



New type of controlled hydraulic power source

DDV

Hybrid Hydraulic Servo Pump

Application Note

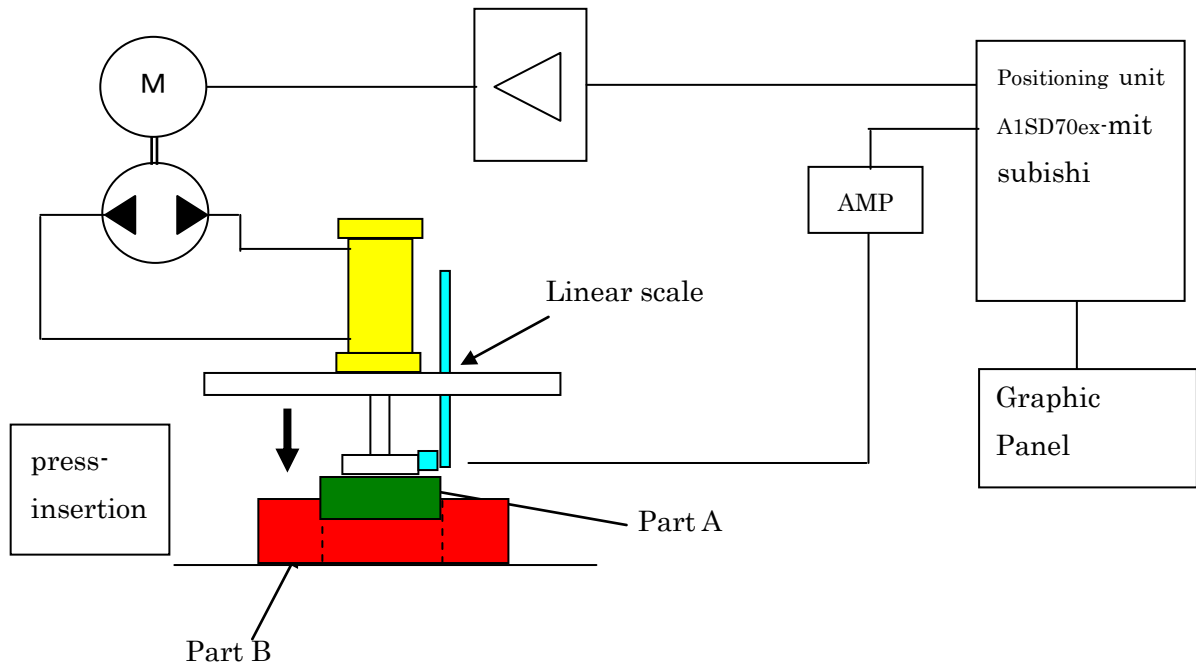
<http://opton.co.jp/>



The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : The Press Fitting Machine

DDV model: GD-8/2.5

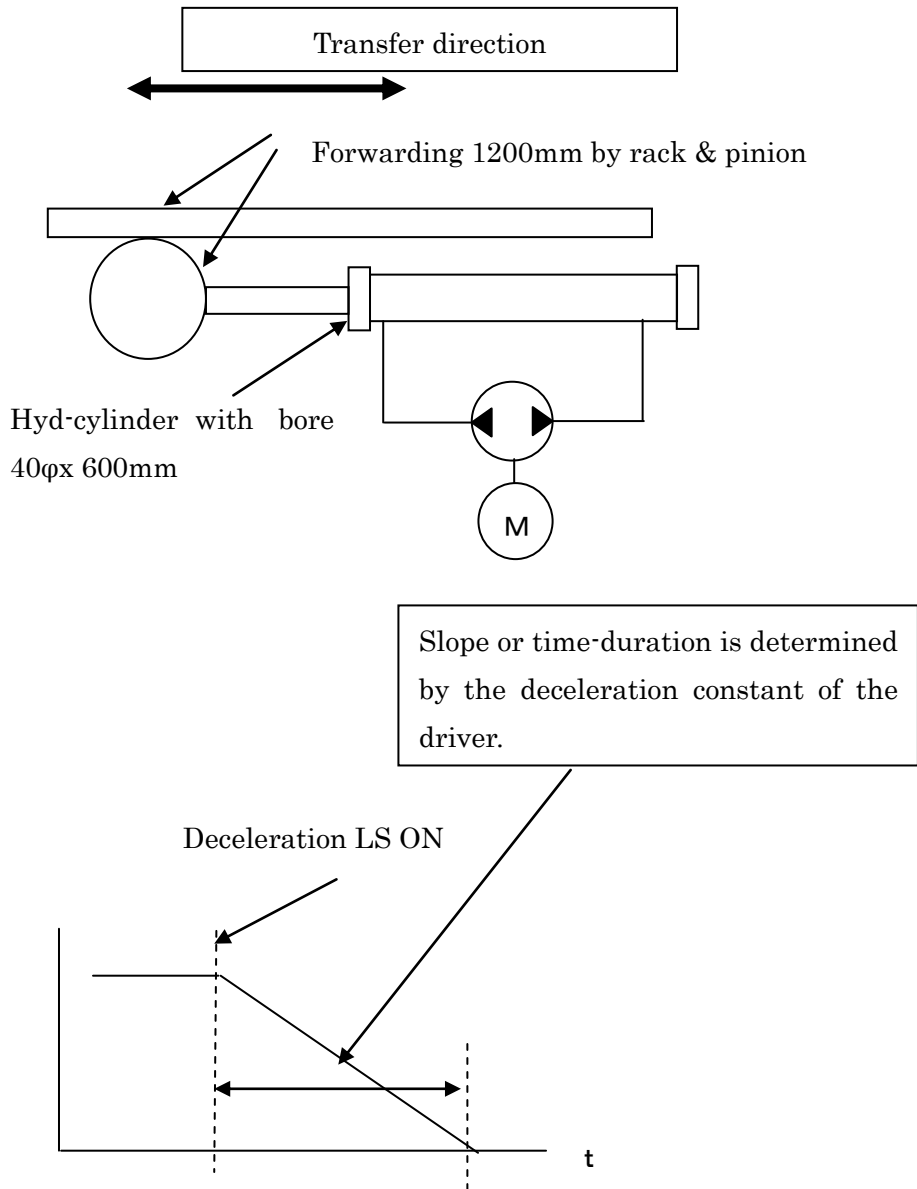


With conventional hydraulic application, the press-insertion force is controlled by adjusting the power of given hydraulic force where unstable given force may often cause unstable positioning of an insertion part A. With the Opton DDV system embedded in the mechanism, positioning control has come to reality that helps producing higher quality of work. As the graphic panel also shows the force given in graph based on the insertion positioning, the best positioning has come to be found easily regardless of an operator's skill.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application: Plate-spring line transfer for car production

DDVmodel: HM3-30/7.5



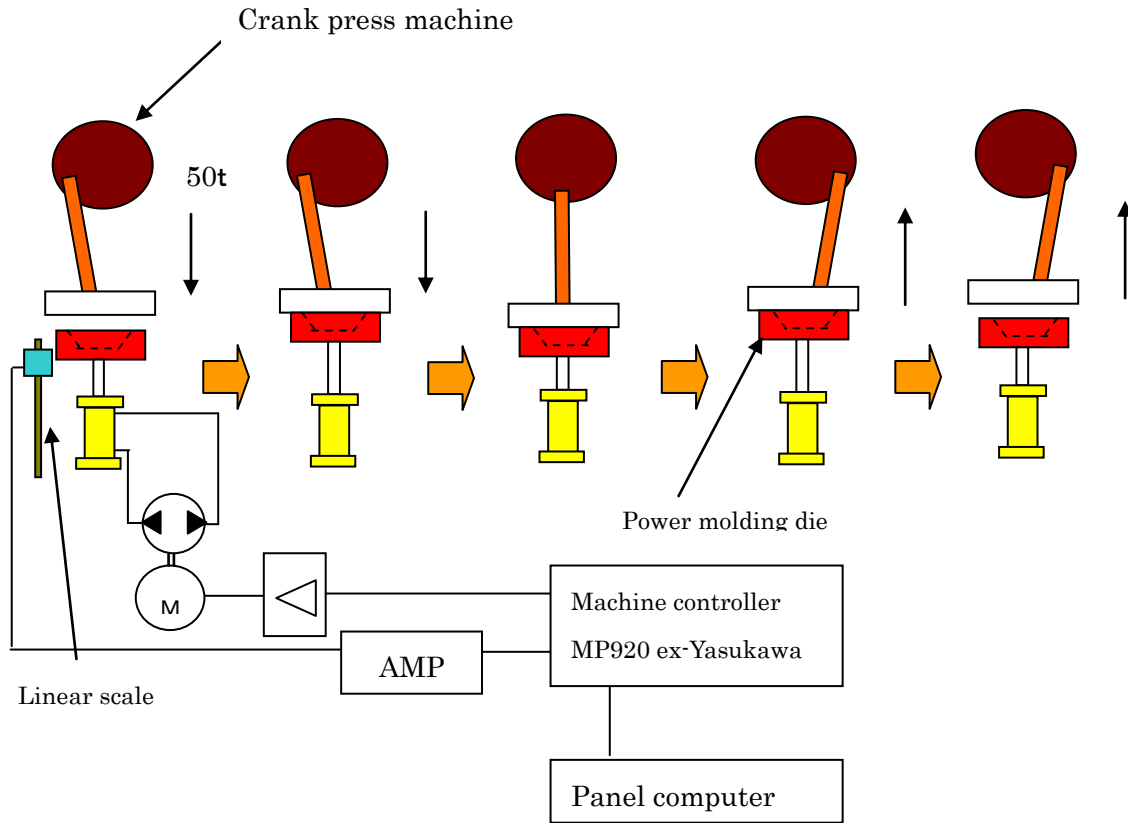
The part of 150kg in weight is conveyed as shown above. Forwarding to the back-end & forth-end is the only motion available. Speed deceleration LS is positioned at 150mm in front of forth-end. The system needs be compact-sized to be used in the transfer line.

Sequencer control is applied with analogue voltage being given through variable register to the driver.

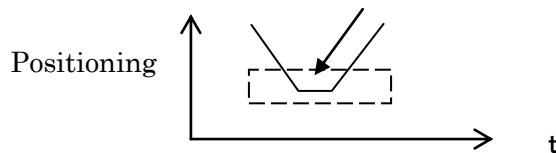
The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Powder molding machine

DDV model: HL-50/15



Synchronous motion for $1 \sim 3 \mu\text{m}$ at this time duration



The DDV is installed to the crank-press machine currently in service. The die is of N/C operation to enhance the versatility of the press machine.

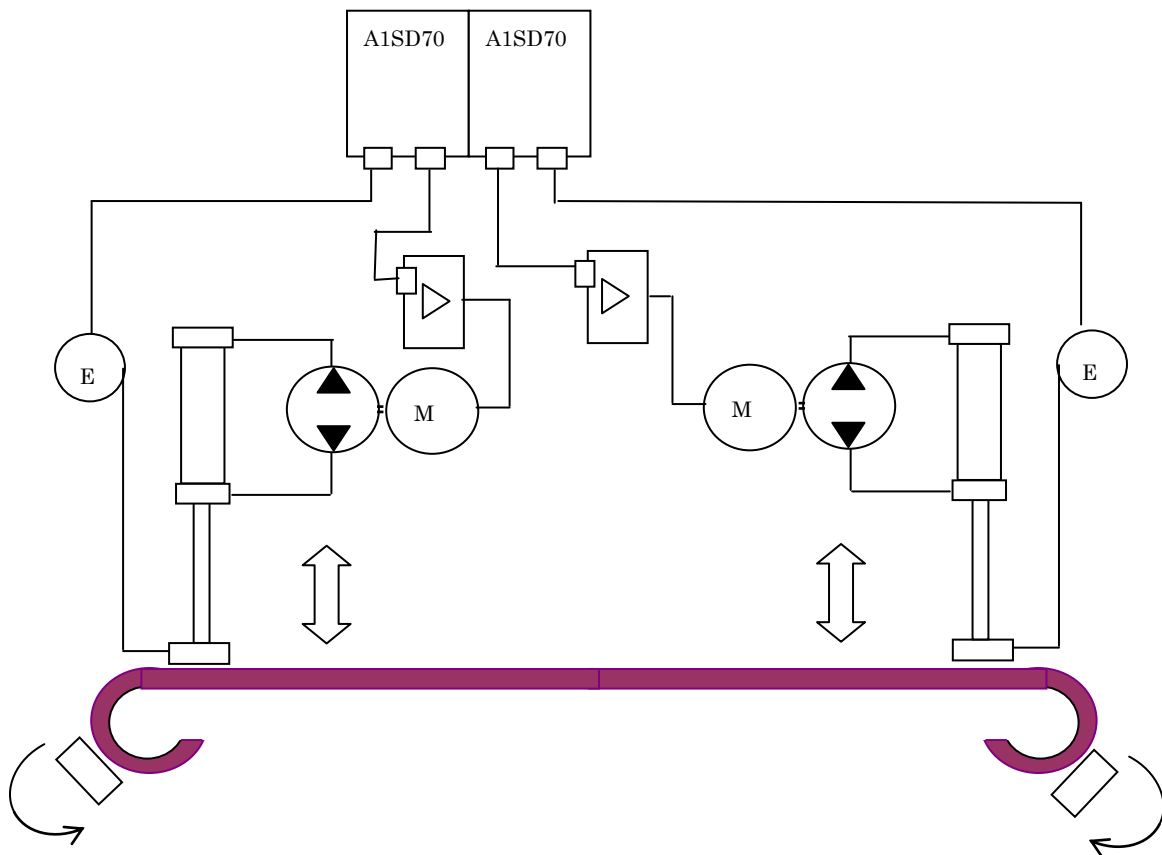
The positioning ECD are fixed to the upper die of the crank-press machine. The lower die moves in synchronized with the upper die.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application: Stabilizer for two-ends bending of plate-spring for truck vehicle

DDV model: HM-30/7.5

The DDV installed as illustrated below to work as stabilizers to bend two-ends round of plat-spring for truck.



As illustrated above, the one production line includes two processes, or the first for a plate of 60mm wide x 1500mm long x 5mm thick to be cut and heated at two ends, and the second for shaping two ends round. DDV works as stabilizer to hold the plate which plays an equivalent roll of pressure die of bending machine.

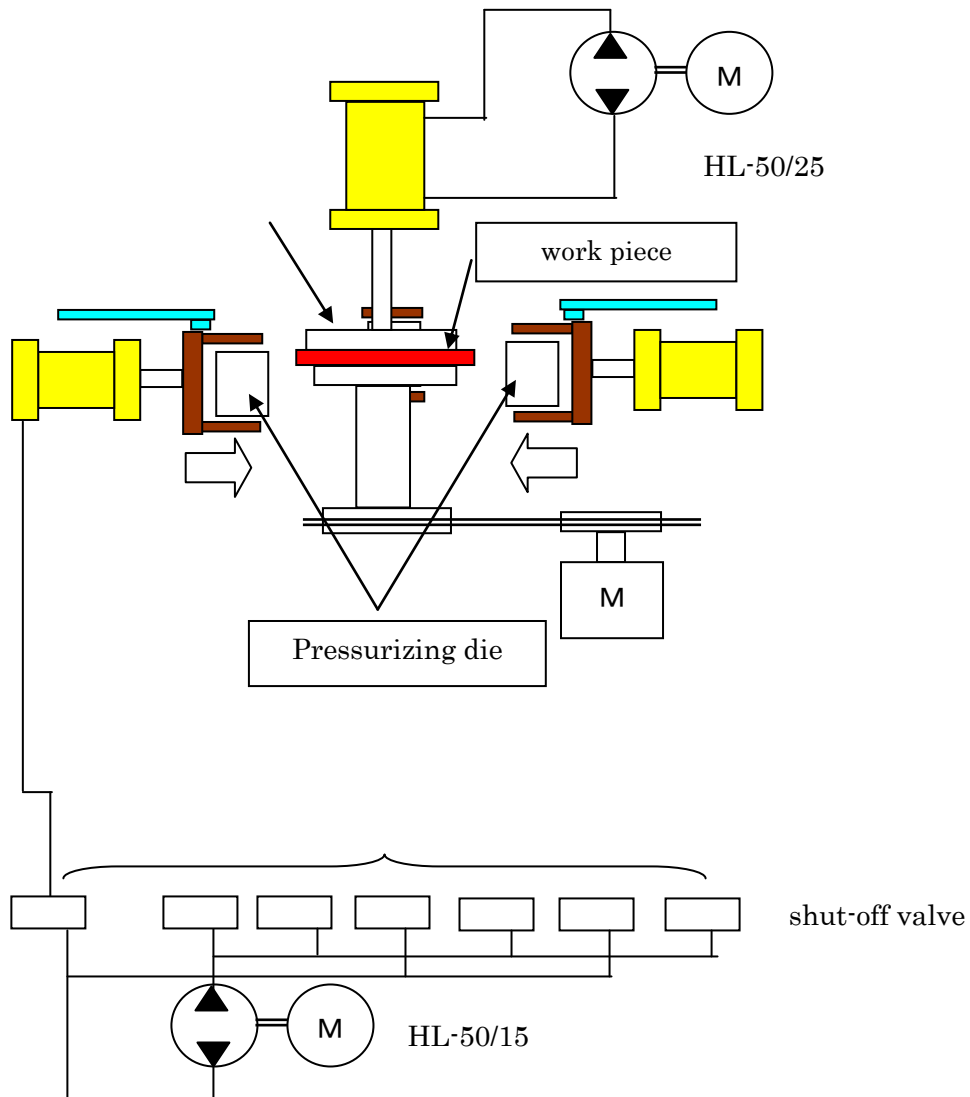
This is a typical case where an existing production line is turned partially modified to N/C specification. Neither adjustment nor retrofitting is made to the line mechanicals Simple adjustment of N/C data was only needed with no necessity for making the production line stop.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Flow-forming machine for a car-wheel production

DDV model: HL-50/15 HL-50/25

20kw DDV works as a 30-ton clumper for work piece. The axial motion is controlled not by N/C but limit switches.



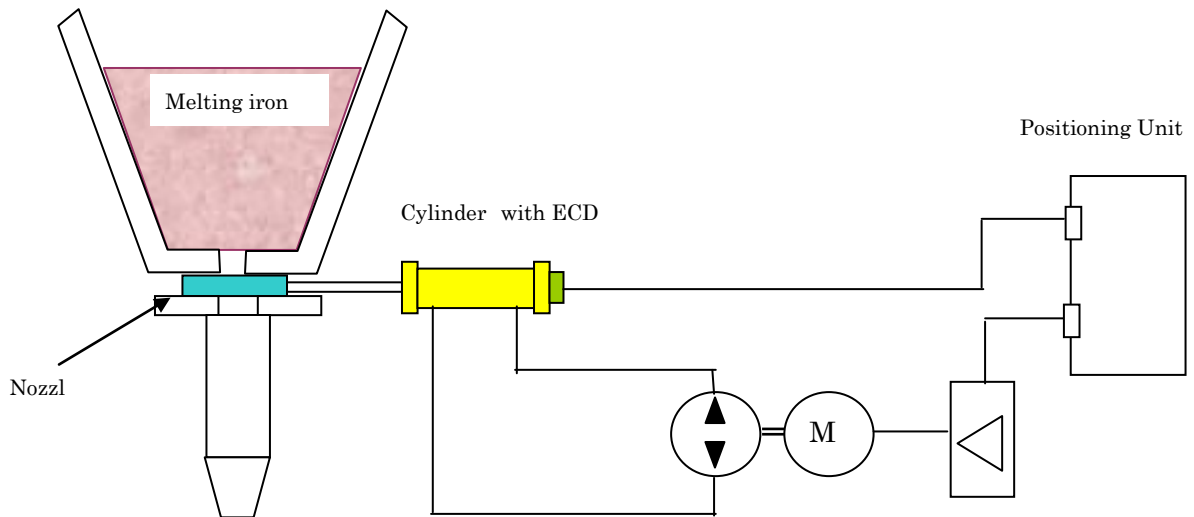
Three cylinders work in turn (to be switched by shut-off valve) and apply 10-ton pressure on the work to build up the thickness.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Iron-manufacturing line

DDV model: GD-8/5.5

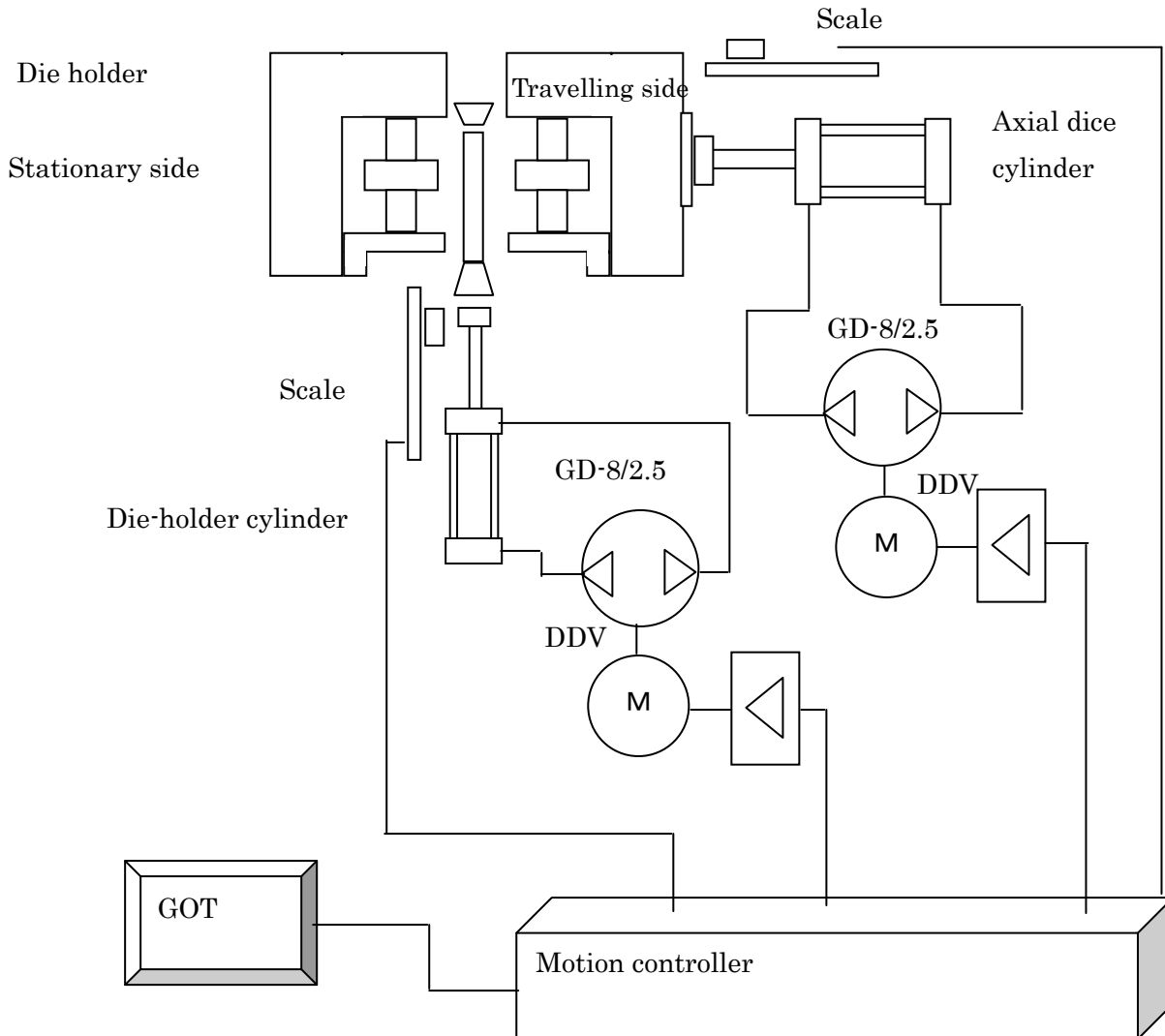
Casting-gate controller for iron-manufacturing line



The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Rolling machine

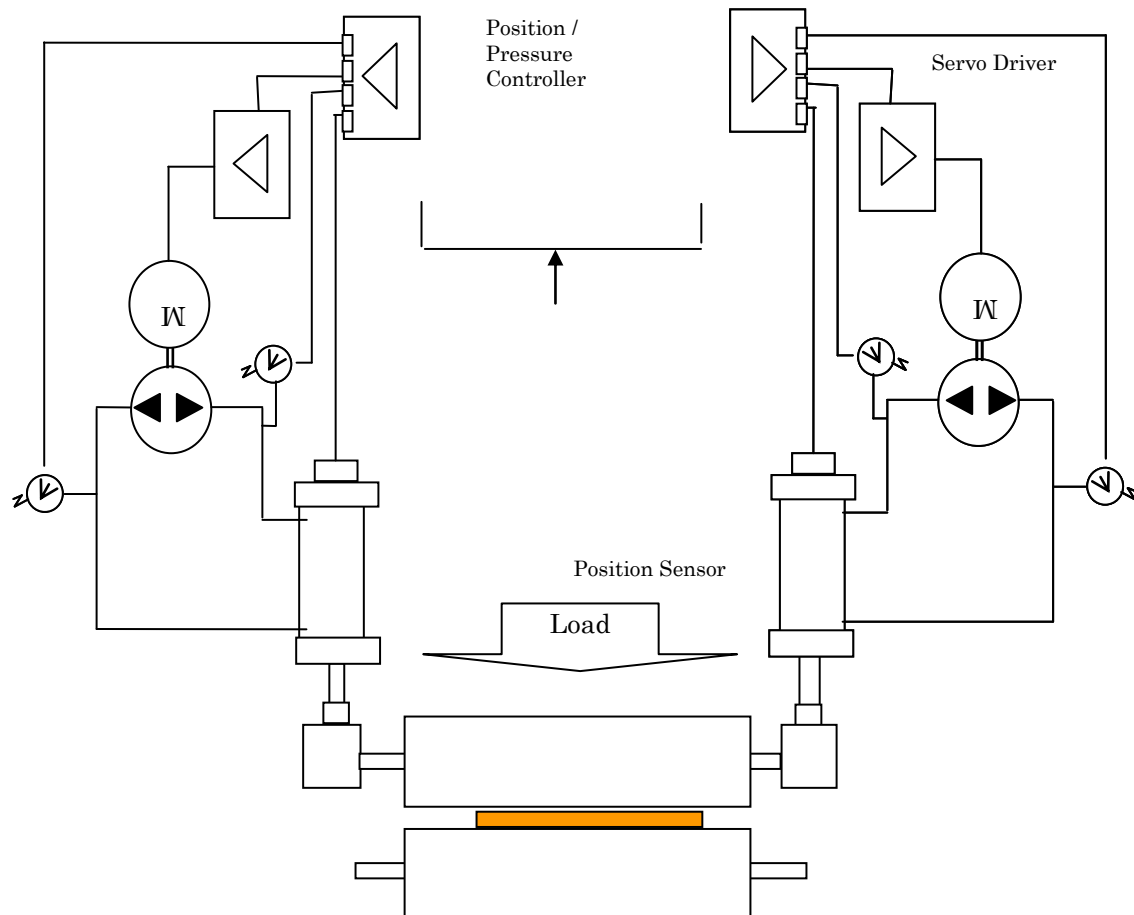
The moving mechanism is now N/C implemented for more versatility in place of traditional mechanical-control.



The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Roll-press former

DDV model: GD-8/8.5

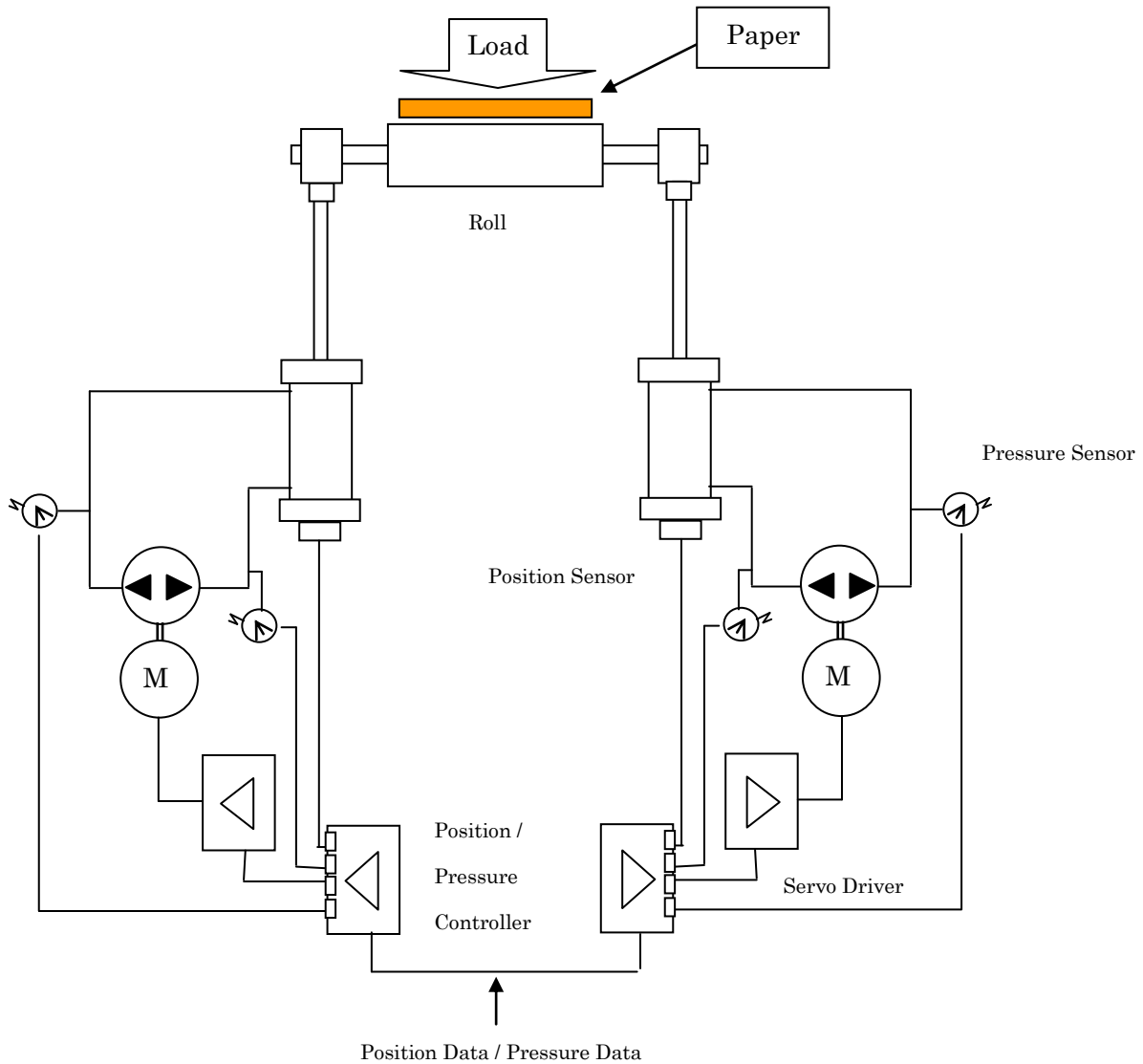


The DDV has taken in position of traditional hydraulic servo valves for various advantages resulted including low consumption and easier maintenance of costly hydraulic media, elimination of valves and complicated lubrication-system, easier care of lubricant temperature, easier installation works of lubrication system to the machine and remarkable reduction of the running cost as well.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Paper rolling machine

DDV model: GD8/8.5

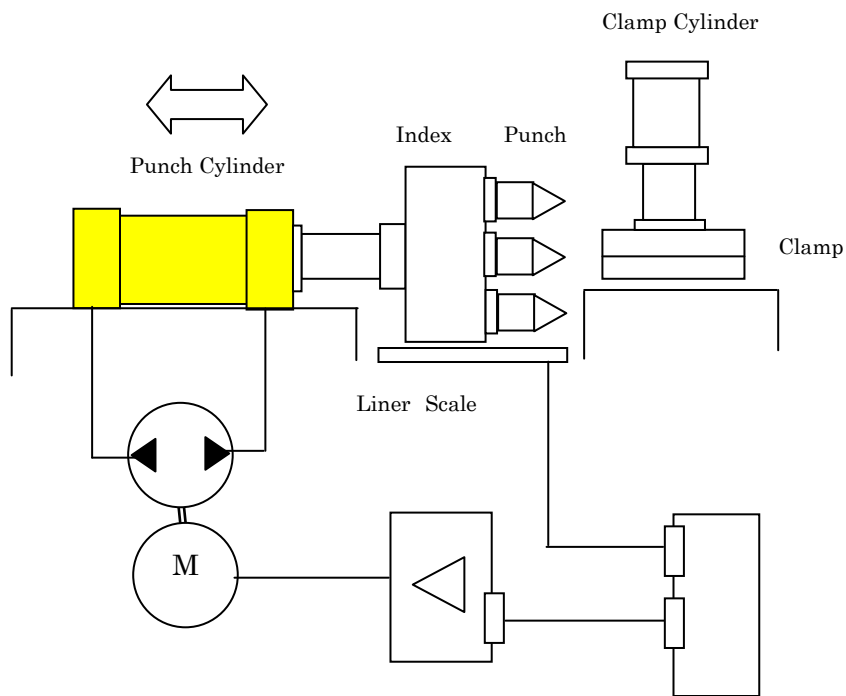


The DDV has been successfully employed for the advantages resulted in easier adjustment of the system by elimination of complicated distribution system, easier temperature care as well as easier installation works of lubrication system to the machine

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : 6-punch End-forming machine

DDV model: HL-50/2.5

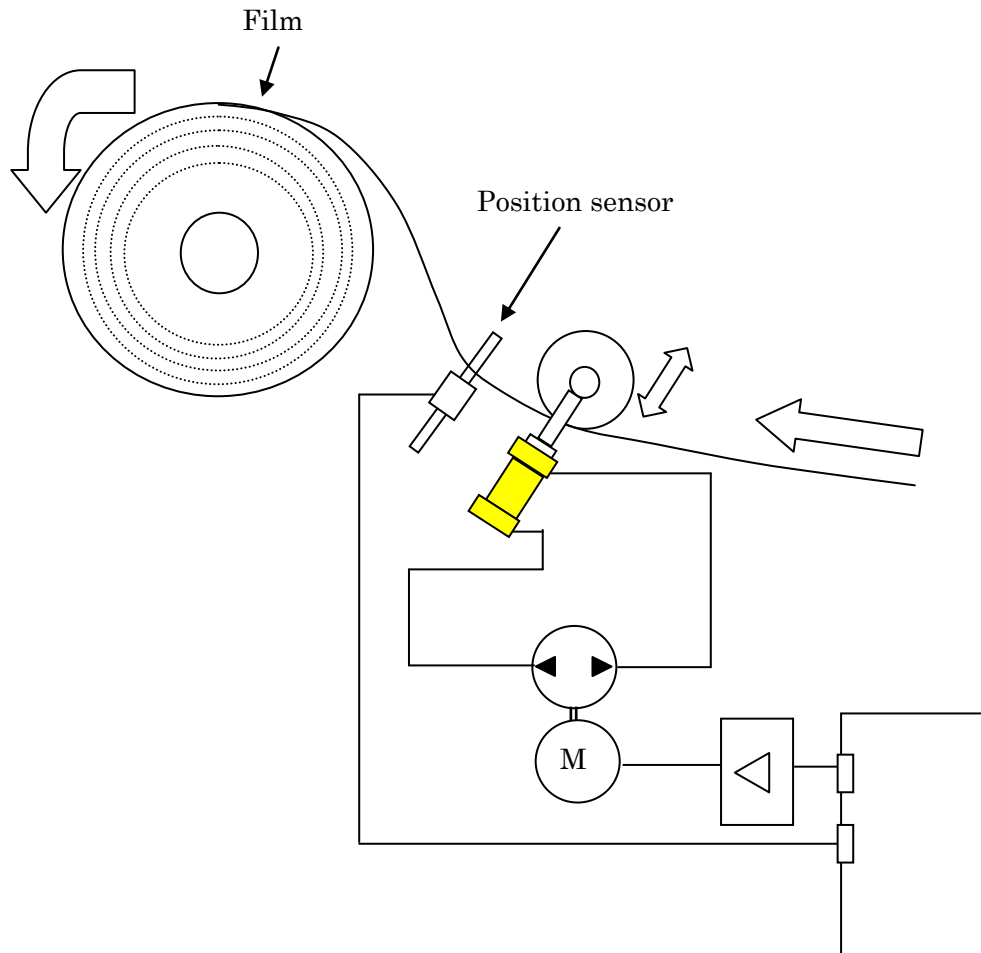


For manufacturing coupling part of tap-water supply, one DDV system with N/C built-in is employed to replace the mechanical stoppers that were installed to each of 6 punchers. Great advantage in easier calibration.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Automatic film winder

DDV model: GD-8/2/5

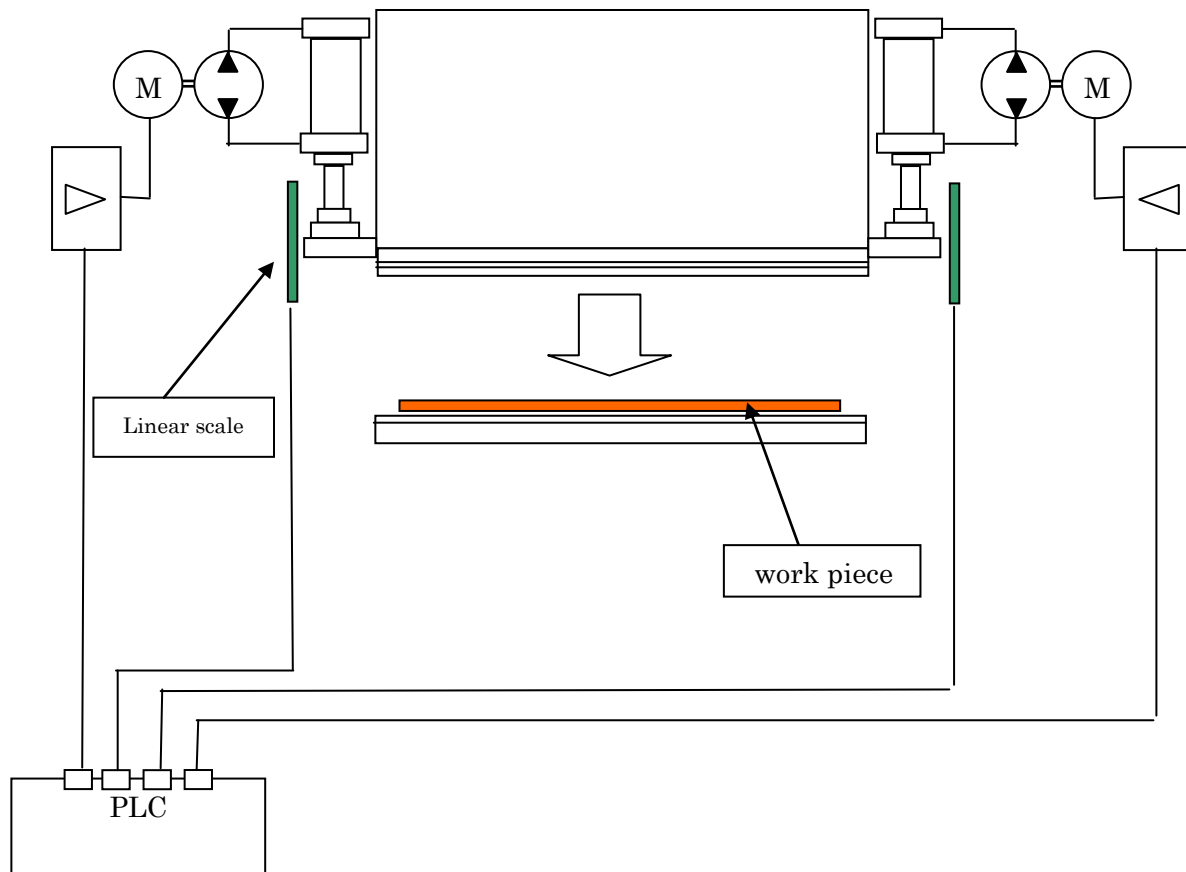


The DDV controls tension for winding packaging film.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Bending machines

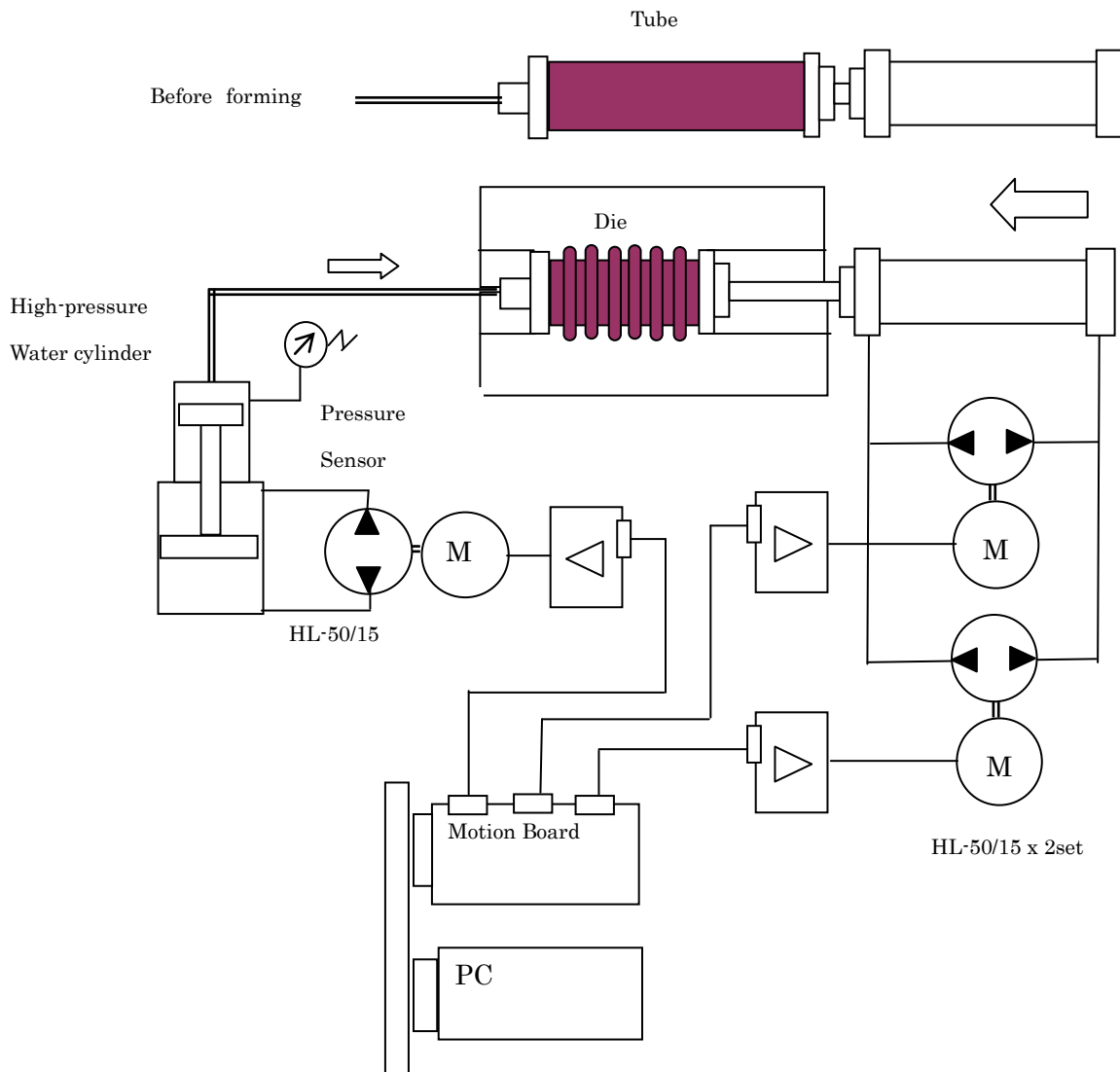
DDV model: HL-70/25



The DDV was installed in the line of the bending machine of plated work piece to produce an outdoor product for housing industries. The line is operated in full automation from material supplying through to discharging of manufactured products.

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The application : Bulging machine

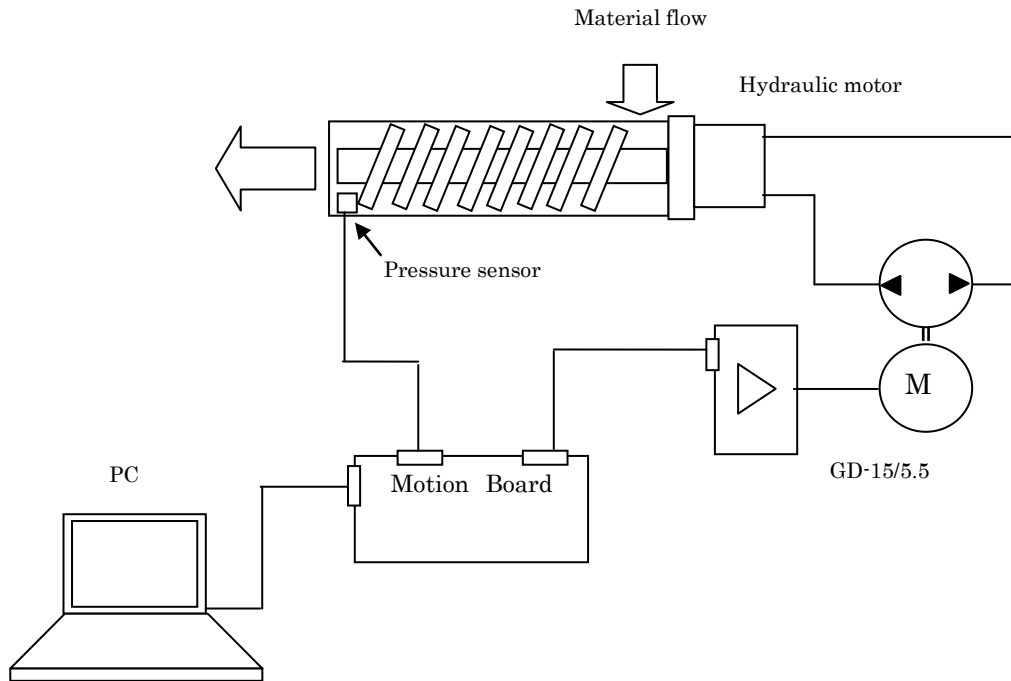


The DDV installed to a single-purposed bulging machine currently at service.

The DDV are installed as the power sources for axial pusher and hyper-pressure generator.

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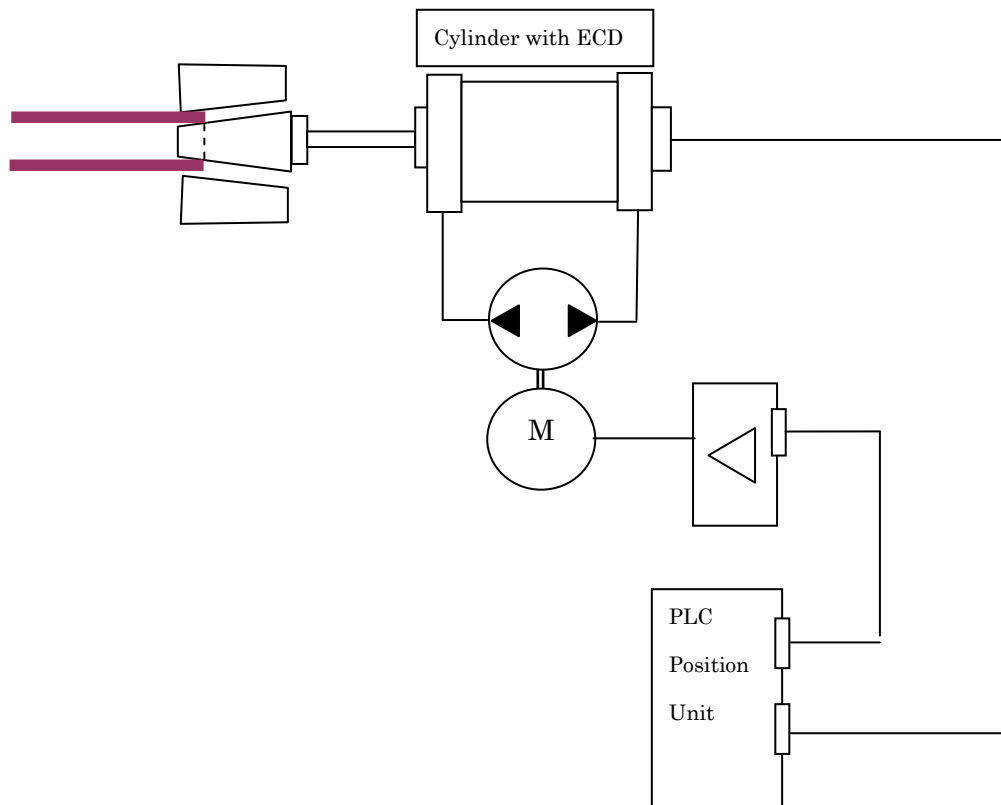
The application : The Machine



The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Tube expander

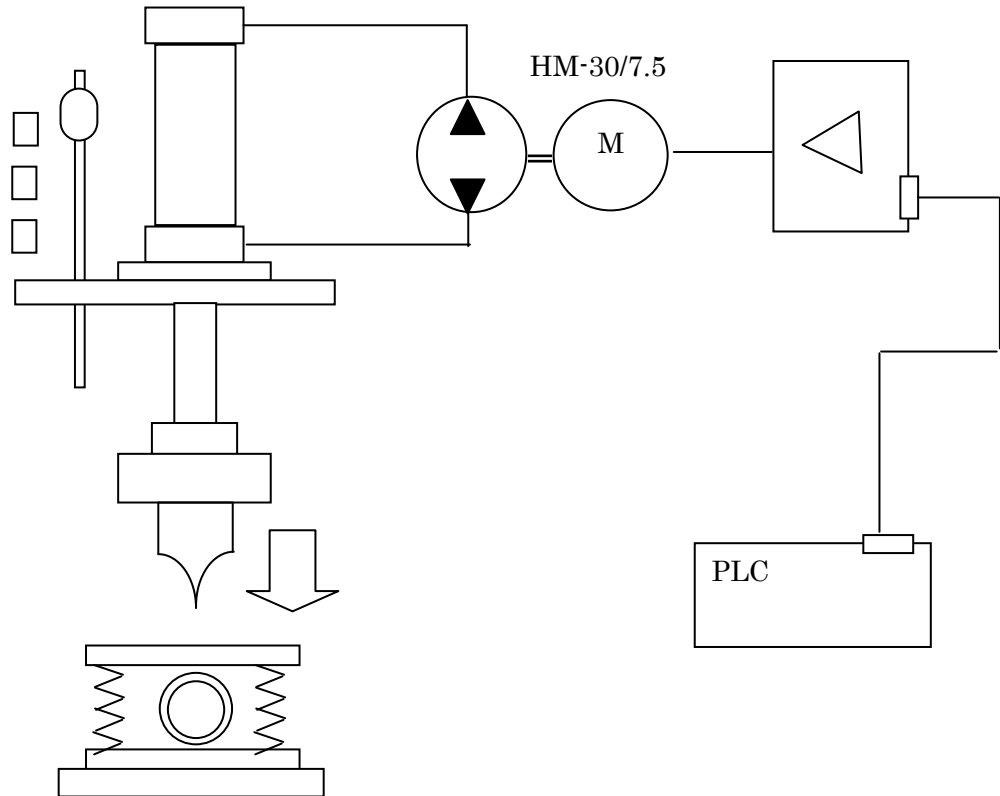
DDV model: GD-8/3.5



The case applied in the exhaust tube expander is a successful case to built-in the N/C function to the production machine for the advantages of easier data coordination.

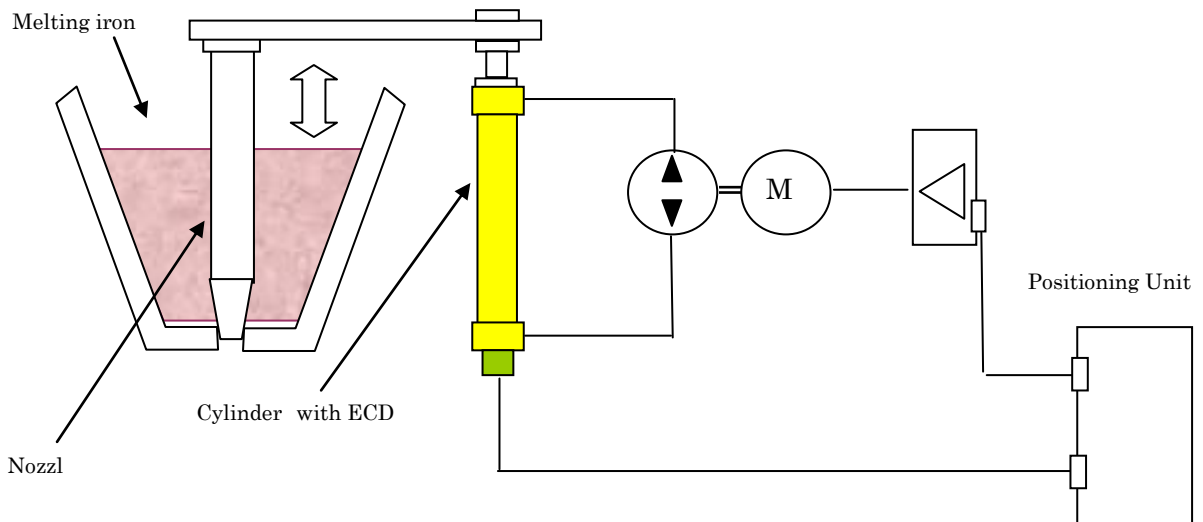
The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Press-cutter



DDV is employed as press-power source for pipe cutting for the advantages over conventional machines of easier setting and remarkable energy saving by half of electricity

The application : Casting-gate controller



DDV works to control the opening size of casting gate.

The listing of established applications with Hybrid DDV Hydraulic Servo Pump

The application : Paper rolling machine

DDV operates for positioning of the movable roll to the stationary roll to create proper space gap for paper thickness in the paper rolling machine.

