PACIFIC OFFERS

24 Hour 365 Day Lifetime Dependability

Steel Mill Ruggedness

Convenient Controls for Fast Set-Ups

Customized Designs Engineered for Your Job

Lifetime Micrometer Accuracy

Razor Sharp Bends with Polyurethane Pad Forming

Balanced Speeds for Maximum Production

Shockless Punching

Guard-All Safety

Versatility—A Dozen Machines for the Price of One
PROFITABLE METAL FORMING

In 1945 Pacific introduced the first accurate and dependable hydraulic press brake. Since then thousands of Pacific hydraulic brakes have been built which are in operation throughout the world. Pacific brakes are now being manufactured in two plants in the United States, as well as in plants in Belgium, Australia, and Canada.

Pacific offers a full range of brakes ranging in tonnage from 40 tons to 2000 tons and in length from four feet to thirty feet. A full line of accessories including dies are available and Pacific engineers stand ready to design a custom press to meet your requirements.

Pacific offers a rugged press that has been proven by years of experience to be simple, dependable, and accurate. Structural designs have been developed to increase strength and decrease deflections while keeping the total weight to a minimum. Pacific has developed and manufactures their own exclusive hydraulic valves that are shockless in operation, accurate, and dependable. These valves are one of the principal reasons for the superiority of Pacific presses.

One of the key machines in any metal working plant is the press brake. In today’s highly competitive market the plus features of the Pacific can be the difference between the shop operating at a profit or a loss.
24 HOUR 365 DAY LIFETIME DEPENDABILITY

With thousands of presses in operation throughout the world, the average Pacific has less than ten hours per year maintenance throughout its life. This dependability is the result of twenty years of engineering development and testing. Thus Pacific features:

Exclusive “shockless” Pacific valves eliminate pressure surges, leaks, and pipe breakage. All operating valves physically interchangeable and bolted together into two solid blocks without intermediate piping. Exclusive control valves integrally bolted to operating valves without intermediate tubing.

Low pressure hydraulic system powered by simple, dependable Vickers or Denison Vane Pumps. Hydraulic oil continuously filtered by micronic filter. All moving parts of hydraulic system continuously lubricated by hydraulic oil.

Simple electric controls consist of two standard relays, some microswitches and standard low current solenoids which minimize arcing of relay points. No complex electronic devices.

Hydraulic cylinders exert vertical straight line downward force: no crank action to cause forward and reverse thrusts to wear slides and ways. Exclusive “Life-time” cylinder packing custom molded to Pacific specifications.

Press frame fully protected against overload by quick reacting hydraulic relief valves.

STEEL MILL RUGGEDNESS

Pacific presses are “work-horses.” Hundreds have been in constant use 24 hours per day 7 days per week for ten years or more without any down time due to structural weakness or failure. This comes from Pacific featuring:

Extra deep ram, bed, and side housings that minimize stresses and deflections. Large radii at all stressed corners eliminate stress concentrations. All welds extra heavy, multi-pass and mechanically stress relieved to release internal strains.

Large cylinders operating at low pressure for maximum life. Cylinders of ductile iron with extra heavy walls keep stresses at minimum. Cylinder rods cast of close grained meehanite.

Hardened steel slides with full surface area minimize unit pressures. Extra long slides and/or upper ram guides provided on wide platen long stroke presses.
Profits are made by fast set-ups which enables the press to run and produce parts instead of being tied up by die changes. The Pacific features convenient controls for fast set-up.

All controls are grouped in a convenient control station at end of press. All stroke controls (micrometer depth stop, back travel stop, and speed change cam) are mounted on common stroke scale so they can be quickly adjusted over wide range and clamped in position. Precise depth of stroke can then be set within thousandths of an inch by micrometer head.

Press operated by foot pedal mounted at end of long electric cable enabling operator to run press from most convenient position.

Inching switch holds ram at bottom of stroke for simple setting of depth stop, back travel stop, and speed change cam.

Shut height may be adjusted over full range of stroke to match all dies.

Precision ram tilt device quickly sets knife die exactly parallel with vee die. Ram can be tilted for fade-out work.

Sequence switches set-up speed change cam so press will automatically transfer from one speed range to another.

In short run job shop work, parts can be formed by eye without set-up because the ram can move down to form the bend and stop without completing a predetermined stroke. By releasing the foot pedal the ram returns upward at any point in the stroke.

Indexing Die can be changed in seconds.

Compensating Bolster eliminates shimming of dies. Bolster can be positively crowned easily and quickly.

CUSTOMIZED DESIGNS ENGINEERED FOR YOUR JOB

With the experience of building thousands of presses which are in operation throughout the world it is probable that Pacific has already supplied a press to do your “special” job.

Pacific has supplied presses with platen widths up to 72” and presses in lengths up to 30 feet. Pacific presses are in operation with 36” deep throats and 54” strokes.

Special controls have been furnished for hot forming of titanium and magnesium. Hot platens have been designed up to 1800 degrees with electric heating as well as lower temperature steam and Dow-therm platens.

Highspeed presses have been equipped with coil cradles, straighteners and slide feeds.

The same engineers who have been pioneering for over 19 years are available to help solve your metal forming problem. Thus Pacific welcomes all jobs, the tough as well as the easy.
Pacific press brakes are built for precision forming. They maintain micrometer accuracy for their entire lifetime. This accuracy comes from:

Direct acting depth stop with integral micrometer head enables depth of stroke to be precisely set within one thousandths of an inch. No mitre gears, lead screws, bearings or remote counters to cause errors due to backlash, temperature expansion, strains inside housings, misadjustments, or cumulative errors.

Level control continuously monitors levelness of ram and automatically corrects when the ram moves out of level by thousandths of an inch.

Exclusive Pacific valves react instantly by pressure release rather than by secondary pilot operation.

Cylinders solidly wedged to side housings without any possibility of pin wear or excessive deflection of cantilevered arm extension.

Pre-stressed cylinder-rod connection eliminates all play in connection between cylinder rod and ram.

Center line loading; no deflections due to eccentric movements.

Exclusive “Compensating Bolsters” enable lower die to be precisely crowned to compensate for deflections of bed without shimming.

**RAZOR SHARP BENDS WITH POLYURETHANE PAD FORMING**

Polyurethane pad positively holds sheet against punch enabling sheet to hug sharp radius punches. No marking or coining of sheet. Minimum spring-back. Bends can be formed sharper with polyurethane than by coining.

Pacific presses are provided with quick reacting relief valves and are fully protected against accidental overload in Polyurethane forming.

Special decompression hydraulic circuits are available for gradual pressure release of pads without shock. These are recommended for very heavy pad forming.
Profits come from producing more parts per hour, not from the theoretical number of strokes per minute that a press will cycle in a "dry run." Pacific presses frequently outproduce competitive presses because they offer a balanced design with minimum handling time, minimum set-up time, and minimum press time. Thus Pacific offers:

Single, two, three, or four speed hydraulic systems with rapid advance and up to three different pressing speeds.

Special high speed power units designed for your specific job. These may run at five times normal speeds. These extreme speeds are possible because Pacific exclusive three stage level control acts in-
stantly and maintains level regardless of cycling rate, and because Pacific exclusive “shockless” valves open and close at high cycling rates without damaging shocks.

“Rapid Advance” and “Rapid Return” speed up non-productive portion of cycle. Slow pressing speed eliminates whip and tearing of metal.

Stroke length adjustable to match each job. Stroke can be shortened to eliminate all wasted movement, or lengthened to facilitate removal of formed part. By changing stroke length the strokes per minute can be adjusted to match each job enabling operator to catch every stroke for maximum production with minimum effort.

With freedom from whip, operator can hold sheet during forming and remove it as the ram returns upward. It is unnecessary to stop and hold the ram at top of stroke as the sheet is being removed. This permits continuous cycling which reduces operator fatigue and insures maximum production.

Smaller medium duty presses have variable pressing speed for maximum production without whip.

Turret stroke control enables press to form different angular bends in sequence and complete a complex part in a single handling. This eliminates storage and extra handling between operations. The part can be completed in a fraction of the time and cost required on mechanical brake.

Precise level control ideal for progressive dies set along the length of press. A complex part can be completed by passing through a series of dies located side by side.

**SHOCKLESS PUNCHING**

Pacific presses are designed for heavy punching. Many have been punching continuously for over 15 years with little or no maintenance due to shocks. Pacific presses are superior for punching because:

- Initial punching shock of punch meeting work cushioned by hydraulic oil. Pressure on punch builds up smoothly and gradually protecting sharp edges of punch.

- Break through shock cushioned by high pressure oil on top and bottom of cylinder. Hydraulic system designed to absorb break-through shock. Pumps protected against shock.

- “Shockless” Pacific valves eliminate all hydraulic shock on ram reversal in high speed punching.

**GUARD-ALL SAFETY**

One obvious advantage of the hydraulic press brake is that it is safe. However Pacific has designed special controls to make a safe machine even safer.

Press is fully protected against overload and jamming. It is impossible to jam or “lock” a Pacific. Any trained or untrained operator can safely run this press.

“Anti-whip” circuit provides additional slow speed to eliminate all whipping of large sheets or plates.

In emergency, ram stops instantly by releasing foot pedal. Tonnage control protects light dies against overload and breakage.

Multiple foot pedals or palm buttons available if press is to be operated by two or more operators.

Electric foot pedal operates at 110 volts for safety.
Job shops require versatile machines that can be quickly set up to handle any job that may come into the shop. The Pacific fits perfectly and is therefore widely used in job shops throughout the world.

It has an adjustable length of stroke and will handle small parts requiring short strokes and also handle deep boxes requiring long strokes. The ram can be tilted for fade-out work. Dies can be placed anywhere along the full length of the platen. It is accurate enough for air bending and can therefore form any angular bend with a single die. It is fully protected against jamming and overload and can thus easily be used with bottoming dies. It can be cycled as fast as it can ordinarily be fed and is therefore good for production runs.
Standard speeds of Pacific Presses are selected as a compromise between high production, safety, and freedom from whip. However high speed power units can be provided to give speeds up to five times standard speeds. These are usually recommended for automatic feeds, for jobs that require long advance strokes or for special single purpose presses in high production.
Pacific Press Brakes are frequently equipped with wide platens and cushion cylinders and serve as a double or triple action press. Frequently the upper platen is removable so the press can be used as a press brake for bending sheets. Extra long slide ways are usually supplied with wide platens. The multiple cushions may be used to draw very large sections or used in pairs for progressive dies.

A 500 ton Pacific with platens 72” wide by 20’ long for deep drawing automotive parts.

Blanking, Drawing, and Hemming refrigerator doors in progressive dies.

A difficult part that can only be drawn with hydraulic cushions.
A six station progressive die forming jet engine parts.

THE PACIFIC SETUP WITH PROGRESSIVE DIES

Pacific's exclusive hydro-electric level control holds the ram perfectly level as the load is transferred from one end of the press to the other. Thus a series of dies can be placed in line along the platen and a part can be passed from die to die and can be completed in a single handling on one press with a single operator. The press can also be set up with several operators and it will form a completed piece in every stroke.

Two operators complete a part with every stroke.

Two progressive draws formed in a furnace part by a single operator in a single press.
A 600 ton press on test with an automatic coil stock feed, a stock straightener, and air feed and progressive dies.

PACIFIC EQUIPPED WITH AUTOMATIC FEEDS

Pacific's exclusive Hydro-electric Level Control is ideal for progressive dies because the ram remains level regardless of the position of the load along the platen and the high speed valves are shockless at high cycling speeds. The combination is ideal for automatic feeds from a coil cradle through straightening rolls. Deep throats and wide platens are available for wide strips. Cushion cylinders may be mounted above or below the platens.

Drawing aluminum shingles with progressive dies at the rate of 25 shingles per minute.
Polyurethane Pads have recently been introduced as universal female dies. They cause the metal to "hug" the punch because the metal is wrapped around the punch under pressure. Thus the sharpness of bend depends upon the sharpness of the punch. In contrast in forming with steel dies the metal leaves the punch and forms a relatively large radius which must be sharpened by coining which marks and weakens the metal.

It requires considerable pressure to displace the polyurethane in addition to the pressure to bend the metal. Thus forming tonnages are higher than in air bending, but not as high as coining tonnages. Polyurethane does not mark the material and automatically compensates for any variation in gauge of the material.

![Typical tonnage chart for polyurethane forming.](image-url)
Pacific Press Brakes are used in virtually every aircraft plant in the United States. Aircraft work usually requires extremely accurate air-bending. Production runs are short and the press must be set up quickly. The finished parts must be free from marks. Frequently exotic metals like Titanium must be formed with hot dies which requires special controls. Many parts are stretched. All of these jobs are done on Pacific presses.

Precision air bending in a major aircraft plant.

Stretching leading edges of wings on 28' long Pacific.

Hot forming on Titanium with automatic controls.

Stretching extruded sections in a 750 ton Pacific.
Pacific Medium Duty Press Brakes have been specially developed for light sheet metal work. In common with all hydraulic brakes they feature a long stroke which can be shortened to match each job. They are fully protected against overload and jamming.

These presses are unique in that they have a very rapid advance speed with an automatic transfer to a slow pressing speed followed by a rapid return speed. The pressing speed is variable and can quickly be set to the optimum speed for each job. Thus large sheets can be formed without whip while smaller pieces can be formed at extremely high speeds.

These presses are extremely accurate and can be used for accurate air-bending or bottoming. They can be provided with an exclusive “Compensating” Bolster that is provided with self-contained wedges so that it can be crownd to compensate for deflections of the bed and ram of the press.

Pacific Medium Duty Press Brakes may also be provided with exclusive “Indexing Dies.” These hexagonal dies have six different die openings which may be indexed from opening to opening in seconds.
Model 500-18
500 tons
10 feet overall
16' 5" between side housings
12" stroke
22" daylight
Pacific Press Brakes are provided with a self-contained hydraulic power unit equipped with one or more hydraulic pumps. Oil can be diverted from the main cylinders and used to actuate special cylinders. Thus horizontal, vertical, or angular forces are readily available without resorting to special cams. This flexibility has enabled Pacific to build some extremely complex dies that would be very difficult without the Hydro-cam principal.
A Pacific Press Brake is unexcelled in a heavy plate shop. It has four major advantages: (1) It cannot be overloaded, (2) full tonnage is available at any point in the long power stroke, (3) the stroke is as long or short as the job requires, it is not fixed by a crank, (4) the upper die can be safely bottomed in the lower die.

**No Overloading:** The Pacific cannot be overloaded and therefore the operator may safely try any job. Bending tonnages of heavy alloy plates are difficult to estimate. However, with the Pacific, the operator may try to bend a plate and if its requirement is beyond the capacity of the press, it will stop and nothing will be damaged. Releasing the foot pedal will return the ram to its upper position.

**Long Power Stroke:** The fact that full tonnage is available throughout the full stroke means that there is practically no limit to the thickness of plate that can be formed or straightened on a Pacific. The required bending tonnage depends on the opening of the lower die. This tonnage is greatly reduced as die opening is increased. In right angle bending the depth of the bend will be about one half of the die opening depending on the punch radius. Mechanical brakes have a limited fixed stroke, usually from 3” to 6”. Due to the crank action, full tonnage is available only during the lower part of the stroke. This means that the Vee opening and bending capacity are greatly limited.

The Pacific, in contrast, can be obtained with stroke lengths of from 10” to 60”. Thus wide opening, deep dies may be used and the Pacific can make bends which greatly exceed the nominal rating of the press.
No Fixed Cycle: The stroke of a Pacific is infinitely adjustable as opposed to the fixed stroke of a mechanical press. If one part is to be formed the ram may be inched down by eye until the bend has been made and then released to return to its back travel stop and the part is finished without setting the stops. If a number of parts are to be formed the ram can be inched down to form the first part and stopped. The depth stop and the back travel stop can then be moved into position and set. The final adjustment of the depth stop is made by adjusting the micrometer head.

With a mechanical press, the ram, and its top and bottom dies must be very carefully adjusted to properly form the part without coining or overbending. The ram must complete its crank cycle every stroke.

Dies can be safely bottomed: The hydraulic system of the Pacific includes an automatic, accurate relief valve to limit the bottoming force. Thus it is possible to “bottom” the Pacific time after time at full tonnage. This eliminates any possibility of jamming or “locking.” It makes the press safe for use by relatively unskilled operators.
Pacific Hydraulic Presses are strongly recommended for heavy punching because they are designed to absorb most of the shocks encountered in this type of work. The punch hesitates and builds up pressure on meeting the work and then drives through. This cushioning action protects the sharp edges of the punch and die.

There is also a severe break-through shock after punching. The Pacific hydraulic system is designed to absorb most of this shock. Thus the frame of the press need not absorb it as abruptly as with a mechanical press.

Punching 260 holes in aluminum siding in a single stroke.

Punching square holes in 1" Jalloy scraper blades.
Blanking on a 200 ton Pacific.

Punching instrument mounting holes on the horn while other operators form instrument cabinet sides.

Punching and notching with wide platens.

A typical Steel Rule Die used in a Pacific.
The Pacific can be equipped with a shearing attachment. This is a self-contained die set that can be placed in the press in less than ten minutes. The brake will then shear heavy plate fully as well as a conventional plate shear at a fraction of the cost. This attachment is excellent for a small shop that cannot keep either machine busy full time but that requires both a shear and a brake.

A Pacific Shearing Attachment designed to shear 1/2" mild steel plate four feet long.

Rear view of 1/2" x 6' attachment.

A 1/2" x 10' shearing attachment.
Pacifc's exclusive Pac-o-metric controls enable the ram to be stopped within a few thousandths of an inch. Force may be applied at any point along the full length of the ram. Thus these presses are frequently used for precision straightening. The plate must be precisely overbent so it will spring back straight.

600 Ton Pacific straightening sculptured aircraft wings. These wings are very expensive because the ribs are milled from a solid plate. They could be ruined with an inaccurate press.
The Pacific can be the “work-horse” of a tank shop. Its principal function is to preform edges prior to rolling. However it can form small pipes or tanks by “U-ing” and “O-ing.” It can form half cylinders of heavy plate by progressive bumping. It can be used for bumping heads.
Two or more Pacific Press Brakes may be lined up in tandem and operated as a single press of double tonnage and double length. They may also be used as two separate brakes of half lengths if they are forming shorter pieces. This is the simplest and least expensive way of providing press brakes in lengths of 30 feet and larger.

These tandem presses are equipped with automatic turrets for forming channels with three different angular bends in a single handling.

These tandem presses 35 feet long are set up with double deck dies for forming reverse bends without flipping the piece over.
Frequently customers purchase standard press brakes which are available for quick shipment, at moderate prices. However, most Pacifics are built to order to suit each customers' particular requirements. The following features cannot be changed in the field and should be considered at the time of purchase.

**STROKE LENGTH AND SHUT HEIGHT:** Standard stroke lengths are 10” and 12”. However, longer strokes of 18”, 24”, 30” and longer are available. Standard shut heights are as shown in the table on page 36 but can be altered to suit your requirements.

**THROAT DEPTHS:** Standard throat depths have been selected to suit most applications. Deeper throats can be supplied to suit special conditions. In selecting a deep throat consideration should be given to throat height to provide clearance as the sheet moves up in the throat. The photograph shows a press with a 36” deep throat.

**PLATENS:** Wide platens greatly increase the versatility of a Pacific as they permit punching or blanking of sheets, deep drawing, rubber pad work and any other work requiring a wide area. Upper platens are usually removable while the lower platens may be either fixed or removable, (see page 37). If platens may be required later, the ram and bend plates should be machined and drilled at the factory. Additional shut height should be included to compensate for the thickness of the platens. Longer slideways are frequently recommended for wide platen presses.

**TEE SLOTS:** If fixed platens are being supplied, it is well to consider T-slots for the securing of die sets, etc. Both longitudinal as well as cross-slots are available.
CUSHION CYLINDERS: Deep drawing may require cushion cylinders to maintain draw ring pressure or to serve as knockouts. If these are not required immediately but may be used later, platforms should be supplied at the time of manufacture for subsequent mounting of these cylinders. We would be glad to make recommendations.

HORNS: A horn at either or both ends of the press is required for forming boxes, hoops and similar work or for extending the length of the press. Horns are available in 12”, 24”, or 36” lengths.

BOX TYPE CONSTRUCTION: The feature consists of double bed plate construction with a gap between the two plates. This gap, with suitable openings in the lower platen, provides for the discharge of punching slugs. In some cases the platen may be provided with a full length slot. A wider gap permits cushion cylinders to be mounted on the centerline of the press.

UPPER RAM GUIDES: In the case of extra long presses with long strokes requiring deep rams, it is desirable to provide upper ram guides to give additional guiding length.

LONGER SLIDEWAYS: If the press is to be equipped with very wide platens it is desirable to provide extra long slideways for additional support.

FLUSH FLOOR MOUNTING: Certain smaller presses are naturally flush floor design and do not have “tongues” that extend into the floor. Larger presses up thru 200 tons 12’ can be supplied with heavy bed plates which do not require a pit in the floor. Consult the factory on this matter.
The following are valuable production features which may be included at the time of purchase or added at a later date with little or no mounting effort.

**BACK GAUGES:** These are used to speed up forming and to insure repetitive accuracy. Universal back gauges for use on the front or rear of the lower platen are standard equipment. Front operated back gauges are available on order. The use of these latter reduces set-up time as they can be set from the front of the press quickly. Heavy duty front operated back gauges are available for heavy plate forming.

**MULTIPLE SPEEDS:** The standard press has a single pressing and a return speed. By the addition of a cam on the stroke scale and additional valving, the press can be provided with rapid advance, which automatically transfers to a normal pressing speed just prior to the knife die meeting the work. Three speed power units are available with a very high rapid advance speed and a choice of the pressing speeds.

**HIGH SPEED POWER UNITS:** Presses can be supplied with extra large pumps which provide much faster advance, pressing and return speeds. Refer to the factory for these special power units.

**PRECISION CONTROL:** In air-bending it is very important that the press repeat its depth of stroke position time after time. The standard Pacific is designed for accurate air-bending with commercial material. Some shops work with specially selected materials held to close tolerances in both thickness and tensile strength. For this type of work we recommend a "Precision Control." Precision controls are frequently used in aircraft and space industries. The precision control includes an "anti-whip" slow speed as well as precision accuracy.

**"ANTI-WHIP" SLOW SPEED:** Wide sheets or plates may whip upward dangerously and form a reverse bend if the ram moves down too rapidly. To completely eliminate the whipping we recommend an "anti-whip" circuit.
TONNAGE CONTROL: Presses are frequently purchased to do the heaviest job that is expected. Most of the jobs will require only a fraction of the maximum available tonnage. For these jobs a tonnage control system is recommended to limit the tonnage to match the job and the dies. Marking of the work can be minimized and lighter, less expensive dies can be used.

TURRET DEPTH STOPS: Certain parts to be formed may require two or more different angular bends in the same sheet. The Pacific turret depth stop is available with either four or six micrometer heads which can be set to produce several different angular bends in sequence. The turret is usually mounted on the stroke adjusting scale. A portable turret is also available which is magnetically mounted on the ram. Normally these are manually operated but they can be electrically operated to follow a regular sequence automatically.

PALM BUTTONS AND/OR DUAL FOOTSWITCHES: Both of these systems are used as safety measures. Palm buttons are used in pairs so that an operator must use both hands to advance the press downward. If more than one operator is required, additional sets of buttons are provided for each man, thus insuring that hands are out of danger. If any button is released, the ram stops. If all buttons are released the ram returns to its top position. Dual footswitches will serve the same purpose provided the are placed well away from the press. Both systems are available with locks and keys to lock out one or more buttons if they are not being used.

OIL COOLER: If high ambient conditions may prevail it is recommended that a heat exchanger be included or provision made to add one at a later date. Oil coolers are also recommended for high speed power unit used in continuous production.

TONNAGE INDICATORS: These are dial indicators reading in tons and indicating the tonnage developed by each cylinder. The total output of the press is the sum of the two readings. They are valuable for checking tonnages for air bending and also may be used to check the leveling of the ram. With a knife and v-die in place and the dies bottomed, the two indicators should show approximately equal readings.

CENTRALIZED LUBRICATION: A "one shot" lubrication system is available to lubricate all necessary points from a central station. This saves time and insures that all points are properly lubricated.

A fully automatic lubrication system is available which automatically lubricates the press once per day or shift. The only maintenance required is to check the supply tank infrequently.

MAGNETIC STARTERS: Pacific is prepared to supply and mount wire magnetic starters, and/or fused disconnect switches.
Pacific Straight Side Presses are available in sizes from 100 to 2000 tons and in lengths varying from six feet to thirty feet. They are of "Two Point" design and feature Pacific's patented "Load Equalizer," which enables the load to be concentrated at any position along the length of the press. Thus they are ideal for progressive dies. Cushions are available both below and above the main platens.

(Request Bulletin No. 502)

SINGLE CYLINDER FOUR POST PRESSES

Pacific Four Post Presses are available in sizes ranging from 50 to 750 tons. They are of single point design for jobs which are centered front to back and side to side. They feature "Pac-o-metric" controls enabling the ram to repeat depth of stroke within thousandths of an inch. They are designed for heavy punching, drawing, straightening, blanking, etc. High speed power packs are available for special high production installations.

These Straight Side Hydraulic Presses are designed for single point applications in which the load is centered both front to back and left to right. They feature hardened steel slides, box type rams, and high speed hydraulic power packs. Cushions are also available.
Pacific Plate Shears are available in sizes ranging from 1/4" to 2" Mild Steel and in lengths ranging from four to thirty feet. Two series are available; Model "HD" shears which are designed for heavy duty, steel mill applications and Model "A" which are designed for standard duty industrial use.

These shears feature:

Adjustable Rake Angle; the rake angle of the upper knife may be increased for shearing heavy plate, or flattened to eliminate bow in cutting narrow strips.

Adjustable Cycling Speeds; the cycling speed may be adjusted to match "rhythm" of the operator.

Adjustable Knife Clearance; the knife clearance may easily be adjusted for shearing thin sheets or heavy plates.

Full Protection Against Overload; the shear frame cannot be damaged by overloading because of Pacific's quick acting hydraulic relief valves.

(Request Bulletin No. 501)

Pacific builds a complete range of Bulldozers ranging in size from 50 to 750 tons. These can be used for straightening, for ring forming, for hot work, or for any work that can best be handled by a horizontal press.

(Request Bulletin No. 506)

Pacific offers a complete line of "C" Frame Presses ranging from 50 to 750 tons. These feature "Pac-o-metric" precision controls which enable the ram to repeat depth of stroke within thousandths of an inch. Custom presses are available to meet any requirements.

(Request Bulletin No. 504)

Pacific "Tilt-A-Presses" are available in sizes ranging from 50 to 750 tons. These presses are very versatile; they may be set upright for small work that can best be handled by a regular "C" Frame Press or they can be quickly tilted on their back for Bulldozer type work. They can also be tilted at an angle for gravity discharge.

(Request Bulletin No. 503)
**SPECIFICATIONS**

Pacific Hydraulic Press Brakes

CAPACITIES: 100 • 150 • 200 • 300 • 400 • 500 • 600 • 750 • 1000 • 1250 • 1500 • 2000 tons and larger

**LENGTHS:** 6 feet to 30 feet

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**STANDARD DIMENSION TABLE**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Braking Capacity</th>
<th>Die Opening</th>
<th>Std. Die Surface</th>
<th>Dimensions</th>
<th>Stroke</th>
<th>Motor(s) HP</th>
<th>Approx. Shipping Weight</th>
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<tbody>
<tr>
<td>100-4</td>
<td>1/4 x 5</td>
<td>2&quot;</td>
<td>6&quot;</td>
<td>6-1/8&quot;</td>
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<td>1-1/2&quot; x 20</td>
<td>7-1/2&quot;</td>
<td>6-1/2&quot;</td>
<td>7-1/2&quot;</td>
<td>18-1/2</td>
<td>15,000</td>
<td>42,000</td>
</tr>
<tr>
<td>200-12</td>
<td>2&quot; x 24</td>
<td>8-1/4&quot;</td>
<td>6-1/4&quot;</td>
<td>7-1/4&quot;</td>
<td>20-3/4</td>
<td>15,000</td>
<td>48,000</td>
</tr>
<tr>
<td>250-10</td>
<td>2-1/2&quot; x 30</td>
<td>9-1/2&quot;</td>
<td>6-1/2&quot;</td>
<td>7-1/2&quot;</td>
<td>22-1/2</td>
<td>15,000</td>
<td>54,000</td>
</tr>
<tr>
<td>250-12</td>
<td>3&quot; x 35</td>
<td>10-1/4&quot;</td>
<td>6-1/4&quot;</td>
<td>7-1/4&quot;</td>
<td>24-3/4</td>
<td>15,000</td>
<td>60,000</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions and specifications for Medium Duty Hydraulic Press Brakes are shown in separate catalog covering Medium Duty Hydraulic Press Brakes.
### AIR BENDING PRESSURES REQUIRED PER LINEAR FOOT

Pressure in Tons for Mild Steel (60,000 PSI Ult. Tensile Strength) on Standard Dies.

<table>
<thead>
<tr>
<th>Thickness of Metal</th>
<th>Inch</th>
<th>Width of Yee Die Opening</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/4</td>
<td>1/8</td>
</tr>
<tr>
<td>20</td>
<td>.036</td>
<td>3.1</td>
</tr>
<tr>
<td>18</td>
<td>.048</td>
<td>5.3</td>
</tr>
<tr>
<td>16</td>
<td>.060</td>
<td>9.6</td>
</tr>
<tr>
<td>14</td>
<td>.075</td>
<td>11.9</td>
</tr>
<tr>
<td>12</td>
<td>.105</td>
<td>16.7</td>
</tr>
<tr>
<td>11</td>
<td>.120</td>
<td>19.2</td>
</tr>
<tr>
<td>10</td>
<td>.135</td>
<td>18.6</td>
</tr>
<tr>
<td>3/16</td>
<td>.188</td>
<td>27.4</td>
</tr>
<tr>
<td>1/4</td>
<td>.250</td>
<td>39.4</td>
</tr>
<tr>
<td>5/16</td>
<td>.313</td>
<td>50.4</td>
</tr>
<tr>
<td>3/8</td>
<td>.375</td>
<td>61.6</td>
</tr>
<tr>
<td>7/16</td>
<td>.438</td>
<td>61.7</td>
</tr>
<tr>
<td>1/2</td>
<td>.500</td>
<td>85.2</td>
</tr>
<tr>
<td>5/8</td>
<td>.625</td>
<td>110.0</td>
</tr>
<tr>
<td>3/4</td>
<td>.750</td>
<td>138.0</td>
</tr>
<tr>
<td>7/8</td>
<td>.875</td>
<td>165.0</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1.000</td>
<td>197.0</td>
</tr>
</tbody>
</table>

The tonnages shown in bold face type are for Yee Die openings of 8 times the thickness of the metal.

With an 8 to 1 die ratio the inside radius of a right angle bend is approximately equal to the thickness of the material.

Bending pressures for other metals, as compared to mild steel on chart, are as follows: Soft brass — 50% of pressure shown; soft aluminum — 50% of pressure shown; aluminum alloys heat-treatment — same as steel; stainless steel — 50% more than steel; chrome molybdenum — 100% more than steel.

All of the above bending pressures are nominal and represent average conditions. These values are dependent upon the radii of the dies, the yield strength of the material, the temper of the material, the direction of the rolling strain, etc. Therefore a safety factor of at least 20% should be provided in selecting a press for a given job.

**IMPORTANT:** When requesting quotations or additional information, please state the length of work, thickness of material and maximum radius allowable. Careful study of these factors is necessary to properly select the correct machine for a particular job.

### PUNCHING PRESSURES REQUIRED

Pressure in Tons per Punch with Mild Steel (55,000 to 60,000 PSI Ult. Tensile Strength).

<table>
<thead>
<tr>
<th>Thickness of Metal</th>
<th>1/8&quot;</th>
<th>3/32&quot;</th>
<th>1/32&quot;</th>
<th>5/32&quot;</th>
<th>7/32&quot;</th>
<th>1/16&quot;</th>
<th>9/32&quot;</th>
<th>1/8&quot;</th>
<th>3/16&quot;</th>
<th>5/16&quot;</th>
<th>7/16&quot;</th>
<th>1/4&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>.036</td>
<td>.53</td>
<td>.71</td>
<td>.88</td>
<td>1.1</td>
<td>1.2</td>
<td>1.4</td>
<td>1.6</td>
<td>1.8</td>
<td>2.1</td>
<td>2.5</td>
<td>2.8</td>
</tr>
<tr>
<td>18</td>
<td>.048</td>
<td>.71</td>
<td>.94</td>
<td>1.2</td>
<td>1.4</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>2.4</td>
<td>2.6</td>
<td>2.8</td>
<td>3.1</td>
</tr>
<tr>
<td>16</td>
<td>.060</td>
<td>.89</td>
<td>1.1</td>
<td>1.5</td>
<td>1.8</td>
<td>2.1</td>
<td>2.4</td>
<td>2.7</td>
<td>2.9</td>
<td>3.2</td>
<td>3.5</td>
<td>3.8</td>
</tr>
<tr>
<td>14</td>
<td>.075</td>
<td>1.1</td>
<td>1.5</td>
<td>1.9</td>
<td>2.2</td>
<td>2.6</td>
<td>2.9</td>
<td>3.3</td>
<td>3.7</td>
<td>4.1</td>
<td>4.4</td>
<td>4.7</td>
</tr>
<tr>
<td>12</td>
<td>.105</td>
<td>1.6</td>
<td>2.1</td>
<td>2.6</td>
<td>3.1</td>
<td>3.6</td>
<td>4.1</td>
<td>4.7</td>
<td>5.2</td>
<td>5.7</td>
<td>6.2</td>
<td>6.7</td>
</tr>
<tr>
<td>11</td>
<td>.120</td>
<td>1.2</td>
<td>2.4</td>
<td>3.0</td>
<td>3.5</td>
<td>4.1</td>
<td>4.7</td>
<td>5.3</td>
<td>5.9</td>
<td>6.5</td>
<td>7.1</td>
<td>7.7</td>
</tr>
<tr>
<td>10</td>
<td>.135</td>
<td>2.0</td>
<td>2.7</td>
<td>3.3</td>
<td>4.0</td>
<td>4.6</td>
<td>5.3</td>
<td>6.0</td>
<td>6.6</td>
<td>7.3</td>
<td>8.0</td>
<td>8.6</td>
</tr>
<tr>
<td>9</td>
<td>.187</td>
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<td>3.7</td>
<td>4.6</td>
<td>5.5</td>
<td>6.5</td>
<td>7.4</td>
<td>8.3</td>
<td>9.2</td>
<td>10.2</td>
<td>11.1</td>
<td>12.0</td>
</tr>
<tr>
<td>7/8</td>
<td>.250</td>
<td>4.9</td>
<td>6.2</td>
<td>7.4</td>
<td>8.6</td>
<td>9.8</td>
<td>11.0</td>
<td>12.3</td>
<td>15.5</td>
<td>16.3</td>
<td>18.0</td>
<td>20.0</td>
</tr>
<tr>
<td>1/2</td>
<td>.375</td>
<td>11.1</td>
<td>13.0</td>
<td>14.8</td>
<td>16.6</td>
<td>18.5</td>
<td>20.3</td>
<td>22.1</td>
<td>24.0</td>
<td>25.6</td>
<td>28.0</td>
<td>30.0</td>
</tr>
<tr>
<td>5/8</td>
<td>.500</td>
<td>17.2</td>
<td>19.7</td>
<td>22.1</td>
<td>24.6</td>
<td>27.1</td>
<td>29.5</td>
<td>32.0</td>
<td>34.4</td>
<td>36.9</td>
<td>39.4</td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>.750</td>
<td>30.8</td>
<td>33.8</td>
<td>36.9</td>
<td>40.0</td>
<td>43.0</td>
<td>46.1</td>
<td>49.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For smooth trouble-free operation, the punching tonnage should not exceed two-thirds of the rated capacity of the press.

In multiple punching set-ups, the punches should be stepped by setting punches at different levels. If the punches are on two levels, the punching pressure required may be divided by two. If they are set on three levels, the pressure may be divided by three.

**IMPORTANT:** When requesting quotations or additional information, please state the length of work, thickness of material and maximum radius allowable. Careful study of these factors is necessary to properly select the correct machine for a particular job.

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