FORGING PRESS

DIE AREA TECHNOLOGY for Improved PRODUCTION
Hydraulic Adjustment

The hydraulic wedge adjustment package for flat die seat presses has stall relief capability. While using more of the shut height than the die seat plate that it replaces, the hydraulic cylinder driven wedge provides positive adjustment. The cylinder has a zero leakage piston and special valving to lock in the wedge position. The bottom bolster is bolted to the bolster plate that is held down hydraulically by 4 integral cylinders. This allows quick, simple pushbutton operation for the adjustment. The adjustment position is indicated by a digital display. Positive seals on both sides of the moving wedge forms a large area that can be pressurized to free the wedge allowing it to be retracted in the event of a stall.

Motorized Top Wedge Adjustment

The top wedge adjustment allows the top bolster to be adjusted vertically by means of a large area steel wedge located on the face of the ram. The wedge acts directly between the ram and the top bolster providing up to 1/4" of adjustment. The ram mounted adjustment mechanism remains relatively free of forging scale. Top adjustment is ideal for automated transfers where the bottom die height must be fixed. Also, it provides for shut height adjustment in a press with a flat die seat.

Hydraulic Bottom Wedge Adjustment and Bolster Clamping

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Air Actuated Bottom Wedge Adjustment

The air actuated bottom wedge utilizes a pneumatic impact wrench to provide the torque necessary to move the bottom wedge. The wrench drives a screw backed by a large thrust washer. Two pneumatic cylinders act to assist the impact wrench in adjusting the wedge position, and then take up the backlash in the wedge-screw drive after the adjustment is complete. Hydraulics bottom bolster unclamping eliminates the hold down bolts for the bottom bolster. Hydraulic cylinders acting on the front and rear of the bottom bolster hold it securely in place. The front cylinders are located below the die seat to allow the operator the maximum working area.

The combination of the air actuated bottom wedge and hydraulic bottom bolster clamping provides quick, automatic pushbutton adjustment of the shut height. The shut height adjustment position is indicated by a digital display.
OTHER OPTIONS TO MAKE YOUR AJAX FORGING PRESS... MORE VERSATILE...

**Digital Monitoring Systems**

Bearing temperature monitoring of the five critical bearings (the two pinion shaft bearings, the two eccentric shaft journal bearings and the pitman bushing) is by means of iron-constantan thermocouples utilizing meter readouts. When an overtemperature condition is sensed, an alarm sounds, and further cycling of the press is inhibited.

Electronic load monitoring utilizes bolt-on strain gauge transducers with a digital readout device to continuously monitor the forging loads. When the load exceeds a preset value a warning signal is given (warning light and/or horn). The overload signal can also lock-out additional cycles of the press.

Flywheel speed monitoring utilizes an electronic tachometer, a magnetic pickup transducer, and an indicating meter to show the flywheel RPM. The slowdown of flywheel speed during a forging cycle is directly related to energy consumption, and excessive slowdown is detrimental to the press drive motor. The tachometer can also be used to prevent starting a cycle of the press unless the flywheel speed is above a preset level.

The press drive motor ammeter displays the motor current on a continuous basis. This is indicative of the work required for a forging blow. Also, the motor idle current is related to the condition of the press drive. The ammeter can be arranged for checking each leg of the three phase power.

The above monitoring systems can be furnished with strip chart recorder(s) which give a permanent record of the various conditions.

**Automatic Transfer Forging**

A self-powered transfer system can be provided on Ajax forging presses to automatically advance the forgings between operations. Ruggedly constructed, its innovative design minimizes the number of moving parts. It provides six basic cam-operated motions. All operating cams are mounted on a single shaft, eliminating bevel gears and associated backlash. The entire working mechanism can be easily removed. Safety features include a monitoring system which stops the press automatically upon any malfunction.

**Diagnostic Monitoring Systems**

Ajax forging presses are available with electronic systems capable of monitoring virtually any press function. Ajax engineers will design a system to your specific needs that can maximize up-time by indicating fault locations or malfunctions without the need to physically inspect the machine. Systems are available to provide visual as well as recorded capability. Typical monitoring includes flywheel speed, bearing temperatures, tonnage or number of cycles at a specific tonnage, parts counting, motor speed and current draw as well as other operating parameters. This is technology of the future, here today on Ajax presses, to help you produce forgings economically.

**First Station Feeder and/or Billet Transition Chute**

A variety of first stage billet feeders, either hydraulically or pneumatically operated can be provided to move the heated stock through the side window of the forging press in the correct orientation. Flexibility within the feeder mechanism allows the heated stock to be placed at the first die station either upended or laid flat. The interconnecting transition chute feeding the heated stock to the feeder fingers monitors over/under temperature and double billet reject gate is provided to eliminate billets which are not within temperature specification and evens out irregular supply of billets.

Mounted in the side window of the forging press, the unit is fully safety interlocked with the press control system. Consequently, it provides a reliable and flexible forging aid to ease operator fatigue and increase productivity.
Time Delayed Retraction of Bottom Knockouts

The standard knockout mechanism provides the desirable mechanical kick to lift the forging momentarily. The delayed knockout will hold the knockout pins up for a pre-set time and control the rate of fall back. This feature allows the user to match the knockout cycle with operator proficiency, minimizes fatigue and contributes to improved die life. This system also allows for manual operation of the knockout without the need to re-cycle the press.

Air Operated Knockout

An independent totally air operated knockout is also available for those forgings which require an extra long knockout stroke. This system is normally custom designed to meet customer requirements.

Multiple Pin Bottom Knockout

Specifically suited for automatic forging applications, this knockout uses a lift beam that has a parallel motion which produces exactly the same movement in every ejector pin. Any reasonable number of ejector pins can be provided in the frame along the left to right press centerline.

Bolster with Hydraulically Unclamped Sub-Bolsters

Bolsters incorporating a hydraulically unclamped sub-bolster pack for quick die change is offered as an alternative to standard Ajax bolsters. Engineered to offer maximum efficiency and flexibility for maintenance crews during die changes the bolsters provide the quickest die changeover time with a minimum amount of physical effort. The sub-bolsters can be inter-engineered with proprietary sub-bolster removal packages and incorporates die clamping for circular and rectangular multi station dies. The bolster assembly is engineered to work with complete walking beam automation or first stage feeders and can be designed to meet the individual customer's specific needs.

Ajax Forging Presses offer the benefits of more than 100 years of design experience combined with current technology. Whether ordered with standard or optional equipment, Ajax presses assure unparalleled production and reliability for forging producers.

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