ModEva 15T is designed to control high-end synchronized press brakes with up to 18 axes, of which 2 are synchronized hydraulic axes.

ModEva 15T is composed of 2 main elements:
• A programming console with a large touchscreen and a traditional keypad located within the operator’s reach, generally fixed to a swiveling arm.
• A CNC rack, placed inside the electric cabinet.

ModEva 15T system software gives manufacturers the ability to configure axes, inputs/outputs and auxiliary functions according to their needs.

As a member of the ModEva family, ModEva 15T’s hardware is compatible with other ModEva numerical controls: same wiring, same signals, same electronic interface, same commissioning procedures.

ModEva 15T operates with the latest evolution of the classic ModEva interface, including the TouchProfile function, which allows drawing 2D profiles directly on the screen. ModEva 15T can also be optionally equipped with a 3D software.

Standard software specifications

User friendliness
Improved usability thanks to the latest software version, who makes use of all the inherent simplicity and user-friendliness of the touch screen. Large function buttons, vivid colors and pop-up numerical pads with large keys all make for a more productive user experience.

Remote control
Installation of any remote control software – free or licensed – of the manufacturer’s choice is allowed on the NC.

Beam functions
Easy Indexing function, comprising the capacity to determine if index is passed or not, and consequently inform the operator to move the beam down. The capacity to determine if beam is desynchronized (with 2 switches directly connected to the NC) at start up, and accordingly asks the operator to press foot pedal until the beam is parallel again.

Particularities
• Conversion Inch/mm, TON/TONS etc.
• Force depending of sheet position.
• Measurement of speed, stopping time and leakage of the beam.
• Management of CE safety cycles.
• Interactive display of safety utilities and customized messages.

Memory capacity
• Infinite number of programs, which can be saved in NC memory or directly in Windows®.
• Infinite number of sequences per program.
• Infinite number of punches.
• Infinite number of dies.
• 5 Materials.
• 12 Back-gauge configurations.
Axes and bending functions

The elements listed hereafter are available and can be configured in all numerical controls supplied with standard software (within the number of axes and inputs/outputs available).

Standard Axes

- **Y1 - Y2**: Synchronized axes for the beam (servo-valves, proportional valves). If a current output is needed, the MSV 402 (see Machine options) becomes necessary.
- **X, X1, X2, X5, X6**: Main back gauge axes.
- **X1 ABS, X2 REL**: Secondary back gauge axes in absolute or relative mode, generally used for motorized finger gauge.
- **Z, Z2, Z5, Z6**: Axes for left/right movement of the back gauge. Possibility to program a position clearing movement (“retraction”) in Z-axis for faster bending cycles.
- **R, R2, R5, R6**: Back gauge height-adjustment axes.
- **M1, M2**: Axes for the adjustment / movement of the die.

**Dynamic crowning**

Voltage output 0-10 VDC to adjust the hydraulic crowning. Dynamic correction of the bending table, the beam and axis R position. Calculated not only in relation with force, but also with sheet width. If current control is desired, the MVP 100 (see Machine options) is the solution.

**Auxiliary functions F1 to F10**

Configurable auxiliary functions (number eventually limited according to the type of function and management). 24 VDC voltage or logical order outputs, with or without position control by means of a potentiometer transducer. Special controls for gauge fingers, bending aids, die movements.

**Pressure**

Voltage output 0-10 VDC for pressure valve control. If current control is desired, the MVP 100 (see Machine options) is the solution.

**Angle protractor**

Y1, Y2 and crowning corrections calculation based on the measure of up to 3 angles on the bend. Free interface for RS232 or wireless communication between Mitutoyo angle protractor (not included) and the NC. Uses a receiver with IBRit-Rf1 type USB interface.

**LazerSafe PCSS interface**

Allows selecting the safety mode, and checking the LazerSafe’s PCSS status and log file.

**Conical folds**

Comfortable programming for conical folds (requires X, X2 and adapted stop fingers).

Software options

**Special axes**

- **X3, X4, X7, X8, Z3, Z4**: front gauge axes.
- **H, H2**: rear sheet support axes (not calculated).
- **H3, H4**: calculated front sheet support axes.

**Tandem operation**

Management of 2 or more press brakes coupled together in order to bend sheets too long to be bent with one press.

**Bending aids**

Management of conventional bending aids, or of simplified mechanic bending aids with 2 axes (AP and H) interpolated with the beam.

**Angle measurement**

Y1, Y2 and crowning corrections calculated automatically based on the feedback of 1 or 2 stations of sensors (DataM’s Laser Check – not included), and applied to the next bend, or in real-time to the current bend. Requires NLR board.

**3D software**

3D capacities for parts management, from creation to bending.

**Message interpreter**

Allows remote control of the NC with commands sent in a file via Network or RS232. Generally used for interfacing with robots, bar code readers, etc.
## CNC Hardware specifications

The CNC is available in 3 rack sizes depending on the configuration:

<table>
<thead>
<tr>
<th>CNC/C</th>
<th>CNC/M</th>
<th>CNC/L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compact rack version. With NMX and NSX boards, allows controlling 2, 4 or 6 axes (Y1, Y2 and 2 or 4 electrical axes).</td>
<td>Medium rack version. With NMX and NSX boards, allows controlling 4, 6, 8, 10 or 12 axes (Y1, Y2 and 10 electrical axes).</td>
<td>Large rack version, up to 18 axes. A specially large rack version available upon request.</td>
</tr>
<tr>
<td>With NCX CANopen axis controller board, allows controlling up to 18 axes (Y1, Y2 and 16 electrical axes).</td>
<td>With NCX CANopen axis controller board, allows controlling up to 18 axes (Y1, Y2 and 16 electrical axes).</td>
<td></td>
</tr>
</tbody>
</table>

### Definitions

<table>
<thead>
<tr>
<th>Hydraulic axes – NPU board</th>
<th>Analog axes – NMX/NSX boards</th>
<th>CANopen axes – NCX board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog axes especially intended for controlling the beams (Y1-Y2), controlled by the NPU board.</td>
<td>NMX master board can control 2 analog axes, and up to 3 NSX slave boards, each of which being able to control 2 additional analog axes. Speed command is provided to the axis drive in the form of a ±10VDC voltage and some digital signals. Axis position is provided to the NMX/NSX board by an incremental encoder as a quadrature signal.</td>
<td>An NCX board can control up to 8 axes depending on the options. It provides motion commands and receives position information from the axis drives via a CAN bus abiding to CANOpen conventions. This board can handle various protocols according to the type of servo-amplifier used. It is possible to combine NCX and NMX/NSX boards, in order to combine CANopen and analog axes. ModEva 15T accepts up to 2 NCX boards. Please contact Cybelec before ordering if you consider CAN for your axes.</td>
</tr>
</tbody>
</table>
### Technical Characteristics - Console

<table>
<thead>
<tr>
<th>Screen</th>
<th>15” TFT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keypad</td>
<td>41 keys</td>
</tr>
<tr>
<td>Resolution</td>
<td>1024x768</td>
</tr>
<tr>
<td>Touch screen</td>
<td>Yes</td>
</tr>
<tr>
<td>USB port</td>
<td>1 x USB 2.0</td>
</tr>
<tr>
<td>Power</td>
<td>Through the panel link</td>
</tr>
<tr>
<td>Seal</td>
<td>IP 54</td>
</tr>
<tr>
<td>P-Link</td>
<td>2 cables RJ45 twisted pair category 6. Cables 5 m or 10 m with Cybelec repeater.</td>
</tr>
<tr>
<td>Handle</td>
<td>Included</td>
</tr>
<tr>
<td>Operating conditions</td>
<td>Min. 5° Celsius, max. 40° Celsius. Relative humidity 10 to 85% non-condensing. If the ambient temperature approaches or exceeds 40° Celsius, it is advisable to install special ventilation.</td>
</tr>
<tr>
<td>EC Directives</td>
<td>EC61131-2 type 1-3</td>
</tr>
<tr>
<td>Available languages</td>
<td>CH-中文 (Chinese), CZ-Český (Czech), DE-Deutsch (German), DK-Dansk (Danish), ES-Español (Spanish), FI-Suomi (Finnish), FR-Français (French), GB-English, GR-Ελληνική (Greek), HU-Magyar (Hungarian), IT-Italiano (Italian), KO-한국어 (Korean), NL-Nederlands (Dutch), PL-Polski (Polish), PT-Português (Portuguese), RU-Русский (Russian), SE-Svenska (Swedish), SI-Slovensko (Slovene), TR-Türkçe (Turkish), TW-台灣 (Taiwanese). Language translation modifiable by manufacturer or end-user.</td>
</tr>
<tr>
<td>Weight</td>
<td>Approximately 9.6 kg</td>
</tr>
</tbody>
</table>
## Technical Characteristics - CNC

<table>
<thead>
<tr>
<th>System</th>
<th>Windows® 7 Embedded</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>AMD Fusion T40R – 1GHz</td>
</tr>
<tr>
<td>RAM</td>
<td>4 GB</td>
</tr>
<tr>
<td>Disk</td>
<td>16 GB flash</td>
</tr>
</tbody>
</table>

### Communication
- 2 RS232 – 1 configurable, e.g. for Lazer Safe’s protection devices
- 2 PS/2 for mouse or keyboard input
- 1 RJ45 Ethernet for network
- 1 parallel port (printer)
- 1 STD VGA Screen output

### Y1, Y2
- NPU board

### Analog axes
- 2 per board
- NMX, NSX boards, according to configuration and rack version.
- $Z_{out}$ output impedance < 100 Ω, $Z_{load}$ ≥ 10 kΩ

### CAN axes
- NCX boards
- Depending on configuration and rack version.

### Incremental encoders
- 5V DC
- Line driver, complementary signals are mandatory.

### Digital inputs
- 32
- NIN boards, 24 VDC opto-coupled.

### Digital outputs
- 32
- NOT boards, 24 VDC "sources".
  - Max 2.5 A / output.
  - Max 6 A / board.

### Analog inputs
- 6
- NIN boards.
  - Depending on configuration 0-10, 0-24 VDC A/D 8 bits.

### Analog outputs
- 4
- NOT boards, 0-10 VDC (8 bits) for the auxiliary functions,
  - $Z_{out}$ output impedance < 100 Ω, $Z_{load}$ ≥ 10 kΩ

### Power supply
- 24 VDC / max 4A ± 15%.

### Seal
- Must be installed in an approved electric cabinet.

### Operating conditions
- Min. 5° Celsius, max. 40° Celsius.
- Relative humidity 10 to 85% non-condensing.
- If the ambient temperature approaches or exceeds 40° Celsius, it is advisable to install special ventilation, or even air-conditioning.

### EC Directives
- IEC61131-2

### Weight
- Rack version C: approx. 5 kg.
- Rack version M: approx. 6 kg. Depending on equipment.
- Rack version L: approx. 7 kg. Depending on equipment.
With auxiliary box and keyboard support

**Auxiliary box**
Size: 102.0 x 488.6 mm
Thickness: 2.0 mm

**Attachments**
Two adapters are provided. Stick the appropriate one on top of the box.

**Rack dimensions**
Software options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-OFT-OPT08</td>
<td>Message interpreter</td>
</tr>
<tr>
<td>S-OFT-OPT30</td>
<td>Angle measurement 2 points analog interface (NLR board)</td>
</tr>
<tr>
<td>S-OFT-OPT38</td>
<td>Rear axes H1 and H2 (sheet support)</td>
</tr>
<tr>
<td>S-OFT-OPT42</td>
<td>Conventional bending aids, AP1 to AP4</td>
</tr>
<tr>
<td>S-OFT-OPT52</td>
<td>Front axes H3 and H4</td>
</tr>
<tr>
<td>S-OFT-OPT60</td>
<td>Angle measurement – one measuring station (NLR board)</td>
</tr>
<tr>
<td>S-OFT-OPT65</td>
<td>Angle measurement – two measuring stations (requires option 60)</td>
</tr>
<tr>
<td>S-OFT-OPT66</td>
<td>Angle measurement by RS in continuous mode (requires option 60)</td>
</tr>
<tr>
<td>S-OFT-OPT74, 75, 76, 78</td>
<td>CANOpen axis (2, 4, 8, 16 axes)</td>
</tr>
<tr>
<td>S-OFT-OPT86</td>
<td>Thickness variation compensation: strain gauge</td>
</tr>
<tr>
<td>S-OFT-OPT89</td>
<td>Tandem management</td>
</tr>
<tr>
<td>S-OFT-OPT90</td>
<td>Combined bending aids and sheet supports (H+AP, etc…)</td>
</tr>
<tr>
<td>S-OFT-OPT911</td>
<td>Slave axes</td>
</tr>
<tr>
<td>S-OFT-3D</td>
<td>PC-ModEva 3D software, CYCAD and USB key for off-line installation</td>
</tr>
</tbody>
</table>

Machine options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-OPT-BTAUX-S/E</td>
<td>Auxiliary panel for machine buttons</td>
</tr>
<tr>
<td>S-OPT-KBSUP15</td>
<td>Support for external USB keyboard (the keyboard is not provided)</td>
</tr>
<tr>
<td>S-OPT-EARTHKITC</td>
<td>Earthing kit for size C rack</td>
</tr>
<tr>
<td>S-OPT-EARTHKITM</td>
<td>Earthing kit for size M rack</td>
</tr>
<tr>
<td>S-CAH-CybVA6</td>
<td>Interface card for Hoerbiger proportional valves</td>
</tr>
<tr>
<td>S-MVP-100/A</td>
<td>Voltage / current conversion module (0-10V → 0.25-0.5 / 0-2 A) for pressure and crowning valves, to be fitted in the electric cabinet.</td>
</tr>
<tr>
<td>S-MSV-402/A</td>
<td>Voltage / current conversion module (±10V → ±50 mA, ±300 mA) for servo-valves.</td>
</tr>
<tr>
<td>S-OPT-PLCABLE15</td>
<td>Cable, length 15 m with amplifier</td>
</tr>
</tbody>
</table>

Ordering Information

**S-CNC-MA08PSNE**

- **Rack size** (Compact or Medium)
- **Number of axes**
- **With NLR Board**
- **Axis type** (Analog or CANopen)
- **Press type**
- **Software type** (12 for 2D, E for 3D)

**Console**

S-MOD-15T

**Examples**

S-CNC-CA06PS12
S-CNC-MA08PSN12
S-CNC-MA12PSNE