

**BESMAK BCE-E SERIES SERVO ELECTROMECHANICAL CEMENT  
COMPRESSION / FLEXURAL TEST MACHINE with Touch Screen  
Controller**



<b>Capacity of Machine:</b>	100 to 500 KN
<b>Frame Type:</b>	Rigid frame in 2-Column construction.
<b>Controller:</b>	Sematron Touch Series (Touch Screen)
<b>Load Measuring Range:</b>	2% - 100%
<b>Speed of Load Control:</b>	0,05 kN/s – 15kN/s
<b>Max. Compression Test Space:</b>	Up to 210 mm (contact us for other dimensions)
<b>No. of Channels:</b>	2

**Cement compression Apparatus**



**Cement Flexural Apparatus**



## General Specifications of the Control Unit

<b>Load Capacity</b>	<b>100 to 500 KN</b>
<b>Measurement Resolution</b>	Up to 20 Bit (Different resolutions are optional)
<b>LCD Screen</b>	10" Capacitive Touch Screen (Changeable by request )
<b>OS of The Controller</b>	Linux Based (Highly stable and reliable)
<b>Communication Port</b>	USB
<b>USB Connection</b>	Available – Internally; <ul style="list-style-type: none"> <li>• Data Transfer (Report, Raw data etc.)</li> <li>• Communication with PC Software</li> <li>• For all external hardware connection.</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 4 GB internal memory,</li> <li>• 32 GB Expandable memory with SD card</li> </ul>
<b>Data Acquisition</b>	1000 data per second (Different sampling speeds can be provided on demand)
<b>Data and Experiment Operating System</b>	Can save, open and operate method-based test parameters.
<b>Reporting Types</b>	<ul style="list-style-type: none"> <li>• By separate charts,</li> <li>• By serial reporting (More than one result in the same graphic)</li> </ul>
<b>Number of Channels</b>	2 channels in total (Optional)
<b>Control Type of Machine</b>	Closed Double Loop PID
<b>Control Type – Loading Procedure</b>	<ul style="list-style-type: none"> <li>• Automatic and Manual Mod options,</li> <li>• Constant Load,</li> <li>• Ramp Loading,</li> <li>• Step Loading,</li> </ul>
<b>Fast Preloading</b>	Available (With automatic contact detection.)
<b>Calibration Types</b>	<ul style="list-style-type: none"> <li>• Single Point Calibration,</li> <li>• Automatic calibration up to 10 Points (Machine makes automatic loading up to first calibration point and after entering reference value continues to loading for the next point.)</li> </ul>
<b>External Device Connectivity</b>	Feasible to Connect Mouse, Keyboard and Printer (A4 Printers and Mini Printers can be connected without using computer.) <ul style="list-style-type: none"> <li>•</li> </ul>
<b>Report Formats</b>	PDF, Excel and program raw value format
<b>Report Customization</b>	User defined logo and test information,



**Sematron Control Unit**

**Controller Features:**

BESMAK BCE-E Series Compression Testing Machines are controlled by Sematron Touch Screen controller unit.

The controller unit (Sematron Touch Controller) has 2 channels **Optional**.

Controller unit can read and control all type of different sensors like LVDT, strain gauge, load cell and pressure transducers with high precision. **Optional**

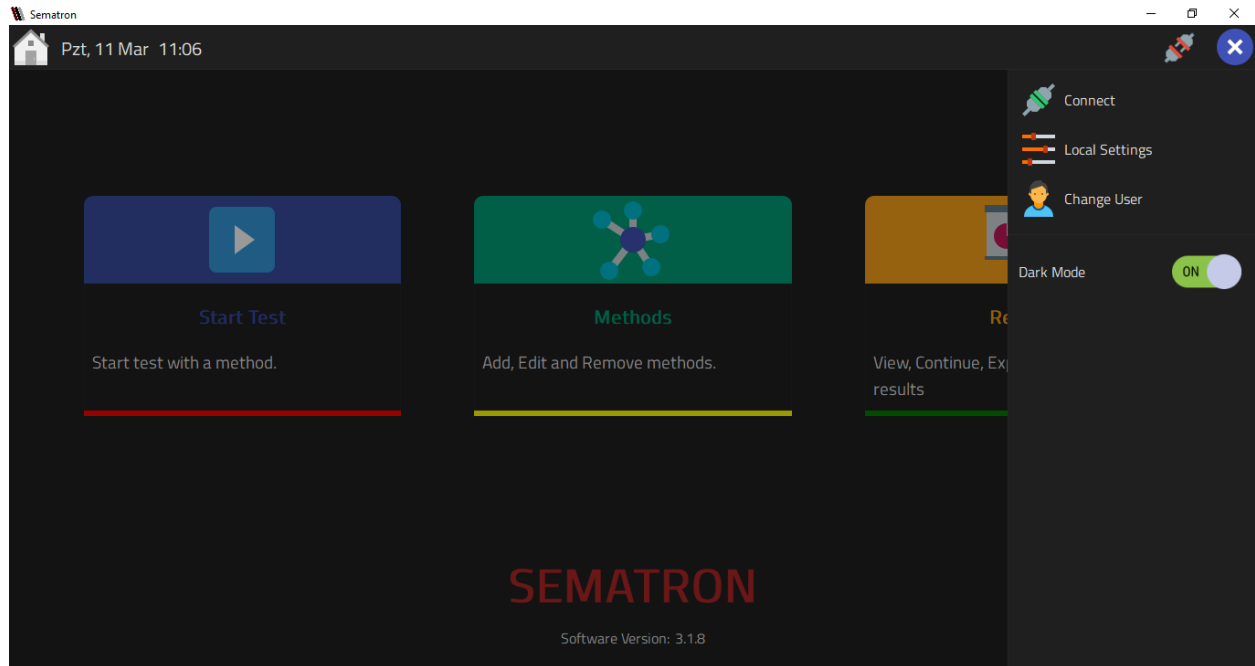
User can calibrate each attached sensor and set PID values separately.

Controller unit allows **Automatic Calibration** and adjustment up-to 10 points. Due to special High Accuracy Sematron Touch Controller;

- User can perform ordinary compression tests with desired pace rate and high precision.
- User can hold the load at any desired point for a specific time

### General Features of Data Acquisition and Control System:

- Capacitive touch screen.
- USB port to get results directly from LCD without use of pc.
- Accurate loading with high accuracy.
- User can attach internet modem directly to LCD controller
- User can email results directly from LCD by using internet.
- User can update test software by using USB drive.
- LCD has Linux based test software.
- Minimum 2 channels. **(Optional)**
- Automatic calibration and adjustment.
- 1000Hz (1kH) data acquisition speed of each channel.
- Closed loop PID and open loop control option is available.
- Results in pdf and can be converted in Excel.
- LCD controller has 4GB built-in data storage space and supports up-to 32GB.
- All type of printers can be attached directly to LCD without PC. And user can take print out of results.
- LCD controller also supports mini printer. **(Optional)**
- User friendly, easy to customized.
- Communication with PC through USB.



Sematron Pzt, 11 Mar 11:12

**Measurements**

Name	Unit	Precision	Visibility
<input checked="" type="checkbox"/> Load	kN	2	<input checked="" type="checkbox"/>
<input type="checkbox"/> V_Position 1	mm	0	<input type="checkbox"/>
<input type="checkbox"/> V_Position 2	mm	0	<input type="checkbox"/>
<input type="checkbox"/> H_Position 3	mm	0	<input type="checkbox"/>
<input type="checkbox"/> Sensor_4	N	0	<input type="checkbox"/>
<input type="checkbox"/> Sensor_5	N	0	<input type="checkbox"/>
<input type="checkbox"/> Sensor_6	N	0	<input type="checkbox"/>

Use Averaging for Vertical Strain:  OFF

Test Type: Tensile

Save as Save

Sematron Pzt, 11 Mar 11:12

Result name Value

User Data

Measurements Test Data

Manual  OFF

Drive  OFF

New Save PDF CSV E-Mail Print

SematronConfig

File View Help

Setup Controller Adjustment Calibration Test Center

Pos EXT Openloop POT GPO Bypass

Sensor: Sensor 0  
Mode: Automatic  
Control: Sensor 1

Start Calibrated On: Not Calibrated

	Speed [N/s]	Destination [N]
P1	0,000000	0,000000
P2	0,000000	0,000000
P3	0,000000	0,000000
P4	0,000000	0,000000
P5	0,000000	0,000000
P6	0,000000	0,000000
P7	0,000000	0,000000
P8	0,000000	0,000000
P9	0,000000	0,000000
P10	0,000000	0,000000
P11	0,000000	0,000000
P12	0,000000	0,000000

Measured value [N]      Reference [N]

ONLINE

A

Openloop

↑

STOP

↓

ON OFF

Sensor\_0: -266364 N

Sensor\_1: 288460 mm

Command: 00000

Feedback: 00000

Output: 00000 %

Time: 0:08:16

Delete Selected Write Read

← 17:25 .11

Per, 9 Mar USB

- LCD
- Security
- Date & Time
- Language
- Contact
- Update
- Connectivity
- Theme**
- Change Logo

Colors

Background Color:

Button Press Color:

Font Color:

StatusBar Color:

Number Color: 12345

Reset Colors Save

The screenshot shows the SematronConfig software interface. The left sidebar is expanded to 'Machine A' > 'General settings'. The main panel displays the following settings:

- Data Rate: 0,001000 s
- Maximum Load: 40000,000000 N
- Crosshead Direction: Up
- Description: (Max 31 characters)
- Machine Type: Hydraulic
- Crosshead Encoder Ratio: 10,000000 Rev/mm
- Minimum load enable
- Minimum load Control: 0,000000 N
- Initial Output: 6,1104 %
- Final Output: 0,0000 %

On the right, there is a control panel with an 'ONLINE' indicator, a dropdown menu set to 'A', and buttons for 'Openloop', 'STOP', 'ON', and 'OFF'. Below these are six digital displays:

- Sensor\_0: -273808 N
- Sensor\_1: 288417 mm
- Command: 000000
- Feedback: 000000
- Output: 000000 %
- Time: 0:00:25

The screenshot shows the SematronConfig software interface with the left sidebar expanded to 'Machine A' > 'Sensors' > 'Sensor 0'. The main panel displays the following sensor properties:

- Enabled
- Sensor Linearization: (empty)
- Sensor Type: Force
- Plug: J5A (Analog)
- Sensor Subclass: Strain Gauge
- Nominal value: 10000,000000 N
- Min Limit [-]: 100,000000 %
- Max Limit [+]: 100,000000 %
- Is Reversed:
- Correction: 1,0000000000
- Offset: 0,0000000000 N
- Sensitivity: 3,000000 mV/V

Below the sensor properties is a 'Controller' section with the following values:

- Position P: 21079
- Position I: 0
- Position D: 0
- Speed P: 0
- Speed I: 0
- Speed D: 0
- Speed FF: 905
- Delay: 0
- Accelerate: 100,000000 1/s<sup>2</sup>

On the right, the control panel is identical to the first screenshot. The digital displays show:

- Sensor\_0: -258444 N
- Sensor\_1: 288420 mm
- Command: 000000
- Feedback: 000000
- Output: 000000 %
- Time: 0:01:40