

Application: Trimming of Hot Forgings.

This application involved an 800-ton Gib Guided press for trimming Forgings that have just come out of a 6,000-ton Closed Die Forging press.

Trimming of the forgings ensured part consistency for later machining operations requiring a homogenous outline for proper fit in the Machining Fixture.

The daylight and stroke requirements of this application made it a perfect fit for a hydraulic press over a mechanical press. Hydraulic press builders fabricate their frames to suit the customers' needs unlike a mechanical frame that very often are castings that are not easily adaptable to a change in frame specifications.

This press replaced an old Mechanical Press. Due to the ability to shorten the stroke length of the new Hydraulic press, the cycle time was reduced as much as 30% on jobs currently being run.

SPECIFICATIONS FOR MODEL NO. GG-800-60 X 40-75RPRE

- Tonnage..... adjustable from 160 to 800 maximum
- Bed Bolster..... 60" L-R X 40" F-B
- Slide bolster 56" L-R X 36" F-B
- Open height (daylight)54"
- Closed height24"
- Stroke adjustable to 30"
- Pass through width.....66"
- Window Size.....20"
- Floor to table.....48"
- Cylinder bore diameter (Main Cylinder - Qty 1).....26"
- Ram diameter18"
- Cylinder bore diameter (Jack Cylinder – Qty 1).....8"
- Ram diameter5.5"
- Pump 75 GPM
- Hydraulic System..... Jack Cylinder Controlled Pre-fill
- Ram Speed: Close, inches per minute.....729
- Ram Speed: Press, inches per minute175
Pressing speed at 175IPM is only for up to a 4" long stroke. Anything longer and the press would then be pumping 75 GPM for a pressing speed of 33IPM.
- Ram Speed: Open, inches per minute653
- Maximum System Pressure (PSI).....3500
- Motor H.P.150
- Overall size148" L-R X 98" F-B X 315" High
- Weight..... 144,000 lbs

- **Electronic Press Control:** A powerful, compact control for digital control over press functions. Simple, user-friendly system, with keypad or touch screen entry of control functions and set-up parameters. Closed Loop Pressure Control compensates for temperature variation and allows repeatable accuracy of $\pm 5\%$. Option includes the operator interface and enclosure, fixed pendant mounting to the head of the press, linear transducer, pressure transducer, extra PLC capacity, and an electronic relief valve.

With the base electronic press control you can:

- Set Digital Top Stop, Slow Down, and Bottom Stop stroke positions.
 - Set Digital Pressure (Tonnage) set points.
 - Counters: non resettable press stroke counter, resettable stroke counter and batch counter
 - Dwell timer, allows adjustable pressure dwells up to 10 seconds.
 - Trend display for Tonnage and Reversal Position; view the last ten (10) cycles.
 - Cycle rate displayed in cycles per minute.
 - Recipe storage. Stores set-ups for up to 70 recipes on board. Speeds press setup.
 - Diagnostic capability. All PLC I/O points can be monitored on the screen.
 - Mount operator pushbuttons on sides of Touchscreen box.
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- **VPN Web Server:** This will allow the customer to obtain feedback from the press via an Ethernet connection. The customer will have the ability to view and log data from the press. The following are the capabilities:
 - **Web HMI** – view animated screens or tabular data through a standard web browser interface. This allows users to view maintenance reports, production data, and any other information available at the machine level.
 - **Alarm Management** – e-mail notifications can be sent if PLC variables are outside the predetermined limits. Examples could include cycle complete, batch complete, filter clogged, etc.
 - **Data Logging, Reporting, and Trending** – data can be stored in an internal database for later review or real-time analysis. This data can be passed to a higher end management system based on timing, on alarm or by request.
 - **Remote Access** – allows connectivity to the PLC and other devices with the same control as being on-site.

- **Slide Mounted Knockout Cylinders:** Provided Four (4) 3.25” Bore, 2.0” Rod, 5.0” Stroke cylinders capable of a total combined tonnage of 20 tons in the Slide of the press. Cylinders will be approximately 12” apart center to center in the front to back direction and approximately 36” apart in the left to right direction. Cylinders will actuate when Slide reaches bottom of stroke so as to keep the trimmed forging in the lower die when the Slide retracts. Cylinders will need to extend at the same speed as the Main Slide Return speed. Cylinders will retract upon reaching the Top Stop setting for the Slide.
- **Hydraulic Oil:** Flame retardant oil will be used in this press. All seals should be Viton where possible.
- **Note:** Press will be subjected to a full wash down approximately weekly. Provisions taken to prevent a high-pressure washer from spraying into any electrical boxes or connections. All wiring will be set up to enter Electrical Enclosures or Junction boxes from beneath and all Solenoid Connectors to be NEMA 12 with Silicon sealant.
- **Cooling Platen:** Provide an Upper Cooling Platen. Cooling Platen to be 60” x 40” x 5” thick. Cooling Channels will be provided in the Platen. Cooling Platen will help to reduce the amount of heat buildup in the Trim Tooling from Trimming Hot Forgings.
- **Variable Frequency Drive Control:** Provide an Allen-Bradley Power flex Series Variable Speed Drive Motor controller for the Main Motor; 150 HP.
- **Press was Pit Mounted.**

PRODUCTION ESTIMATE:

Rapid Advance	Close	15.00	X	60	÷	729	IPM	=	1.235	Sec.
Press	Press	4.00	X	60	÷	175	IPM	=	1.371	Sec.
Rapid Open	Open	19.00	X	60	÷	653	IPM	=	1.746	Sec.
Valve Shift Time								=	1.500	Sec.
Total Cycle Time at 100%								=	5.852	Sec.
Efficiency								=	6.144	Sec.
Total Useable Cycle Time at 95% Efficiency										
Cycles Per Minute						60	÷	6.144	=	9.77
Cycles Per Hour						60	X	9.77	=	585.9

If you would like to view a video of this press, please click on the link provided below:

http://www.youtube.com/watch?v=FhQqUIFFzGg&layer_token=2008a74018cff056

