

# HOW TO: Pick the right press for your application.

**air-hydraulics**  
INCORPORATED

11 considerations when buying a press

# 1

## FORCE REQUIRED

Air Hydraulics offers presses with force range from 150lbs up to 50 tons. If your force requirements fall within that window, you'll likely find the perfect press for you with Air Hydraulics.

# FORCE REQUIRED



Image: HP-Series Hydraulic Press

## **Air Press**

An air press would be the perfect upgrade from a toggle or arbor press. They apply consistent force, save your team energy, and require very little maintenance. Certain models provide up to 5000lbs (2.5 tons)

## **Pneumatic Air Over Oil**

More affordable and less maintenance than a full hydraulic press with models that can deliver up to 50 tons of force. Our air over oil presses use our proven proprietary-designed cylinders to give you tons of force while still using a clean and efficient energy source.

## **Full Hydraulic**

The SH Series has a model up to 15 tons of force and our HP Series can provide up to 50 tons of force. If you're needing maximum force for your application you'll want to consider our HP Series hydraulic press or AH Series pneumatic air over oil press.

# 2

## BUDGET

Over the last 75 years we've been building presses that are designed to work hard every single day. Pneumatic and air over oil presses have the benefit of being cost effective for your initial investment and have a lower maintenance cost than a similar full-hydraulic presses.

# BUDGET



Image: C-Series C-300 5.5 ton  
Air Over Oil Press

## **Air Press**

You can get started with an industrial-grade 1200lb pneumatic press with ANSI B11-19 compliant two-hand controls for as little as \$4,510. This provides you a press that's easy to operate and install that can run all day, every day, with little maintenance.

## **Air Over Oil**

When you step up in force you'll also be stepping up in technology. You can get started with our extremely popular 10 ton model C-400 with standard two-hand pneumatic controls for around \$12,500.

## **Full Hydraulic Press**

Hydraulic Presses have a lot of complexity, electronics, motors, and technology. A hydraulic press that is similar in specifications to a C-400 could be nearly 3x the purchase price.

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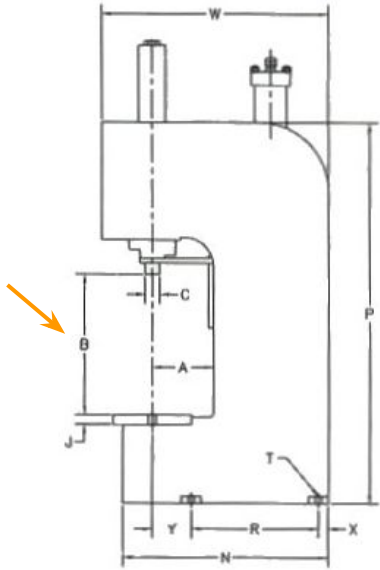
*Top-of-the-line safety controls and additional control packages can be added to the majority of our presses.*

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## DAYLIGHT REQUIREMENT

Your daylight requirements will be based on the largest part and tooling that you will need to fit vertically in your press. Higher force models will typically have larger daylight openings.

# DAYLIGHT REQUIREMENT



Daylight is shown as letter B in this C style press.

## **Air Press**

Our standard daylight openings range from 4" to 10" with some of our standard models going as high as 18".

## **Air Over Oil**

Our standard daylight opening in our air over oil presses range from 12" to 14.50" with options to accommodate up to 24".

## **Full Hydraulic Press**

The standard daylight on our bench top hydraulic presses range from 14" to 16" and up to 24" on our floor model units.

*Custom presses are available with larger daylight requirements.*

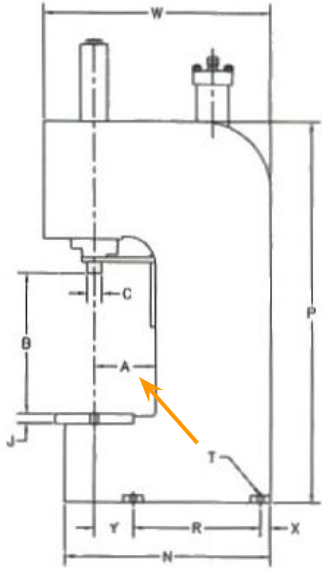
# 4

## THROAT REQUIREMENT

The throat depth is the distance from the ram horizontally to the back of the C-frame. The throat depth will need to be larger than the radius of the part you're pressing and deeper than half your tooling fixture.



# THROAT REQUIREMENT



Throat depth is depicted as A.

## **Air Press**

Our standard pneumatic air press line can support up to a 6-inch throat depth.  
*Consult factory for other available designs that require additional throat depth.*

## **Air Over Oil**

The standard air over oil press models have throat depths varying from 6.25" to 8.25" depending on the model selected. AHI offers the option of additional throat depth up to 11.25".

## **Full Hydraulic Press**

Our benchtop hydraulic press models have throat depths varying from 6.25" to 8.25" depending on the model selected.

Our floor model hydraulic presses have throat depths starting at 12.5".

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*Our design and engineering team is available if you require specific deviations from our standard dimensions.*

# 5

## OVERALL STROKE

The overall stroke is the distance that the press will travel upon activation. For most of our presses, the press force is applied during the entire overall stroke. Some presses are configured to move at a lower force during stroke and only apply full force during a shorter distance power stroke.

# OVERALL STROKE



Image: C-Series C-500 with floor stand

## **Air Press**

The pneumatic air presses have options up to 10 inches of overall stroke and can apply force throughout the entire overall stroke.

## **C-Series Air Over Oil**

Our C-Series air over oil presses offer a full-length power stroke which applies a hydraulically intensified force throughout the entire overall stroke while using a standard factory-compressed air supply.

Our C-Series presses can be manufactured with strokes up to 8".  
*Longer strokes are available; consult factory for options*

## OVERALL STROKE (cont'd)



Image: AH-Series  
Hydro-Pneumatic Press

### **AH-Series Air Over Oil**

Our AH-Series air over oil presses provide a 6" overall stroke, a rapid low force approach stroke with a self-contained hydraulic intensified ½" power stroke all in one complete package. The power stroke can be activated anywhere within the overall stroke.

*Longer strokes are available; consult factory for options*

### **Full Hydraulic**

We offer options up to 12 inches in overall stroke.

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## POWER STROKE REQUIRED

Your ideal force may not be needed throughout the entire stroke of the press. Some press configurations deliver consistent power throughout the entire overall stroke, others only during the power stroke.

# POWER STROKE REQUIRED



Image: AH-Series  
Hydro-Pneumatic Press

## **Air Press**

The fully-pneumatic air press is a consistent lower force power stroke delivered throughout the overall stroke.

## **Air Over Oil (C-Series)**

Has the ability to apply a high force and more consistent power throughout the overall stroke, up to 15 tons.

## **Air Over Oil (AH-Series)**

Designed to have a fast, low force approach stroke with a half-inch power stroke. Models ranging from 4-50 tons.

## **Full Hydraulic**

High and consistent power throughout. The full hydraulic press does not need to return to the full starting position to deliver a full power stroke. Full-hydraulic presses have more flexibility with their options and can be high speed/low force or high force/low speed.

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## PREFERRED POWER SOURCE

Compressed air provides a quiet, consistent, and reliable power source for the majority of our presses and control packages. Just connect them to a factory air supply and you're ready to go.

# PREFERRED POWER SOURCE



*Image: A-Series air press with standard two-hand pneumatic safety controls*

## **Air Press**

Our pneumatic air presses require a factory-compressed air supply with our standard pneumatic control package.

## **Air Over Oil**

Our air over oil presses only require a factory-compressed air supply with our standard pneumatic control packages.

## **Hydraulic Press**

A hydraulic press requires more complexity in terms of the engineering and technology required to power and operate them. You'll need 3-phase electricity 240/480 volt power for any hydraulic press.



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## PREFERRED CONTROL VOLTAGE

Depending on your selected control package or factory needs, you may have the option between fully-pneumatic control power, standard 120 VAC power, or an optional 24 VDC low voltage power.

# PREFERRED CONTROL VOLTAGE



## **Air Press**

Our most common air press package uses pneumatic air to power the unit as well as the two-hand safety controls. Other control packages available run on 120 Volt AC or 24 Volt DC.

## **Air Over Oil**

Fully-pneumatic controls are also available in our air over oil press. This option provides a safe, simple, and cost-effective control solution by eliminating the need for a control enclosure. We also offer air over oil packages that can be powered by 120 Volt AC or 24 Volt DC.

## **Hydraulic Press**

Hydraulic presses are powered by a high-voltage power source, 240V/480V and are controlled by either 120 Volt AC or 24 Volt DC.

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## CONTROL PACKAGES

We want to make sure your air press is designed for your ideal manufacturing process.

Fault circuits / automatic ram return features / PLC / integrated process monitoring / and more

# CONTROL PACKAGES (1 of 3)

## Packages Available in Pneumatic or Electric Control Power

### **Two-hand operation with a single regulator**

(DP-1 or EDP-1)

Operator initiates and maintains both actuators to advance the press stroke. Once the actuators are released, the ram retracts to full home position. (Optional dual regulator is available for adjusting return pressure).

### **Two-hand operation with pressure initiated / timer for automatic ram return**

(DP-1 with P-TD option or EDP-1 with E-TD option)

Operator initiates and maintains both actuators to advance the press stroke. Once the press builds to pre-set pressure, an adjustable time is initiated. Once the timer is complete, the press ram automatically retracts to full home position.

### **Two-hand operation with pressure initiated / timer for automatic ram return (include short cycle fault indicator)**

Operator initiates and maintains both actuators to advance the press stroke. Once the press builds to pre-set pressure, an adjustable timer is initiated. Once the timer is complete, the press ram automatically retracts to full home position. If operator releases the actuators before pressure / timer are achieved, an indicator turns-on notifying the operator the press cycle was not complete correctly.

## CONTROL PACKAGES (2 of 3)

### Packages Available in Pneumatic or Electric Control Power

#### **Two-hand operation with jog control (includes pressure initiated / timer for automatic ram return)**

(DP-1-NP or EDP-1-NP)

Operator initiates and maintains both actuators to advance the press stroke. If operator releases one or both actuators, the press ram stops motion. Operator can re-initiate the actuators to proceed with the press cycle (pressure initiated / timer automatic return), or manually push the override ram return button to retract the ram to full home position.

#### **Two-hand operation with distance initiated / timer for automatic ram return**

(DP-1 with P-DR or EDP-1 with E-DR option)

Operator initiates and maintains both actuators to advance the press stroke. Once the press ram meets the adjustable proximity switch, an adjustable time is initiated. Once the timer is complete, the press ram automatically retracts to full home position.

## CONTROL PACKAGES (3 of 3)

### Other Available Control Options

- Muting Control Circuit “Ram Capture”
- 24VDC Control Circuit
- Programmable Logic Controller (PLC)
- Emergency Stop Control Circuit
- Light Curtains with Press Guarding
- Rod End Load Cells with Force Monitoring
- Linear position Transducers
- Press Force & Distance Monitoring

Our controls engineering team can work with you to design a custom control package to meet your project needs

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## QUALITY ASSURANCE

Some applications may require a complete quality control of the manufacturing process, eliminating the chance of defective or non-conforming parts or assemblies making it into the field.

# QUALITY ASSURANCE



*Image: SIG-Series with Force & Distance Monitoring*

## **Force & Distance Monitoring Presses**

Our SIG-Series presses are air over oil presses equipped with integrated force and distance sensors to give you a complete signature analysis of each press cycle. These waveforms are displayed on a 10.4" colored touchscreen monitor with the ability to set a multitude of parameters along critical points in the assembly process, including pressing force and pressing distance. If all parameters are met, the press cycle "passes." If any of the preset parameters aren't met, the system acknowledges a "failed" press cycle.

This press-fit monitoring package gives you the ability to track the manufacturing assembly process and give real time pass/fail feedback with the most advanced part defect detection system. Our press force & distance monitoring package also comes complete with a robust, high speed solid state drive to store, retrieve, and view each assembly operation, along with EtherNet capability and an optional software package which provides you with remote data collection access for each assembly operation.



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## **SAFETY CONSIDERATIONS**

Your operators may be working with your presses all day: it's important to understand the safety considerations between different styles of presses and control packages.

# SAFETY CONSIDERATIONS



*Auto Ram return features, light curtains, and other safety options are available on most models.*

## **Manual Presses**

A manually-operated press can cause work-related repetitive stress injuries from performing the same motion day in, day out. Due to this fact, Air Hydraulics does not offer any human-powered presses: our basic air press with standard two-button pneumatic controls is what we consider the minimum requirements for a factory environment.

## **Pneumatic & Air Over Oil Presses**

All of our presses adhere to ANSI B11.19 in regards to two-hand safety controls and are a safe addition to your factory due to their lack of high voltage requirements. Additional safety features, such as light curtains, can be added to most models.

## **Hydraulic Presses**

Full-hydraulic presses are significantly louder than a standard air press and can cause long-term hearing damage without adequate ear protection for nearby operators. They also require high voltage power to operate, which is an added risk to operators and maintenance staff.

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## SUMMARY

We find that a manual press is not practical in a factory setting. Our standard air press is comparable in price and superior in performance than most arbor/manual presses. When it comes to power, safety, ease of maintenance, and budget, an air over oil press is typically your best choice.

# SUMMARY

|                  | Air Press                          | Air Over Oil Press<br><b>MOST POPULAR</b>  | Hydraulic Press                |
|------------------|------------------------------------|--|--------------------------------|
| Price            | Starts at \$4,510                  | Starts at \$10,050   | Starts at \$45,000             |
| Force            | Up to 2.5 tons of force            | Up to 50 tons of force<br>C-Series - force on overall stroke<br>AH-Series - full force on power stroke | Up to 50 tons of force         |
| Overall Stroke   | Up to 10 inches overall stroke     | Up to 12 inches overall stroke   | Up to 12 inches overall stroke |
| Daylight         | Up to 18 inches in daylight        | Up to 24 inches in daylight  | Up to 24 inches in daylight    |
| Throat Depth     | Up to 6 inch throat depth          | Up to 10 inch throat depth*  | Up to 12 inch throat depth*    |
| Control Packages | Pneumatic and/or electric packages | Pneumatic and/or electric packages   | Requires high voltage          |
| Depth            | Jog control & auto ram options     | Jog control & auto ram options   | Jog control & auto ram options |

## Additional Options Available on Most Models

24vDC Control Circuit ▪ Programmable Logic Controller (PLC) ▪ Emergency Stop Control Circuit ▪ Light Curtains and Guarding ▪ Rod End Load Cell ▪ Linear Position Transducer ▪ Press Force Monitoring ▪ Custom Designed Control Systems

\*Custom options are available for increased size or performance

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## AIR HYDRAULIC MODELS

Air Hydraulics offers six different lines of presses, each with three to six different models named after the amount of force delivered. Each model varies in daylight, throat, and other dimensions - check our [website](#) for specifics.

# AIR HYDRAULIC MODELS

| Press Type   | Series     | Models   |
|--------------|------------|--|
| Air Press    | A-Series   | <b>3 Models:</b> 1200 lbs, 2800 lbs, 5000 lbs  |
| Air Press    | AP-Series  | <b>4 Models:</b> 150lbs, 400lbs, 1200lbs, 1900lbs                                    |
| Air Over Oil | C- Series  | <b>4 Models:</b> 2.5 Tons, 5.5 Tons, 10 Tons, 15 Tons                                |
| Air Over Oil | AH-Series  | <b>6 Models:</b> 4 Tons, 9 Tons, 15 Tons, 20 Tons, 30 Tons, 50 Tons                  |
| Air Over Oil | SIG-Series | <b>4 Force and Distance Monitoring Models*:</b> 2.5 Tons, 5.5 Tons, 10 Tons, 15 Tons |
| Hydraulic    | SH-Series  | <b>3 Models:</b> 2.5 Tons, 5.5 - 10 Tons, 15 Tons                                    |
| Hydraulic    | HP-Series  | <b>6 Models:</b> 20 Tons, 25 Tons, 30 Tons, 35 Tons, 40 Tons, 50 Tons                |

\*All models can be equipped with force and distance monitoring.  
 Discuss any press size, control package, or feature customizations you might want with our team.

## **CONTACT US**

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