



The Decade 160 Series

With its host of unique and innovative features, the Decade 160 Series is the clear choice to ensure you get the utmost performance from your power presses.

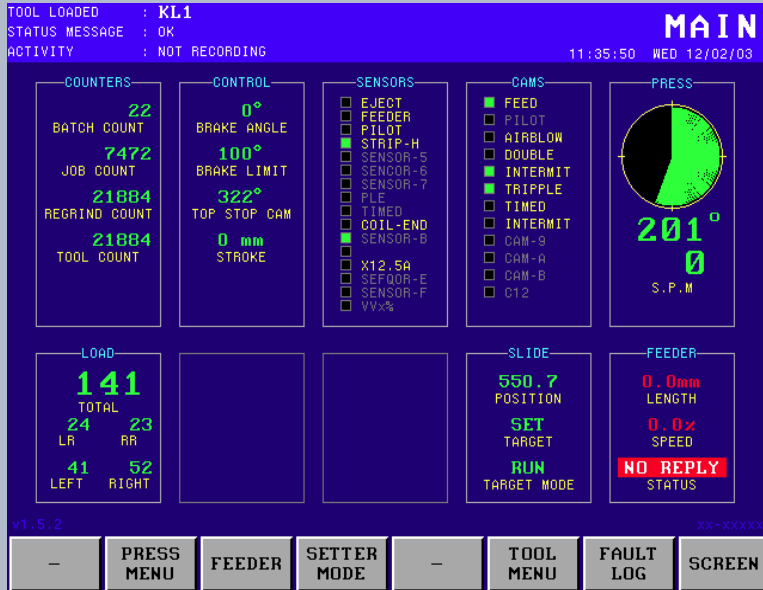
With clear, simple-to-use touch screens, which can be free-standing or panel-mounted, the modular system can be easily operated, and adapted to suit your exact requirements.

Main features include:

- **Main screen** – allows an overview of the complete system from just one screen, and the option to then set up or view specific features
- **Tool database** – stores all the settings for each tool or die and recalls them when the tool is next needed, ensuring quicker and more reliable changes. The automatic tool recognition feature also identifies each tool as it is fitted in the press and loads the appropriate settings, with the capacity to remember up to 800 tools
- **Tool protection** – 16 sensors monitor correct operation, stopping the press in the event of a fault and avoiding irreparable damage to expensive high quality tools or components
- **Load monitor** – allows a more accurate method of monitoring press and tool load, and sets trip levels automatically, to allow finer control over the press and tool conditions, and eliminating nuisance stoppages
- **Programmable cams** – avoids the problems associated with having to adjust camboxes and physically move cam lobes. The 160 series provides eight fully independent CAM channels, and allows you to control on/off angles from the screen
- **Servo roll feed interface** – can be set with pitch, rate and acceleration/deceleration information when a new tool is loaded from the tool database
- **Slide position controller** - Helps drastically reduce set-up times through storage and easy retrieval of known reference points for tools and dies
- **Machine production/Downtime monitor** – allows you to accurately measure your productive and non-productive times over a shift or job run, logging all down time and reasons for stoppages, which can later be exported to a PC for further analysis
- **Press Cushion and Counterbalance Control** – This feature allows both the cushions and counterbalance presses to be set for each tool, extending the life of both press and tooling
- **Temperature Monitoring** – Allows up to 4 temperature probes to monitor for excessive temperature increases
- **Clutch and Brake Monitor** – Disables press operation when the preset safe stopping time is exceeded.

The Decade 160 series press automation system is designed, developed and manufactured by Decade in the UK. Competitively priced and backed by expert service, the 160 series puts unprecedented control at your fingertips.





Main screen

An overview of the complete system can be viewed from one screen, or select a specific feature to set-up or view.

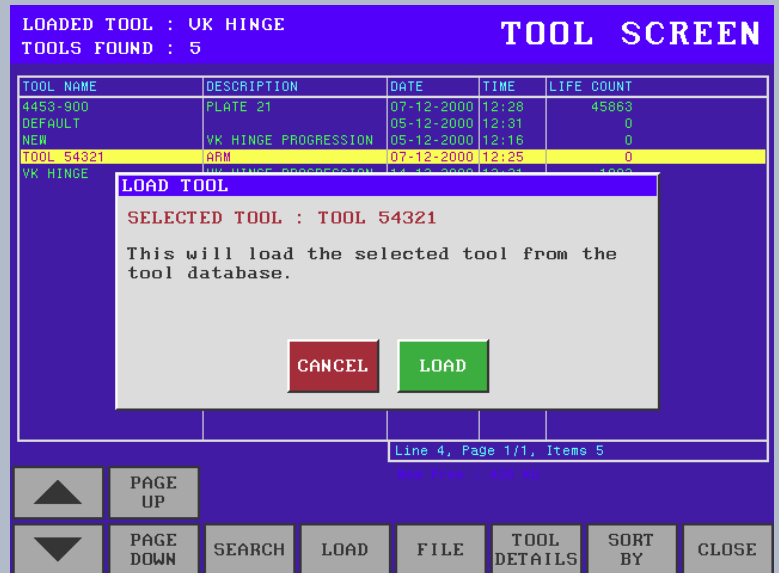
Information shown on Main Screen:

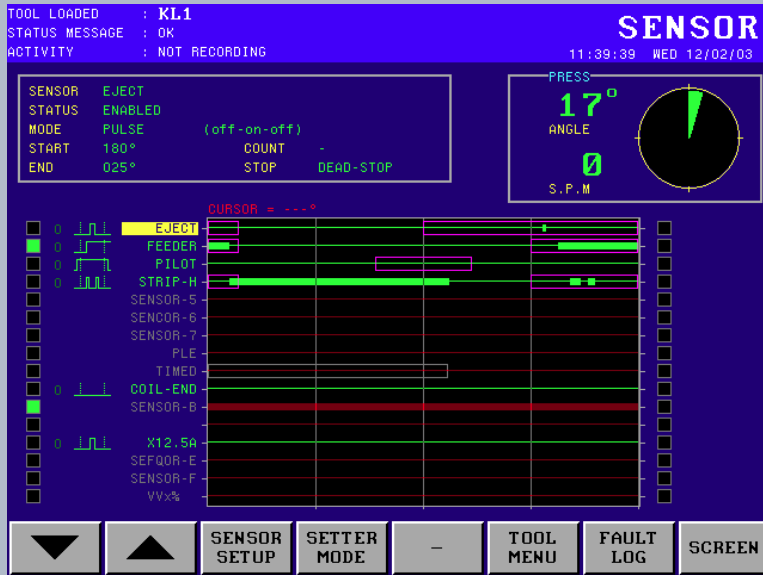
- Press angle and speed
- Press braking angle
- Batch and job counters
- Press load
- Cam output conditions
- Enabled tool sensor states
- Current slide position
- Servo roll feed settings
- Time and date
- Current tool

Tool Database

The Tool Database stores all the settings for each tool/die for use whenever that tool/die is required, the Tool Library makes tool/die changes quicker and more reliable as you use tried and tested settings from the last tool/die run.

The automatic Tool recognition feature allows each tool to be identified when it is fitted in the press, the operator simply acknowledges the new tool has been fitted and the 160 Series will then load the settings for that tool, CAM angles, slide positions, roll feed pitch and rate, load monitor limits and tool sensors, will be set up ready for the press to run.





Tool Protection

Press tooling represents a significant investment in both monetary and quality terms, manufacturing high quality components demands high quality tooling. In order to protect these investments and ensure that no accidental or avoidable damage could render the tooling out of production there are a number of methods available to perform these tasks.

The 160 Series offers an In-Tool Protection feature where up to 16 sensors can be monitored for correct operation and in the event of a fault stop the press before irreparable damage is done.

- Mechanical feeder or material in correct position
- Buckle detection for long feeds of thin material
- Successful scrap or component ejection out of the tool area
- Correct positioning of material in transfer system
- Presence of pilot holes in material strip / push back pilot
- Detection of scrap carried along material strip

Load Monitor

The 160 Series Load Monitor feature allows a more accurate method of monitoring press and tool load. Trip levels are set automatically and adjust for gradual changes in running load, this process eliminates nuisance stopping and allows finer control over the press and tool conditions.

Shown below is a two channel Load Monitor Screen showing two dynamic bar graphs with limit boxes for each corner/ connecting rod, digital load values in Tonnes and local tool curve graph.

- 'Trend' based limit checking tolerates changing load values but maintains sensitivity
- Integrates with tool setup library to save target load values and limits values
- Fault history file saves load faults with time/date stamp.
- "Setter Mode" disables load checking for N strokes during tool/die setup
- Load values are displayed as large numbers and visually on a 'trend' graph
- Available in 1, 2, 3 and 4 load channel versions
- Monitor measures peak load during press stroke
- Uses DECADE force transducers
- Load signature or trend graph option





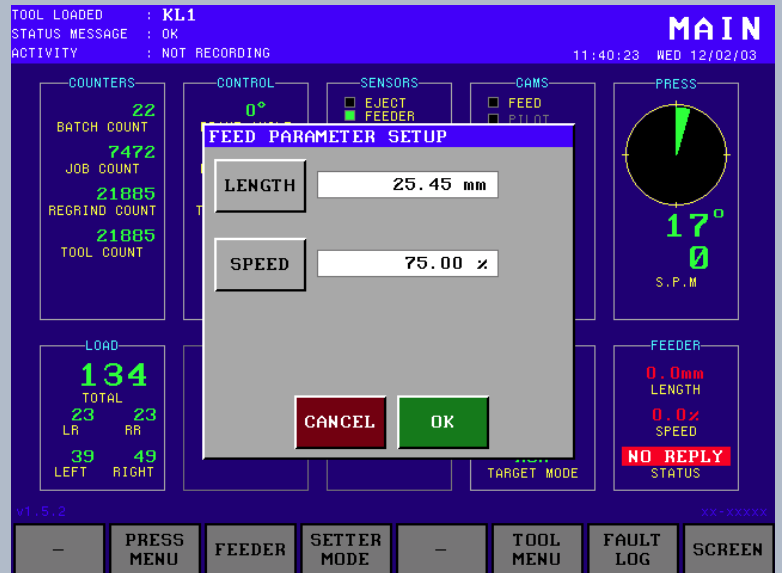
Programmable Cams

Power presses use rotary CAM signals to control equipment like feeders, scrap cutters, part ejection and strip lubrication. Conventional cam-boxes use mechanical switches operated by cam lobes which means if you need to adjust the on/off angles you have to physically move the cam lobes.

- Provides eight fully independent CAM channels for controlling ancillary equipment
- Angles are entered in at the 160 Series screen, - no more fiddling with mechanical switches
- As well as normal ON/OFF Angle CAM's, ON/Time Duration CAM's are ideal for Air Blow-offs or Strip Lubrication
- All CAM angles are saved in the Tool Library for recalling the next time the tool is used
- Each CAM channel can be given a name for easy identification of what it is controlling
- Single, double, triple and interval mode option for each CAM. Cyclic CAM option, will operate CAM's every X Strokes

Servo Roll Feed Interface

Servo Roll Feed Interface for roll feed with a communications port, can be set with Pitch, Rate and Acceleration/ Deceleration information when a new tool is loaded from the tool database.





Slide Position Controller

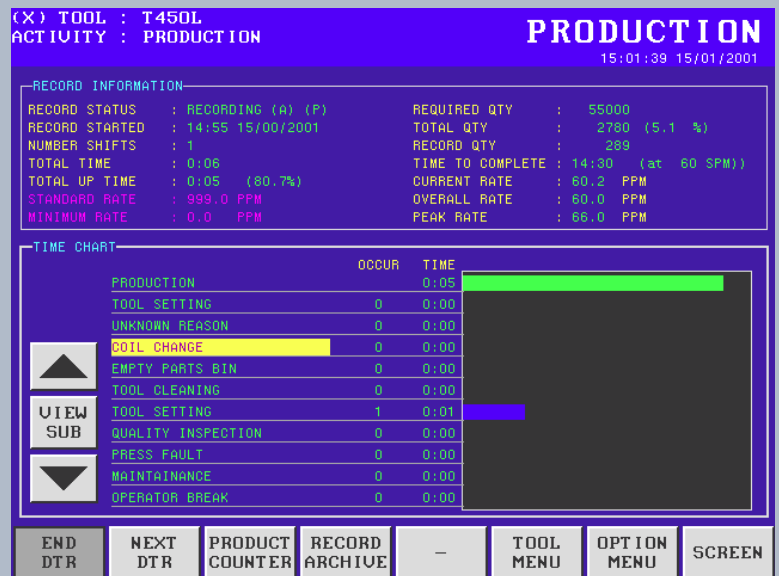
Adjusting the press slide is a task that is constantly required when setting up a tool or die set in the press, whether this process is motorised or done manually, the need for an accurate reference point is of obvious benefit. Being able to move the slide to a known reference point for a tool or die set can drastically reduce setup times and give setters valuable information.

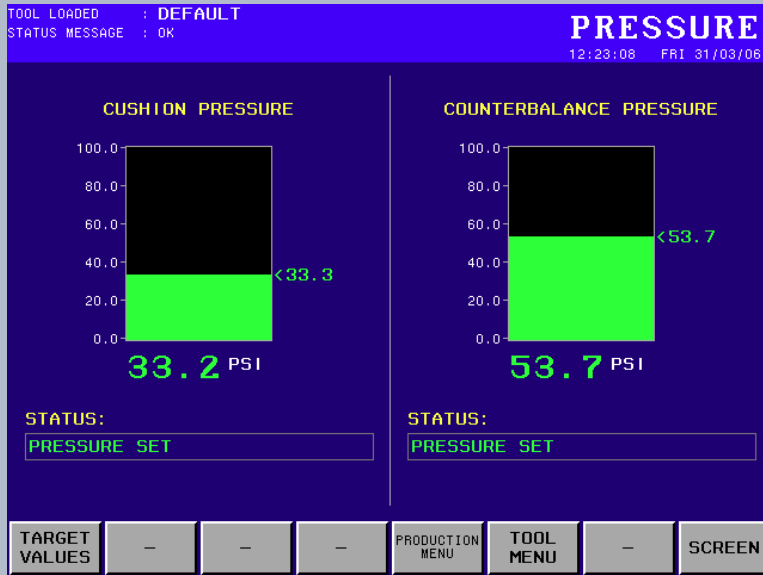
- Displays the slide position in mm (shut height) to an available 0.01mm resolution
- Has three target positions for tool removal, tool Clamp/Unclamp and tool run
- Stores all the target positions in the tool library for future setups and reference
- Can connect to press to automatically adjust the slide to target positions
- Uses 'Magnetostrictive' industrial linear position transducers, or stegman absolute rotary encoders for reliability and high integrity. Uses SSI/SSD interface to transducer

Machine Production/Downtime Monitor.

The Production Recording module of the 160 system provides a means to measure your productive and non-productive times over shift or job runs. The 160 will record time and part counts while the press is in production, when the press stops the operator is prompted for a "downtime reason" which is then used to log the stop time against. Over a shift or job run a pattern of run/stop times is built up which is displayed on the 160 screen. This data can be exported to a PC for later analysis.

There is also the option of connecting together your 160 Units with the DECADE 160Net, this will give you remote monitoring power for the whole press shop. Now each monitor can be interrogated from the PC allowing individual press statuses to be seen from one remote point, without walking round the shop floor.





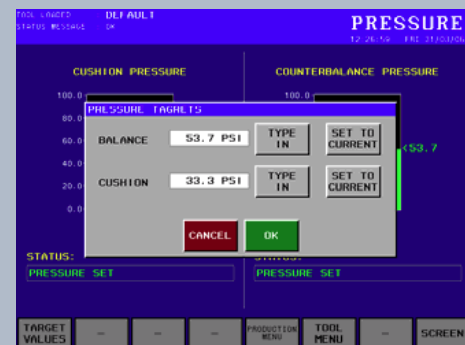
Cushion & Counterbalance Pressure Control

Ensuring the correct counterbalance and cushion pressures are set is vital for correct press and die operation. The 160 Series Pressure Control features allows the air pressures held in the Bed Cushions or Counterbalance Cylinders to be monitored via pressure transducers, a graphical screen then displays these pressure values visibly as 'tanks' and in calibrated pressure units.

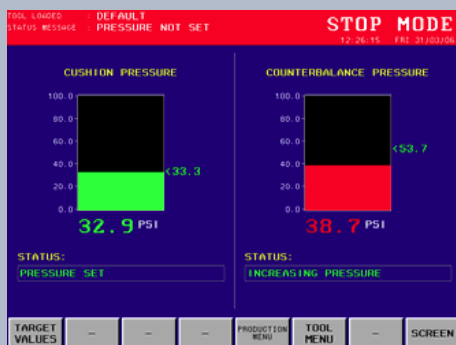
Pressure Target Values can be set for cushion and counterbalance which then visibly indicates to the operator if the pressure is above or below the correct value for the Die. The 'tank' turns RED when the pressure is not correct, 'GREEN' when set correctly.

The 160 System can also Automate the Setting Operation by controlling fill and dump valve blocks, when the system is in Automatic Mode it will adjust the air pressures when the press is stationary to maintain the correct target pressures. If the pressures are incorrect a warning message is displayed to alert the operator and the press can be optionally stopped.

- Monitor Counterbalance and 1-2 Bed Cushion Pressures. Integrates with Tool Setup Library to save target pressure values for each Die set
- Shows pressure values in 'real time'
- Can Automate Pressure Regulation when fitted with a fill/dump valve block assembly
- Can stop the press operating if any of the pressures are not set correctly.
- Manual & Automatic pressure regulation modes. Shows pressure in PSI, Bar etc..
- Can be retro-fitted to existing 160 systems.



Setting Pressure Target Values.

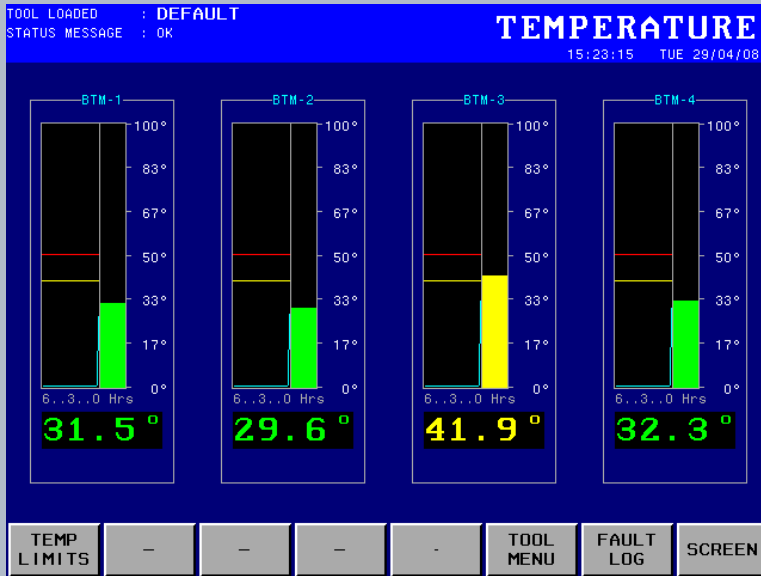


Pressure Incorrect Warning Message.



Pressures Shown on Main Screen.





Temperature Monitoring:

- 4 Channels of Temperature -
 - Allows DECADE 160 to monitor upto 4 channels of temperature on a metal stamping press
 - User defined upper and lower set point limits
 - Integrates with tool setup library to save target temperature values and limits values
 - Show outputs/reading (temperature) in celsius and histograms

Specifications

160 Control Uni	Stainless Steel enclosure, front panel mounted, size 216h x 305w x 105d, sealed to IP62, up to 8 analogue transducer inputs, 1 SSD transducer input, 2 RS232 serial ports. CE marked, fully Y2K compliant. 512Kbyte memory for tool data, data logging and fault-log data, expandable up to 1.5Mbyte.
Terminal Connection Unit <i>(single board type, 24 I/O lines)</i>	Rittal steel enclosure 400h x 300w x 160d. Connections for AC power and machine interface via screw terminal connections. OPTO-22 G4 I/O modules handle electrical interface (24-60V dc, 24-280V ac). Power requirements 110/240V ac (±10%) 50Hz 75VA. A 24V dc 1A fused supply is available for general use.
Tool Library	Memory dependant. An average system (Load, Cams and Tool Sensor Options), could hold in excess of 200 Tools in the library, each with totally unique settings.
Power Supply	110 or 220v AC 50 Hz. 75VA Rated. (Control unit separately requires +24v DC, 2.0A)
SSI Transducer Input	Will connect to SSI output transducer, 24 bit binary data word, 250Khz sample rate, 24V dc transducer supply, connection via 9-way D plug.
Crankshaft Encoder	Stegmann CoreTech. Absolute 9Bit Grey-XS76 Code. Parallel data output, 24v DC supply voltage.

