021014 | Striker Ø 90 mm weights (3) from 10 up to 16 Kg (ISO3127) |
| 16021015 | Striker Ø 90 mm weights (4) from 1 up to 2.5 Kg (ISO 3127) |
| 16021034 | V - shaped support 20 to max 120 mm diam Piper 500 |
| 16021035 | V - shaped support from 60 max to 300 mm diam Piper 900 |
| 16021036 | V - shaped support from 20 max to 60 mm diam Piper 900 |

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