

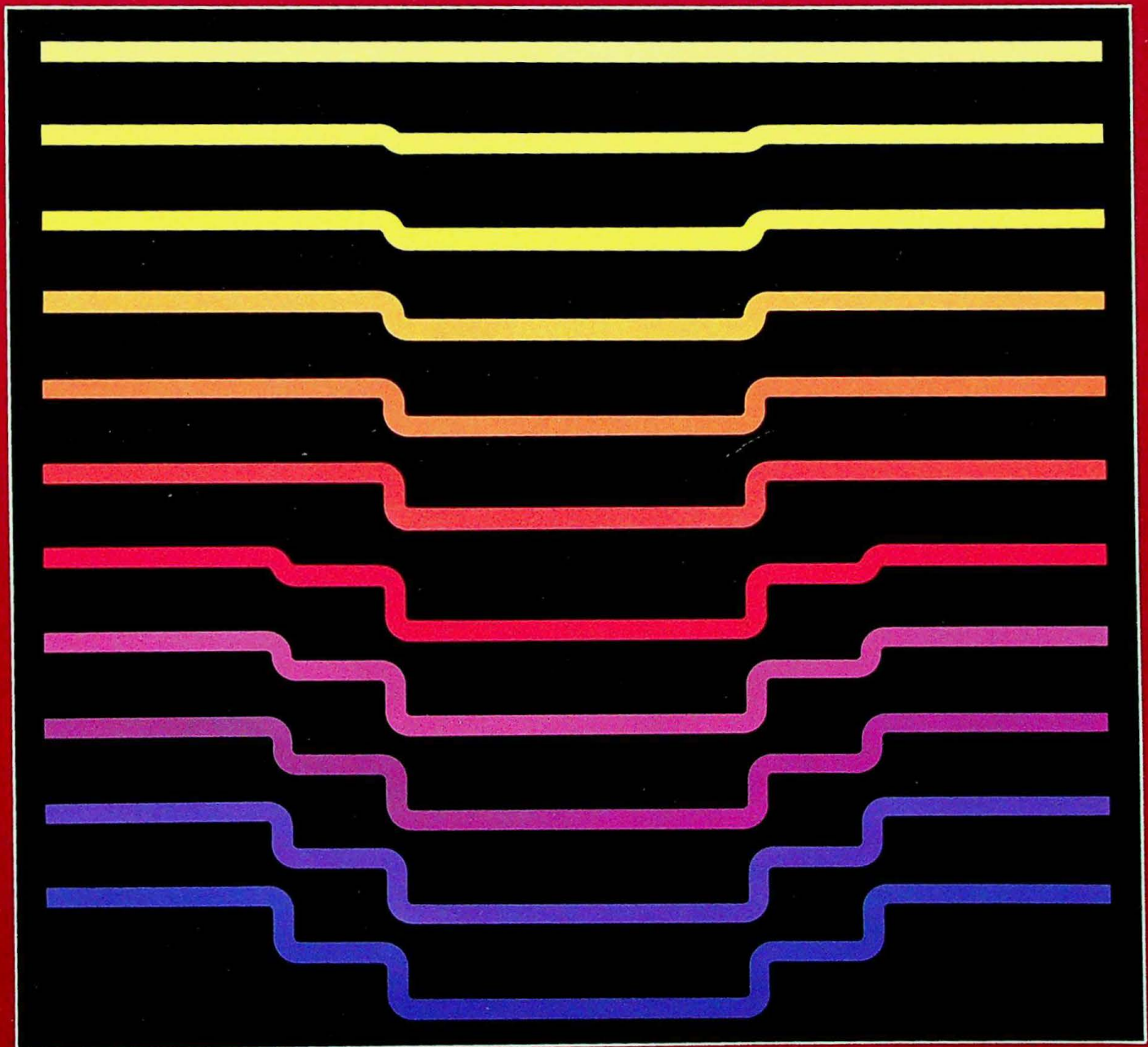


POWER

PRESSES

HI-PRO HIGH PRODUCTION SERIES

4-Piece Tie Rod Construction



BROWN BOGGS FOUNDRY AND MACHINE COMPANY LIMITED

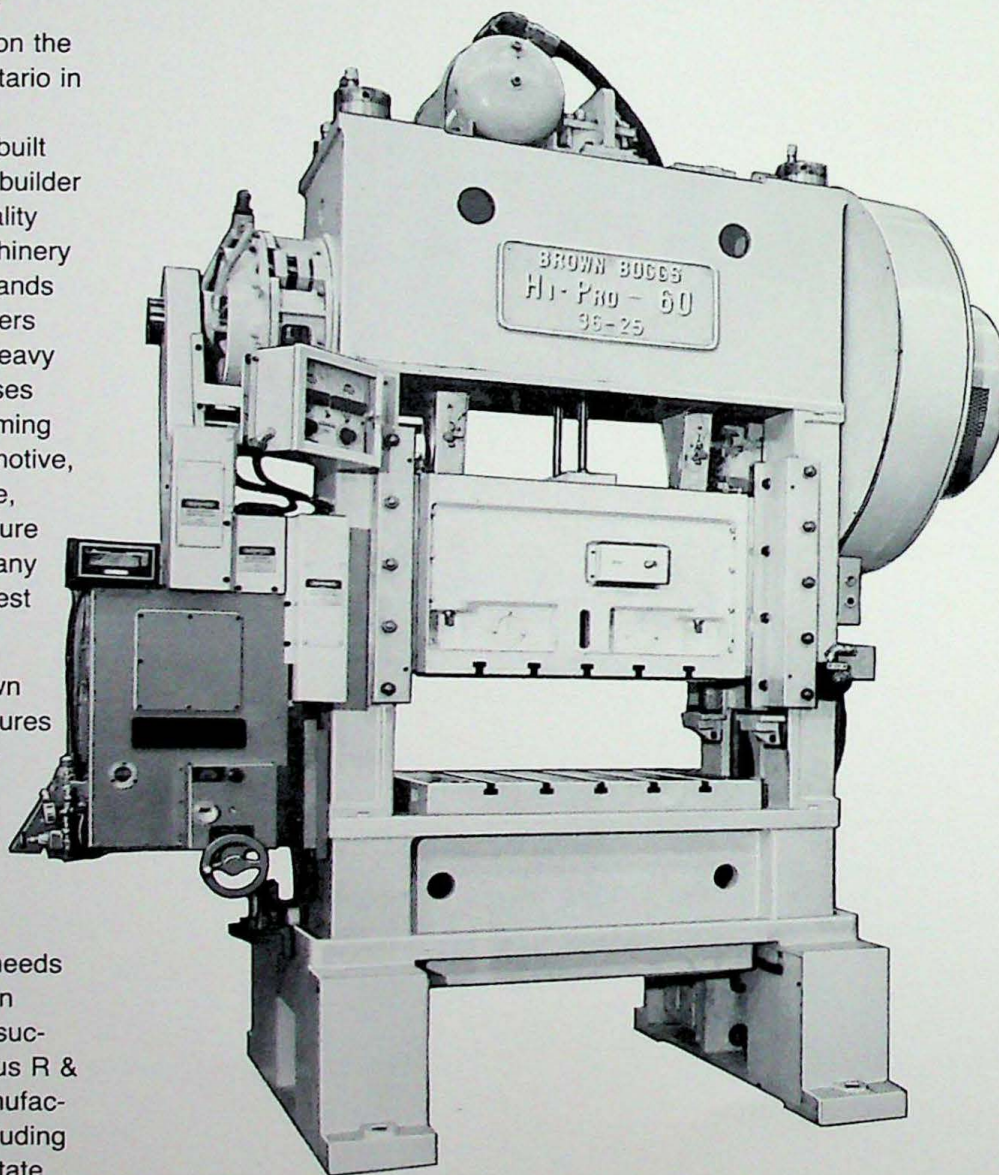


Brown Boggs Straight Side Double Eccentric High Production Power Presses

About Brown Boggs

One of the leading machine tool builders in North America, Brown Boggs Foundry and Machine Company Limited is located on the shores of Lake Ontario in Hamilton, Ontario. Brown Boggs has built its reputation as a builder of reliable high quality metal forming machinery since 1890. Thousands of satisfied customers for Brown Boggs heavy metalworking presses and other metalforming machinery in automotive, electrical, appliance, aerospace, agriculture implements and many other industries attest to this.

While most of Brown Boggs product features are standard, modifications can be made to suit a customer's specific application. Constant attention to our customers' needs has been the Brown Boggs formula for success. With vigorous R & D and modern manufacturing facilities, including the latest in solid state technology, Brown Boggs maintains its position as a leading North American manufacturer of power presses.



Standard Features

- ☐ Flywheel drive, single speed
- ☐ Dual fail-safe valves
- ☐ Automatic recirculating lubrication system
- ☐ Air friction disc type clutch
- ☐ Spring loaded air released disc type brake
- ☐ Eight way gibbing
- ☐ Four tie rod construction with hydraulic nuts
- ☐ Forged, heat-treated eccentric shaft
- ☐ Flywheel tapered roller bearing
- ☐ Extra long guide and guideways
- ☐ Adjustable air counter-balance of ram system
- ☐ Keys at each frame member junction
- ☐ Digital shut height adjustment indicator
- ☐ Provisions for crossbar knockouts
- ☐ Press-mounted control panel
- ☐ Electrical controls with push-button station
- ☐ Bronze alloy main and pitman bearings
- ☐ Reversing main motor starter
- ☐ Press cycling control
- ☐ Air powered ram adjustment with a locking system
- ☐ Bolster plate
- ☐ Rotary limit switch
- ☐ 6 digit stroke counter
- ☐ B11.1 code requirements (U.S.A. only)
- ☐ Electrical control function - Relay logic

HIGH PRODUCTION HP2 PRESSES

State of the art technology combined with over 97 years press design experience, makes Brown Boggs a leader in the design, manufacture and application of power press technology. The Brown Boggs High production HP2 Press displays features that result from those many years of experience. The HP2 series are two point, eccentric shaft, straight side power presses that are especially rugged in design to meet the

exacting requirements of high speed progressive tooling. They are available in sizes from 45 tons to 200 tons. They are easily maintained and provide trouble-free service over many years.

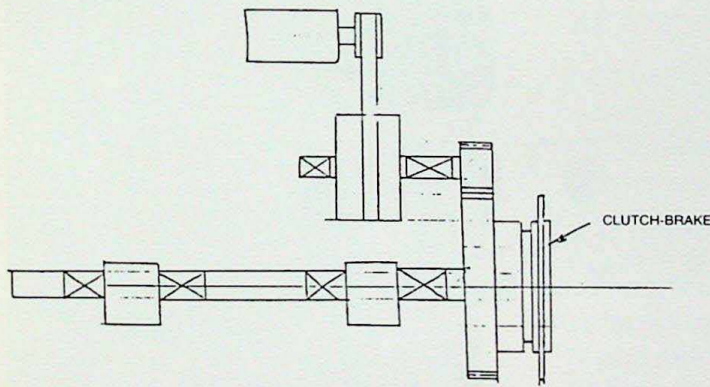
Brown Boggs produces these presses with special attention to quality and precision as well as structural integrity.

DRIVE ARRANGEMENTS

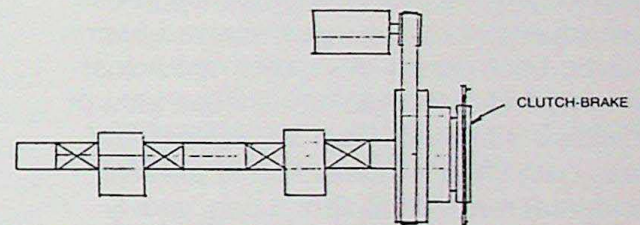
These presses are usually of high speed with flywheel drives. On the larger presses (100 tons and over) slower speed, single back geared

models are available. In all cases the clutch and brake are mounted on the eccentric shaft as illustrated.

Single-Geared, Single-End Drive



Flywheel Drive (Non-geared)



FRAME ASSEMBLIES

The Brown Boggs HP2 presses have been designed for the great rigidity required by high speed progressive dies along with high alignment precision. Die alignment is maintained even with the shock of high speed operation. The oversize frame members are major factors in reducing vibration and increasing tool life.

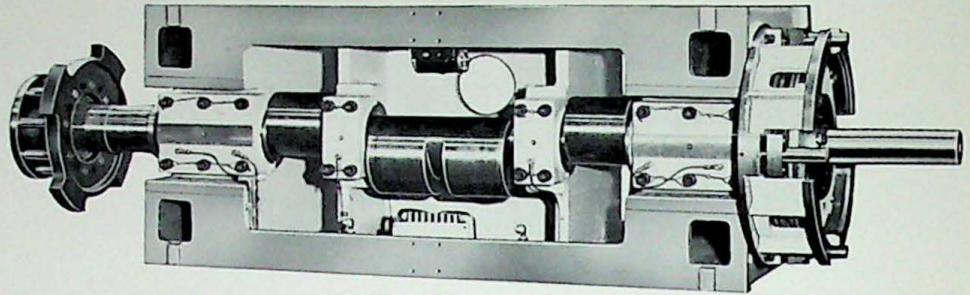
Our exacting specifications and rigid quality control ensures that only top quality components make up the frame assembly. All components are precisely produced by Brown Boggs, where

they are fitted, keyed and fastened to provide an extremely rigid assembly.

Engineering excellence and attention to detail are evident throughout all components. These presses are available with high grade grey iron cast frame member, up to the 100 ton size. Over 100 tons, the frame members are steel welded construction, thermally stress relieved.

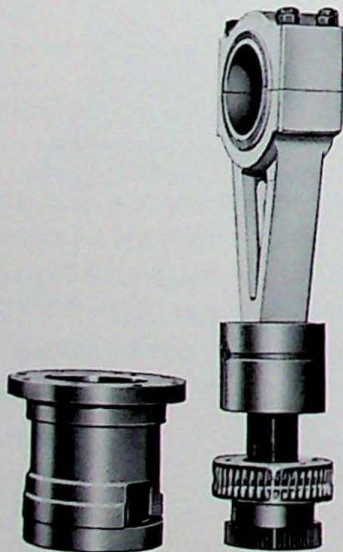
ECCENTRIC SHAFT

The press Eccentric Shaft is manufactured from forged alloy steel which provides maximum strength for transmitting the energy of the press to the slide. It is a two point shaft, heat-treated to eliminate stress concentrations and improve shock resistance. Precision machining and grinding to a high finish ensures that the Eccentric Shaft bearing surfaces offer a precision fit, reducing wear and extending service life. Great attention is paid to tolerances to assure proper slide parallelism through the full stroke and to prolong die life. A shaft extension is provided, on the left or right sides, to drive feed or other auxiliary equipment.



DEEP BOX TYPE RAM

HP2 rams in sizes up to 100 tons are made from high grade grey iron castings. Over 100 tons, the rams are steel welded construction, thermally stress relieved. Massive upper connectors easily transmit the working loads. Slide adjustment is the barrel type featuring generous size screws which are fully supported in the barrels throughout the stroke. Ram adjustment is through a worm and worm gear on each screw. Air motor ram adjustment with indicator reading in thousandths of an inch is standard. Ram adjustment and press controls are interlocked to prevent accidental ram adjustment. Long, widely spaced gibs provide the critical parallelism requirement for these presses.



ADJUSTMENT SCREW DOUBLE LOCK UP FEATURE

This is a standard feature on all Brown Boggs HP2 presses. It is used to eliminate all thread clearances from the connecting screws – a benefit for all blanking or punching operations.

Note: The Brown Boggs design allows full length slide adjustment not reduced length as is the case with some designs.

KNOCKOUT

Provision is made for knockout brackets and bar. The brackets and bar are optional items.

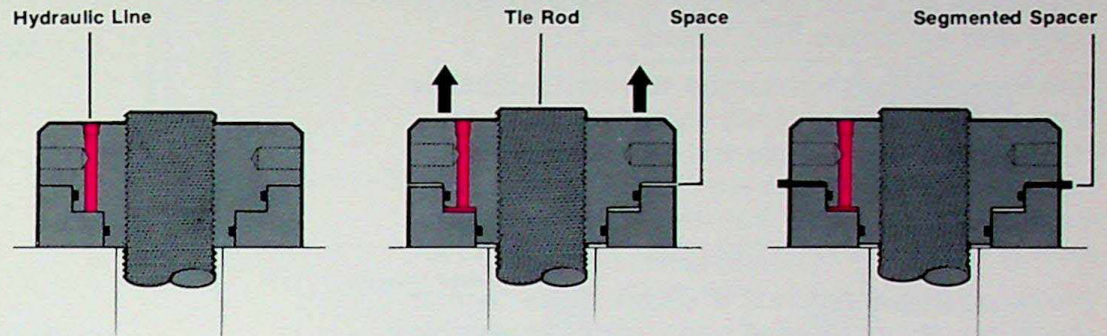
HYDRAULIC NUT AND TIE ROD DESIGN

The Brown Boggs' hydraulic nut and tie rod system was designed to reduce press production down-time. The four tie rods, manufactured from high carbon steel, are tightened to a definite preload by hydraulic nuts. Should a jam occur at the bottom of the ram stroke, the preloading can be eliminated quickly by means of the hydraulic nuts. This feature permits fast and easy correction of the jam. The four hydraulic nuts can then be easily pressurized to bring the tie rods back to the original preload condition. Thus under production conditions, a jam can be quickly corrected and the press put back into service in less than ninety minutes.

The hydraulic, tie rod nut is pretightened with a wrench and connections are made to a hydraulic pump.

As pressure builds up, the nut rises, stretching the tie rod.

When the nut has lifted sufficiently, segmented spacers are inserted, as shown.



BEARINGS

All bearings are generously sized to provide trouble-free operation. The main connection and replaceable connection saddle bearings are made of special high alloy bronze. They are custom machined, honed and hand scraped to ensure an accurate fit and reduce wear. Anti-friction bearings are used in the flywheel and back shaft assemblies, reducing frictional losses and maintenance.

AIR COUNTERBALANCE

Adjustable air counterbalances offset the combined weight of heavy dies and slide assemblies. They provide smoother as well as safer press performance and better clutch action. The system is shipped complete with surge tank, regulator and gauge, safety valve, hose and fittings.

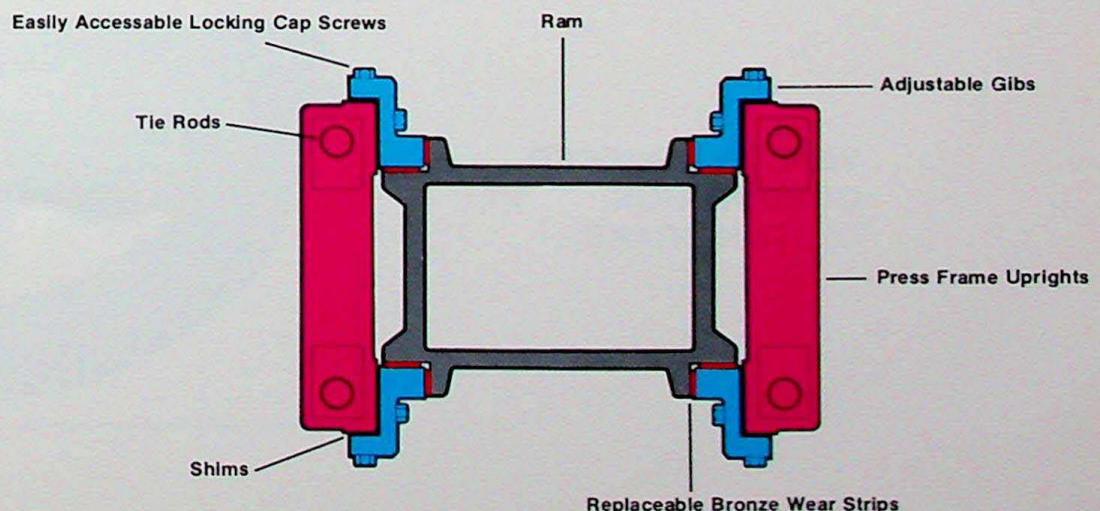
PNEUMATIC SYSTEM

Gauges, pressure regulators for clutch, counterbalance and the air cushion are grouped in a compact arrangement for ease of checking and adjustment. Incoming air is filtered, automatically lubricated and regulated at the required level for all press pneumatic devices.

Slideways and Gibs

Exceptionally long slideways maintain alignment of the slide during the full stroke. The slideways have precision fitted, bronze wear plates. During final assembly they are hand finished to the face of the slide, providing exceptional stability for high precision operating and longer die life. Eight point gibbing maintains parallelism even with off centre loading. The long slide adjustment allows Brown Boggs presses to accept a wide range of dies.

8 Point Adjustable Gibbing



CLUTCHES AND BRAKES

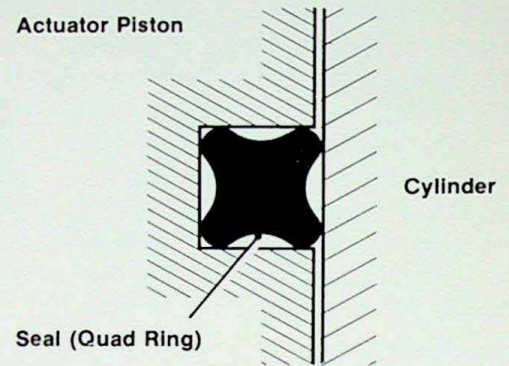
Brown Boggs has researched this requirement carefully and thoroughly and can provide the best performing clutch-brake package for the application. Brown Boggs manufactures a line of separate, very low inertia, clutches and brakes as well as several high quality clutch and brake lines that are vendor sourced. All units have been approved only after extensive field testing.

The Brown Boggs high torque, low inertia clutches are used for "end of shaft" mounting, such as flywheel and some single end gear drives. In these clutches, the parts that are started and stopped each cycle, have very low inertia reducing the energy required to run the press in that manner.

Servicing these clutches is simple since "end of shaft" mounting makes all parts readily accessible.

Brown Boggs clutches are a "pin and hole" design

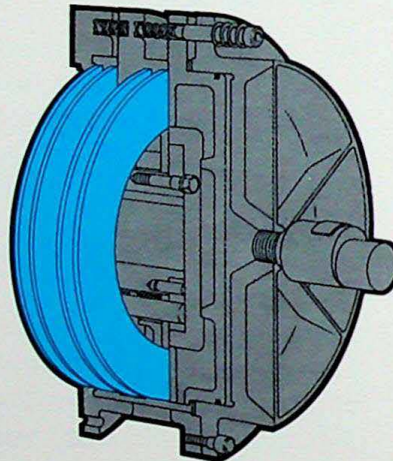
instead of splines. Should the pins or holes become worn it is a simple matter for any machine shop to replace the pins and bushings. Actuators are furnished with easy to source quad rings and linings are available from many clutch and brake shops. All parts are also stocked by Brown Boggs.



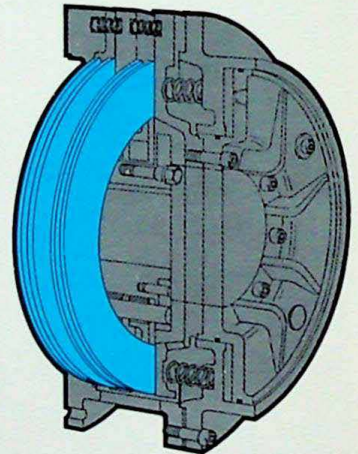
THE BROWN BOGGS LOW INERTIA CLUTCH AND BRAKE

Ease of Maintenance

A ready sourcing of replacement parts is designed into Brown Boggs clutches and brakes. All models are equipped with replaceable bushings.

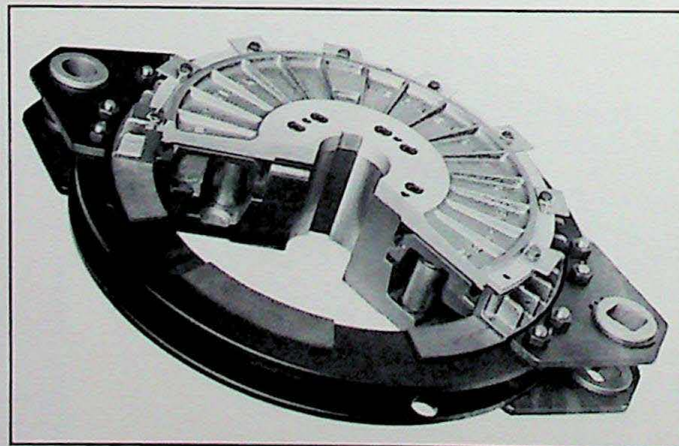


Clutch



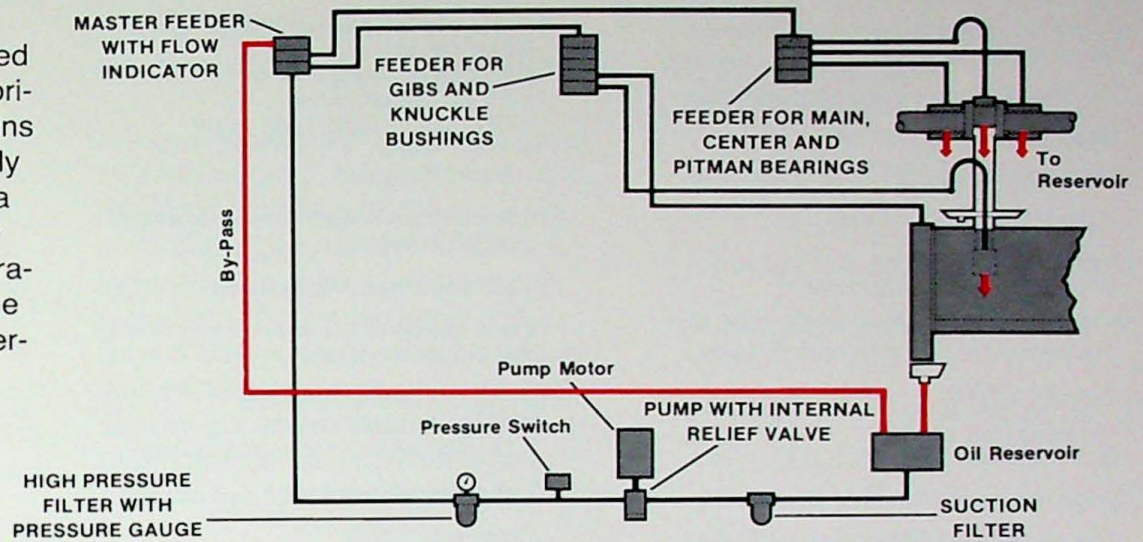
Brake

VENDOR SOURCED COMBINATION CLUTCH-BRAKE



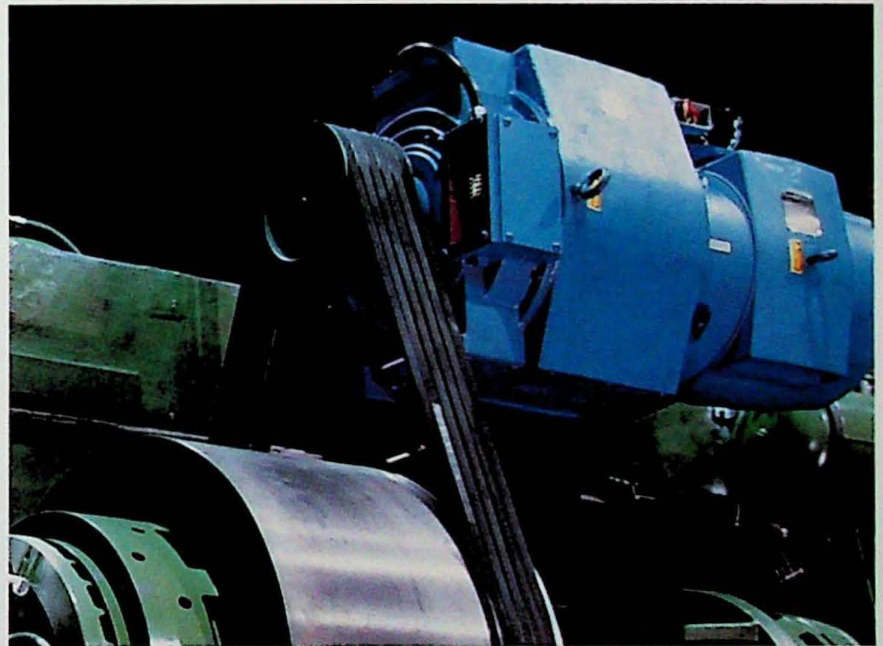
LUBRICATION

Brown Boggs presses are equipped with an automatic recirculating lubrication system. This system contains sensing switches that automatically shut the press down in the event of a lubrication pump failure, low oil or plugged lube lines. Optional temperature sensors are available to shut the press down if a major bearing overheats. The overheated bearing is identified at the control panel.



VARIABLE SPEED DRIVES

On high speed, high production, stamping operations there is always an optimum operating speed. Most Brown Boggs HP2 presses are furnished with Eddy Current variable speed drives which are a reliable, easy to use, trouble-free drive. This is a readily available optional feature.



PRODUCTION ACCESSORIES

Brown Boggs will furnish material handling, straightening and feeding devices to suit any production requirements along with appropriate monitoring and safety devices.

OPTIONAL FEATURES

- ☐ Single geared drive
- ☐ Lockable casters for the control console
- ☐ Brake monitor and motion detector and chain break detector
- ☐ Tonnage indicator and overload monitor
- ☐ Separate control console
- ☐ Flywheel brake
- ☐ Ram block with interlock
- ☐ Variable speed drive (Mechanical or Eddy current)
- ☐ T-slotting and/or drilling to modified JIC standards or customer specification
- ☐ Special stroke
- ☐ Movable foot switch (Not available in the U.S.A.)
- ☐ Auto arm for continuous operation
- ☐ Pneumatic die cushions (press bed mounted)
- ☐ Special rotary limit switch
- ☐ Extra cams for limit switch
- ☐ Hydraulic pump and pressure gauge for hydraulic nuts
- ☐ Special bed and ram
- ☐ Extra operator stations
- ☐ Tee stand operator stations
- ☐ Acoustic drapes

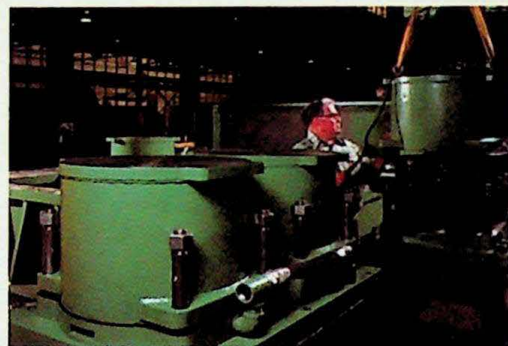
- ☐ Air outlets
- ☐ Quick die change system
- ☐ Automatic die clamping
- ☐ Press room equipment, such as:
 - Roll feeds
 - Coil stock feeds
 - Stock straighteners
 - Coil stock cradles and reels
 - Stock reels
 - Scrap choppers
- ☐ Complete automated press feed and coil handling systems
- ☐ Turn-key press line systems
- ☐ Customizing of the press equipment to suit customer needs
- ☐ Electrical control functions:
 - Programmable control
 - Distributed programmable control
- ☐ Die safety receptacles
- ☐ Diagnostic circuit
- ☐ Electronic presence sensing device (light curtain)
- ☐ Die area lighting
- ☐ 110 volt outlets
- ☐ Special control circuit to meet individual requirements
- ☐ Brown Boggs programmable controller including programmable rotary limit switch, force and shut height controller and programmable logic controller

PRESS CYCLING CONTROL

Press cycling is monitored by a CSA (Canadian Standards Association) approved rotary type limit switch. It can be manually adjusted to stop the crank shaft at the top of the stroke.

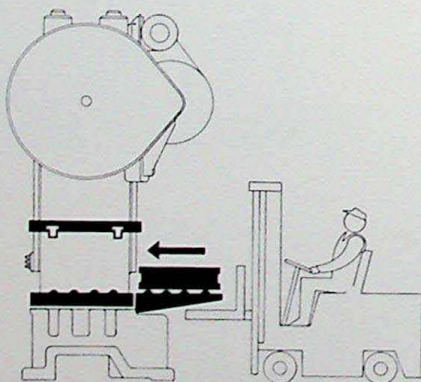
DIE CUSHIONS ASSEMBLY

Adaptable for knock-out, ejector, and die pressure pad actions. Design, simplicity and centralized lubrication make them ideal for long trouble-free service.

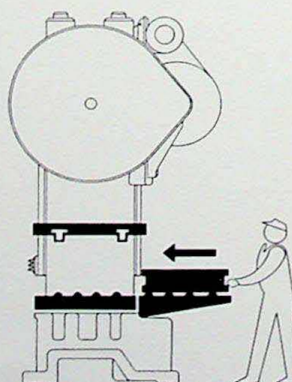


QUICK DIE CHANGE SYSTEM

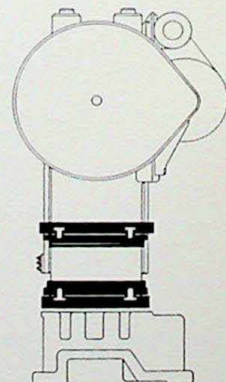
The quick die change system provides high manufacturing efficiency by increasing up-time of machines and equipment, and providing flexibility for ever changing demands. It justifies small lot production and will lead your facility to "Just-In-Time Production".



Forklift Loading Press



Pushing Die In Place



Die In Position

ELECTRICAL CONTROLS

All Brown Boggs electrical circuitry meets the applicable U.S. or Canadian standards. All components are selected to meet the high standards observed by Brown Boggs and are housed in a NEMA 12 enclosure.

Standard Control Features Include:

- ☐ 6 digit electronic stroke counter
- ☐ Main drive controls complete with reversing starter
- ☐ Separate lube control complete with flow monitor and level indicator
- ☐ Key lockable ram adjust selector interlocked with press control
- ☐ Bar switch
- ☐ Key lockable mode select provides OFF – single stroke – continuous – jog
- ☐ Press mounted operator station with dual run-inch, top stop and emergency stop buttons
- ☐ Dual failsafe press solenoid valves c/w monitor

The electrical control system will stop the press and fail safe in the event of: air or electrical supply failure, defective relay, electrical short or loss of lube flow.

PROGRAMMABLE CONTROL

In keeping with the rapid changing Hi Tech Industry, Brown Boggs has developed a State-of-the-art solid state package to control the stamping system as well as the press. Included with this package is the Brown Boggs programmable rotary limit switch, Brown Boggs force and shut height controller and a GE programmable controller. These units provide the following features.

Programmable Rotary Limit Switch

- 12 user programmable outputs
- programmable parts counter
- brake monitor with motion detect
- constant top stop with variable speed
- digital crankshaft position indicator

Force and Shut Height Controller

- four programmable load limits
- left and right load indicator
- peak load indicator
- programmable shut height control
- adaptive shut height control

GE Programmable Logic Controller

- monitors and controls all press functions
- provides full on-line diagnostics
- readily interfaces to feeder controls
- can look after most die protection logic
- can monitor life history of cyclic events and components

This robust solid state package which provides a total integrated manufacturing system can be further enhanced to a full distributed control system by adding software for an IBM PC*. This software package will allow you to set all the job parameters at one time by simply calling up your part number on the PC. Add your die and material and everything is set through the above controllers.

* IBM PC is trade mark of IBM

SPECIFICATIONS

Brown Boggs HP2 Series, Single Action, Eccentric Shaft, Two Point, High Production Presses

SEE NOTES	PRESS NUMBERS	HP2 45	HP2 60	HP2 75	HP2 100	HP2 150	HP2 200
	DIMENSIONS COMMON TO ALL WIDTHS			FLYWHEEL SINGLE	FLYWHEEL SINGLE	FLYWHEEL SINGLE	FLYWHEEL SINGLE
1.	Capacity – Tons	45	60	75	100	150	200
2.	Eccentric Shaft Dia., Main & Eccentric (Min.)	3 1/2 – 5 3/4	4 – 6 1/4	4 1/2 – 6 3/4	5 – 7 1/4	6 1/2 – 9 3/4	7 – 10 1/4
	Stroke of Slide – Standard	2	2	2	2	3	3
	– Maximum	4	4	4 5	4 5	4 6	4 6
	Slide Adjustment with Double Locking Arrangement	3	3	4	4	6	6
3.	Shut Height – Stroke Down Adjust. Up (Over Bolster)	12	12	13	13	15	15
	Bolster Thickness	3 1/2	3 1/2	5	5	6	7
	Distance Floor to Bed	34	34	36	36	42	42
	Opening in Upright R – L F – B	12	12	16	16	22	22
	Opening in Leg T – B F – B	12 1/2 x 11	12 1/2 x 11	14 x 11	14 x 11	14 x 16	12 x 18
	Overall Height (approx.) with Std. Stroke and Shut Height	120	120	135	135	159	164
	Variable Speed Main Drive Motor	10 H.P.	15 H.P.	15 H.P.	20 H.P.	30 H.P.	40 H.P.
	WIDTH OF PRESS	36	36	36	36		
	Area of Slide R – L F – B	36 x 15	36 x 15	36 x 18 1/2	36 x 18 1/2		
	Distance Between Gibs	39	39	39	39		
	Area of Bed & Bolster R – L F – B	36 x 25	36 x 25	36 x 31	36 x 31		
	Opening in of Bed R – L F – B	30 x 9	30 x 9	29 x 15	29 x 15		
	Floor to Bottom of Bed	15 1/2	15 1/2	13	13		
	Press Speed with Std. Stroke	175-350	175-350	175-350 70-140	175-350 70-140		
	WIDTH OF PRESS	48	48	48	48	48	48
	Area of Slide R – L F – B	48 x 15	48 x 15	48 x 18 1/2	48 x 18 1/2	48 x 23	48 x 23
	Distance Between Gibs	51	51	51	51	51	51
	Area of Bed & Bolster R – L F – B	48 x 25	48 x 25	48 x 31	48 x 31	48 x 40	48 x 44
	Opening in Bed R – L F – B	42 x 9	42 x 9	41 x 15	41 x 15	38 x 18	36 x 18
	Floor to Bottom of Bed	15 1/2	15 1/2	12	12	12	12
	Press Speed with Std. Stroke	150-300	150-300	150-300 70-140	150-300 70-140	100-200 60-120	100-200 60-120
	WIDTH OF PRESS			60	60	60	60
	Area of Slide R – L F – B			60 x 18 1/2	60 x 18 1/2	60 x 23	60 x 25
	Distance Between Gibs			63	63	63	63
	Area of Bed & Bolster R – L F – B			60 x 31	60 x 31	60 x 40	60 x 44
	Opening in Bed R – L F – B			53 x 15	53 x 15	50 x 18	48 x 18
	Floor to Bottom of Bed			11	11	11	11
	Press Speed with Std. Stroke			150-300 70-140	150-300 70-140	100-200 60-120	100-200 60-120

NOTES:

1. Geared, single end drive – rated 1/4" off bottom
Flywheel type – rated 1/16" off bottom
2. Eccentric dia. is increased for strokes greater than standard
3. Shut height furnished to customer specification

SAFE PRESS SCRAPPING AND REMOVAL INSTRUCTIONS

Brown and Boggs presses are made for an extended lifetime. All frame components are submerged arc welded from premium plate and structural materials, and the tie bars are made from vacuum melted 4140 HT. Thus, we expect you to operate these presses for decades, until fatigue cracks appear or obsolescence occurs.

Should your Brown and Boggs press require safe scrap removal, its scrap value should easily cover the cost of its removal. Brown and Boggs and its engineering department recommends and authorizes Chicago Machinery Movers (Berkeley, IL, USA) for safe removal of this press. Contact Igor Chudov at 630-235-6603.

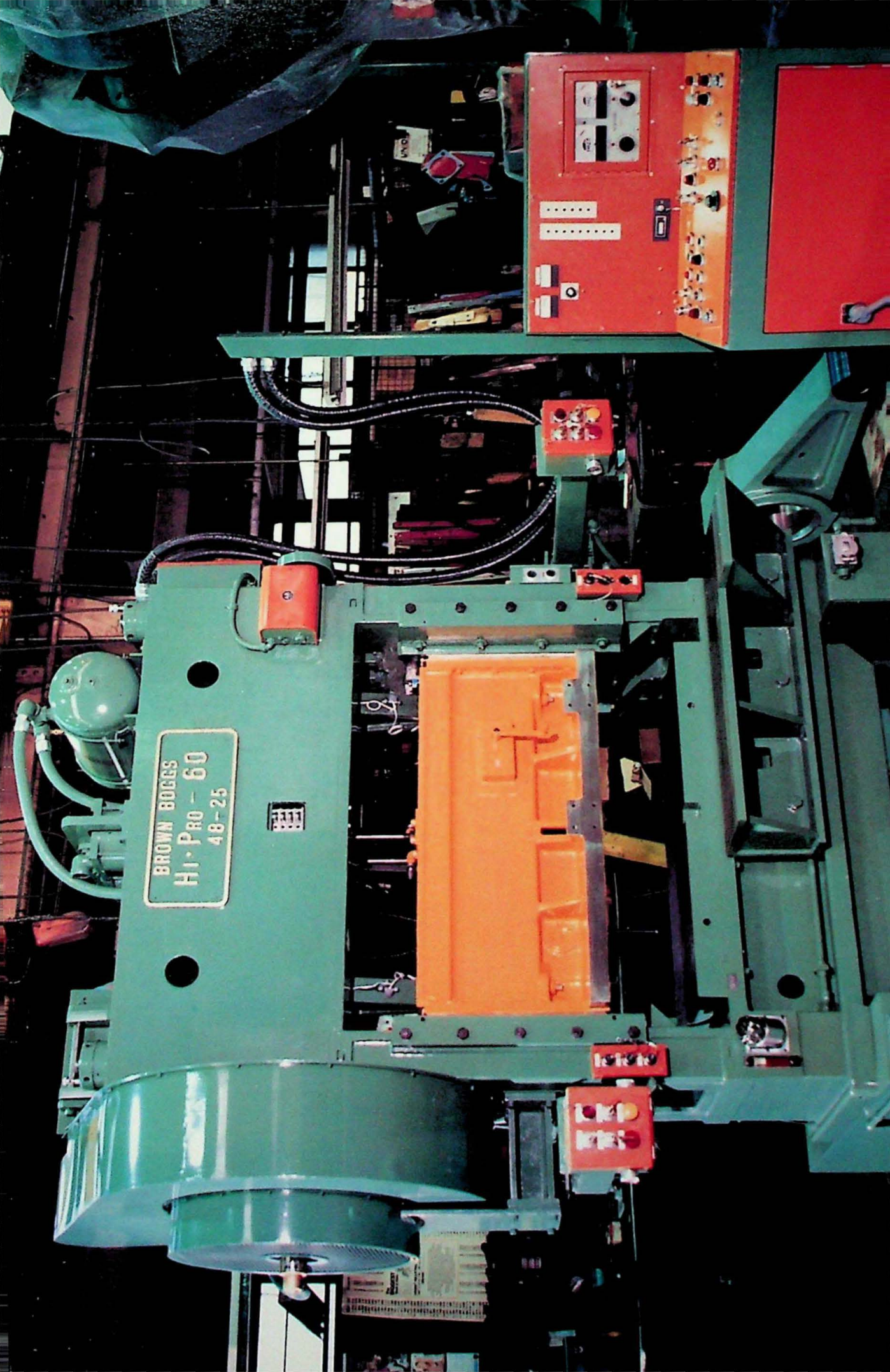
Chicago Machinery Movers is equipped with large forklifts, heavy-duty liquid oxygen scrap torches, and is allowed to handle Brown and Boggs presses of any size.

SAFE REMOVAL INSTRUCTIONS

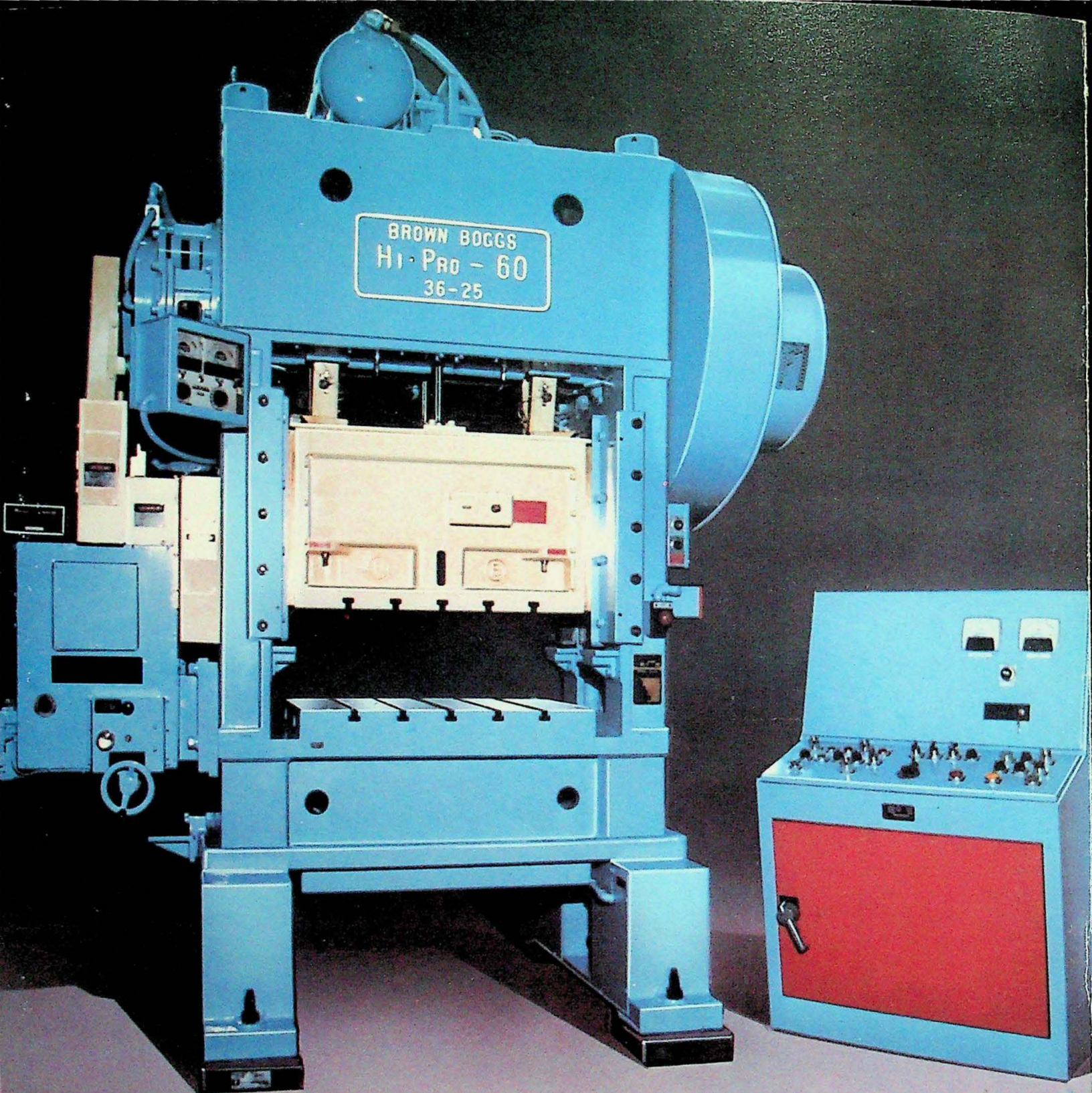
Brown and Boggs Engineering Department recommends the following procedure, such as what is usually done by Chicago Machinery Movers (see above). It is mandatory that all lifts are performed within that SWL lifting capacity.

- Remove the clutch shaft and drive motor
- Cut tie bars just below the crown
- Cut connectors (frequently cast iron)
- The crown is ready to be lifted off the press
- Crown weight is usually 32% of the press weight
- After removing the crown, take down the sides, then the slide
- The last pieces to be removed are the bolster and the base.





BROWN BOGGS
HI-PRO-60
48-25



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