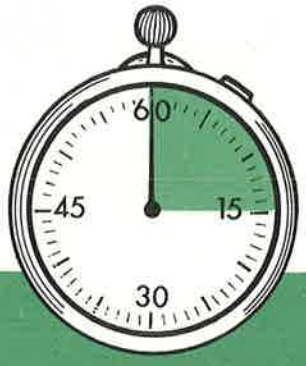
for peak efficiency and safety on sheet forming and punching operations

25 and 35 Ton Ram Adjusted
Six and Eight Foot Bed

HYDRAULIC PRESS BRAKES

With

- STROKE ADJUSTMENT
- DUAL SPEED OPERATING CYCLE WITH POWER WORK STROKE



In Less Than 15 Seconds...

the operator can pre-set the stroke of a Di-Acro Hydra-Power Press Brake to the narrowest possible opening for each job. Because of this Stroke Adjustment ability of a hydraulically operated Press Brake, there is less chance for the operator to get his hands in the Press and also the rate of strokes per minute is increased as the stroke or opening is decreased. More sheets can be handled safer, faster.

In addition, the new 25 and 35 ton Series Di-Acro Press Brakes have a Dual Speed Operating Cycle with Power Work Stroke which automatically provides two speeds to the ram for each stroke. The ram runs down at fast speed to a pre-set point just above the work, then goes through the work part of the stroke in slow speed *with full pressure.* The return part of the stroke is made at fast speed. Again, this kind of performance adds up to maximum efficiency and safety on all jobs. On forming operations, the dangerous whipping of sheet materials with resultant costly kinking can be eliminated.

Whenever it is desirable to change only the length of stroke, the ram and die settings need not be adjusted *because the ram always works off the bottom of the stroke* . . . full pressure is assured at all times.

di-acro PRECISION METALWORKING EQUIPMENT

Stroke Adjustment

how it works

Dual Speed Operating Cycle

with power work stroke

how it works

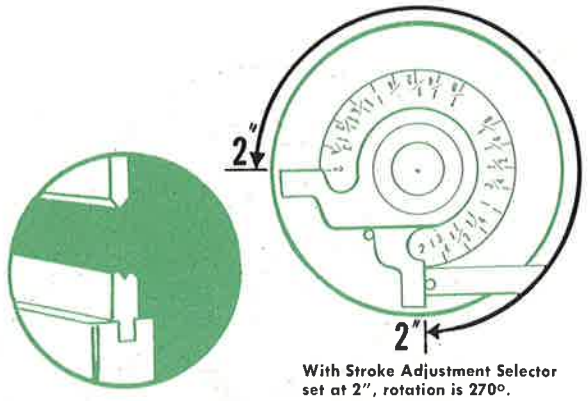
Speed Control

...when to use "fast, slow and dual" position

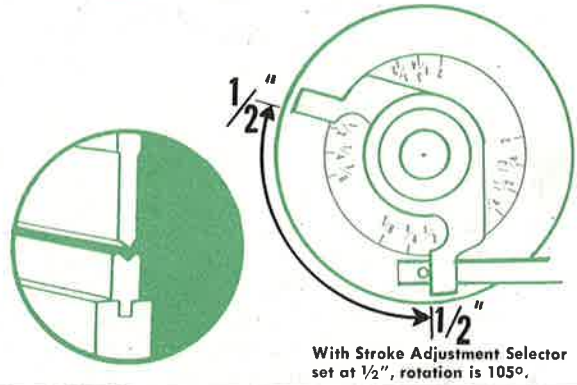
A new and different means of employing power through a combination hydraulic-mechanical system is employed in the 25 and 35 ton Press Brakes. Basic source of power is through hydraulics. Two oscillating rotary type cylinders of different sizes are mounted at the top of the machine on the same shaft. The shaft is mechanically linked to the ram through eccentrics on each end of the shaft. When force is applied to these cylinders, the resulting pressure transmitted to the work by the ram *is always equal.*

Maximum rotation of both cylinders is 270° in any one direction. The cylinders *do not* go through a 360° rotation. On one rotation of the cylinders the ram travels through one complete stroke (at maximum two inch opening). On the return cycle another complete stroke is made. Since the rotation of the cylinders controls the length of stroke, mechanical stops can be quickly pre-set to stop and reverse the ram at desired positions.

If less than the maximum opening of two inches is required for a given job, the number of strokes per minute will be increased even though the ram speed is the same, because on a narrower opening the rotation of the cylinders is not the full 270°. For example, on a half inch opening the approximate rotation of the cylinders is 105°. Another way of saying the same thing is that a greater number of strokes per minute is obtained on shorter openings because the ram travels a lesser distance on each stroke. Net result — more strokes per minute.



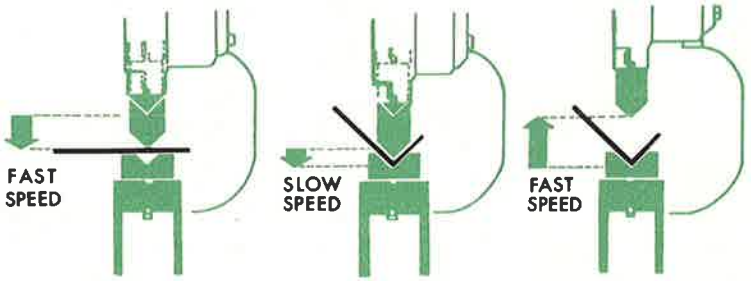
With Stroke Adjustment Selector set at 2", rotation is 270°.



With Stroke Adjustment Selector set at ½", rotation is 105°.

Standard operating cycle on a complete stroke with 25 and 35 ton series Brakes is fast speed approach to the work — slow speed during the work part of the stroke — high speed return. The smaller of the two rotary cylinders brings the ram down to a preset point just above the work at a rate of 38* strokes per minute (when the stroke is set at the maximum two inch opening). Then through a unique valving arrangement, the valve to the larger cylinder is actuated and this larger cylinder working in coordination with the smaller cylinder provides maximum power during the Work Stroke. The return stroke is made at fast speed. A rate of twelve strokes per minute* (based on the maximum two inch opening), is obtained throughout the work part of the stroke. Speed of the Power Work Stroke can be decreased another 50 per cent* (to a rate of six strokes per minute) by equipping the Brake with a Let-Up Control (flow control valve).

**Strokes per minute listed above are for the 25 ton Series. For 35 ton Series see Table of Comparative Stroke and Speed Ranges on inside back cover.*



Ram runs down in fast speed till just above the work

Ram continues in slow speed to bottom dead center

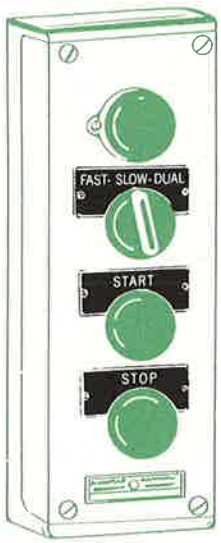
Ram returns to top of stroke at fast speed

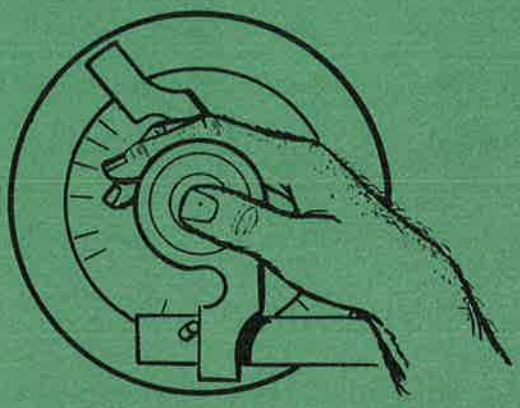
Speed Control on 25 and 35 ton Brakes has three positions "fast", "slow" and "dual". The "dual" position is selected whenever the fast speed approach — slow speed work stroke — fast speed return operating cycle is to be used.

Occasionally, it may be desirable to form but a few pieces of material to a scribed line and the "slow" position on the Speed Control is useful then. Also, when dies are being set up in the machine it is easier to determine the exact bottom of the stroke if "slow" speed is used.

Still another way of using "slow" speed is on extremely short openings — usually of ½" or less. On such operations, the entire operating cycle is made at slow speed by setting the Stroke Adjustment Selector for the ½" opening and turning the Speed Control to "slow". Even though the Speed Control is set for "slow" operating cycle in this particular example, the rate of strokes per minute is high because of the short length of stroke or opening.

"Fast" speed is used for light forming and punching operations requiring less than 5 tons of pressure.





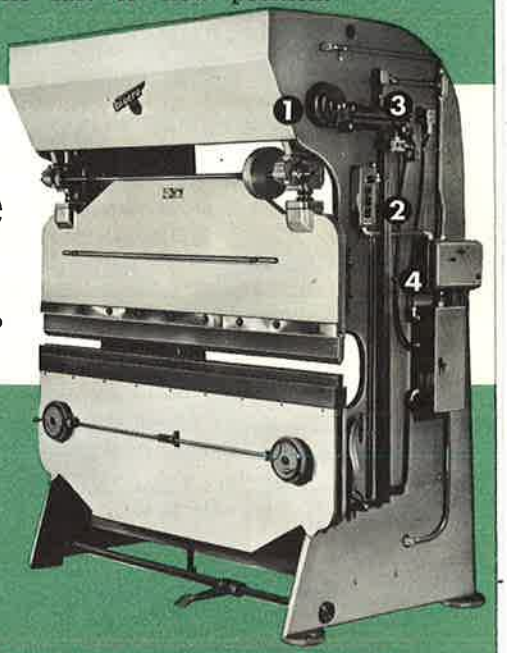
1 TO ADJUST THE STROKE

To change from a full to a narrow opening on Di-Acro Press Brakes, you simply loosen the knurled knob on the Selector and set the Trip Arms at the required opening. For example, if a ¾" opening is desired, set each Trip Arm at the ¾" positions on the calibrated dial, tighten the knurled knob. That's all there is to it. In less than 15 seconds the stroke is adjusted.

2 TO ADJUST THE SPEED CONTROL

Generally the press brake operator will want to operate the 25 or 35 ton Press Brake to take advantage of the Dual Speed Operating Cycle with Power Work Stroke feature. To do this he must make certain the Speed Control Switch is in "dual" position. For "fast" or "slow" speed through the entire operating cycle, the operator sets the Speed Control Switch in either "fast" or "slow" position.

Here's how Simple and Fast it is...



Di-Acro Hydra-Power Press Brake — Model 16-72

3 TO ADJUST FOR DUAL SPEED OPERATING CYCLE WITH POWER WORK STROKE

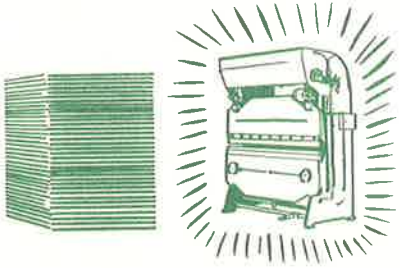
The Power Selector is easily adjusted to "cut in" the large rotary cylinder to the hydraulic system during the Work Stroke. Simply adjust the indicator on the Power Selector to the required length of Work Stroke. The ruled gauge on the Power Selector makes this a simple matter* ... the larger cylinder will now automatically cut into the hydraulic circuit during the work part of each stroke.

NOTE: All Di-Acro Hydra Power Press Brakes are equipped with a Stroke Bottom Indicator. This enables the operator to quickly tell at a glance when ram reaches the exact bottom of stroke.

4 TO REVERSE DIRECTION OF RAM

To reverse, the operator needs only to remove pressure from the foot control, trip the reversing lever and use the foot control again to back off the ram. The Brake is fully reversible at all points in the stroke, next to impossible to jam.

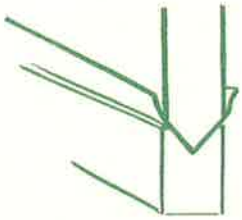
SAFE – The length of stroke for each different brake job can be quickly set to the narrowest possible opening making it practically impossible for the operator to catch his hands or fingers between the dies. The ram can be stopped at any point during an operating cycle and the same cycle can be continued with full power for the balance of the stroke. Also, the ram can be backed off at any point in the stroke. These safety features make these machines ideal for use by women and inexperienced operators.



EFFICIENT – Because it is unnecessary for the shaft to make a complete revolution for each operating cycle, speed is increased on shorter strokes. A rate of 27* strokes per minute is possible on the full two inch ram opening with the Power Work Stroke set for one half inch and the Speed Control set on "fast". At a one inch ram opening with the Power Work Stroke set for one half inch and the Speed Control in "dual" position, the rate of strokes per minute is 36*.

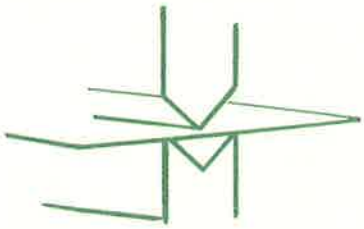
**25 ton Series*

QUICK SETUP – Sensitive inching of the ram makes it easy to locate the bottom of the stroke. Die setup and changeover time is fast, easy. Ram can be backed off *immediately* without the use of any special reversing mechanism.



ELIMINATES JAMMING

A constant flow of power through the hydraulic system eliminates the possibility of jamming. Even though the ram is being inched into the work, full power is always at the operator's command. The ram can be backed off at a touch of the hand.



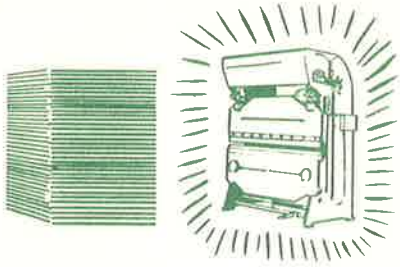
SIMPLIFIES SCRIBED LINE WORK

Here again, the slow inching feature of the Di-Acro Hydra-Power Press Brake is valuable as the ram can be slowly moved down to a scribed line and stopped – if necessary – to accurately position the material. From the line-up position, the operator can trip the foot pedal and continue the operating cycle at full power.

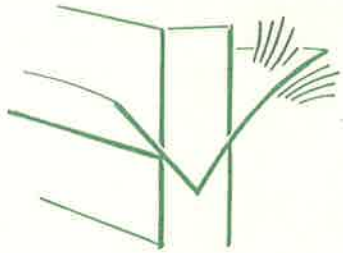
STROKE ADJUSTMENT OFFERS THE FOLLOWING ADVANTAGES . . .

DUAL SPEED OPERATING CYCLE WITH POWER WORK STROKE OFFERS THESE ADVANTAGES . . .

SAFE – With the work portion of each stroke made at slow speed, the danger from materials suddenly whipping during forming operation has been eliminated. The operator has positive and known control over the ram resulting in faster, safer handling of larger sheet materials. There is less accident hazard, less operator fatigue.



EFFICIENT – An efficient, safe means of forming sheet material is possible with 25 and 35 ton Press Brakes. Longer sheets can be formed without whipping and resultant kinking. There are less scrap parts. Production can be increased from 10 to 60 per cent over forming with conventional Press Brakes.

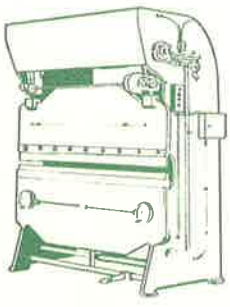


REDUCES WHIPPING – When forming long sheets, the operator can pre-set the Power Work Stroke so that the die always enters the work at a rate (12* S.P M.) which is usually slow enough to eliminate the dangerous whipping of material. If it is desirable to slow the Work Stroke still further a Let-Up Control can be added.

**25 ton Series*

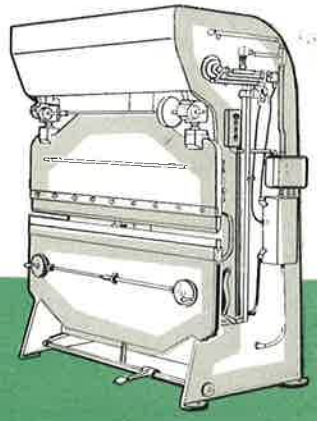
LESS EXPERIENCED OPERATORS REQUIRED

Because the Di-Acro Hydra-Power Press Brake is easy to setup and safe to operate, less experienced operators are required. There is less operator fatigue on all forming operations because the operator doesn't need the ability to "slip" clutches . . . the entire operating cycle is automatically controlled with the 25 and 35 ton Hydra-Power Press Brakes.



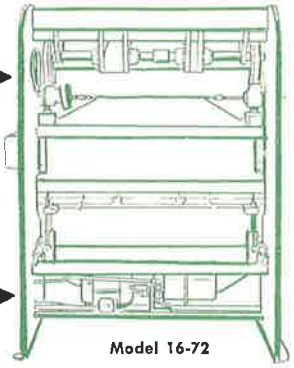
MAXIMUM TONNAGE AT ALL TIMES

The full capacity of the Di-Acro Hydra-Power Press Brake can be employed on forming and punching operations. Maximum tonnage can be exerted through smooth hydraulic pressure which is mechanically linked to the ram . . . no danger of impact jams and undue stress being placed on the machine . . . absolute control after break through on punching operations.



PERFORMANCE PROVEN POWER SYSTEM – A combination hydraulic and mechanical power system is incorporated in Di-Acro Hydra-Power Press Brakes. Maintenance problems are practically eliminated as there are no brake bands or parts to wear out or adjust. This Hydra-Power system has proven trouble-free through years of testing and performance in the field.

CLEAN SWEEP DESIGN – Interference between the housings of the Di-Acro Brakes has been practically eliminated giving complete material clearance as shown in the drawing. The compact Hydra-Power unit located at the bottom of the machine is readily accessible yet entirely removed from the work area.



Model 16-72

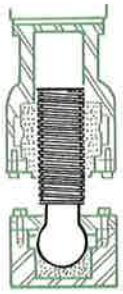
Here Are More Outstanding Design and Operating Features

ALL STEEL WELDED CONSTRUCTION

the frame is a welded, rolled steel plate reinforced with C and I beam members for maximum rigidity, positive alignment and resistance to deflection.

the ram is made from heavy rolled steel plate with ball socket connections machined directly into the plate. Deep section of the ram and nominal center to center distance of the ball socket connections increases work accuracy because the deflection is reduced with the cube as the ram depth is increased and with the cube as distance is reduced between the points of power application. Result – straight, true bends.

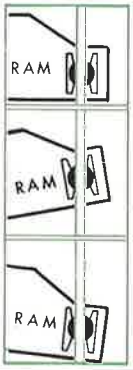
the bed is of deep-twin steel plates which are welded together with spacers to provide adequate opening for slug clearance. The twin plates also provide rigidity and minimum deflection.



RAM ADJUSTING SCREWS – Heat treated alloy steel Ram Adjusting Screws have ball joints which mate with replaceable bronze seats to transmit load to the ram. Ram Adjusting Screws are accurately machined with a buttress type thread which presents a flat surface on the pressure side. Ball end on the Ram Adjusting Screws permits tapering of the ram for fade-out work. Bronze nuts are worm driven for accurate adjustment. Positive stops, up and down, prevent over-travel.

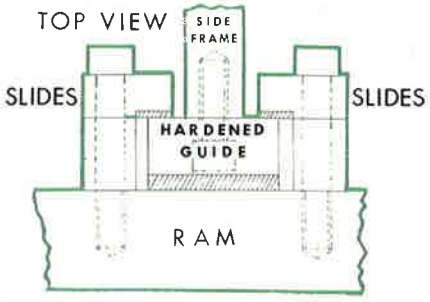
LARGE MAIN BEARING AREAS WITH REPLACEABLE BEARINGS

Bearing areas are designed for minimum wear and trouble-free service.

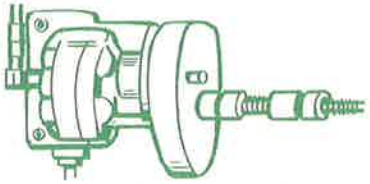


ROCKER TYPE END GUIDE BEARINGS – These bearings assure accurate alignment on the ends of the ram even when the ram is tilted for fade-out work.

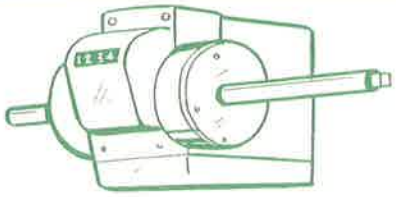
SECTIONAL RAM CLAMPS – Sectional die clamp bars, each 24 inches in length, are machined with slots to receive plain or hooked dies with ½" x ¾" tongue.



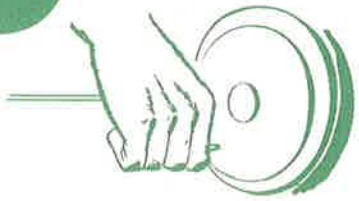
RAM SLIDES AND GUIDES—Steel ram guides and bronze lined slides are extra long with two-way adjustment to allow for close setting. The slides are arranged for thorough distribution of lubrication. Housings are accurately machined to insure perfect fit of the slides and guides.



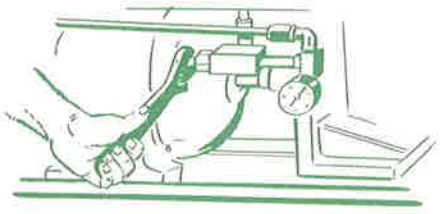
POWER RAM ADJUSTMENT – Self-locking, the power ram adjustment includes hydraulic motor and reversing control. Adjustment of the ram can be made quickly, easily. The entire mechanism is in the rear of the press out of the operator's way. A convenient coupling accessible from the front is easily disengaged to permit adjustment of one side of the ram for fade-out work. The Power Ram Adjustment is an accessory on all 25 and 35 ton series Di-Acro Hydra-Power Press Brakes.



RAM ADJUSTMENT INDICATORS – Micrometer counters at each end of the ram give the operator an accurate, at-a-glance measurement of the amount of adjustment and tilt, permit rapid duplication of previous settings.



FRONT OPERATED MICROMETER BACK GAUGE – The Front Operated Micrometer Back Gauge is an accessory. This guage has a 24-inch range with dual adjustment – by either of the hand controls conveniently located on the sides of the bed. The lead screws are synchronized by geared shaft so that the setting can be determined on synchronous micrometer dials at the front end of the machine.

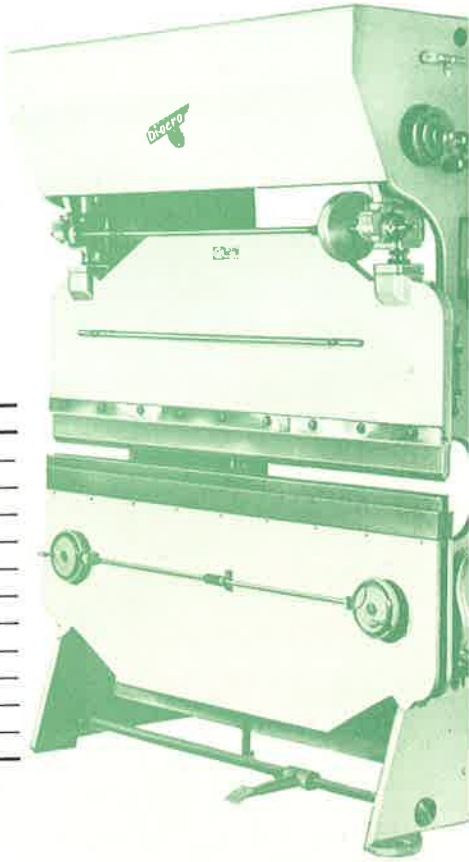


BUILT-IN OVERLOAD RELIEF MECHANISM – Pressure can be pre-set on an Adjustable Relief Valve to guard the Press and Dies against damage which might result from improper die setting, loads beyond rated capacity.

STANDARD EQUIPMENT

Included as standard equipment on 25 and 35 Ton Hydra-Power Press Brakes:

- Stroke Adjustment
- Dual Speed Operating Cycle With Power Work Stroke
- Motor
- All Electrical Controls
- Hydraulic Pump
- Ram Adjustment Indicators
- Back Gauge with two Micrometer Fine Adjustment Gauges
- Lower Die Holder
- Sectional Ram Clamps



SPECIFICATIONS

DI-ACRO HYDRA-POWER PRESS BRAKES—25 AND 35 TON SERIES

	No. 16-72	No. 18-96	No. 14-72	No. 16-96
Clear distance between housings	5'2"	5'2"	5'2"	5'2"
Total overall die surface, standard	6'	8'	6'	8'
Capacity (mild steel on full bed)	16 ga.	18 ga.	14 ga.	16 ga.
Approximate ship. wgt., lbs.	5,200	5,500	5,450	5,750
Horsepower	3	3	3	3
Stroke	2"	2"	2"	2"
Ram Adjustment	3"	3"	3"	3"
Throat clearance from center of dies	9"	9"	9"	9"
Die space, stroke down — adjustment up*	9"	9"	9"	9"
Frame Plates	1"	1"	1"	1"
Bed Plates	¾"	¾"	¾"	¾"
Ram Plate	1½"	1½"	1½"	1½"

Three horsepower motor, optional 220-440 Volt A.C. three phase, 60 cycle wiring available. Special wiring and motors quoted on request.

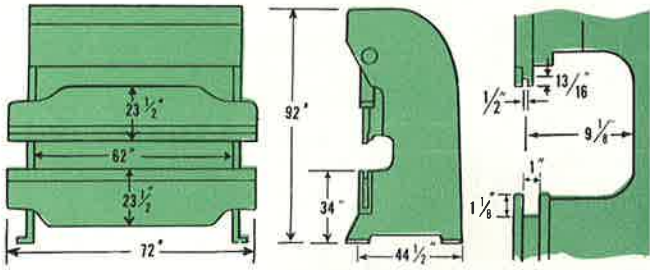
*Larger die space than standard size shown available on special quotation.

A TABLE OF COMPARATIVE STROKE AND SPEED RANGES

READ ACROSS	Maximum Stroke Setting Work	Power Stroke	Speed Control Setting	RATE OF STROKES PER MINUTE Without Let-Up Control 25 Ton	35 Ton
1.	2"	2"*	Slow	12½	7
2.	2"	0	Fast	38**	25**
3.	2"	¼"	Dual	28	19
4.	2"	½"	Dual	27	18
5.	2"	¾"	Dual	25	17
6.	2"	1"	Dual	24	16
7.	1"	½"	Dual	36	24
8.	½"	½"	Dual	45	29

*Whenever the Speed Control Switch is turned to Slow, the effect on the Power Selector Setting is the same as if it were set for the maximum 2" setting.

**Press Brake would rarely be used at this setting as the small hydraulic cylinder only would deliver power.



DIMENSION DATA

Models 16-72, 14-72 shown. Data is same for Models 18-96 and 16-96 except for longer bed and ram.

ACCESSORIES FOR DI-ACRO HYDRA-POWER PRESS BRAKE—25 AND 35 TON SERIES

LET-UP CONTROL

- Eliminates whipping and resultant kinking of material during forming
- Makes faster, safer handling of large sheets possible
- Cuts ram speed up to 50 per cent as die makes contact with material

The operator adjusts the control on the calibrated gauge so that the speed of the ram will be reduced just before the die contacts the material. As the die enters the material a plunger opens the valve on the Flow Control Unit reducing the speed of the ram up to 50 per cent. The Flow Control Unit can be adjusted to various speeds.

After the forming operation has been completed, the Flow Control Valve is automatically closed allowing the ram to resume maximum speed on the return part of the stroke.

CONTINUOUS OPERATING CONTROL

An electro air operated continuous operating control can be mounted on all Di-Acro Hydra-Power Press Brakes including the 12 ton Series. Two way switch allows choice of single stroke or continuous.

DUAL HAND TRIP CONTROLS — Available for all Di-Acro Hydra-Power Press Brakes. These controls are mounted above the Press Brake ram and require the operator to use both hands to actuate the ram.

CENTRAL LUBRICATION SYSTEM — Just one shot and oil is delivered to all of the main bearings, connection bearings and slides. Lubricator is readily accessible to the operator.
NOTE — When both Dual Hand Trip Controls and Continuous Operating Controls are ordered, electro-air controls can be supplied at a lower cost.

FRONT OPERATED MICROMETER BACK GAUGE — Provides "on-the-spot" adjustment of material length. Eliminates necessity of operator having to go back of machine to make this adjustment.

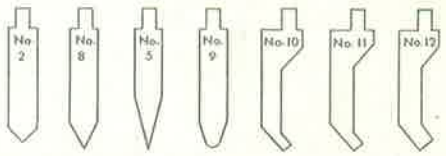
POWER RAM ADJUSTMENT — Enables operator to quickly adjust ram either up or down or tilt ram by tripping a lever.

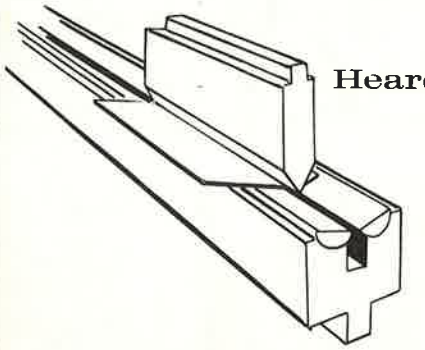
MACHINED BED AND RAM for Angle Brackets
ANGLE BRACKETS
BOLSTER — 12" for Bed and Ram

STANDARD AND SPECIAL PRESS BRAKE DIES

Standard Press Brake Dies or special dies for multiple bending and forming operations may be ordered as accessories with your Di-Acro Hydra-Power Press Brake or can be ordered later as required.

Write for Folder





Heard about the new Di-Acro Rol-Form Dies?

Eliminate work marking in all Press Brake forming operations especially when bending stainless steel, polished aluminum, painted metal and plated steel.

Save setup time. Just one Rol-Form Die can form any angle to 60°, any thickness to ¼". Ask for bulletin on Rol-Form Dies. Can be used in Punch Presses as well as Press Brakes.

TWELVE TON SERIES HYDRAULICALLY OPERATED DI-ACRO PRESS BRAKES SPEED PRODUCTION OF SHORTER LENGTH PIECES

Di-Acro Hydra-Power Press Brake-Model 18-48

The twelve ton series of Di-Acro Hydra-Power Press Brakes are offered in three models with three, four and six foot beds. These Brakes have the Stroke Adjustment feature common to all hydraulic Brakes. They can also be equipped with Let-Up Control which will give them a Dual Speed Operating Cycle the same as the 25 and 35 ton Brakes.

A hand operated Di-Acro Press Brake is also available. It has eight tons of power, two foot bed. It is best used for short-run production and model shop work, uses standard Press Brake Dies.

For complete information on the 12 ton series of Di-Acro Hydra-Power Brakes and the eight ton hand operated Brake write for the bulletin coded D-HPPB.

di-acro PRECISION METALWORKING EQUIPMENT

DI-ACRO is pronounced DIE-ACK-RO. It is the registered brand name for the more than 50 hand and power operated Di-Acro Benders, Brakes, Notchers, Press Brakes, Punch Presses, Rod Parters, Rollers, Shears, Turret Punch Presses and Spring Winders made in the U.S.A. by Di-Acro Corporation, Lake City, Minnesota.

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