



سازندگان تجهیزات پلاستیک ایرسا



Raw Material Testing Machine



Static Material Testing Machine



Copy Milling Machine
& Sample Cutting Press



Universal Tensile Tester



Impact Tester



Displacement Measuring Device



Thermo Analyze Tester



Environments Chambers



Extrusion Plastometer (MFR) Tester



Variety of Grips



HDT/Vicat Tester



CNC sample cutter



Furnace

Product testing machines



combo thermal
cycling unit



Airless Pressure



Water Test Bath



Endclosure Cap
& Circometer



Oil Bath/ESCR

Constant R&D, Innovation and perfect quality is our main Philosophy.



SPICO Twin column universal testing machine are use in all industries worldwide for materials testing, product testing, quality control and R&D application.

Control System Utilizes in two models:

- Integral PC System running SPICO Test with 19" Touch Screen Monitor.
- 7" HMI Control Panel with running SPICO Test Software on Customer PC.



High efficiency and reversibility ballscrew from HIWIN



High Accrracy load-cell from Revere



Delta servo motor with minimum Back-lash Gear box from Apex



SPICO one column is a powerful, flexible and Cost-effective testing solution.

All Facilities we can find in Tensile Machine, Make this unit to be used for test on Plastic, Elastomers, Paper, Board, Textiles, Foams and Food stuffs.

SPICOTest software give possibility to perform:

Tensile, Compression, Bending, Fatigue, Creep, Tear, Peel, Load Rate, Spring, User define test according to the international standard.

SPICO LAB Test Report

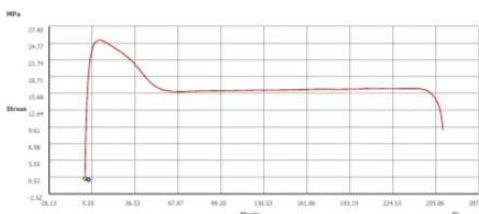
ACCORDING TO ISO 6259-3

Test Descriptions:

SPEED : 50.00 mm/min
GAUGE LENGTH : 50.00 mm
SAMPLE THICKNESS : 8.00 mm
PIPE SIZE : 110*8.1
STANDARD : ISO6259-3

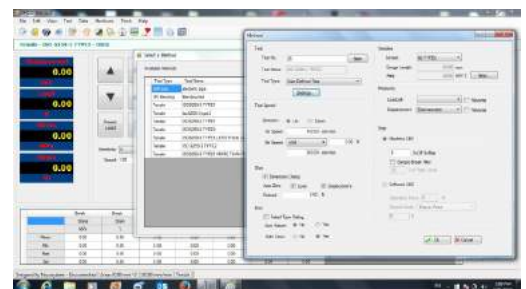
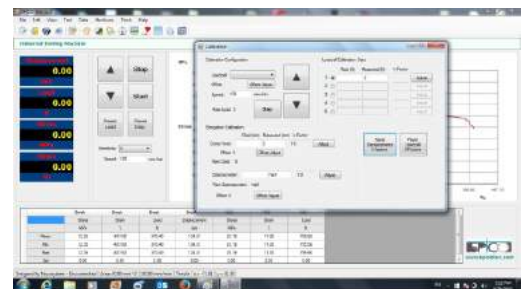
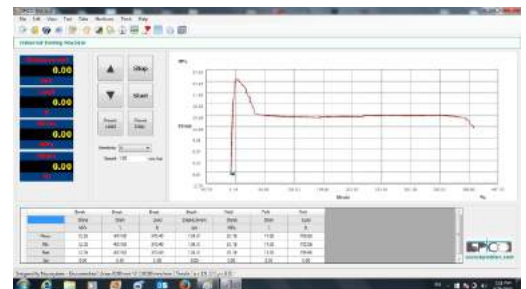
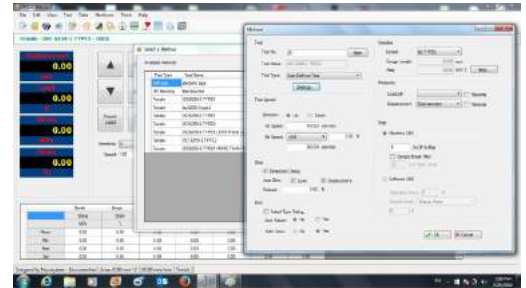
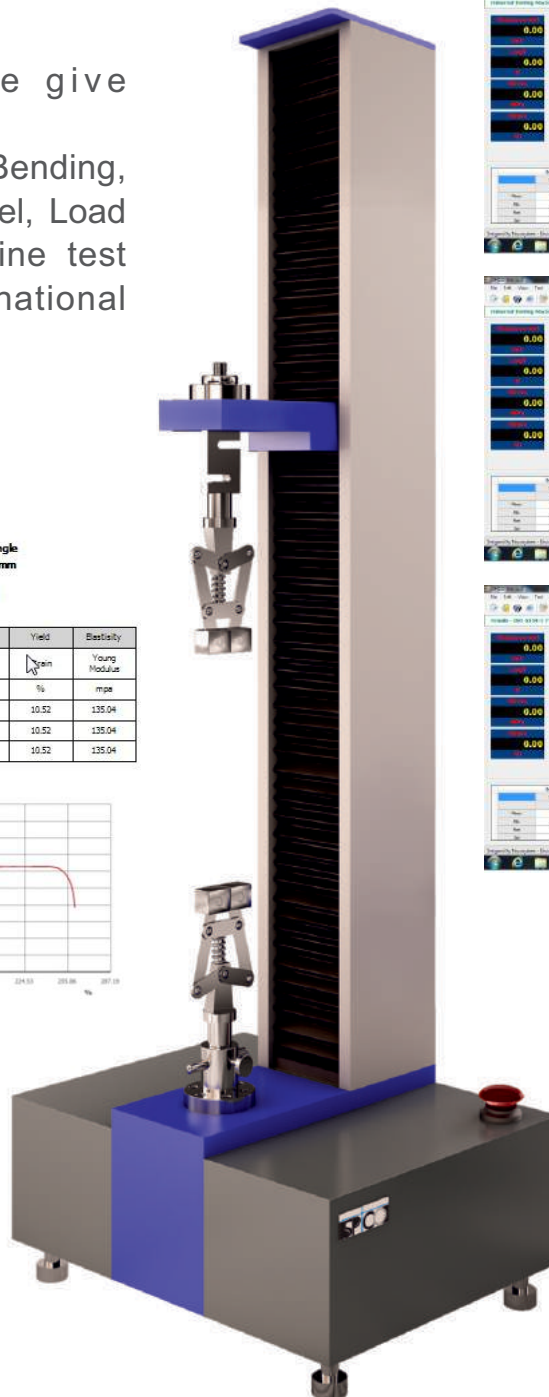
SAMPLE SHAPE : Rectangle
SAMPLE WIDTH : 10.00 mm
DATE : 2/3/2016
PIPE MATERIAL : PE100
BATCH NO : 577532

| | Break | Break | Break | Break | Yield | Yield | Elasticity |
|------|--------|--------|--------------|--------|--------|--------|---------------|
| | Stress | Strain | Displacement | Load | Stress | Strain | Young Modulus |
| Mean | 9.09 | 261.08 | 130.54 | 763.36 | 25.28 | 10.52 | 135.04 |
| Max | 9.09 | 261.08 | 130.54 | 763.36 | 25.28 | 10.52 | 135.04 |
| Min | 9.09 | 261.08 | 130.54 | 763.36 | 25.28 | 10.52 | 135.04 |



Operator :

Manager :



Non-contact Video Extensometer



Long Distance Extensometer



Environments Chambers

Temperature Chamber Specification

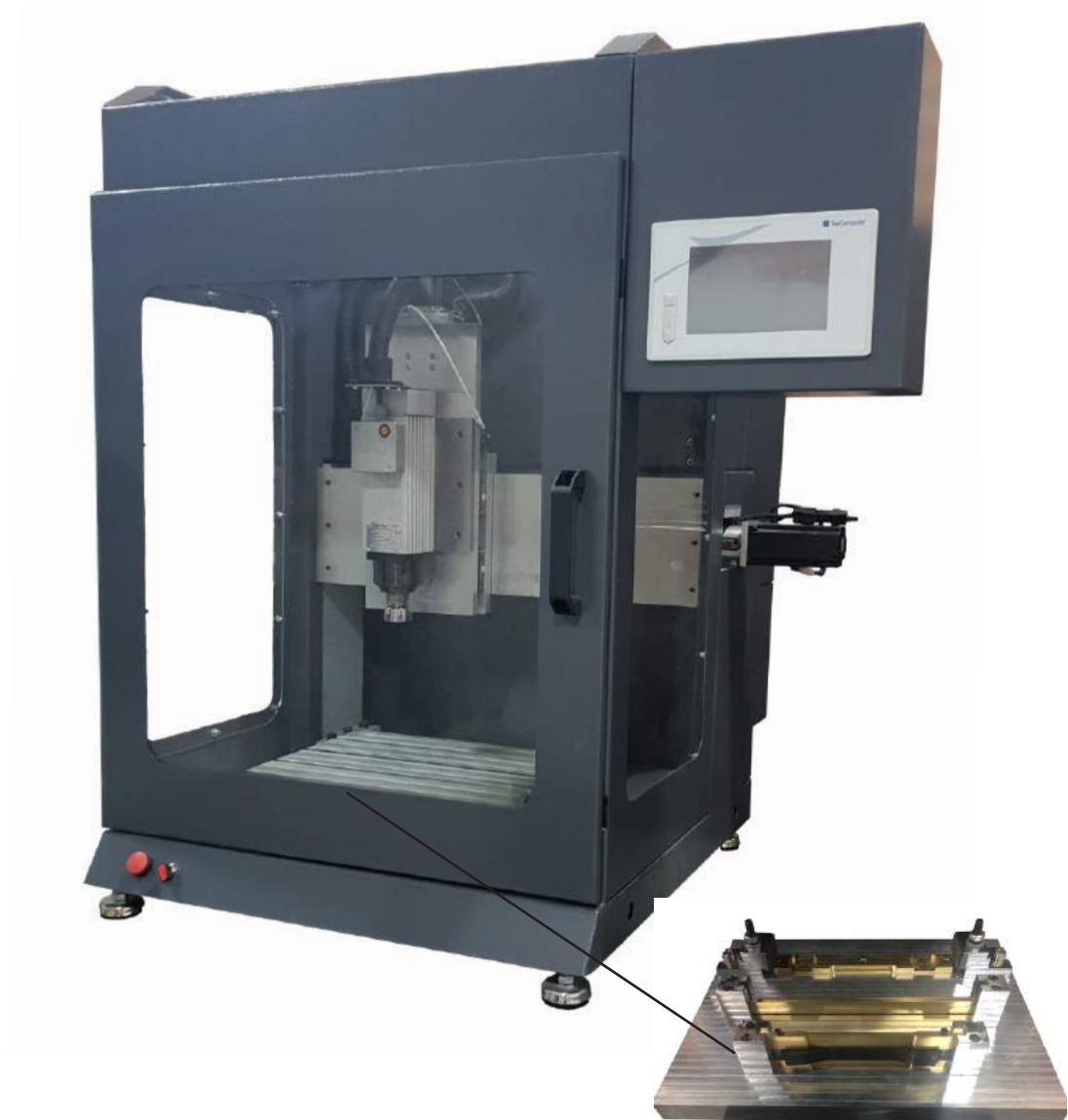
| | |
|----------------------------------|------------------------------|
| Temperature range | -70°C - 300°C |
| Outer Dimension | |
| Width | 400 mm |
| Depth | 500 mm |
| Height | 650 mm |
| Cooling System | LN ₂ |
| Inner Body | Stainless steel |
| Outer Body | Metal with hydrostatic cover |
| Automatic Air circulation | |
| Automatic temperature controller | |

Temperature Chamber



Variety of Grips

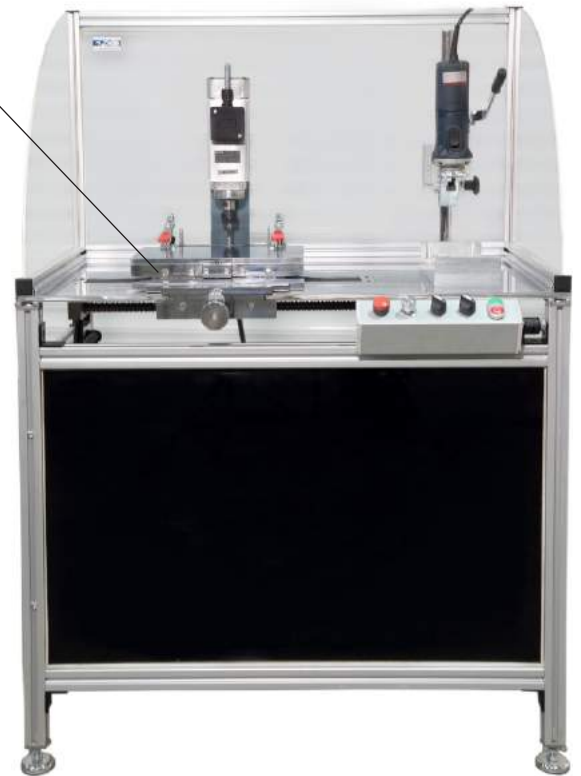




SPICO CNC machine was designed a table-top unit to make sample type being applied tensile, bending and impact test for plastic material according to customer standards.

This machine supplied with special clamps to keep samples that be defined in software so user just need to put samples inside clamps and select suitable shape form.

Customer's advantage get maximum thickness sample up to **100mm**.

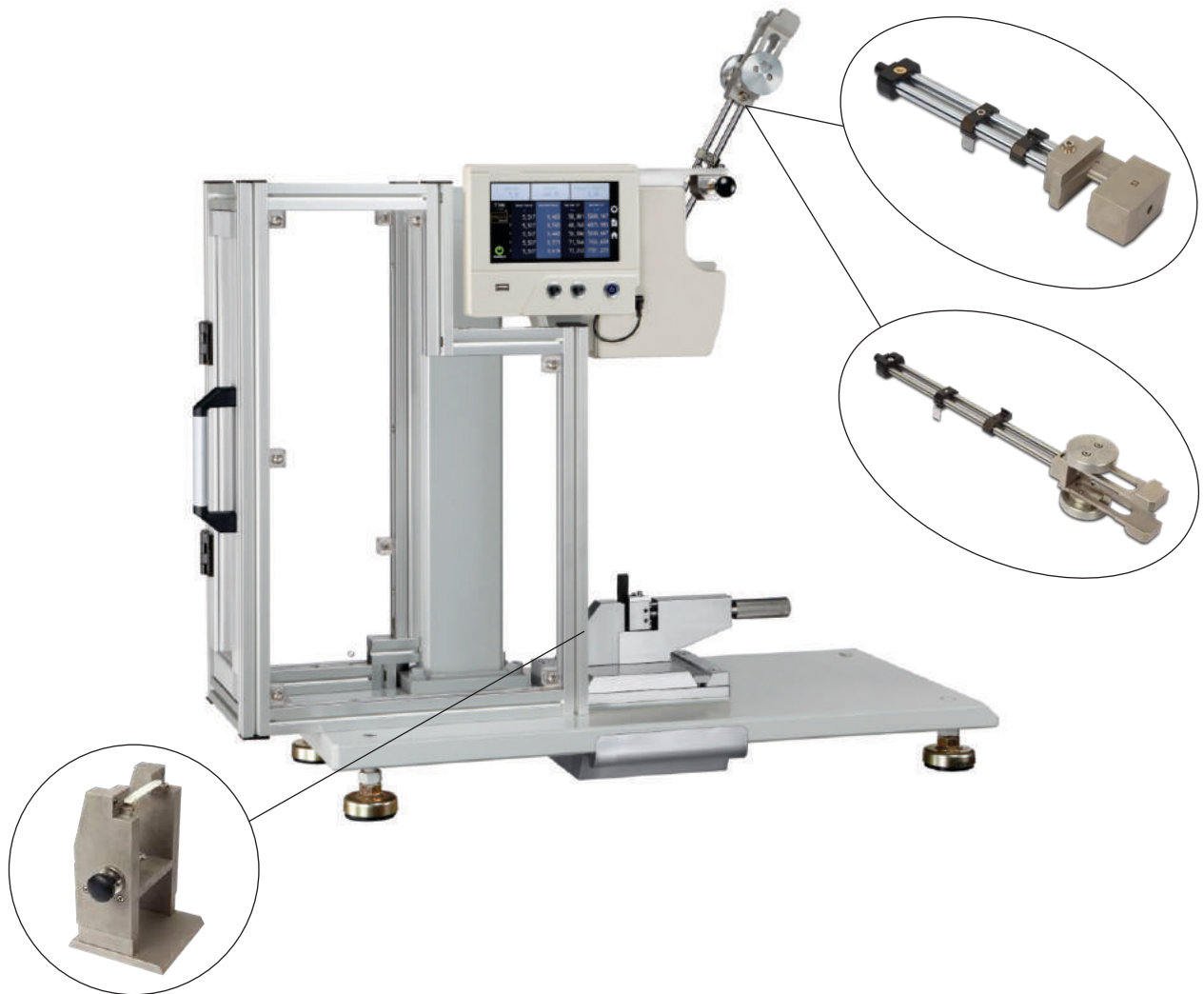


Hydraulic operated test sample cutting press will produce dumbbell form samples from plastic and rubber.

The sample cutters can be made to any size or shape required by the user or any international standard up to max. 12mm thickness.

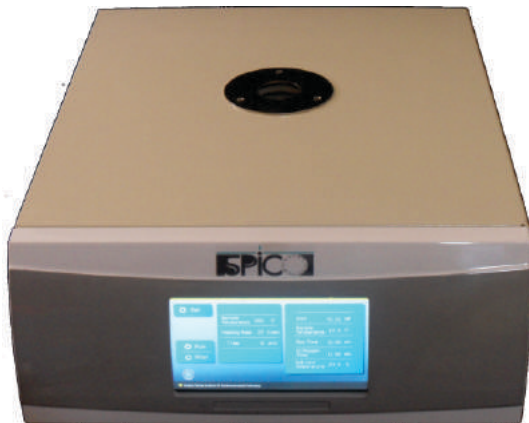
The SPICO copy milling machine is especially developed for the shaping of plastic samples for Tensile tests, and other kinds of elongation tests.

Our intention was to produce a machine which can be used with the minimum of skill and training. The result is an extremely simple to operate unit. The machine consists of solid base frame with a 2 axis linear movement milling top. A template is mounted on the machine which provides the profile for the sample. Operator control is via an integrated panel at the front of the machine.



The SPICO universal pendulum impact tester is designed to determine the energy required to break or rupture specimens such as plastic and composite.

Both izod and charpy tests can be carried out by replacing pendulum and rise type. wide range of pendulum may be equipped by base unit from 1 to 50 J.

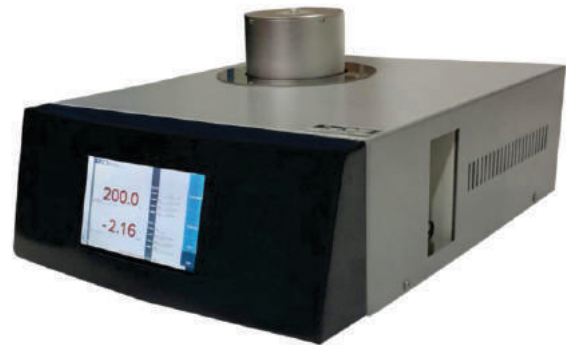


Differential scanning calorimeter (DSC)

is designed to determine the inner heat transition relating to temperature and heat flow, it is widely used in the field of polymer development, performance testing & quality control. DSC research and development includes the following field: glass transition temperature, melting point, cold crystallization, crystallization, phase transition, oxidation induction time (OIT).

Temperature control be done with heating and cooling to ensure accurate temperature control.

DSC Software on windows operating system inform facilities to calibrate temperature and sensitivity, perform various temperature segments, record and analyzes Test Result.



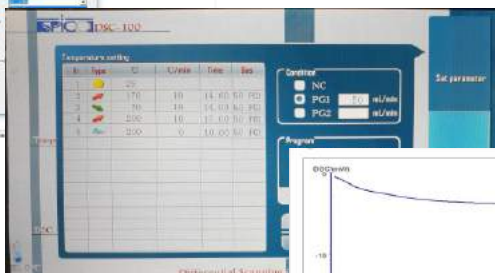
Thermo gravimetric analyzer (TGA)

is in TG, temperature, the temperature or cooling process, observe the quality with temperature or the change of time, the purpose is to study material thermal stability and components. Widely used in plastic, rubber, coating, drugs, catalyst, inorganic materials, metal materials and composites fields of research and development, optimizing process and quality control.

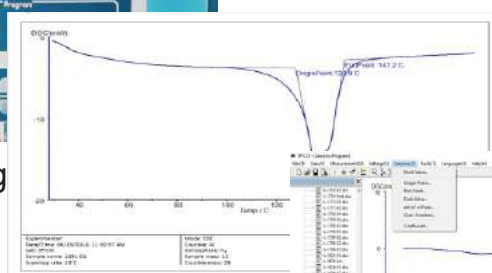
Measurement and research material following characteristics: Thermal stability, decomposing process, adsorption and desorption, oxidation and reduction, ingredients quantitative analysis, additives and filler influence, moisture and volatiles, reaction kinetics.



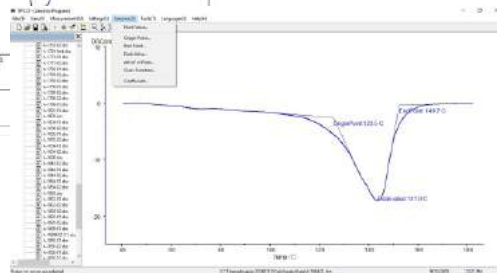
Choose Mesurment Device



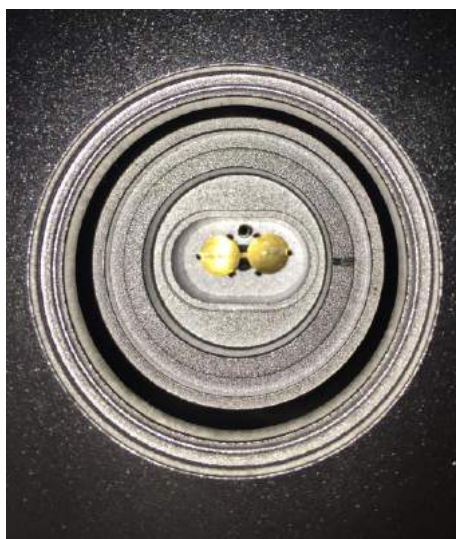
Parameter Setting



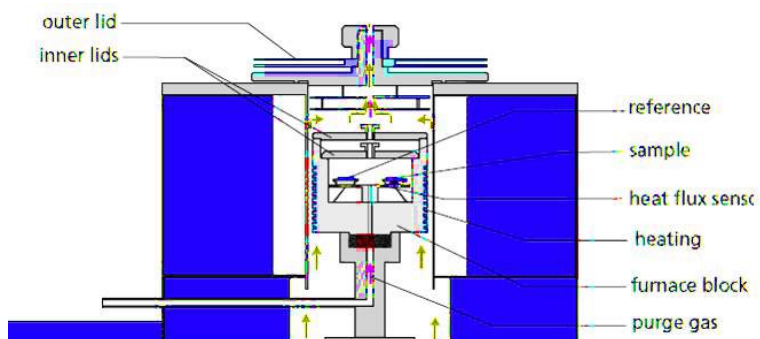
Softwer Analysis



Testing Result



Furnace In Clude Sensors DSC



Schematic Furnace Body DSC

Our **MFR (MFI)** tester were made, as we found all our customers need The unit with best quality material to get advantage high accuracy of result in long term usage.

According to method A of standard ISO1133, we guarantee the accurate temperature distribution and constancy in heating channel, the reproducibility of result is always secured.

An automatic or manual extrudate cutter, a separating door and a die plug are optionally available.



Different useful accessories be supplied



user friend cutting system



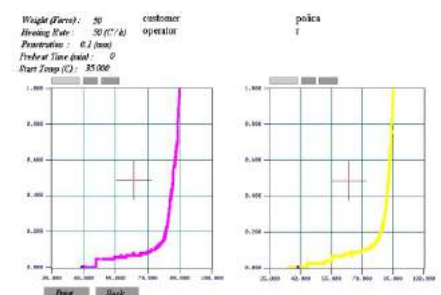
The HDT/Vicat apparatus allows for multiple simultaneous testing of sample depending on the amount of test stations available. The simple manually operated raise and lower function of the test stations ensure easy access to the test sample support for sample loading and retrieval and after each test. Each test station is fitted with a PT100 platinum resistance thermometer and separated one to control temperature. We design on board microprocessor with 7" touch screen provide simple screen to enter parameters and get result and Curve of Data recording for each station base on Temp. VS Time, penetration (Deflection) VS Time and penetration VS Temp.



HDT Test Needle



Vicat Test Needle



Vicat Test Report



The Compact bench tube furnace is available as split, non-split, vertical and horizontal models.

We design on board microprocessor control as user-friendly keypad to perform any kinds of dynamic and ISO term temperature segments.

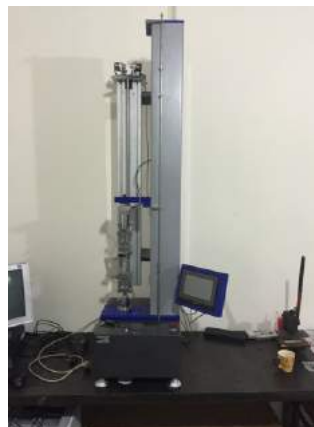


Hotline and customer support

a problem with your testing system must be solved quickly to save time and money. spico hotline telephone service and remote maintenance ensure our customer about operation of our units.

calibration

we provide professional traceable calibration by high accurate instrument.





Automatic cooling system



Circulation system



Flow rate control system



Thermal cycling test on pipes and fitting system according to standard EN 12293.



**Pump system with
motorized valve**



Sample Cabinet

SPICO Airless Pressure was born to perform as one of the most important test on thermoplastic pipes, hydrostatic and burst pressure test.

Modular design be innovated possibility to supply any number of stations in future easily with customer self, as we can improve Max. 16 separated station in same cabinet.

Long time experience corporate best quality of usage parts give advantage, long service life.



Spico Water Test Bath be equipped with hydrostatic pressure unit to perform tests on pipes and fittings.

This unit was made to be able work on high temperature (Max. 95°C) during long-term properly.

Control system would be done from airless unit so user have a complete control on the test tank as well as check and record the temperature during the test time.





Stainless Steel Endclosure Caps, used on hydrostatic internal pressure. the most important design on this kinds of caps would be simple and reliable assemble.

Advantage:

- Stainless steel guarantee long term usage with 160 bar pressure,
- The special simple venting valve,
- User friendly assembly,
- Range of size : 16-16- mm (Pipe diameters)



Circometer

- Black and silver color,
- 0.05 mm vernier scale
- Made from INOX
- Range: 15-1100 mm



SPICO Oil Bath equipped with a digital temperature controller, heater and a PT-100 platinum resistance thermometer accurately maintains the test temperature. To ensure temperature stability within the bath stirrer motor system is fitted.

The bath is fitted with a stainless sample rack which holds glass test tubes.

ESCR Accessories according to ASTM D1693:

- Stainless steel sample holder
- Punch and die set for samples
- Notch device for preparing the samples
- Bending clamp for bending the samples into a U shape
- Sample transfer tool
- 10 glass transfer tool
- Eggypal (1Lit.)



| Universal Tensile | UTM-S50-1 | UTM-S50-2 | UTM-S250-1 | UTM-S250-2 | UTM-S500 | UTM-S1000 |
|---------------------------------------|--|-----------|------------|------------|----------|-----------|
| Test Force (Capacity)-KN | 1 | 5 | 10 | 25 | 50 | 100 |
| Structure | One column | | Two column | | | |
| Space between Test Axis to Column-mm | 105 | 105 | 406 | 406 | 406 | 406 |
| Speed range-mm/min | 0.05-500 | | | | | |
| Crosshead Travel (Excluding) grips-mm | 800 | 800 | 1260 | 1260 | 1260 | 1200 |
| Width-mm | 600 | 600 | 750 | 750 | 750 | 810 |
| Depth-mm | 450 | 450 | 478 | 478 | 478 | 478 |
| Height-mm | 1420 | 1420 | 1900 | 1900 | 1900 | 1900 |
| Data Calculated Resolution | 24 Bit | | | | | |
| Force Measurement Accuracy | Grade 0.5 according to OIN EN ISO 7500-1 | | | | | |
| Strain Measurement Accuracy | +0.01mm | | | | | |
| Speed Accuracy-% | +0.2% of set speed | | | | | |

Optional:

- Be supplied with Extensometer
- Be supplied with Maximum four Load-Cell
- Various kind of Grips according to customer standard

| | CNC | Milling Machine |
|---|---|--|
| Clamping range for blanks small | Max. Thickness 30 mm Max. Length 220 mm | Max. Thickness 30 mm Max. Length 170 mm |
| Clamping range for blanks big | Max. Thickness 100 mm Max. Length 250 mm | |
| Number of test bars | Max. 3 | 1 |
| Number of test bars per Milling process | Max. 3 | 1 |
| Rotational speed of spindle | 3000-18000 per minute | 3000-18000 per minute |
| Milling program | Can be selected according to EN, ISO, ASTM | ISO 6259-3 Type 1&2 |
| Noise Emission | 100 dB (A) during milling process | |
| Width (milling table) | 500 mm | |
| Depth (milling table) | 300 mm | |
| Width | 900 mm | 650mm(MSP1) |
| Depth | 1000 mm | 500mm(MSP1) |
| Height | 1000 mm | 1400mm(MSP1) |
| Weight | 160 kg | 75kg |
| Voltage data | 230 V, 50 Hz | |
| Milling table with mechanical clamping device | | |
| Hard metal milling cutter Ø6, 8, 10, 12 mm (subject to standard) | | |
| Operation via PC | | |
| Optional: | | |
| <ul style="list-style-type: none"> - Diamond milling cutter - Industrial vacuum cleaner | | |

Specification

| | | |
|------------------------------|---|-----------------------------|
| Test Type | IZOD/CHARPY | |
| Initial Impact Angle | 150 | |
| Test Capacity | Izod 1~1j Charpy 1~5j | Izod 1~50j Charpy 1j~50j |
| | Best Test Range: 20 ~ 90% of the pendulum capacity | |
| Minimum Display Angle | 0.05° | |
| Feature | <p>High Accuracy Electronic Display, Can Directly Read Impact Energy Value.</p> <p>Machine Is Equipped With Level Display Device To Make Sure Machine Accuracy After Is Fixed.</p> <p>With Specimen Impact Area And Collection Area to Enhance Safety And Reduce Clean Time.</p> <p>Replacing Different Capacity Pendulum To Do Tests If The Strength Of Specimen Has Big Discrepant.</p> <p>Vise To Clamp Specimen Is Equipped With Fixed Device To Make Specimen Clamp Position Is More Accurate.</p> <p>Multi-purpose In One Machine Can Replace Vise To Do IZOD/CHARPY Test.</p> <p>Multi Selection Of Various Units Can Display.</p> | |
| Optional | <p>related energy test pendulum and various type of test vise.</p> <p>V-shape specimen notching machine.</p> <p>analysis software</p> | |
| Dimension | 90x30x76cm | 90x38x76cm |
| Weight | 100kg | 160kg |

| Thermo-analyzer tester | DSC | TGA |
|-----------------------------|--|--|
| Temperature Range - C | Ambient to 800°C (Optional: -100 to 800°C with LN2) | Room Temp. To 1150°C (Optional: Room Temp. To 1350°C) (Optional: Room Temp. To 1450°C) |
| Measuring Range - Mw | 0 - ±500mW | - |
| Heating Rate - C/min | 0 - 80°C/min | 1 - 80°C/min |
| Cooling Time - Min | - | 15 min 1000 C to 100°C |
| Balance Measuring Scope | - | 1mgr - 2gr |
| Temperature Resolution - C | 0.1°C | |
| Resolution | 0.01µW | 0.01µg |
| Temperature Fluctuation - C | ±0.1°C | |
| Temperature Repeatability | ±0.1°C | |
| Noise | 0.01µW | - |
| Accuracy | 0.01µW | - |
| Sensitivity | 0.01µW | - |
| Display | 7" LCD touch screen (24bit color) | |
| Temperature Control Mode | Rising Temperature, Constant Temperature (full Automatic Programmed Control) | Rising Temperature, Cooling Temperature, Constant temperature |
| Curve Scanning | Rising scan, cooling scan | |
| Atmosphere | - | Inert, Oxidizing, Reducible, Static & Dynamic |
| Atmosphere Control | Embedded Digital Flow Meter & Software Control | built-in gas flow meter, including switch two way gas and control flow volume |
| Data Interface | Standard Usb Connector | RSS-232, Special Software |
| - | Gas Flow Would Be Control And Measured By Solenoid Valves And Flow Meter | |

Extrusion Plastometer Tester

| | |
|--|--|
| Temperature range - C | 400 C |
| Temperature distribution travel in bore- C | 0.3 C |
| Temperature sensors | 2 pieces of Pt100 |
| Temperature regulation | By Omron/Autonics |
| Load | 2.16 / 5 kg (other weight can be supplied) |
| Dimension (WidthxDepthxHeight) | 340x300x470 mm |
| Weight | 35 kg |
| Power supply | 230 V/ 50Hz |

Accessories:

- Piston rod
- Cylinder brush
- Cylinder cleaning rod
- Leveling rod
- Die gauge set (Go-no-Go)
- Filling funnel
- Observation mirror

Furnace

| | | |
|----------------------|--|--------|
| Temperature range- C | 1100 C | 1200 C |
| Element type | Chrome-Alumel (Kanthal form Sweden) | |
| Work tubes diameter | 2" inches | |
| Heated lengths | 300 mm | |
| Thermocouple | 2 Pieces of type-k (jumo from Germany) | |
| Power supply | 220 V | |

PID electronic temperature control with PC

Second On/Off control to protect temperature with Emergency-Stop

Programmable control with PC to performance 10 temperature/time programs

over temperature limiter

HDT/Vicat

| | |
|--|---------------|
| Number of sample stations | 2 |
| Temperature range - °C | Up to 300°C |
| Temperature resolution - °C | ±0.01°C |
| Temperature ramp rate - °C | 50°C/120°C |
| Digital Transducer Resolution - mm | 0.01mm |
| HDT span support - mm | 64mm/100mm |
| Bath capacity - lit | 8 lit |
| HDT heads | 1 per station |
| Vicat nibbles | 1 per station |
| Special oil bath stirrer guarantee uniform temperature | |
| Manual Raise/Lower of test stations | |
| Solenoid operated cooling system | |
| Integrated safety thermostat | |
| Standard weights | |
| Supplied USB flash memory to record test report | |

Oil Bath

| | |
|--|---------------|
| Temperature range | Ambiant-100°C |
| Temperature accuracy | ±0.2°C |
| Resolution | 0.1°C |
| PT100 PRT sensor accurate | 0.1°C |
| Number of glass tubes | 10 |
| PID electronic temperature control | |
| Integrated stirrer motor | |
| Stainless steel liquid bath | |
| Sample specimen holders (stainless steel) | |
| Stirrer motor system to ensure temperature stability | |

| Airless Pressure | HPTS-4 | HPTS-8 | HPTS-12 | HPTS-16 |
|---|----------------------------------|--------|---------|---------|
| Number of module | 1 | 2 | 3 | 4 |
| Number of stations | 4 | 8 | 12 | 16 |
| Pressure Range of Unit up to | 200 bar | | | |
| Integrated high pressure noiseless pump (from Italy) capacity | 15 lit/min | | | |
| Accuracy class for pressure transducer (from Switzerland) | 0.2% of Full Scale | | | |
| Range of transducer may be order by customer | 10, 16, 25, 40, 60, 160, 200 bar | | | |
| 330 bar high quality pressure reservoir from Hydac (Germany) | | | | |
| Special solenoid valves to control pressure with 0.01 bar resolution (Spico & GSR) | | | | |
| <ul style="list-style-type: none">- 10.4" touch screen, full control panel with possibility make your test report on USB flash memory- Control panel switch box completely made and supplied from Germany (Rittal & Schneider)- Individual control system for any module (4stations) guarantee separated strong full control with PLC | | | | |
| Optional: | | | | |
| <ul style="list-style-type: none">- Individual burst station- Sens-line connection- Control equipped test bath- Master gauge | | | | |

Water Test Bath

| | |
|--|--|
| Water depth – mm | 1000 |
| Width (internal) – mm | 1000 |
| Length (internal) – mm | 1000 |
| Insulation stainless steel lid equipped | User friendly pneumatic spring system |
| Number of manifold slots | 3,4,5,6 |
| Number of suspension rails (included) | 1 |
| Heating power - kW | 6 kW |
| Inner tank material | |
| Water temperature - °C | Min. ambient temperature + 10/ Max. 95°C |
| Water temperature (for fresh-water cooling) - °C | Min. 20°C or fresh-water temperature + 10/ Max. 95°C |
| Water temperature (with chiller) - °C | Min. 20°C/ Max. 95°C |
| Water temperature adjustable in increments of - °C | 0.1 °C |
| Spatial and temporal temperature constancy - °C | ±0.5 |
| Temperature control with regulating accuracy - °C | ±0.1 |
| Voltage data | 230/ 400V, 50/ 60 Hz |
| All parts coming into contact with water stainless | |
| Special Hot water circulation pump from Grundfos with speed changeable in flow | |
| Circulation system check with flow switch | |
| Connection and interface for chiller and heat exchanger | |
| Over temperature shutdown | |
| water level control | |
| Automatic top-up | |

| | |
|--|---|
| Max. number of test lines | 3 |
| Pressure range - bar | 4-16 |
| Temperature range cold cycle-°C | 15-30 |
| Temperature range hot cycle-°C | 50-95 |
| Temperature accuracy in specimen-°C | at 95 °C $\pm 1,5$ °K, at 20 °C ± 4 °K |
| Adjustment accuracy temperature controller-°C | $\pm 0,2$ |
| Pressure measurement accuracy - % | 0.5 % of Full Scale |
| Pressure accuracy in specimen | +0,2/ -0,1 bar at 10 bar +0,3/ -0,15 bar at 15 bar |
| Flow rate accuracy - % | $\pm 5\%$ |
| Cycle time - min | 3 ... 9.999 |
| Max. number of cycles each test | 99.999 |
| Nominal capacity hot water tank - Lit. | 300 |
| Nominal capacity cold water tank - Lit. | 300 |
| Tank class | unpressurized |
| Pumps delivery rate at 10 bar - m³/h | 4 |
| Pumps delivery rate at 16 bar- m³/h | 3 |
| Max. total cross section at 16 bar/0,5 m/s - mm² | 6400 |
| Max. total cross section at 10 bar/0,5 m/s - mm² | 6500 |
| Plate heat exchanger for connection to external water cooling supply | included |
| External cooling unit | optional |
| Controls at unit by means | Software on PC |
| Permissible operating ambient temperature - °C | +5 up to +25 |
| Max. relative air humidity | 70 %, noncondensing |
| Power supply voltage | 230/400 V, 50 Hz |
| Supply Unit Dimension | 3000mm*1100mm*2100mm (L*W*H) |



Tel: +98 26 34723200
Fax: +98 26 34723179
www.spicotec.com
Email: info@spicotec.com