ALPHA PRESSES

THE MOST DEPENDABLE AND COMPETITIVELY PRICED HYDRAULIC PRESSING SYSTEM FOR ACCURATE PRODUCTION OF POWDER COMPACTED AND WET PRESSED PARTS.

CEMENTED CARBIDES
CERAMICS – ABRASIVES – ALUMINA OXIDES
METAL POWDERS
CARBONS
SOFT FERRITES – DRY PRESSING
HARD FERRITES – WET PRESSING
FLUOROCARBON RESINS
RARE EARTH

INDUSTRY’S MOST ADVANCED
• FULLY EQUIPPED • AUTOMATIC • HYDRAULIC
• POWDER COMPACTING PRESSES
• WET PRESSES • RARE EARTH PRESSES

ALPHA PRESS COMPANY, INC.
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DAWN OF A NEW ERA

Powder metal parts production is the fastest growing metal fabrication process over the past 30 years. With an annual growth rate of better than 10%, it is accelerating faster than the economy.

Because powder metal parts can be produced in almost any configuration from almost any material, the industry has passed through the transition of its early development into the era of mass production. And now it is poised on the doorstep of total automation.

No other process of producing metal parts for industry...including casting, forging, stamping, machining or wrought products...offers these advantages.

Precise control of the materials and properties of precision parts.
Simplified production of unique and intricate designs that cannot be produced any other way.
Elimination of costly grinding, milling and other finishing operations.
Elimination of virtually all material loss through scrap.
Ability to compact bi-metal and layered parts with superior metallurgical bonds.
Capability of pressing compacts to the hardness of diamonds.
Complete repeatability from first part to last.
and...tremendous cost savings through simplified production, increased reliability and longer working life of powder metal compacted parts.

PIONEER IN TECHNICAL ADVANCEMENTS

Through the development of the most sophisticated, fully equipped, high production, automatic, hydraulic, powder compacting press systems, ranging from 40 to 1000 tons, ALPHA PRESS COMPANY, INC. has advanced the state of the art to its highest levels of performance.

Although there are scores of technical advancements pioneered by ALPHA PRESS, its greatest single contribution is practical not technical. ALPHA PRESS designs its presses exclusively to fill the needs of the parts producing industry.

The parts that can be produced on ALPHA PRESSES are virtually unlimited in size, include almost any configuration, can be pressed from almost any material and can be compacted to accuracies of ±.001". The most commonly used powder metal materials for parts production are alumina oxides, abrasives, carbides, ferrites, metal powders and rare earth materials. Carbons, ceramics, graphite, fluorocarbon resins and plastics are finding increasing applications in the powder compacting industry.
CEMENTED CARBIDES – ITS CHALLENGES...

The most efficient means of large scale metal removal for industrial applications is through the use of cemented carbide cutting tools.

Despite this fact, there is no other known, economical means of producing cemented carbide cutting tool inserts than by the powder metal compacting process. And in most cases those cutting tool bits, whether for mining or metal removal applications, are compacted to finished dimensions.

Cemented carbides are among the hardest metals known to man. Their applications as wear parts are virtually limitless. Yet, their use in chemical, corrosive, abrasion resistant and high temperature applications is only in the early stages of its expansion.

In manufacturing, cemented carbide cutting tools must be produced flawlessly or they will split apart under stress or impact. In the production of both cemented carbide tools and wear parts, laminations can be extremely common. They render parts unusable, increasing their production, scrap and raw material costs.

...AND THE SOLUTIONS

ALPHA PRESSES are the most dependable and competitively priced hydraulic powder compacting presses with the exclusive withdrawal tooling feature. In this unique system, the die is withdrawn in the same direction in which the part is compacted, without die wall friction being reversed. As a result, the part is supported throughout the pressing cycle which virtually eliminates collapse, breakage, distortion or lamination of the compacts. It also permits easy removal of complex shapes.

In the compacting of cemented carbide cutting tools and wear parts, control of the tooling and the die cavity is critical. An exclusive ALPHA PRESS feature, the patented precision electronic/hydraulic part height control, permits pressing to a pressure and dwell or to a part height and dwell. Cemented carbide cutting tools and wear parts can be produced on ALPHA PRESSES to exacting heights, weights and densities, thus providing the logical, high production, low cost solution to the manufacture of these parts.

ALPHA'S 40-ton press

Carbide wear parts produced by powder compacting, the only known economical method of fabricating cemented carbide parts.

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• **Die Force Float Ratio Control**
  ALPHA PRESSES feature the Differential Die Force Float Ratio Control which allows for proper positioning of the cemented carbide parts. The result is the production of carbide parts with more uniform density and much less distortion from sintering.

• **Die Entry Stops**
  The handwheel adjustable Upper Punch Die Entry Stop, used in conjunction with the electronic/hydraulic/mechanically actuated Part Height Control, permits pressing positive rake cutting tools to within .001" on the top and bottom edges.

• **Precise Speed Control**
  By controlling the speed of the independent ram movements, smooth, shock-free performance is achieved and laminations are eliminated.

• **Flexible Control of Hydraulic Feed System**
  Provides optimum powder feed control for special applications, including: primary feeder stop in fill position, secondary feeder stop for vibratory motion, adjustment of shaker stroke/frequency and independent control for extension/retraction of feed motion.

• **Safety Considerations**
  ALPHA PRESSES feature the use of a light curtain and safety shield for operation point safety.

• **Electronic PLC**
  ALPHA PRESSES feature the use of state-of-the-art electronic programmable logic controller.

• **Digital Tonnage Display**
  ALPHA PRESSES feature an extremely accurate electronic digital tonnage display to provide precise monitor and control of pressing force.

• **Functional Output Monitor/Diagnostic Indicator Panel**
  Provides the operator with function output indicators of the pressing cycle and sequence of operation. Also, the functional output indicators provide a diagnostic status of major operational sequence control to assist maintenance personnel.

• **Low Tonnage Control**
  ALPHA PRESSES feature a simple/user friendly selectable pressure display to provide accurate monitor and control of extremely low pressing forces.

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Carbide cutting tools, mining bits, sand blast nozzles, wear strips, cold header dies and other carbide parts compacted on ALPHA'S 40-ton press.
Ceramic insulators, for example, are not required to meet critical dimensional standards. But they must be extremely hard and dense if they are to perform their functions flawlessly. The same is true for ceramic armor plate which protect military transports in combat situations. Nuclear fuel, high temperature, chemical and corrosion applications follow the same pattern in the field of ceramics.

In cutting tool applications, both ceramics and aluminum oxides exhibit extraordinary thermal shock resistance. They perform satisfactorily at extremely high speeds where conventional cemented carbide cutting tools fail because of thermal shock, chipping and fracture.
TECHNOLOGY SPURS ADVANCES

Ceramic electrical insulators, armor plate, water faucet diverter mechanism, substrates, cutting tools and refractories are held to extreme tolerances and can be compacted on ALPHA PRESS complete line of presses.

The more complex the part, the more advancements made in the science of metallurgy, the more simple the production of these parts become on ALPHA PRESSES.

ALPHA is the originator of the systems that make tooling designs easier, while providing more precise control over powder flow and distribution. Uniform density is one of the most critical factors in the production of highly stressed parts. It is achieved through precise control on ALPHA PRESSES by transmitting the force throughout the entire compact, that is from the top as well as the bottom of the compact. This feature gives ALPHA PRESSES the ability to produce more complex parts to more uniform densities, while performing these feats with more simplified tooling.

ALPHA’S patented, precision part height control permits pressing to a given pressure and to dwell at a given part size. The flexibility of the machines are such that they can press to a combination of height, pressure and/or density. In all cases weight accuracies are held to 1/4 of 1% depending on the consistency and free flowing characteristics of the materials.

- PRECISE PART HEIGHT CONTROL
  The complete line of ALPHA PRESSES are equipped with the patented Part Height Control which permits four methods of compaction.

  - Pressing to Density
    Where it is the critical factor, each part can be compacted to a specific density to give the least amount of distortion, good control of shrinkage and the best electrical qualities.

  - Pressing to Density and Dwell
    By adding dwell, air entrapment in voluminous materials is eliminated, thus increasing density and avoiding laminations.

  - Pressing to Part Height
    Enables the manufacturer to press to a given height to within .001" regardless of powder fill.

  - Pressing to Part Height and Dwell
    In addition to pressing to size, the dwell offers the opportunity to de-air to eliminate laminations in the compacted parts.
Metal powders are the most commonly used of all powder compacted parts. Iron powders are the most widely used for structural parts. Stainless steel powders are finding increasing applications in the automotive, appliance, chemical, hardware, marine and food processing industries. Although more costly than iron powders, their use is justified where greater strength and high corrosion resistance is demanded. The most significant advancement in metal powders is in the field of high speed steels for cutting and metal removal applications. And it could only have been achieved through the science of powder metallurgy.

Striking differences in metallurgical properties are exhibited in the comparisons between conventionally produced bar, rod and ingot stock and the variations that can be produced with powder metal compacts. The powder metal parts have finer, more uniform grain size and structures. They exhibit greater strength, hardness, toughness and density. Alloying can be controlled precisely whether a single or a combination of elements is added. If the desired characteristic is greater wear resistance, reduced distortion, improved fatigue strength or other improvements in mechanical properties, it can only be achieved through the advancements made possible in powder metallurgy.

**The 500 ton, pit-mounted, ALPHA PRESS**

Four-level turbine hub required multi-punch tooling. Used in an automotive transmission, it has keyed slots, internal spline and double hubs.

The production of this gear requires the utilization of ALPHA'S patented hydraulically actuated sliders and pre-lift systems, because multiple tooling and proper powder distribution is demanded.

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EVER INCREASING CAPABILITIES

To substitute one method of manufacturing for another in order to achieve increased properties in the same parts, is reason enough to convert to the better process. But ALPHA PRESS COMPANY, INC. offers still more - ever increasing efficiencies for metal powder parts manufacturers through superior performance of our equipment.

There is virtually no waste in producing parts from powder compared to bar, rod and ingot stock.

On an ALPHA PRESS the scrap or waste reduction will achieve a savings of better than 98% for the parts producer.

Compared to machining, milling or other processing using solid stock, powder compacting will increase production 50%, cutting labor costs in half.

Power consumption, utilizing an ALPHA PRESS, compared to fabricated parts from solid stock, will be reduced as much as 95%.

And for the first time, parts producers will be able to fabricate parts from metal powders that could not have been compacted before. And if the choice is an ALPHA PRESS, the parts manufacturer will have the option to produce complex parts with the most dependable and competitively priced hydraulic pressing system available.

Multi-level engine and flanged metal powder parts featuring uniform densities between the various levels.

Deep cup shaped pump housing and metal powder parts requiring long fills and significant powder transfer.

Eight punches were required to produce this high wear, high speed computer printout part, with four accurately compacted characters for clear printing.

Pinion gear, used in a door closure, is compacted in an ALPHA 125-ton press.
With the exception of standard metal powders, carbon is perhaps the most used material for powder compacting applications. Often it is not the hardness of the compact that is the key factor, but the addition of other abrasion resistant, high temperature, lubricating or electrical potential materials that determines the use of carbon materials. Metals, including precious and exotic, refractory, graphite and numerous other materials, can be combined with carbon before being formed and shaped under high pressure to produce parts of varying characteristics for a multitude of industrial, consumer and aerospace applications.

There is hardly an electrical motor, whether in consumer products and toys or sophisticated aerospace applications, in which brushes, fabricated principally of carbon, are not used. The applications for carbon containing metal compacts are endless. Lubricated bearings, chemical and corrosion resistant and high temperature uses, bushings, seals, liners, boats, crucibles, cylinders, molds, dies, valve seats, toxic atmospheres and petrochemical processing are but a few of the varied applications. And the parts come in all sizes and configurations, limited only by the design concept and the limitations of the applications.

Special feeder system which fill the die cavity in applications where powder materials with poor flow characteristics are available. The feeder is of a vibratory design with an oscillation feeder box and uses photo cells for level control.

The 60 ton ALPHA PRESS
FLEXIBILITY DEMANDED

To accommodate the multitude of carbon-based powder materials, ALPHA PRESS COMPANY, INC. offers the parts producing industry a line of highly flexible presses suitable for the variations in materials or the variety of parts needed to fill their specialized requirements for the production of complex, superior compacts.

ALPHA PRESSES offers these unique features in its press designs:

- More accurate machine alignment for more accurate compacts.
- Simplified tooling for easier handling. Reduced size of tooling for lower costs.
- Ability to hold closer tolerances on tooling for less rejects, higher production.
- Smaller presses in terms of physical size.
- Larger die openings to accommodate multiple cavity tooling.
- Greater accessibility to all press components both front and rear.
- Easy tool changeover and the ability to add or eliminate features quickly and inexpensively.
- And the flexibility to incorporate the latest advancement in the state of the art, such as new split die tooling systems.

Carbon parts are among the many powdered materials and configurations that can be produced on the versatile 60-ton ALPHA PRESS press. Included in this illustration are carbides, carbons, ferrites, ceramics, metal powders and alumina oxides.

- **Wide Frame Advantage**
  Because of the extra wide press frame openings, multiple cavity pressing of parts is common practice on the ALPHA press.

- **Die Speed and Fill Shoe Control**
  Depending on the flow characteristics of the material when going into the fill position, the die can be selected to move at a slow or fast speed. The fill shoe, with adjustable positions, can be stopped prior to or directly over the die cavity. Also, there is a secondary feed stop that permits the feed shoe to be vibrated or oscillated over the cavity to assist powder flow.

- **Hold Down Control**
  Hold down or clamping pressure on the compact while stripping the die from the part is precisely controlled.

- **Flexible Control of Hydraulic Feed System**
  Provides optimum powder feed control for special applications, including: primary feeder stop in fill position, secondary feeder stop for vibratory motion, adjustment of shaker stroke/frequency and independent control for extension/retraction of feed motion.

- **Safety Considerations**
  ALPHA PRESSES feature the use of a light curtain and safety shield for operation point safety.

- **Electronic PLC**
  ALPHA PRESSES feature the use of state-of-the-art electronic programmable logic controller.

- **Digital Tonnage Display**
  ALPHA PRESSES feature an extremely accurate electronic digital tonnage display to provide precise monitor and control of pressing force.

- **Functional Output Monitor/Diagnostic Indicator Panel**
  Provides the operator with function output indicators of the pressing cycle and sequence of operation. Also, the functional output indicators provide a diagnostic status of major operational sequence control to assist maintenance personnel.

- **Low Tonnage Control**
  ALPHA PRESSES feature a simple/user-friendly selectable pressure display to provide accurate monitor and control of extremely low pressing forces.
SOFT FERRITES: DRY PRESSES

There are ALPHA dry presses for the compaction of soft ferrite powders.

Transformer cores, “C” frames, cup cores, as well as yoke and elliptical cores for televisions, are finished to extreme accuracies in size and density to compensate for the high shrinkage involved in the final sintering process. Powder metal compacting presses are the only known economical method of producing these parts from soft ferrites.

ALPHA PRESS is the originator of the systems that make tooling designs easier, while providing more precise control over powder flow and distribution made possible by the use of upper and lower auxiliary cylinders to control core rod motion, powder displacement and multiple punch movements. Also, uniform density is one of the most critical factors. It is achieved through precise control on ALPHA PRESSES by transmitting the force throughout the entire compact, that is from the top as well as the bottom of the compact. This feature gives ALPHA PRESSES the ability to produce more complex parts to more uniform densities, while performing these feats with more simplified tooling.

ALPHA’S patented, precision part height control permits pressing to a given pressure and to dwell at a given part size. The flexibility of the machines are such that they can press to a combination of height, pressure and/or density. In all cases weight accuracies are held to 1/4 of 1% depending on the consistency and free flowing characteristics of the materials.

Additional important elements in the production of good soft ferrite parts is quality control and the safeguarding of material purity of the compacts.

The 125-ton ALPHA press with standard tool holder, pre-lift and slider cylinders.
Soft ferrite parts such as transformer cores, cup cores, TV yoke cores and tuning cores are made possible by the use of the upper and lower auxiliary cylinders. The cylinders are required for all types of core rod movements, powder displacement and multiple punch movements.

A variety of dry ferrite parts compacted for commercial applications using the dry ALPHA pressing systems.
HARD FERRITES: WET PRESSING SYSTEM

- Slurry Injection System with Plunger-Type Design Control Valving
- Electronic Differential Control System (EDC)
- Electronic Pressure Control Unit (PCU)
- Die Set Design Provides Easy Tool Exchange
- Filterhead Dewatering Vacuum System
- Orienting Coil is Mounted on Upper Platten and Remains in Press During Tool Changeover
- Adjustable Electronic Pulsating System for Orientation Current During Pressing (to 1,500 Amps)
- Adjustable Phase-shift Demagnetization During Removal
- Self Compensation at Low Current Demagnetization (to 1 Amp)
- Maintain Constant Coil Current with 10% Source Voltage Variation
- Temperature Compensation to Maintain Constant Coil Current
- Elimination of Clogging of Cooling Coil Due to Pulsating Current System Design
- Fully Adjustable Current and Timing Values for Orientation and Demagnetization Cycles

ALPHA PRESS COMPANY, INC. is an exclusive supplier to the ferrite industry of a complete, fully automatic wet pressing system. It is a total system—not just a press. These exclusive ALPHA total systems for hard ferrite production feature specially built presses with standard or extra wide frames to accommodate orienting coils, multiple cavity tooling and an electronic pulsating orienting system (available as press mounted or a portable unit) for the compaction of hard ferrites.

The key features of the wet pressing system are the Electronic Differential Control System (EDC), and the Electronic Pressure Control Unit (PCU). The EDC is used to automatically control the rate of compaction in relation to the speed of dewatering the wet slurry. The

The 250-ton ALPHA Wet Press with tool holder for removable type die chamber mountings
PCU, another exclusive ALPHA PRESS feature, accurately controls the build up of hydraulic pressure to control the pressing force tonnage during compaction to allow for a controlled time for dewatering.

Additional advantages of this specialized pressing system include:

- A slurry injection system with plunger-type designed control valving.
- A die set which provides easy tool changeover.
- Specialized filtered dewatering vacuum system are designed to operate with slurries with 28 to 38% water content.
- The orientation coil is mounted on the upper plate and remains in the press. The coil does not require removal during tool changeover.
- The ALPHA Electronic Pulsating System produces high current pulsations, adjustable to 1,500 Amps, for particle orientation (Magnetization Cycle) during pressing. The pulsating system eliminates corrosive build-up inside the cooling coil, thus providing for dependable, long life operation of the cooling coil components. The system is much more efficient than conventional constant D.C. designs and also significantly improves particle orientation to provide optimum hard ferrite properties at a very competitive price.

The system produces a phase-shift current control, adjustable to as low as 1 Amp, for demagnetization during part removal. The system is self-compensating to maintain constant current with changes in temperature and source voltage variations up to 10%.

The ALPHA wet pressing system consists of 13 major elements all combined into one fully automatic, self-contained unit. It starts with the basic press in 75, 125 and 250 ton press capacities. It includes the Tool Holder for Die Chamber Mounting and the ability to accommodate up to 28 cavities depending on the user’s tooling part size and the press tonnage.

The ALPHA Wet Press System enables the manufacturer of hard ferrites to produce parts at high production rates, reduce electrical consumption tremendously, generate much less heat throughout the system and outstanding performance at the most competitive price...the unique ALPHA ADVANTAGE for optimum production of hard ferrites.

The portable ALPHA PRESSES Electronic Pulsating Orienting system is an option for use mainly on existing presses.

A variety of hard ferrite parts compacted on the 250-ton ALPHA Wet Pressing System.
Fluorocarbon resins, principally Teflon; and other TFE and polymers, have achieved major breakthroughs because of their outstanding capabilities in high temperature, corrosion and chemical applications. But because of their tendency to fracturing, with only limited deformation in their solid state, new methods of production had to be found.

Capable of being compacted into unusual configurations for unusual applications, the future use of fluorocarbon resins in industrial uses was at first questioned because of the high cost of the basic materials.

The 40-ton ALPHA PRESS

...AND THE SOLUTIONS
LOW IN PRODUCTION COSTS

Increasing applications for these polymers due in part to the drastic reduction in production costs when compacted on ALPHA PRESSES.

Two outstanding features make fluorocarbon resin compacting on ALPHA PRESSES both economical and desirable. Designed with standard or extra wide frames, ALPHA PRESSES have large die openings to accommodate multiple cavity tooling. The number of dies depends on the type of powder, the configuration to be pressed, the pressing force and density.

An additional feature, the underfill unit, was the first one of its type and it was developed by ALPHA PRESS CO., INC. The underfill unit allows movement of up to 1" after the die cavity has been filled. This movement eliminates splashing and wasting of powder when the upper punches enter the dies. Not only does it prevent spillage of costly TFE and other plastic powders, it also permits the pressing of different layers within the same compact.

- **Suction Fill Action**
  Because of the low friction of fluorocarbon powders a combination of upper and lower controlled pressure is required. Suction filling on long fill parts helps to eliminate air entrapment prior to pressing.

- **Underfill Control**
  An additional feature, the Underfill Unit, prevents powder splash out when making exceptionally thin compacts.

- **Safety Considerations**
  ALPHA PRESSES feature the use of light curtain and safety shield for operation point safety.

- **Electronic PLC**
  ALPHA PRESSES feature the use of state-of-the-art electronic programmable logic controller.

- **Digital Tonnage Display**
  ALPHA PRESSES feature an extremely accurate electronic digital tonnage Display to provide precise monitor and control of pressing force.

- **Functional Output Monitor/Diagnostic Indicator Panel**
  Provides the operator with function output indicators of the pressing cycle and sequence of operation. Also, the functional output indicators provides a diagnostic status of major operational sequence control to assist maintenance personnel.

- **Precise Low Tonnage Control**
  ALPHA PRESSES feature a simple/user friendly selectable pressure display to provide accurate monitor and control of extremely low pressing forces. The low tonnage control permits the pressing of parts to as low as one-half (1/2) ton.

*Fluorocarbon seals, coaxial insulators, nose cones, bearings and other fluorocarbon parts designed for chemical and corrosion resistant applications and parts requiring low coefficient of friction.*
RARE EARTH SYSTEMS

- Electronic Pulsating System for Orientation
- Adjustable Orientation Current During Pressing (to 3,000 Amps)
- Adjustable Phase-Shift Demagnetization During Removal
- Self-Compensation at Low Demagnetization (to 1 Amp)
- Maintain Constant Current with 10% Source Voltage Variations
- Temperature Compensation to Maintain Constant Coil Current
- Elimination of Clogging of Cooling Coil Due to Pulsating Current System
- Fully Adjustable Current and Timing Control for Orientation and Demagnetization cycles

There are ALPHA PRESSES for the orientation and compaction of high power/high quality rare earth magnets (neodymium-iron-boron, samarium cobalt, etc.), including particle orientation during the pressing cycle and demagnetization following the pressing cycle, required the development of one of the most complex manufacturing techniques in the rare earth compacting field. Special equipment, designed by ALPHA PRESS, achieves optimum particle orientation and ensures constant density distribution in the pressing of rare earth materials.
The portable ALPHA PRESS Electronic Orientation System.

The 60-ton ALPHA Rare Earth Press with transverse orientation coil arrangement.

NOTE: The Die Set will accept a toolholder for either vertical or transverse coil arrangements.

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# STANDARD DRY PRESSES

## ALPHA PRESS CO., INC.

### Typical Specifications for Standard Dry Presses

<table>
<thead>
<tr>
<th>PRESS MODEL</th>
<th>Single Unit</th>
<th>Double Unit / Pit Mounted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>44D</td>
<td>64D</td>
</tr>
<tr>
<td>1. Capacity in Tons</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>2. Ejection Capacity (Withd.) in Tons</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>3. Depth of Fill (Max.)</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>4. Stroke of Upper Ram</td>
<td>12&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>5. U.R. Aux Cyl. – Down Force</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
</tr>
<tr>
<td>7. Stroke U.R. Aux. Cyl.</td>
<td>2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>8. Counter Pressure (Die Float Resistance) in Tons</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>9. L.R. Aux. Cyl. – Up Force</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
</tr>
<tr>
<td>10. L.R. Aux. Cyl. – Down Force</td>
<td>1000 lbs.</td>
<td>1000 lbs.</td>
</tr>
<tr>
<td>11. Stroke-Lower Ram Aux. Cyl.</td>
<td>5&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>13. High Pressure in P.S.I. (approximate)</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td>14. Low &amp; Pilot Press. Syst. in P.S.I.</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>15. Elec. Power Requirement in K.W.</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>16. Production Rate Per Minute</td>
<td>14-18&quot;</td>
<td>14-18&quot;</td>
</tr>
<tr>
<td>17. Die Table Height from Floor (withd. pos.)</td>
<td>53&quot;</td>
<td>55&quot;</td>
</tr>
<tr>
<td>18. Press Frame Opening L. – R.</td>
<td>24 1/4&quot;</td>
<td>24 1/8&quot;</td>
</tr>
<tr>
<td>19. Vertical Press Opening Press Table to Upper Platten</td>
<td>25&quot;</td>
<td>25&quot;</td>
</tr>
<tr>
<td>20. Floor Space L. – R. (Incl. Reservoir)</td>
<td>67&quot;</td>
<td>67&quot;</td>
</tr>
<tr>
<td>21. Floor Space F. – B. (Incl. Reservoir)</td>
<td>64&quot;</td>
<td>64&quot;</td>
</tr>
<tr>
<td>22. Press Height from Floor Level</td>
<td>99 1/2&quot;</td>
<td>99 1/2&quot;</td>
</tr>
<tr>
<td>22A. Overall Press Height</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**NOTE:** (1) SPECIFICATIONS ARE TYPICAL AND SUBJECT TO ALTERATION; REFER TO DETAIL PRESSING & FORMING ARRG'T. AND INSTALLATION DRAWINGS.

*Depending on complexity of part design*
# SPECIAL DRY PRESSES

**ALPHA PRESS CO., INC.**

Typical Specifications for Special Dry Presses

<table>
<thead>
<tr>
<th>PRESS MODEL</th>
<th>44DL</th>
<th>64DL</th>
<th>81DL</th>
<th>128DP</th>
<th>253DP</th>
<th>253DPL</th>
<th>44DR &amp; 64DR</th>
<th>128DR</th>
<th>253DR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Capacity in Tons</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>125</td>
<td>250</td>
<td>250</td>
<td>40-60</td>
<td>125</td>
<td>250</td>
</tr>
<tr>
<td>2. Ejection Capacity (Withdr.) in Tons</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>65</td>
<td>125</td>
<td>125</td>
<td>20-30</td>
<td>65</td>
<td>125</td>
</tr>
<tr>
<td>3. Depth of Fill (Max.)</td>
<td>8 1/4&quot;</td>
<td>8 1/4&quot;</td>
<td>8 1/4&quot;</td>
<td>9 1/4&quot;</td>
<td>9 1/4&quot;</td>
<td>15&quot;</td>
<td>6 1/4&quot;</td>
<td>9 1/4&quot;</td>
<td>9 1/4&quot;</td>
</tr>
<tr>
<td>4. Stroke of Upper Ram</td>
<td>12&quot;</td>
<td>12&quot;</td>
<td>14&quot;</td>
<td>18&quot;</td>
<td>20&quot;</td>
<td>25&quot;</td>
<td>12&quot;</td>
<td>18&quot;</td>
<td>20&quot;</td>
</tr>
<tr>
<td>5. U.R. Aux Cyl. – Down Force</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
<td>4000 lbs.</td>
<td>6300 lbs.</td>
<td>6300 lbs.</td>
<td>1500 lbs.</td>
<td>4000 lbs.</td>
<td>6300 lbs.</td>
</tr>
<tr>
<td>7. Stroke U.R. Aux. Cyl.</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>2&quot;</td>
<td>3&quot;</td>
<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
<td>2&quot;</td>
<td>3&quot;</td>
<td>1 1/4&quot;</td>
</tr>
<tr>
<td>8. Counter Pressure (Die Float Resistance) in Tons</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>60</td>
<td>125</td>
<td>125</td>
<td>20-30</td>
<td>60</td>
<td>125</td>
</tr>
<tr>
<td>9. L.R. Aux. Cyl. – Up Force</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
<td>1500 lbs.</td>
<td>4000 lbs.</td>
<td>6300 lbs.</td>
<td>6300 lbs.</td>
<td>1500 lbs.</td>
<td>4000 lbs.</td>
<td>6300 lbs.</td>
</tr>
<tr>
<td>10. L.R. Aux Cyl. – Down Force</td>
<td>1000 lbs.</td>
<td>1000 lbs.</td>
<td>1000 lbs.</td>
<td>3400 lbs.</td>
<td>5000 lbs.</td>
<td>5000 lbs.</td>
<td>1000 lbs.</td>
<td>3400 lbs.</td>
<td>5000 lbs.</td>
</tr>
<tr>
<td>11. Stroke-Lower Ram Aux. Cyl.</td>
<td>5&quot;</td>
<td>5&quot;</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>5 1/4&quot;</td>
<td>7 1/4&quot;</td>
<td>5&quot;</td>
<td>6&quot;</td>
<td>7 1/4&quot;</td>
</tr>
<tr>
<td>12. Pump Speed R.P.M.</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>13. High Pressure in P.S.I.</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
</tr>
<tr>
<td>14. Low &amp; Pilot Press. Syst. in P.S.I.</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>15. Elec. Power Requirement in K.W.</td>
<td>13</td>
<td>13</td>
<td>21</td>
<td>22</td>
<td>37</td>
<td>37</td>
<td>13</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>16. Production Rate Per Minute</td>
<td>14-18*</td>
<td>14-18*</td>
<td>14-17*</td>
<td>12-15*</td>
<td>10-13*</td>
<td>10-13*</td>
<td>14-18*</td>
<td>12-15*</td>
<td>10-13*</td>
</tr>
<tr>
<td>17. Die Table Height from Floor (withdr. pos.)</td>
<td>53&quot;</td>
<td>53&quot;</td>
<td>—</td>
<td>68&quot;</td>
<td>76&quot;</td>
<td>48&quot;</td>
<td>53&quot; – 55&quot;</td>
<td>68&quot;</td>
<td>76&quot;</td>
</tr>
<tr>
<td>18. Press Frame Opening L. – R.</td>
<td>24 1/4&quot;</td>
<td>24 1/4&quot;</td>
<td>26 1/2&quot;</td>
<td>29 1/2&quot;</td>
<td>36&quot;</td>
<td>36&quot;</td>
<td>24 1/4&quot;</td>
<td>29 1/2&quot;</td>
<td>36&quot;</td>
</tr>
<tr>
<td>19. Vertical Press Opening Press Table to Upper Platten</td>
<td>29&quot;</td>
<td>29&quot;</td>
<td>—</td>
<td>34&quot;</td>
<td>38&quot;</td>
<td>53&quot;</td>
<td>25&quot;</td>
<td>34&quot;</td>
<td>38&quot;</td>
</tr>
<tr>
<td>21. Floor Space F. – B. (Incl. Reservoir)</td>
<td>64&quot;</td>
<td>64&quot;</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>144&quot;</td>
<td>—</td>
<td>64&quot;</td>
<td>79&quot;</td>
</tr>
<tr>
<td>22. Press Height from Floor Level</td>
<td>104 1/2&quot;</td>
<td>104 1/2&quot;</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>136&quot;</td>
<td>99 1/2&quot;</td>
<td>134&quot;</td>
<td>152&quot;</td>
</tr>
<tr>
<td>22A. Overall Press Height</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>187&quot;</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>23. Approx. Shipping Wt. (Incl. Reservoir) Lbs.</td>
<td>8000</td>
<td>9000</td>
<td>12000</td>
<td>20000</td>
<td>30000</td>
<td>33000</td>
<td>8000</td>
<td>20000</td>
<td>30000</td>
</tr>
<tr>
<td>24. Pressing &amp; Forming Arrgt.</td>
<td>D-5746</td>
<td>D-5746</td>
<td>—</td>
<td>D-3049</td>
<td>D-3618</td>
<td>D-6672</td>
<td>—</td>
<td>V and/or T</td>
<td>V and/or T</td>
</tr>
</tbody>
</table>

**NOTE:**
1. SPECIFICATIONS ARE TYPICAL AND SUBJECT TO ALTERATION; REFER TO DETAIL PRESSING & FORMING ARRGRT. AND INSTALLATION DRAWINGS.
2. Legend:  L = Long Fill;  P = Pit Mounted;  R = Rare Earth;  V = Vertical Orientation;  T = Transverse Orientation.
3. *Depending on complexity of part design*
The design and assembly of ALPHA PRESSES is concentrated in a clean, modern 60,000 square foot facility constructed exclusively for this purpose. The actual manufacturing of the press components takes place in an adjacent 80,000 square foot facility where the steel frames are constructed and assembled. The ALPHA facility constitutes one of the largest facilities in the nation devoted exclusively to the manufacture of the industry’s most advanced, fully equipped, automatic, hydraulic, powder compacting and wet presses.

ALPHA ENGINEERING SERVICES

From initial tooling to completed compact, ALPHA PRESSES are backed by the industry’s most knowledgeable design and engineering staff specializing in electronic, hydraulic and mechanical engineering.

The ALPHA engineering staff is available for consultation on problems concerning special tooling, design of special features or questions concerning compaction. Demonstrations of ALPHA PRESSES in operation are arranged through the Sales Department.
THE ALPHA PRESS SYSTEM TO PROVIDE TOMORROW'S TECHNOLOGY...TODAY!

The ALPHA PRESS CO., INC. Design Department continues to implement new ways of improvement for the benefit of parts manufacturers. Specially designed presses within the 40 to 1,000 ton ranges are common practice. Designs for unique applications are considered on a continuous basis. In most cases ALPHA PRESSES can demonstrate how these unusual situations can be accomplished on standard ALPHA PRESSES. And when they can't be, ALPHA PRESS designs a press system specifically for these needs.

From initial tooling to completed compact, every ALPHA PRESS is backed by the industry's most knowledgeable design and engineering staff specializing in electrical, hydraulic and mechanical engineering. In addition to training personnel in the operation of the presses and personally supervising the primary installation of each press, the ALPHA PRESS engineering staff is available for consultation on problems concerning special tooling or design of special features. For assistance in any area concerning compacting, or to arrange a demonstration, contact the ALPHA PRESS Sales or Engineering Department.

When you think of compacting powder metal parts - think beyond the press - think in terms of a system.

ALPHA PRESS CO., INC. designs specialized and unique pressing systems. In effect, the ALPHA PRESS system is a turnkey system. Included are:

- Design of the presses
- Manufacturing of the presses
- Installation, pit or floor mounted
- Training of personnel
- Service, if required

An additional bonus is assistance in tool design provided by ALPHA PRESS CO., INC. It has proven helpful to parts producers with specialized problems.