

Ever growing market needs.

Newly developed AIDA control system opens a new era in press machine technology.

The evolution of cold forging technology corresponds closely to AIDA's history. Since AIDA introduced the first Japanese-made 2500 kN knuckle press in 1933, the company has developed numerous original systems. Now, with new concepts, AIDA launches the new cold forging press(K1-E Series) which performs efficient and high-precision processing of variously shaped components used in a multitude of applications. This is vitally important since the quality of manufactured products depends on the accuracy of the processed components. AIDA responds to the needs of industry and always endeavors to improve presses to meet the demands of better forming technology.



K1-6300E

MPC
Multiprocessing Press Controller



K-1600E

MPC
Multiprocessing Press Controller

K1-1600E has been added to E series.

MPC

Multiprocessing Press Controller

The industry's first triple monitoring function is the next level in press controllers.

An operation panel made with productivity and safety in mind



- A large display allows for easy inter-facing between man machine
- Guidance display operation has been introduced
- Touch panels improve operability
- Crank angle meter with easy to understand roulette type digital display
- A pendant style that generates high resolution visibility on the operation panel has been introduced

MPC Control Unit



The press run circuit is an AIDA original MPC (Multiprocessing Press Controller) with dual architecture and a dedicated controller that monitors MPC and overrun thereby tripling operation safety.

Further, clutch and brake control and overrun monitoring all feature solid state circuitry which eliminates the need for maintenance.

All features enable high-precision production of components.

For high component precision over a long period of time.

K1-E Series Press - a high performance cold forging press, enables production of the high-quality parts demanded by today's industries. In order to obtain such high precision, AIDA has increased the rigidity of the frame to prevent slide inclination, and introduced an over-load protector in case of unusual overload. The compactness of the press frame ensures easy installation and meets the necessary requirements of the working environment. All these new features have been developed to produce a stable machine for continual high-precision production of components over a long period of time.

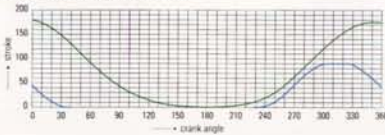
One-Piece frame of high-rigidity ensures high-precision products.

The separation of the drive train and the load transmitting section has eliminated adverse shock load effects. The highly rigid frame now used for load transmission has minimized frame deflection, resulting in greatly increased precision of the product and prolonged die life.



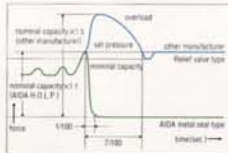
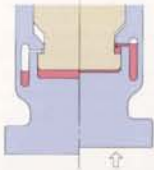
Strong knuckle action mechanism provides high-precision production.

Use of the knuckle motion, based on a heavy-duty knuckle mechanism, provides a slow working approach and enhancement of precision movement. Higher production is achieved by the accelerating slide return motion, and the system is extremely well suited to automation applications.



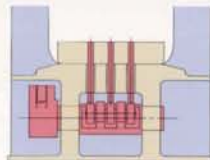
Highly responsive overload protector protects the dies from an unusual overload.

Metal sealed Hydraulic Overload Protector (H.O.L.P.) instantaneously activates when an unusual die overload occurs. To protect valuable dies, the drive transmission is disconnected and the slide is stopped. Resetting is automatically achieved by simply returning the slide to top dead center position.



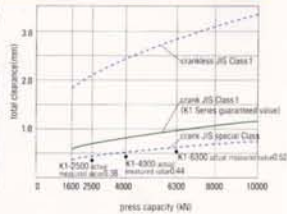
3-stage bed knockouts make continuous operation possible (optional).

By selection of 3-stage bed knockouts, 2-3 stages of continuous operation becomes easy. Continuous operation which eliminates interstage annealing and phosphating operations, for example, helps to reduce operating costs.



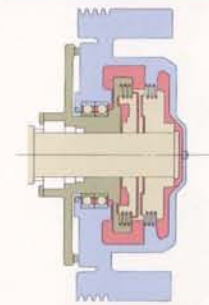
High performance accuracy and minimal manufacturing clearances improve component precision, with reduced vibration.

By employing high precision manufacturing techniques and super-finishing of the main gear, the knuckle mechanisms, the adjusting screw, and the slide joints, overall clearance is reduced to less than 1/3 of conventional machines. The precision of the torque transmitting parts is maintained for a long period of time, and the amount of break-through (which causes excessive vibrations) is greatly reduced, thus die life is prolonged and better product precision is achieved.



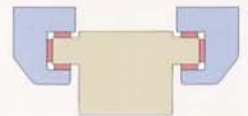
High performance wet type clutch and brake enhance operational safety.

The clutch and brake units are completely enclosed which isolates them from dust and reduces operational noise. No adjustments are necessary, due to the design of the frictional surfaces. Intermittent (single) operation efficiency is greatly improved, providing constant stopping performance over long operating periods of time.



Long slide guides maintain high manufacturing precision over the long term.

Six-sided square long slide guides exhibit high-endurance to eccentric loading conditions, and contribute to improve die precision and extended die life. These guides, lubricated by a re-circulating lubrication system, not only prevent the generation of heat and friction but eliminate dust related problems by using telescopic covers.



Floor mount design enables easy installation at factories.

A pit for disassembly is no longer necessary because the bed knockout is completely housed in the lower part of the bolster, enabling direct factory floor installation. Not only does this reduce the initial cost of foundation but it makes changes of factory layouts easy.

※ Depending on the model, part of the diagram may vary.

Industry demands flexibility.

A system can be constructed to meet factory demands.

One of the principal characteristics of the K1-E Series is its versatility. Systems such as precision slug manufacturing, lubrication treatment, die design and manufacture, slug feeding and the removal of finished parts, can be incorporated into the system to suit the individual factory circumstances. As a production partner, AIDA helps to develop and experiment with new methods to backup our customer's improvements in production techniques, with the vast experience of all types of forging processes.



Transfer processing from slugs.

K1-E Series press equipped with 3-stage bed knockout device enables 3 continuous stages of transfer production. Transfer processing is not only an efficient production method, but by eliminating the need for annealing and lubrication treatment of semi-finished components, it reduces labor and product cost.



Copper alloy slugs are formed into multi-stepped shapes in both the inside and the outside of the component. A balanced load distribution enables high-speed manufacturing at 40 s.p.m. (Switch Case / C1020.8515 / Thermo-Switch)

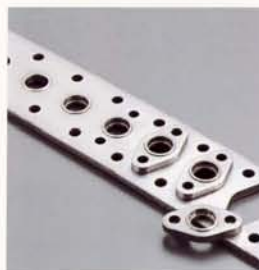


Very highly transformed parts with cross-sectional area reduction of 86%, wall thickness as thin as 1.1mm and forming speed of 35-45 s.p.m. (Valve Lifter / S15C / Engine)



Precision progressive forming.

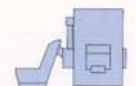
Precision progressive forming can include plastic forming of the material. K1-E Series presses have high rigidity and large off-center load capacity to ensure optimum precision for progressive forming. In addition, in order to cope with the breakthrough phenomenon inherent to the progressive forming process, the K1-E Series press has minimum drive clearance and increased processing ability.



In addition to forming O-ring grooves by press forming, the K1 produces highly precise flat planished surfaces. With the standard K1-E Series, better forming than with a fine blanking press can be achieved. (Flange / SPHC / Engine)



Progressive processing of aluminum strip into stepped shape by cold forging (2 outs). (Extrusion) (Housing / JIS A6061 strip / Hard Disk)



Cold forging processing from sheet metal blanks.

The need for precision forming from sheet metal blanks is increasing in relation to the net-shape forming requirement which requires no post-process treatment. For precision cold forging processing, the precision of the blank is often directly transcribed to the final product. Therefore, the future for precision sheet processing by cold forging processing is tremendous.



Both inner and outer walls of a cylinder part are finished to a quality which requires no further machining by utilizing a forming process consisting of a combination of squeezing, ironing, and sizing by multistage die construction. (Yoke / SPCE / Compressor)



Utilizing a method for adjusting the varying slug weights reduces the required forming tonnage and produces a uniform product height. (Crate / SPCE / Starter)



Cold forging using closed die tooling.

A much higher precision, lighter weight, and sophisticated shape of cold forged components are always being demanded. A closed die cold forging which enables a great degree of forming per process can be considered as a superior processing method in response to these demands. Equipped with a closed die set, the K1-E Series press can incorporate closed die cold forging systems, enabling high-precision and sophisticated forming techniques.



Changing method from hot forging to cold forging assures net-shaped finish for shaft parts and greatly increases material yield. (Crate / Sp420 / CV Joint)



Using only one side of a closed-die device enables processing of formed products with the grooved portion of a net-shaped spherical ball and chamfered end of a ball groove. (Inner Race / SNCM220 / CV Joint)