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Integrated Assembly Servo Press

Coretec's Assembly Servo Press is a cost effective solution with superior force & displacement control, built-in monitoring & data collection. Next-gen Assembly Servo Technology is now in reach, so improve production efficiency and make less scrap

The Coretec Assembly Servo Press

Control Capability at a Fraction of the Cost

In manufacturing automation there are three keys to better processes: Speed, Control and Cost. The process of press fit assembly and monitoring has evolved considerably in the last few years. Today it is not good enough to press to interference parts together and hope or assume that the are assembled correctly.

Traditionally a pneumatic or Hydraulic cylinder has been used to provide the force required to assemble parts. These systems are economical and can be found in almost any assembly plant. They are easy to implement and although they require ongoing maintenance, most facilities have the in house resources to handle it.

The addition of a load cell and a displacement sensor to the ram connected to a signature analysis system such as the Burster *Digiforce 9310* or *9307* allow for measurement of the process. The cost of a cylinder, hydraulic power pack, tooling, sensors and instruments have been the most economical solution for this type of assembly.

There is however, a severe limitation to these presses. They do not have the ability to control force, position and speed in real time. When a pressure is set, the press will act until it reaches a hard stop, at which point it will bottom out to the force that is set by the pressure.

In order to improve the process, we need better tools.

Coretec is moving the industry forward, providing the control and monitoring capabilities needed to increase efficiencies, at a cost that rivals traditional servo presses and monitoring solutions.

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What Makes A Coretec Servo Press Different?

1. Control Capability that Compete's with The Industry Leaders

Load Repeatability of 0.5% and Positional Repeatability of 10 microns under Identical Load is right in line with the Industries best.

2. Programming that's the Perfect Balance of Simple and Versatile

Coretec's Auto-Generation Software Provides a Visual way to Program the Servo Press that's simple and easy to use. The simple to understand program code is created, with comments to explain each step, yet the user still has the ability to edit the code as needed for the application. See below for more details!

3. Competitive Pricing that's Hard to Beat

Up to 40% less than equivalent competitive systems. Efficient Design = Cost Savings!

Our Efficient Design and Grassroots Marketing Approach means we don't have huge marketing budgets to support. In the end, this means savings for you and your. Rest assured that our network of local representatives across North America and Mexico are dedicated to supporting your applications as needed.

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Superior Control Starts with a Smart Design

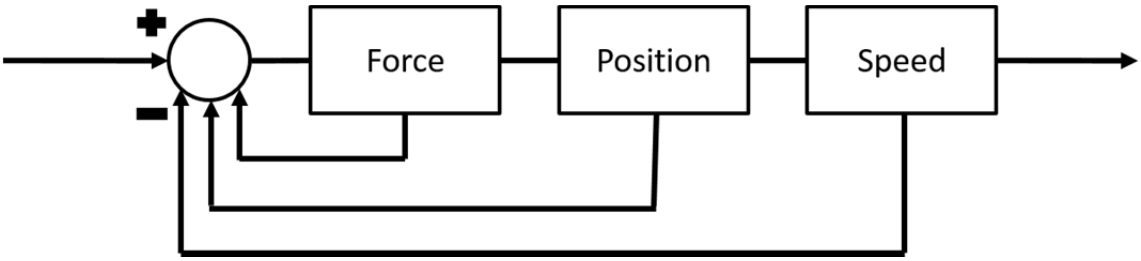
Ball screw servo presses use an electro servo motor coupled to a ball screw mechanism, to translate rotation to linear force. Virtually all electric motors have built in encoders, allowing them to control based on displacement and speed. However, controlling only on displacement and speed is missing half of the equation for controlling the assembly process, we need to know the forces associated with these processes, in order to accurately judge them as pass/fail.

The Coretec Integrated Servo Press is supplied with a factory integrated load cell and encoder, which allows us to provide real time feedback to the controller monitoring the process.

It's time to take control of your assembly process. Simply monitoring is not enough.

The issue with most servo presses that have Force, Displacement and Speed control is the high capital cost of the press itself. The difference is in the simple and efficient design which features Coretec's patented planetary gear pack and custom integrated load cell.

Not only do Coretec servo presses offer superior control, energy savings, space savings and less maintenance, we are now able to determine in-process when there is an anomaly and stop on a dime to avoid making unnecessary bad parts.



System Overview

- Tool with Load Cell, Encoder
- All Interconnecting Cables
- Controller with Digital I/O, Profinet, EthernetIP, DeviceNET, etc.
- Configuration and Data Collection Software
- Optional PC for Data Collection of up to 32 Presses

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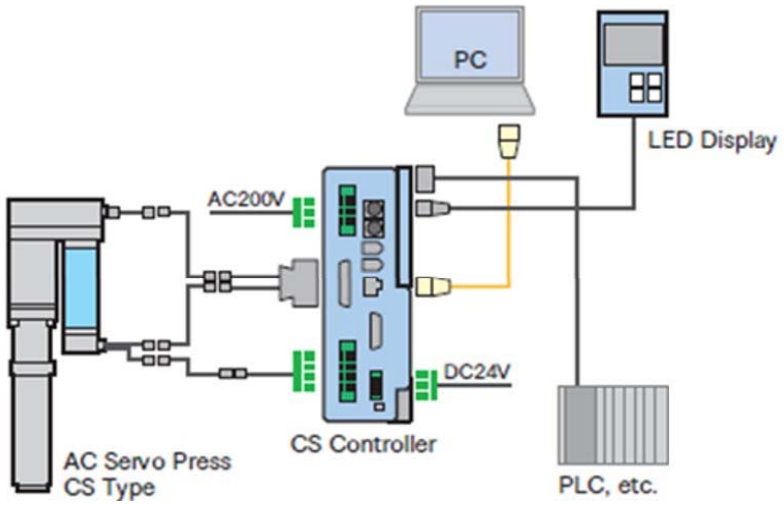
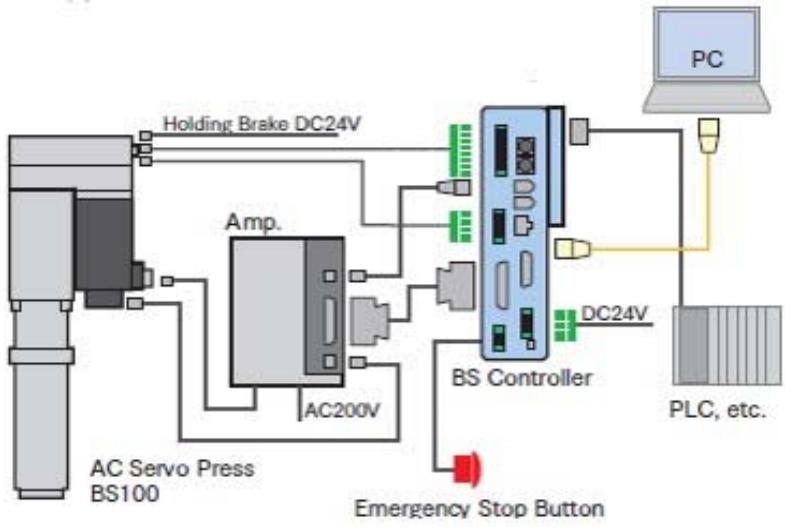
CS System Overview (5 kN to 50 kN Force Capacity)



BS System Overview (100 kN and 200 kN Force Capacity)



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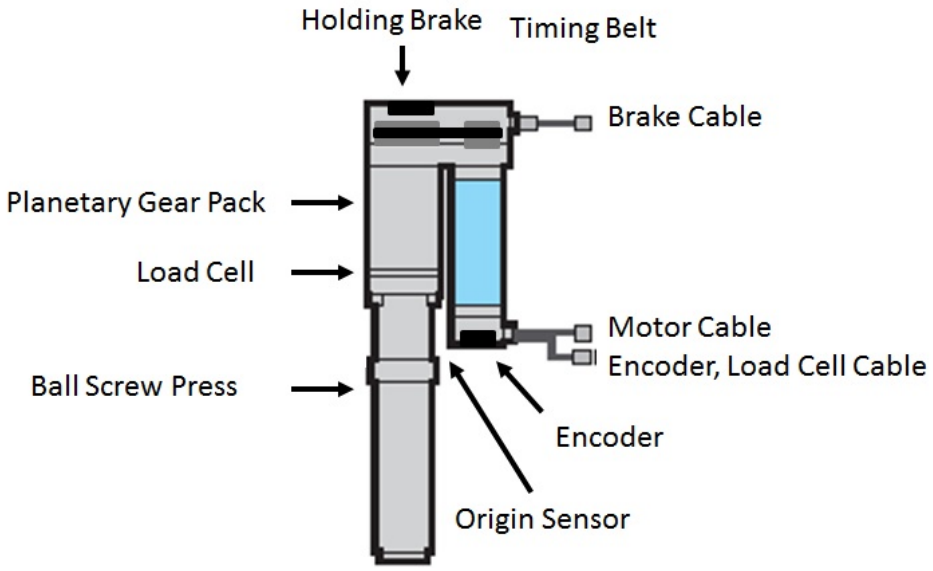
Intelligent Tool Design

Our Press Tool is supplied as part of an integrated system. It arrives already assembled, so there's no need to piece a whole bunch of parts together. We've also integrated the amplifier and chip so the Controller knows what Tool is connected and there is no calibration needed.

Cut Down Your Integration Time. Maintain Less Parts.



Compact Controller Design

- PC independent Control and Evaluation
  - PC is for Data Collection *ONLY*
- "Knows" which Servo Press Tool is connected
- Power Requirements
  - 220 VAC for motor
  - 24 VDC supply for controller
- Comprehensive PLC Interface Options
  - Digital I/O, EthernetIP, Profibus, Profinet, CC-Link DeviceNet
  - All Parameters can be read/set PLC

(i.e. live load, peak force/stroke, set serial numbers, program limits, pass/fail criteria, etc)

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Simple Programming

With all this advanced functionality, ease of programming is a legitimate concern. The Auto Program Generation function in the included software provides a visual method of generating programs and covers most applications.

Simple pressing applications can be configured in under 5 minutes, but you still have the ability to do custom routines using timers, handshaking, I/O, math, relative positions, etc.

Auto Program Generation: Where Capability and Simplicity Meet

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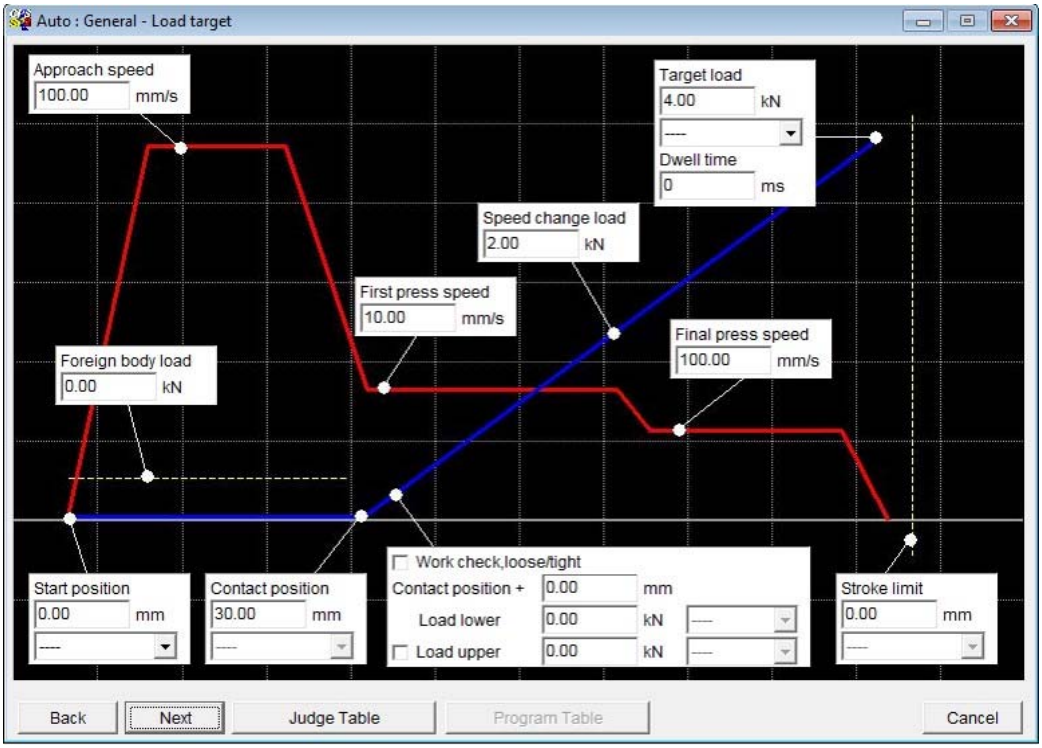

Define your approach speed, contact position, press fit, final force, positions, etc. using the graphical interface and SP Configurator creates the programs for you.

- Stroke Target
- Force Target
- Dwell at end of stroke
- Constant Load Pressing
- Backlash Inspection
- Double Taps
- Relative Position
- Covers most applications, yet allows custom programs.

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Signature Analysis

Having accurate control is a good starting point, but it isn't enough to meet today's rigorous quality control demands. These days most assembly processes require have Force vs. Displacement Monitoring.

A Better Process need superior control and 100% process monitoring

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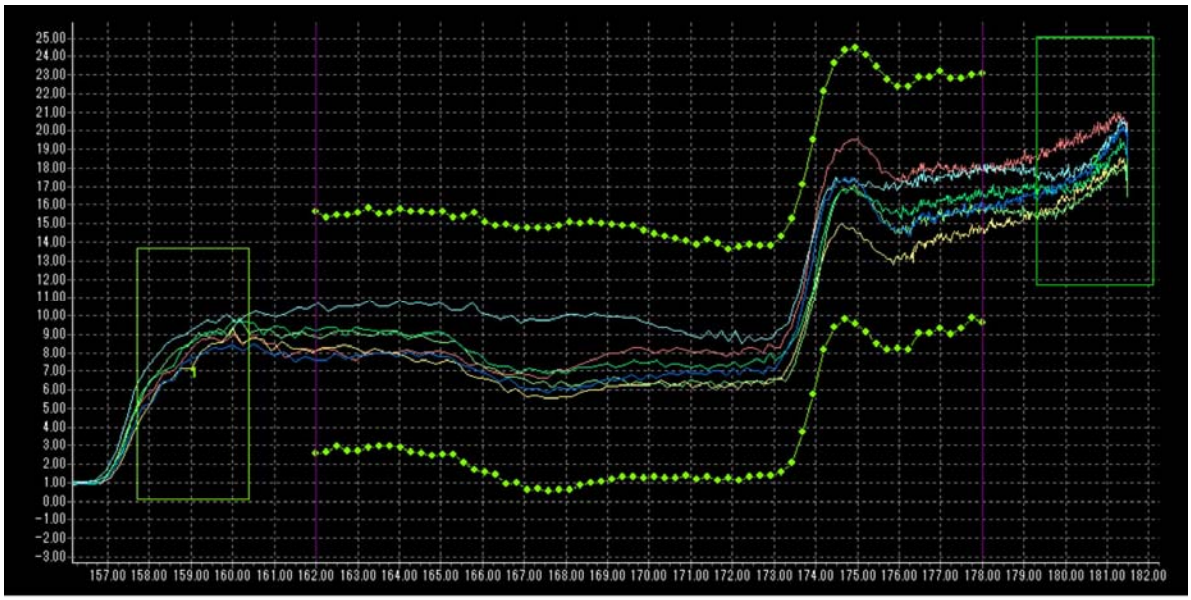

Dial in, Drag and Drop Interface allows you to:

- Limits (e.g. Peak Force, Final Stroke, User Definable, etc.)
- Up to 32 Zones (Tolerance Envelopes)
- Up to 4 Frames (Windows)

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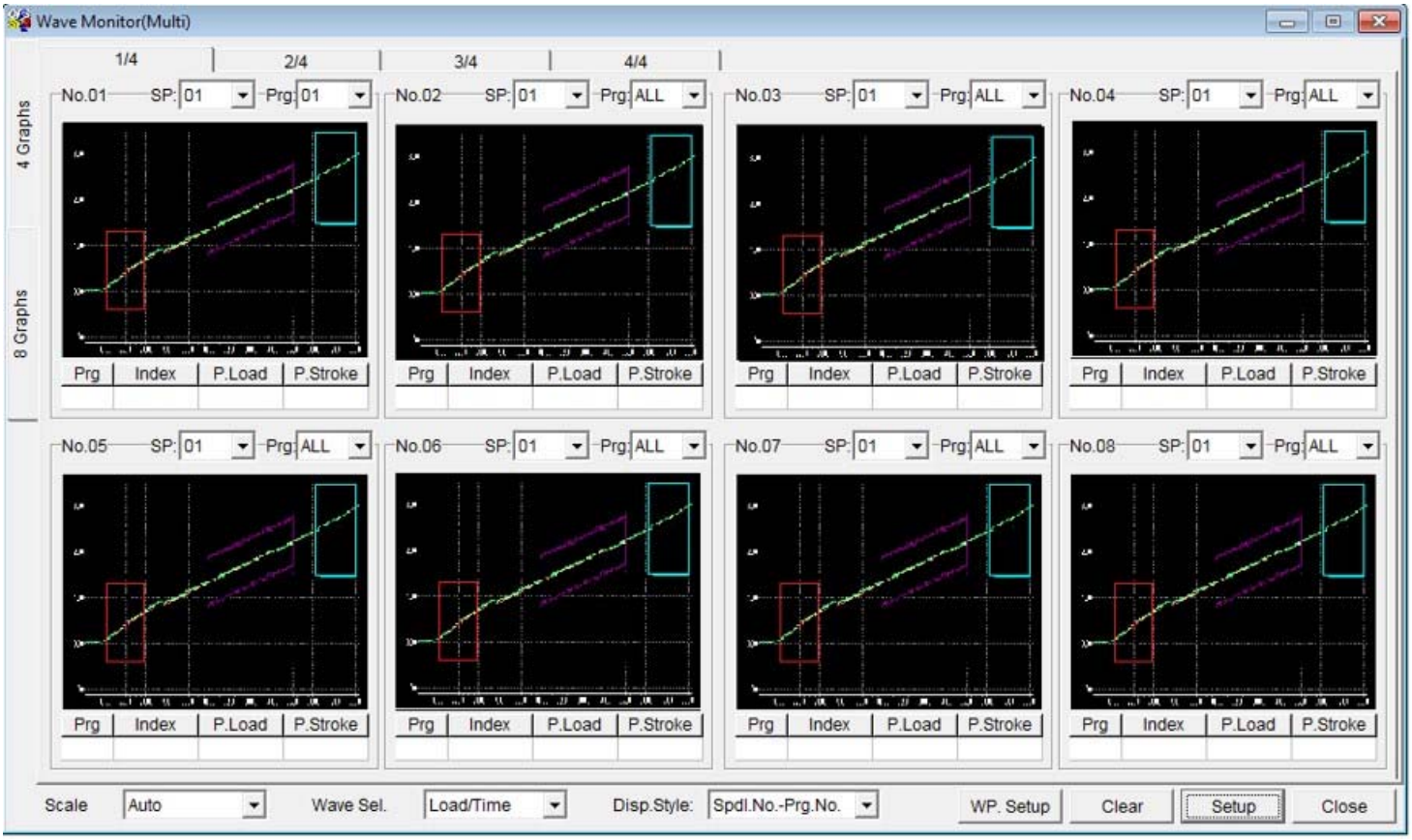
Plug and Play Data Collection

Gone are the days where quality is left to chance, modern manufacturing requires 100% data collection. Coretec's simple to use software allows you to autonomously collect numerical and graphical data from up to 32 presses via PC Software, using standard Ethernet TCP/IP and standard windows PC.

Model and serial numbers can be written over the PLC interface (Profinet, EthernetIP, DeviceNET, etc.) to a specific press and archived with the data by the software. It automatically receives the data from all of the connected controllers, regardless of the order and frequency.

Part Tracking is here to stay, it might as well be easy



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Applications

Pressing Rotor into Pump Assembly

Here we are pressing a shaft into a rotor housing. Notice how the gripper positions the shaft and the press pauses when it comes to touch it. The press is checking the part in *real time* to see if it is too loose or too tight. After the press communicates this to the PLC, the PLC retracts the gripper before the press finishes the part. This demonstrates some of the handshaking capabilities, as well as the value of live feedback.

Know a bad part ahead of time, and don't bother making it.

Suspension Bushing Press

One of the most common applications, a bushing press for suspension control arms.

Let us bring you tomorrow's technology, at today's budget.