

Komatsu

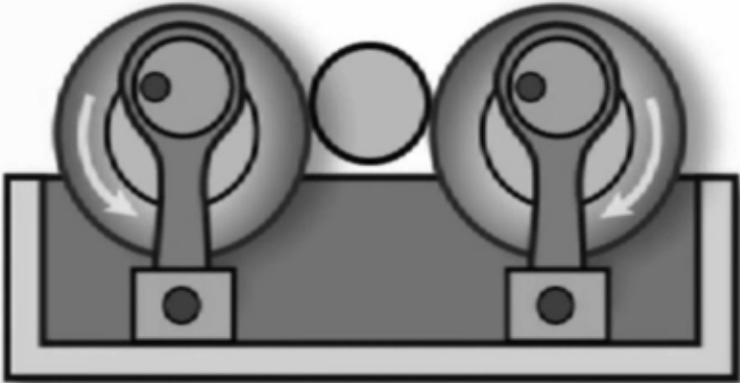
Press Machinery Division



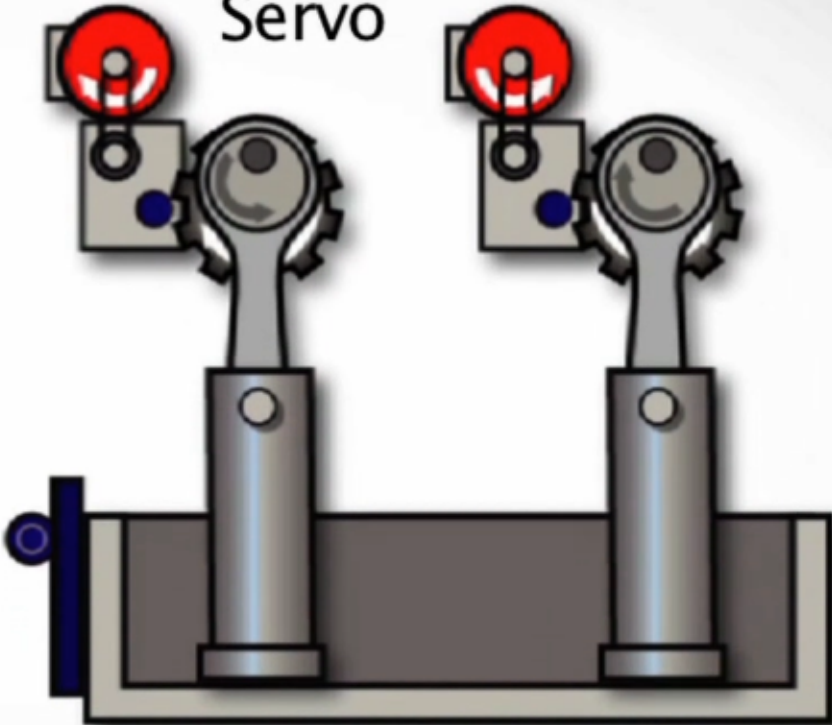
Servo Drive Differences

Direct or Torque Multiplier

Standard Mechanical Single Motor Servo



Komatsu Servo



Torque Multiplier / Mechanical Advantage Efficiency

Direct Drive



Torque Multiplier



Features using Servo Technology

- In tri-axis Transfer Applications, Shorter Stroke lengths can be used vs traditional long stroke needed for mechanical press.
- Benefits of using “Standard” stroke instead of special long stroke as traditional presses:
 - Less initial cost and better delivery
 - Shorter “Overall Press Height”
 - Building Height less (cost savings, location options)
 - Easier maintenance with “external” gear boxes and drives

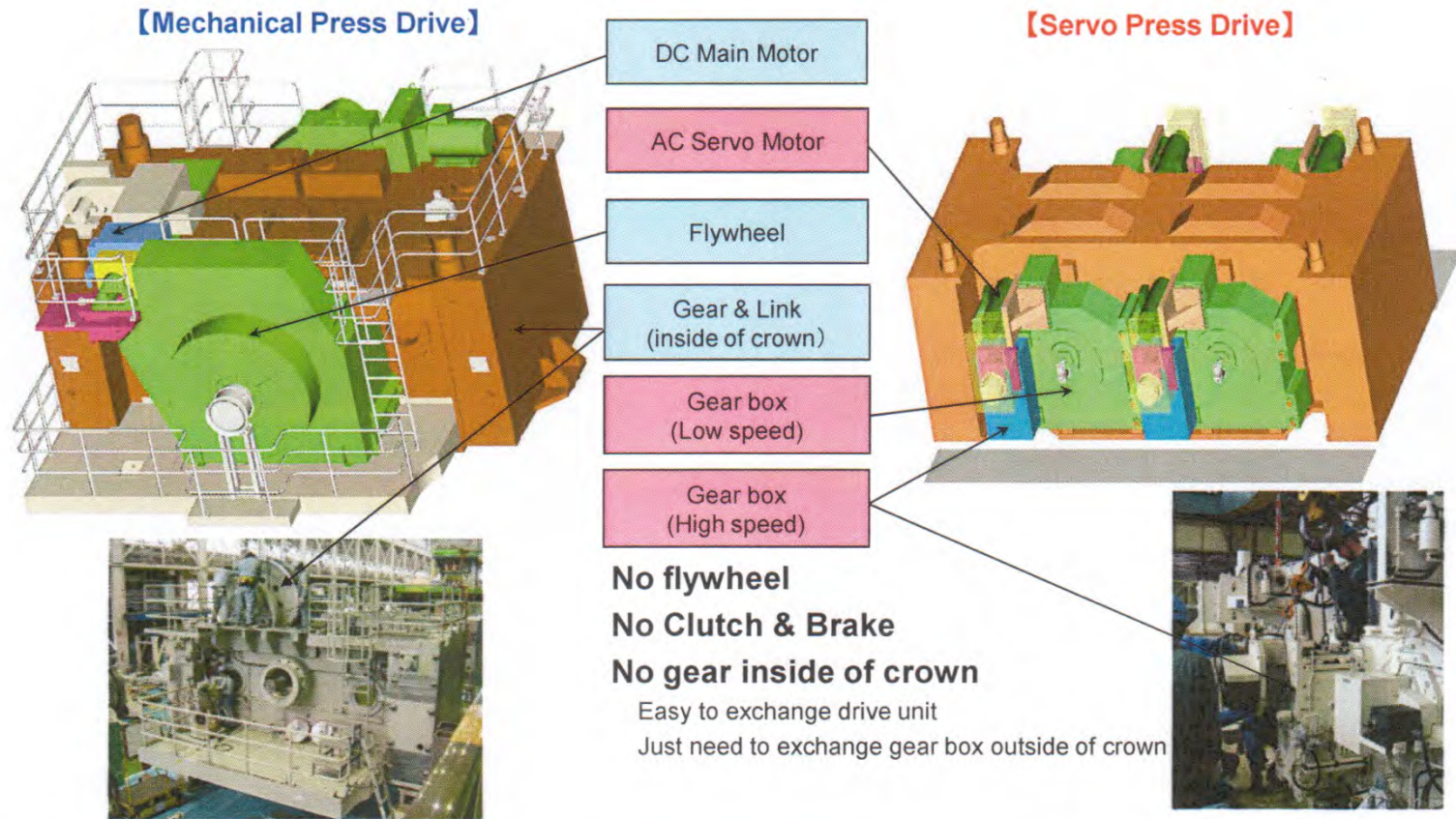
Features of Servo Technology



Features of Servo Technology



Design Features of Servo Technology



Automotive OEM: 2500 & 3000 ton, 4 point

* Stroke reduced from 39" to 25"

* Required Overall Height (maintenance) reduced from 41' to 29'



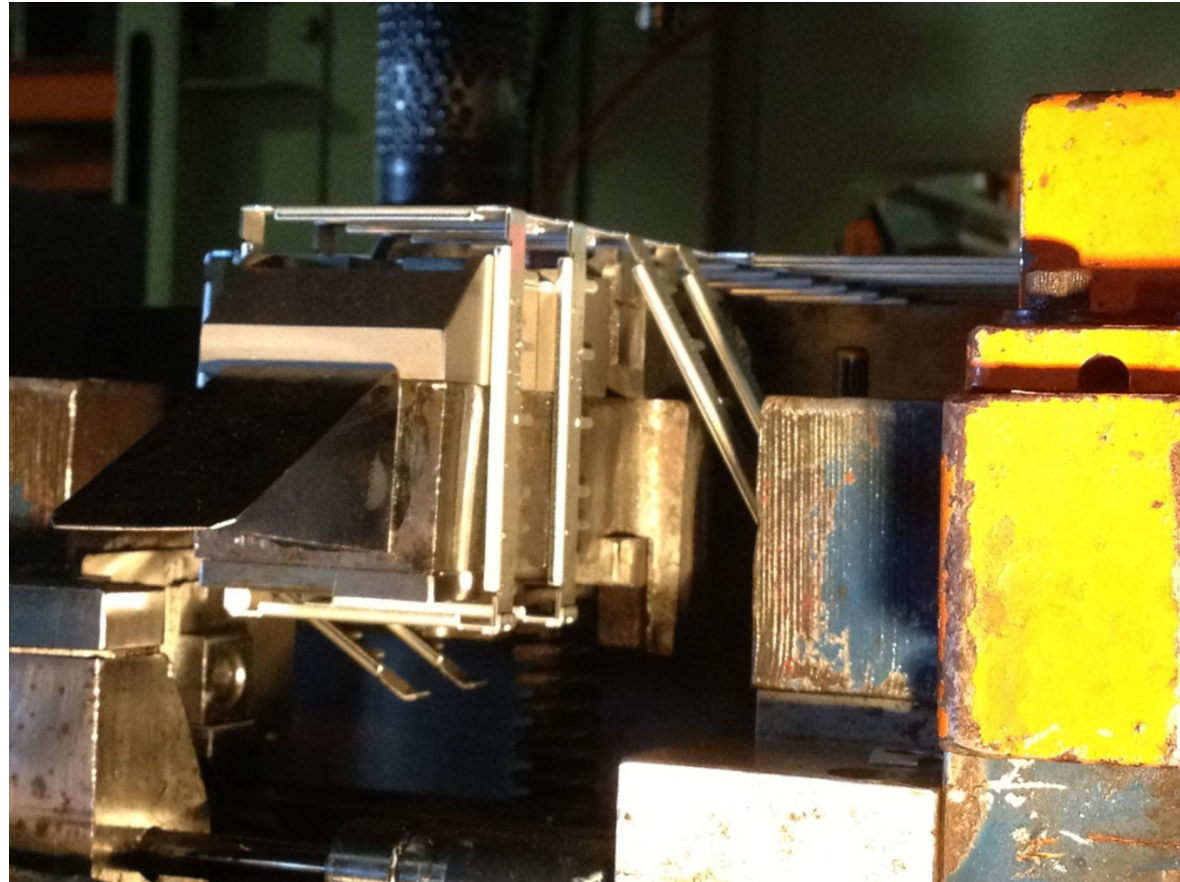
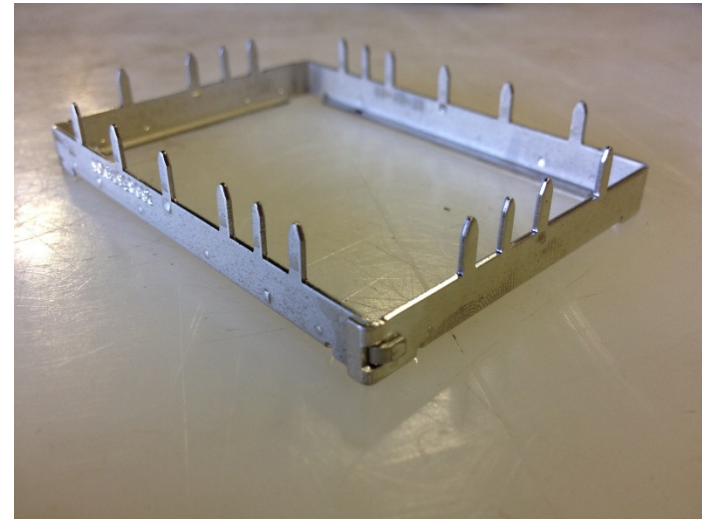
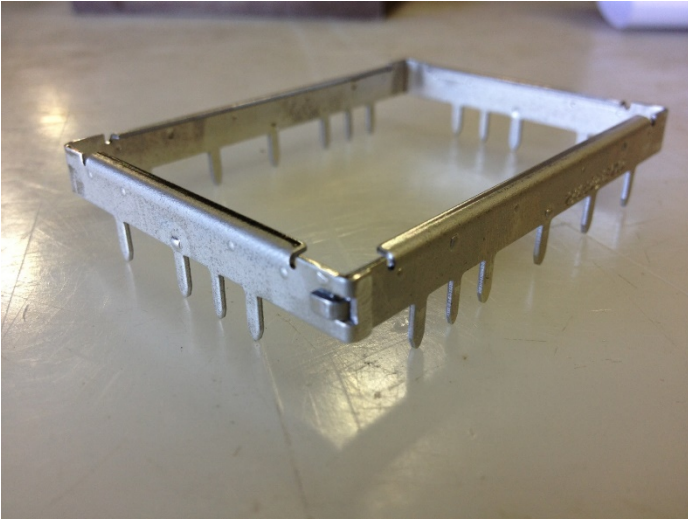


Servo Features -Applications

Complete control of slide position utilizing hand wheel adjustment in “real time”.

- Quick visual analysis of forms, cams, timing
- assist in programming motions, pilot release and other parameters of the application.

Electrical “Fence” on circuit boards to create the “RF” barrier around IC components

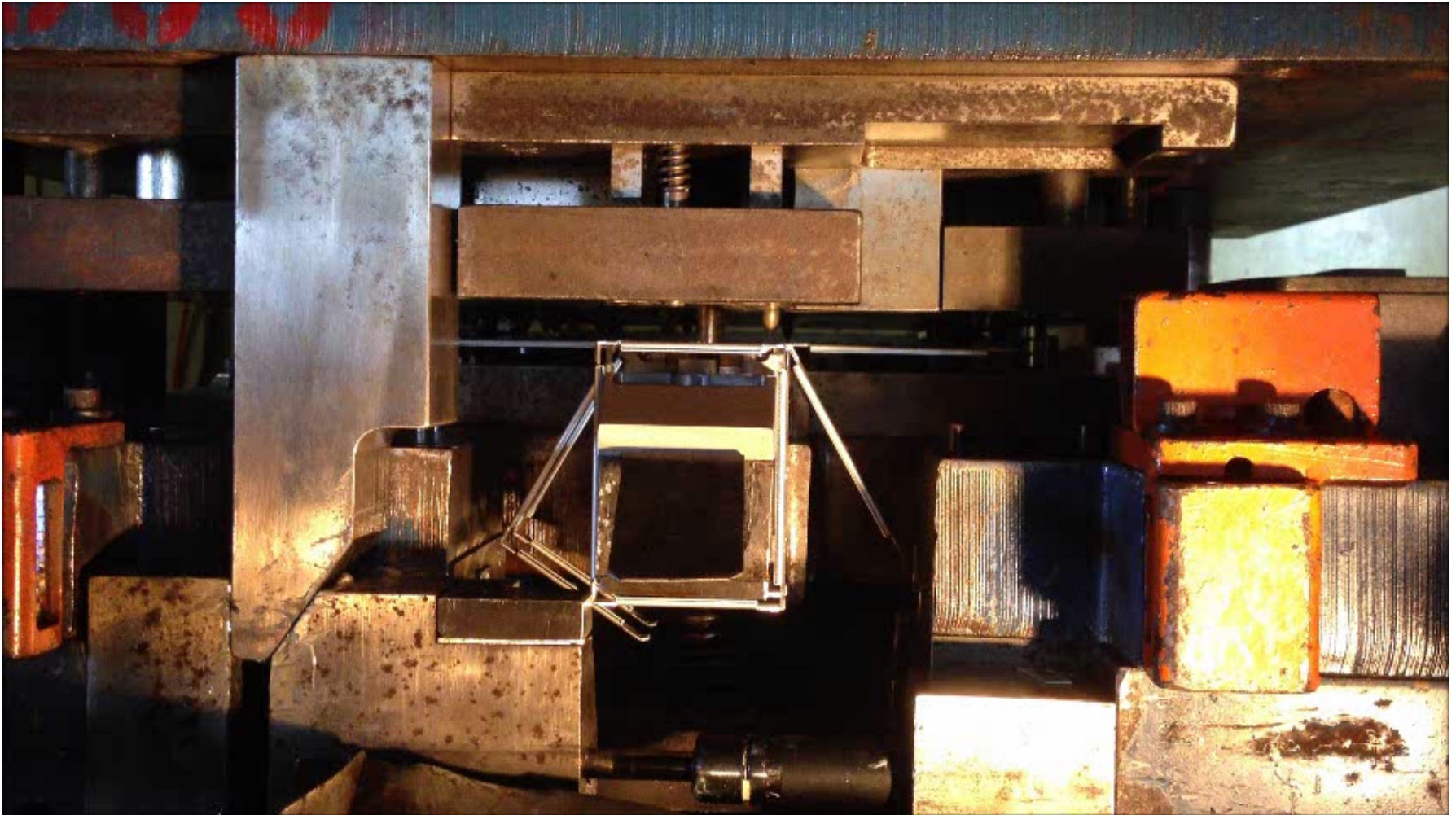


Servo – Practical Applications

“Hand Wheel” control of slide motion



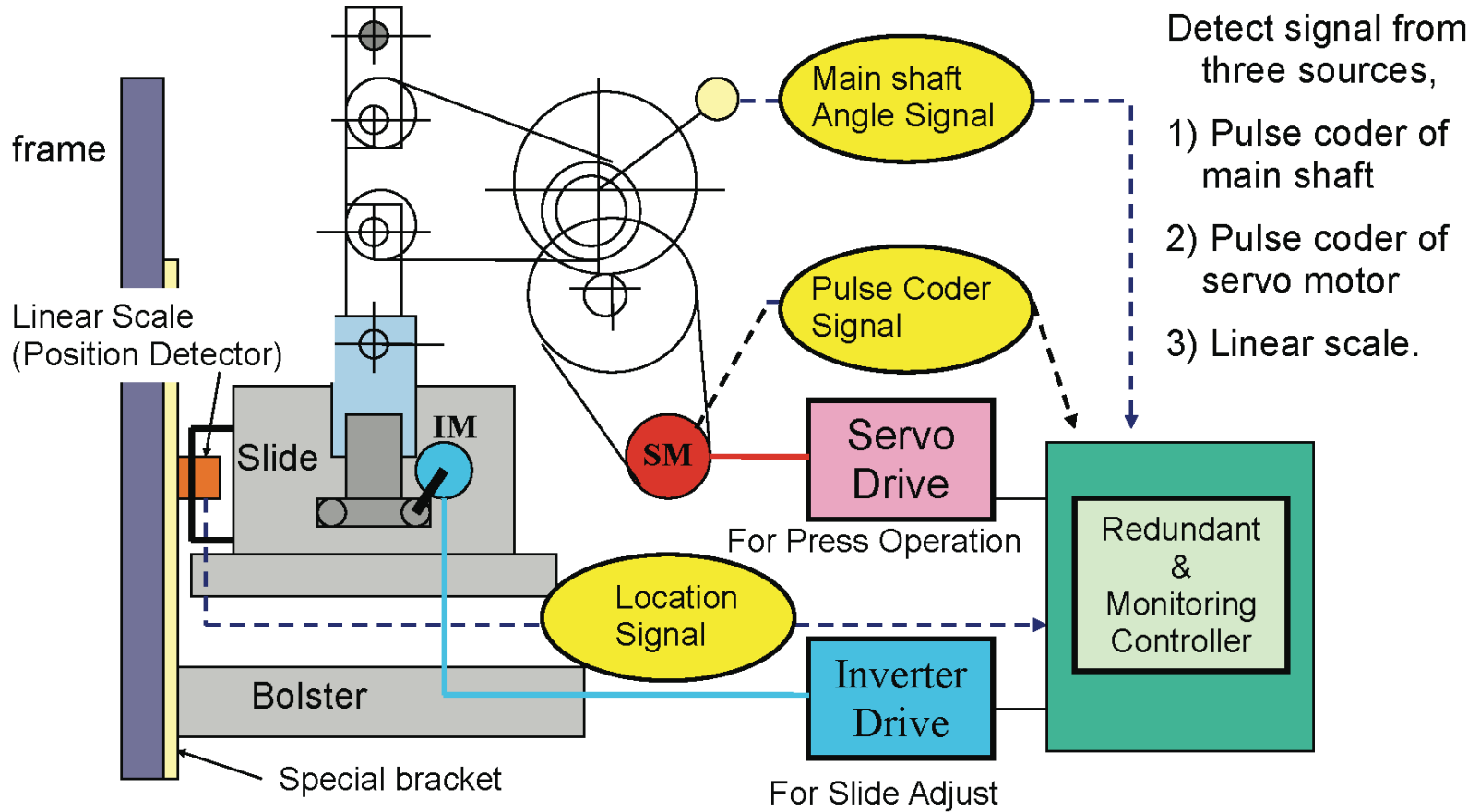
“Real Time” Hand Wheel motion control



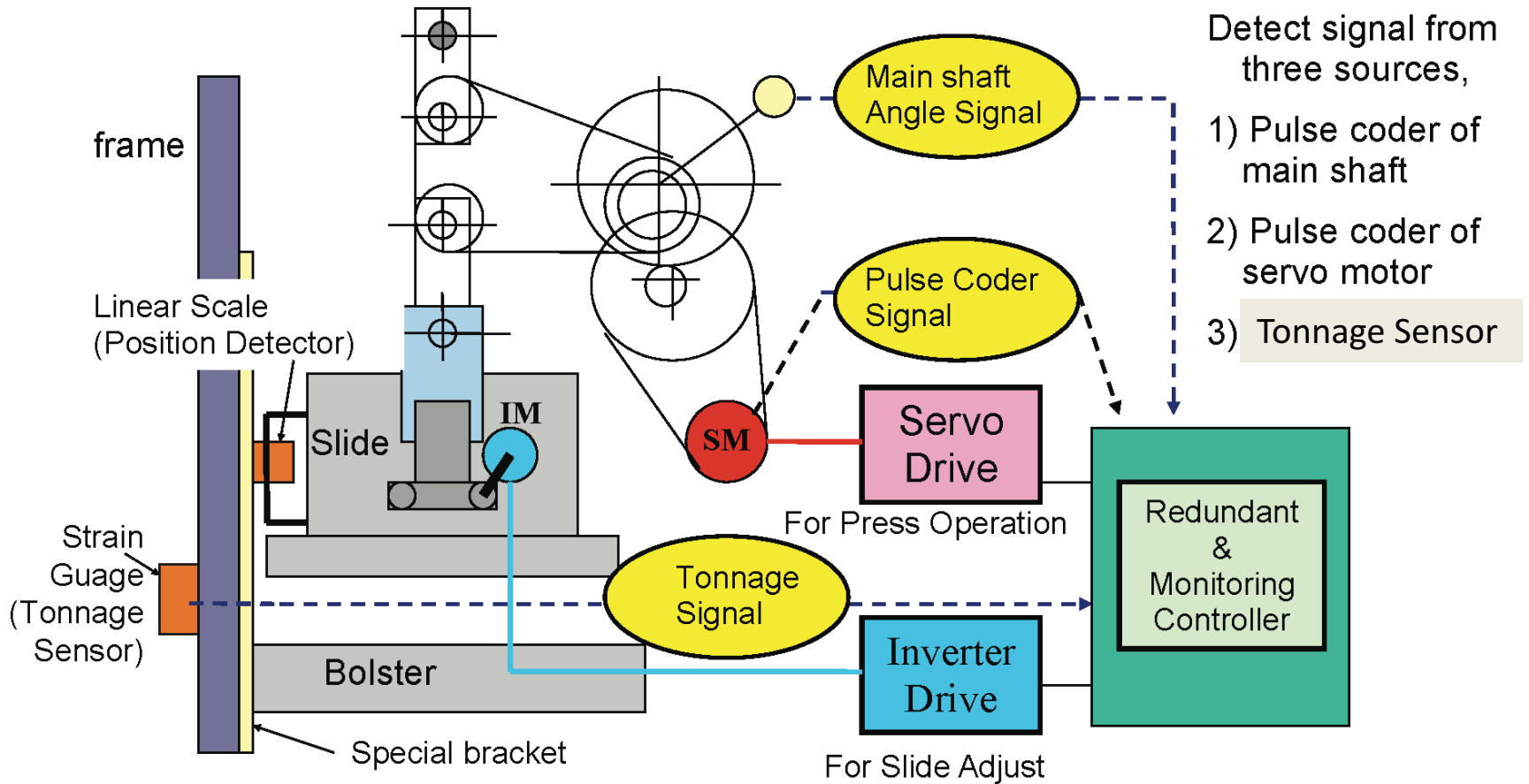
Discoveries using Servo Technology

- Control of “die height” or “tonnage” with “automatic” repeatable accuracy in real time.
 - Automatic Correction for normal die height changes due to thermal expansion of press members and tooling during production.
 - Blanking or forming, reduce down time for manual die height corrections increases output.
 - Tonnage control for non-metal material and “composites” (heated and cold) offers consistent part quality with corresponding higher output. Some applications “combine” tonnage control and “dwell” to maintain required results using alloy material.

For Accuracy & Safety



For Accuracy & Safety



Thank You

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