# AIR PRESSES

DANLY

# Economical Die Stamping

Danly Air Presses are designed for die production runs in piercing, forming, cutting, trimming and coining applications, and secondary operations. Although small, these full-featured stamping presses are made to the same high standards as all Danly products. They are engineered to provide repeatable, consistent accuracy and years of trouble-free operation.

## Features

- Entirely air powered. No electrical connection required.
- Air logic control. Two-hand non-tie down single stroke. Two hand non-tie down single stroke reversing. Continuous running.
- No air line lubrication required.
- Two post presses with 1/4 to 2 ton capacity, 5¼" x 4¾" to 9¾" x 10½" die area.
- Four post presses with 3 ton capacity, 16" x 16" die area, and 5 ton capacity, 19" x 19" die area.
- Die space protected with barrier guards.
- Spring actuated safety blocks provided on four post presses.
- Cushioned air cylinders (head end only).
- Barrier guards interlocked with press control on two post presses.
- Top plate power unit can be used interchangeably with die sets of same sizes.

Danly Air Presses and Air Toggle Presses are built to the same rigid standards of Danly Precision Die Sets and provide the same dependable service. They perform precision press operations at high production speeds with consistent accuracy. This means trouble-free operation for the user, longer die life, better parts and more profitable production runs.

With a wide range of sizes, capacities, controls and other operating features, Danly Air Presses offer a virtually custom-tailored unit, exactly suited to your specific needs.

Danly Two Post Air Presses have capacities of ¼, ½, ¾, 1 and 2 tons. Four Post Presses have 3 and 5 ton capacities. Air Toggle Presses have capacities of 7, 9, 10, and 12 tons and all are available with a choice of controls.

Control reliability of Danly Air Presses is assured by the use of an air logic control. Along with this control, chosen for its proven dependability, Danly Air Presses are also equipped with an air cylinder and operating valve carefully selected to provide long, dependable service without the use of an air line lubricator.

Operation without an air line lubricator minimizes air pollution that results from oil-bearing exhaust air during press operation. Noise level is controlled on Danly Air Presses by mufflers fitted on the exhaust ports of operating valves.

All Danly Air Presses are shipped fully assembled, including barrier guard, an air filter, and air regulator. Only connection to an air line of sufficient capacity is required to begin press operation in your plant.

Barrier guards on the Two Post Air Presses must be in position or the control is rendered inoperative by the interlocking switches. Spring loaded safety blocks on the Four Post Presses are restrained by the barrier guards from entering the die space. Both barrier guards must be in position to hold back the safety blocks.

For feeding or removing parts from the press, it is necessary to slot the barrier guards. The Service Manual furnished with the press gives instructions for safe operation and proper maintenance. Everyone connected with maintaining, operating, tooling, etc. should read and understand those instructions.

Standard stroke cylinders, control circuits and press components are carried in stock to provide delivery of the complete air press within two to three weeks.

Optional specifications such as special stroke or shut height; special valves, circuits and air cylinders; ability to operate in unusual surroundings are quoted on request, and delivery depends on complexity. In addition, special machining can be performed to customer specifications.

## Typical Optional Specifications Available

### Die Set

- Special die areas.
- Additional machining such as die pockets, mounting holes, etc.
- Special strokes or open heights.

### Operating Conditions

Air pressure:
50 to 125 PSI gage

Temperature range:
35 to 130˚ F.

Up to 180
strokes per minute.

Special air filters.

### Control Circuit

- Time delay.
- Speed control.
- Part positioning.
- Cycle counter.
- Unusual operating conditions.
- Ergonomic light touch buttons.
- Combination circuits.
- Dwell timer.
- Press stands.

### Air Cylinder

- Rod end cushions.

# Air Press Standard Control Circuits

| | OPERATION | | | | |
|---|---|---|---|---|---|
| **Type of Control Circuit** | Apply 2 hands to run buttons and hold | Apply 2 hands to run buttons, to start motion down then remove one or both hands | Apply 2 hands to run buttons, hold until bottom, remove one or both hands | Apply 1 hand to either button and hold | Apply 1 hand to either button with the other button tied down |
| **A** **Single Stroke Two-Hand Non-Tie Down** | Platen moves to bottom of stroke, applies pressure, and holds on bottom until buttons are released | Stops in downward motion, returns to top and stops | Applies pressure, returns to top of stroke and stops | Inoperative | Inoperative |
| **B** **Single Stroke Two-Hand Non-Tie Down Pressure Reversal** | Platen moves to bottom of stroke, applies pressure, returns to top of stroke and stops | Stops in downward motion, returns to top and stops | Applies pressure, returns to top of stroke and stops | Inoperative | Inoperative |
| **C** **Continuous** | "Start–Stop" Dual Selector Switches. Both switches are spring centered and must be moved to "Start" to operate the press. When press begins to operate, both switches can be released and they will return to the centered position. In operation, the platen will move to the bottom of the stroke, apply pressure and return to the top. This operating cycle will be repeated continuously. Moving either selector switch to "Stop" stops the downward motion of the platen and returns the platen to the top of the stroke. A front-positioned Emergency Stop Push Button will also stop the motion of the platen and return it to the top of the stroke. In the event of loss of the air supply while the press in in operation, the press will stop operating and the platen will fall to the bottom of the stroke. When the air supply returns, air pressure acting on the underside of the cylinder piston will move the platen to the top of the stroke and stop. The press must be restarted for it to continue operation. | | | | |

**NOTE:** Control circuits A and B are anti-repeat, meaning that each button must be released and again depressed at substantially the same time in order to initiate another stroke.

## Ordering Information

When ordering two post or four post air presses, it is necessary to specify: (1) Tonnage, (2) Die Set Size, (3) Stroke, (4) Open Height, (5) Control Circuit. When ordering toggle presses, just specify tonnage and control circuit. Regulator and filter are supplied as standard equipment. Quotation will be given for die area mounting holes, machined pockets, special strokes, special control circuits and other options upon request. Typical available options are listed on page 2.

## Safety

All two post presses are equipped with a clear plastic front barrier guard and a one-piece perforated metal barrier guard covering the sides and rear of the press. The press will only operate when the guards are in place and will stop and return to the top position of the stroke if a guard is removed while the press is running.

Four post air presses have a clear plastic guard on all four sides of the press. They are also equipped with safety blocks that swing in if the guards are removed.

Air Toggle Presses are equipped with a clear plastic guard and will only operate if the guards are in place. The press will stop and return to the top position of the stroke if the guard is removed while the press is running.

For maximum safety, keep the slots in the guards just large enough to accommodate the stock being fed into the press. Extra barrier guards are available which can be cut as needed to provide access holes to suit a particular part size or the size of stock being used.

An air filter and regulator unit is standard equipment on air presses to provide operation with clean air and minimum moisture content. The air filter unit functions automatically and keeps the press operating at maximum efficiency. *Do not* use an air line lubricator in any air line on these presses. The standard filter equipment on the press will remove detrimental particulate matter, including droplets of oil and water, down to 10 microns, from normal shop air lines. However, a coalescing type filter may be required, as optional equipment, if the supply air is particularly oily or wet.

# Danly Two Post Air Presses

Two post air presses consist of a Danly Precision Die Set operated by an air cylinder and controlled by the circuits shown on page 3. All presses are equipped with a logic control, circuit, operating valve, air filter-regulator combination with air pressure gauge. They are available in ¼, ½, ¾, 1 and 2 ton capacities and have die areas from 5¼" x 4¾" to 9¾" x 10½". Head end cushion is standard on all air cylinders.

**Continuous Run Circuit Strokes Per Minute**

| Press Tons | Min. Size Supply Pipe | Press Stroke | Standard Cubic Feet Of Air | Strokes Per Minute | Regulator Air Pressure Setting |
|---|---|---|---|---|---|
| ¼ | ½ | 3 | 31.3 | 180 | 80 |
| ½ | ½ | 3 | 32.1 | 120 | 80 |
| ¾ | ½ | 3 | 38.0 | 90 | 80 |
| 1 | ¾ | 3 | 54.6 | 90 | 80 |
| 2 | ¾ | 3 | 70.3 | 65 | 80 |

The speeds shown above are based on a 3" stroke and will vary in approximate inverse proportion with the stroke length up to a maximum of approximately twice the stroking rate shown. For example, if a 3/4 ton press is used with a 2" stroke cylinder, the speed would go up to about 135 SPM.

Certain control, piping and/or valving changes are possible for higher stroking rates than shown in chart. Although the speed of the punch holder during the stroke cannot be adjusted, flow control valves can be added at the cylinder ports as optional equipment. Punch holder speed, both up and down, can then be adjusted to suit. Timers can also be added to hold the punch holder down and/or up as desired. Inquiries relative to these special stroking conditions or special die spaces and special machining can be quoted upon request.

## Approximate Air Volume Required at 80 PSI

To find the standard cubic feet of free air per minute, use the following formula:

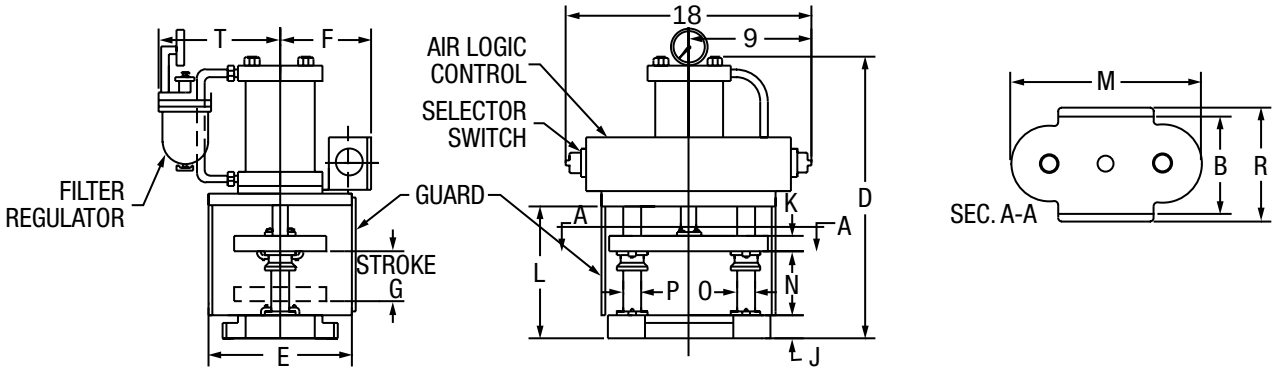
SCFM = "K" x SPM x Stroke
where SCFM = Standard cubic feet of free air required per minute
K = Constant for a given size air cylinder
SPM = Strokes per minute
Stroke = Cylinder stroke (inches)

**"K" Volume Constant**

| Tonnage | | | | |
|---|---|---|---|---|
| ¼ | ½ | ¾ | 1 | 2 |
| 0.058 | 0.089 | 0.141 | 0.203 | 0.366 |

Example: ½ ton unit 25 SPM 2" stroke
SCFM = K x 25 x 2
= .089 x 25 x 2 = 4.5

For other air pressures, multiply "K" by the ratio (air pressure used + 15) ÷ 95.




**Two Post Press Dimension Data**

| CAPACITY–TONS @ PSI | | | | | Danly Die Set | Die Space To Clear | | THICKNESS | | Post Diameters | | Overall Size Of Die Set | | N* Open Height | | G* Stroke | | L** | | D** Overall | | F | T | Top Plate Size | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ¼@ 60 PSI | ½@ 80 PSI | ¾@ 77 PSI | 1@ 71 PSI | 2@ 80 PSI | | A | B | Die Hldr. J | Punch Hldr. K | O | P | M | R | Std. | Max. | Std. | Max. | Std. | Max. | Std. | Max. | | | C | E |
| | | | | | 0604 | 5¼ | 4¾ | 1½ | 1½ | 1 | 1¼ | 10⅝ | 6⅝ | 5½ | 12½ | 3 | 10 | 10¼ | 17¼ | 19½ | 33½ | 6½ | 8¼ | 12½ | 7¼ |
| | | | | | 0607 | 5¼ | 7½ | | | | | 10⅝ | 9⅜ | | | | | | | 20 | 34 | 7 | 9 | 12½ | 9 |
| | | | | | 0808 | 7¾ | 8 | | | | | 13 | 10 | | | | | | | 20½ | 34½ | 7½ | 11¾ | 14 | 9 |
| | | | | | 1010 | 9¾ | 10½ | | | 1¼ | 1½ | 15⅝ | 12¼ | | | | | | | 20½ | 34½ | 8 | 12¾ | 16½ | 11½ |

White boxes indicate presses available
* Stroke lengths and open heights available in increments of 1".
** For 2 ton press, add 1" to "L" and "D" dimensions.

# Danly Four Post Air Presses

Danly Four Post Air Presses offer all the basic advantages of two post presses, but are made for operations requiring heavier tonnage, plus the additional stability of four post construction. Four post presses are made in capacities of 3 tons with 16" square die area and 5 tons with 19" square die area. They are operated by heavy duty industrial quality pneumatic control valves and are available with the control circuits shown in the chart on page 3. Custom controls and other optional specifications similar to the options listed on page 2 will be quoted upon request, with delivery depending on complexity.

| Nominal Press Capacity Ton & PSI | Maximum Speed For Various Stroke Lengths - SPM | | | |
|---|---|---|---|---|
| | 4" Stroke | 6" Stroke | 8" Stroke | 10" Stroke |
| 3 @ 80 | 33 | 29 | 25 | 20 |
| 5 @ 80 | 25 | 22 | 20 | 16 |

Above speeds are based on 1" supply line and 80 psi supply pressure. Although the speed of the punch holder during the stroke cannot be adjusted, flow control valves can be added at the cylinder ports as optional equipment. Punch holder speed, both up and down, can then be adjusted to suit. Timers can also be added to hold the punch holder down and/or up as desired. Inquiries relative to these special stroking conditions, as well as other options such as special die space and special machining, will be quoted on request.

## Approximate Air Volume Required at 80 PSI

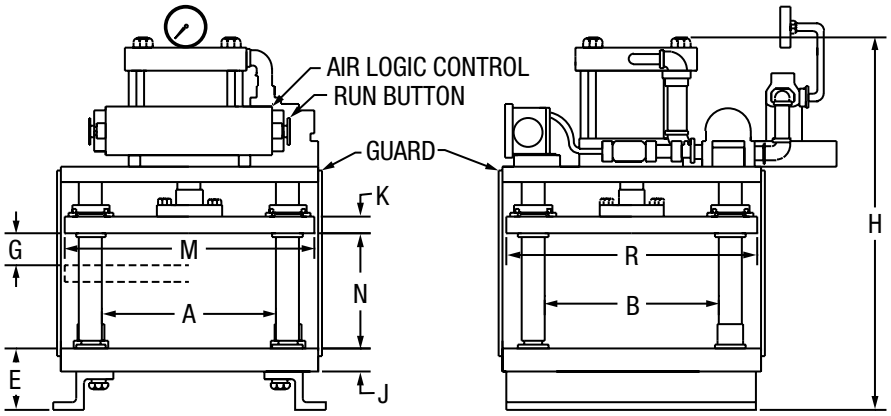
To find the standard cubic feet per minute, use the following formula:

SCFM = "K" x SPM x Stroke
Where SCFM = Standard cubic feet of free air required per minute
K = Constant for a given tonnage
SPM = Strokes per minute
Stroke = Cylinder stroke (inches)

| Press Tonnage | 3 | 5 |
|---|---|---|
| "K" Volume/Constant | .562 | .820 |

Example: 3 ton unit –15 SPM – 4" stroke

SCFM = "K" x 15 x 4
= .562 x 15 x 4
SCFM = 33.8




| Four Post Air Press Dimensions | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Press Capacity In Tons | Standard Die Space To Clear | | Thickness | | Standard Overall Die Set Size | | Open Height | Stroke | Overall | Base Height |
| | Left To Right | Front To Back | Die Holder | Punch Holder | Left To Right | Front To Back | | | | |
| | A | B | J | K | M | R | N | G | H | E |
| 3 @ 77 PSI | 16 | 16 | 2 | 1½ | 23 | 23 | 10 | 4 (Std) | 32 | 5¾ |
| | | | | | | | | 5 | 33 | |
| | | | | | | | | 6 | 34 | |
| | | | | | | | | 7 | 35 | |
| 5 @ 89 PSI | 19 | 19 | 2½ | 1¾ | 26 | 26 | 11 | 5 (Std) | 35 | 6¼ |
| | | | | | | | | 6 | 36 | |
| | | | | | | | | 7 | 37 | |
| | | | | | | | | 8 | 38 | |

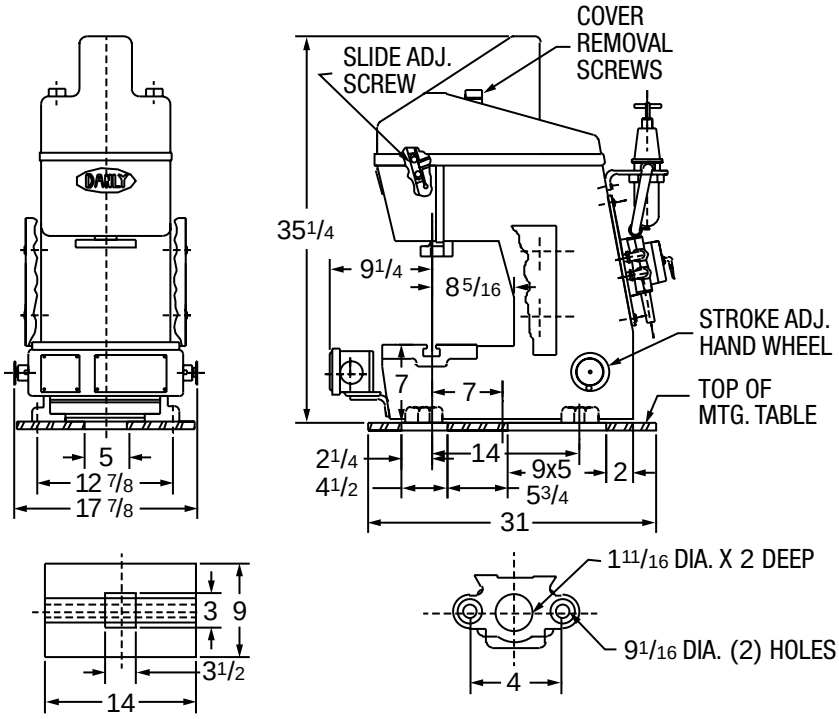
# Air Toggle Presses

Danly Air Toggle Presses are designed for high-tonnage production of metal and plastic parts involving piercing, forming, cutting, trimming, embossing, riveting, coining and assembly operations. They provide compact, reliable operation in 7 to 12 ton capacities with shutheight allowances ranging from 6⅝" to 8½". Yet, this power is generated through conventional shop air.

Danly's unique air toggle design multiplies shop air pressure many times to provide tonnage comparable to small hydraulic or mechanical presses costing much more. A convenient hand wheel lets you adjust the slide throughout the full range of the stroke, permitting selection of the shortest and safest stroke length, while maintaining high production rates.

The rugged construction, dependable operation and reliable safety features of Danly Air Toggle presses make them very competitive with small hydraulic or mechanical presses and at a much lower operating cost.

Danly's experienced staff is ready to provide any technical assistance you may need in selecting the air press or air toggle press that is right for your application. Each is backed by more than 75 years of leadership in the metalforming industry.




| Air Toggle Press Specifications | | | | |
|---|---|---|---|---|
| **Model** | **7 T** | **9 T** | **10 T** | **12 T** |
| Capacity —Tons 1/32 up @ 80 PSI*** | 7 | 9 | 10 | 12 |
| Stroke Range — Inches | ¼ - 3¼ | 3/16 - 2½ | ⅛ - 1⅞ | 1/16 - 1½ |
| Shutheight-Top of bed to bottom of slide Strokedown adjustment up — Inches | 6 - ⅝ | 7 - ⅜ | 7 - ¾ | 8 - ½ |
| Ram Adjustment — Inches | 1 | 1 | 1 | 1 |
| Approximate Weight — Lbs. | 720 | | | |

*** Note:** All models require clearance in table top for stroke adjusting screw extension.
**** Note:** Optional opening in table top for scrap or part drop thru.
***** Note:** Press capacity will change in relation to slide position above bottom of stroke.

## Air Consumption for Various Stroke Lengths

| Stroke Adjustment % Full Stroke | Actual Stroke Used Inches | | | | SCFM Per Stroke | Approx. Continuous Stroking Rate Per Min. | SCFM @ Continuous Stroking Rate |
|---|---|---|---|---|---|---|---|
| | 7T | 9T | 10T | 12T | | | |
| 25 | 3/16 | 5/8 | 1/2 | 3/8 | 0.57 | 90 | 51 |
| 50 | 1 - 5/8 | 1 - 1/4 | 15/16 | 3/4 | 0.80 | 75 | 60 |
| 75 | 2 - 7/16 | 1 - 7/8 | 1 - 7/16 | 1 - 1/8 | 0.97 | 65 | 63 |
| Full Stroke | 3 - 1/4 | 2 - 1/2 | 1 - 7/8 | 1 - 1/2 | 1.1 | 60 | 66 |

*Note: Total Air Consumption, standard cubic feet per minute from an 80 psi supply, (SCFM) equals value from chart multiplied by number of strokes per minute. Continuous stroking rates shown depend upon the quantity of air supplied to the press. Small and/or long connection lines between the press and plant air supply should be avoided.

## Press Capacity at Various Distances from Bottom

| Slide Position Above Bottom of Stroke – Inches | Approximate Capacity – Tons @ 80 PSI | | | |
|---|---|---|---|---|
| | 7T | 9T | 10T | 12T |
| 0.030 | *7.0 | *9.0 | *10.0 | *12.0 |
| 0.062 | 4.9 | 6.5 | 7.3 | 8.6 |
| 0.125 | 3.5 | 4.7 | 5.0 | 6.2 |
| 0.250 | 2.7 | 3.4 | 3.9 | 4.5 |
| 0.500 | 1.8 | 2.5 | 2.8 | 3.3 |
| 0.750 | 1.6 | 2.1 | 2.3 | – |
| 1.000 | 1.4 | 1.8 | – | – |
| 1.250 | 1.2 | 1.6 | – | – |
| 1.500 | 1.1 | – | – | – |

*Note: Valve shown is a maximum tonnage and should not be exceeded in any coining or bottoming operation.

*Die Sets and Diemakers' Supplies*

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