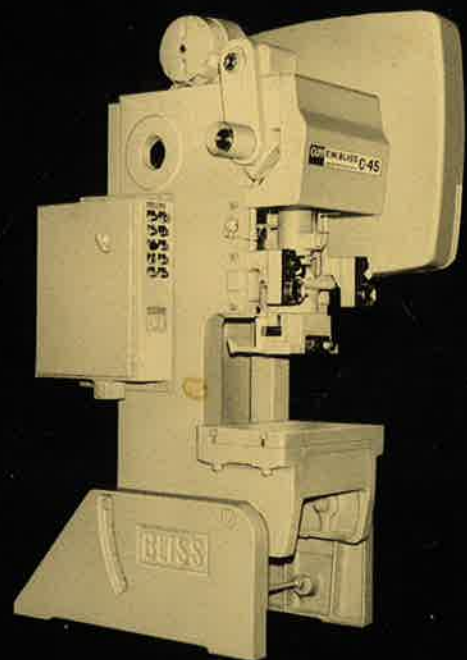


GW **BLISS**

Inclinable Presses 22 Thru 110 Tons

CATALOG 700

CATALOG 700



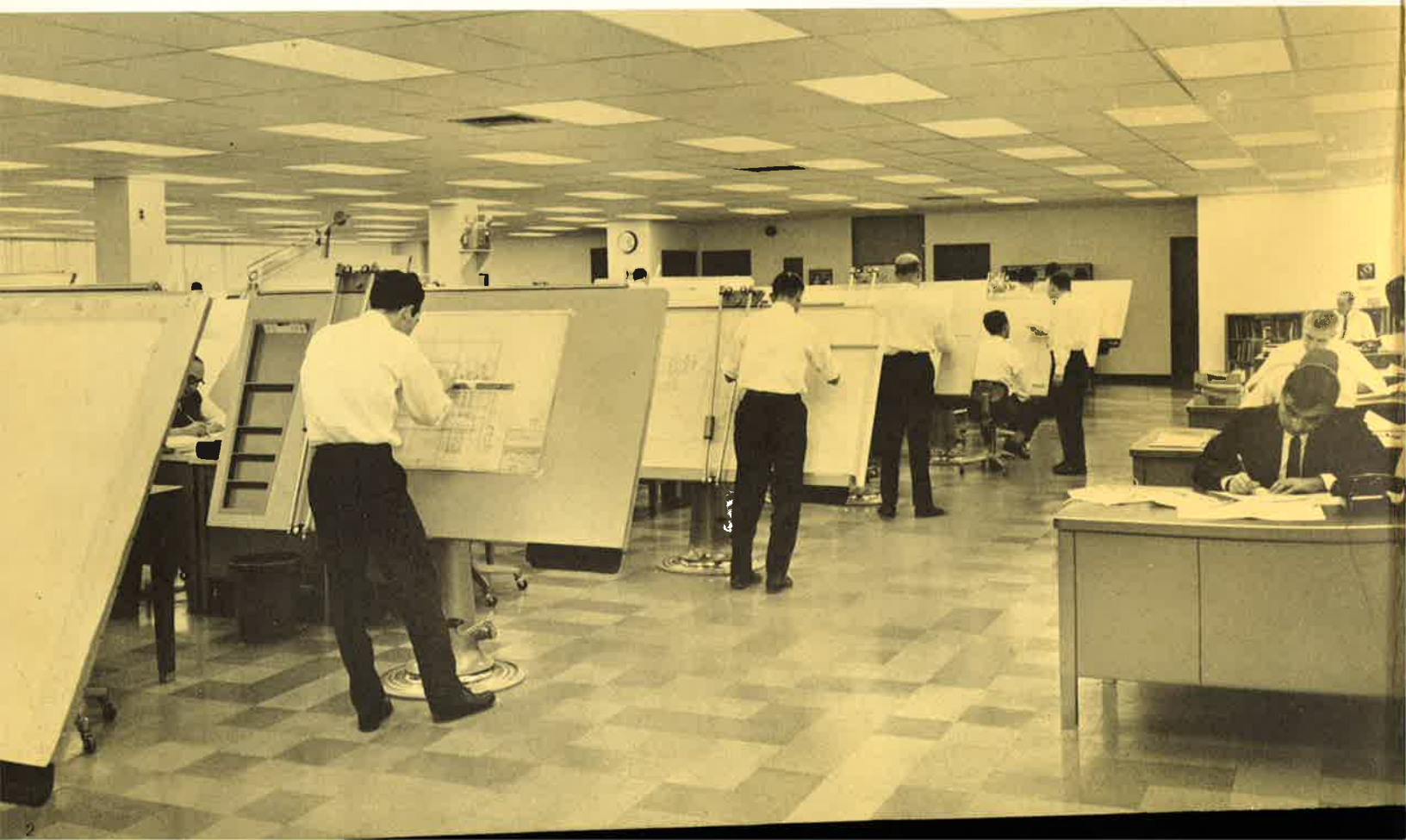
BLISS

SETS THE STANDARD OF

Bliss value starts with an engineering concept . . .

Bliss's pressbuilding experience far outdates that of all other builders. Even more important, this experience has gone hand in hand with sustained leadership.

Since 1857, Bliss has pointed the way in improved press design, better materials of construction, and refinement of manufacturing techniques. To a significant degree, Bliss's present engineering capability is an extension of its historical position of leadership in the industry.



VALUE

... and is defined by an exacting Quality Assurance Program

Quality Assurance at Bliss is a three-part program: pre-production laboratory analysis of materials and processing techniques; in-process precision testing; and final inspection, including factory assembly and run-in prior to shipment.

Pre-production Quality Assurance involves metallurgical tests which determine proper materials, processing procedures, and surface treatments.

In-process Quality Assurance combines physical checks with non-destructive examinations, such as Ultrasonic, Zyglo, Magnaflux, and laser alignment equipment.

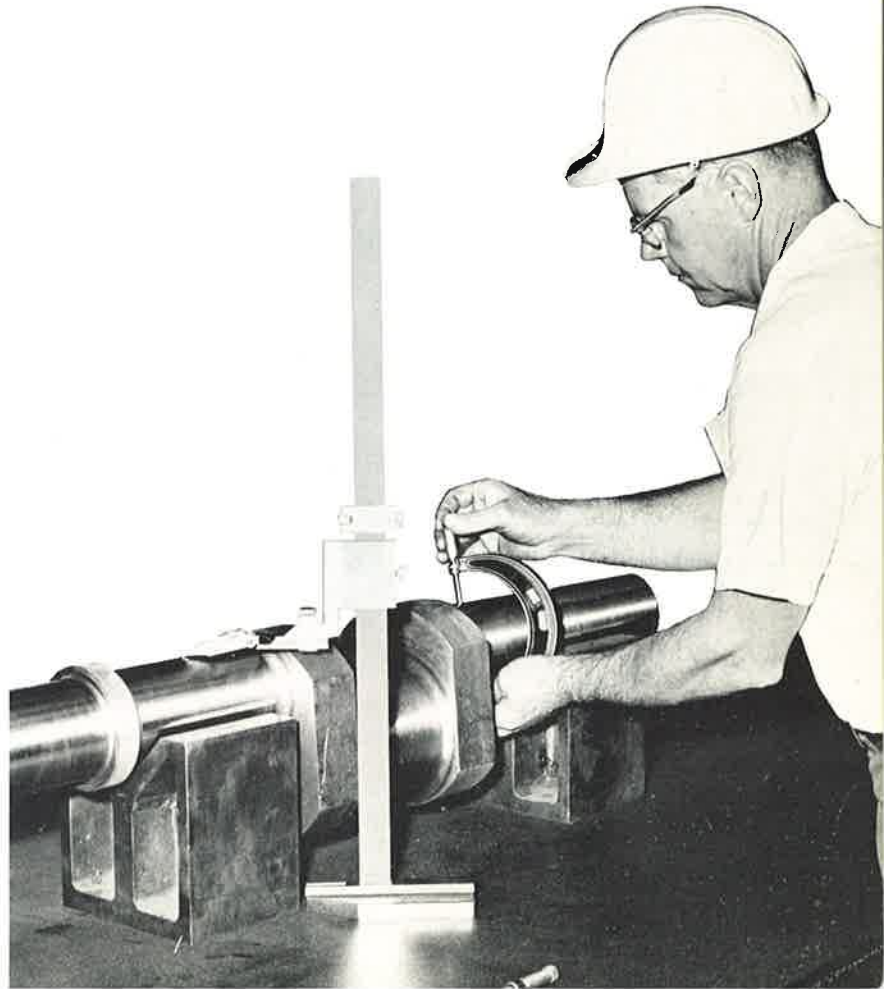
Process capability studies are regularly performed to assure sustained high quality of manufacturing operations.

Final inspection gives specific meaning to Bliss's motto: "The Standard of Value". In this ultimate test, each press is factory assembled and Quality Assurance certifies that the unit conforms both to customer's specifications and to Bliss's own exacting standards of manufacture and performance.

Testing noise levels during an Inclined press run-in. Recent federal legislation has heightened the interest in this aspect of press operation.



Precision measurement of critical dimensions. Major components are inspected throughout manufacture and during final assembly.



BLISS

SETS THE STANDARD OF

Bliss value is maintained . . .

Efficient design and quality workmanship are the prerequisites of value in presses. Service - - Bliss's continuing concern for the performance of its equipment in customers' plants - - gives depth to the total picture of value.

A substantial part of our large manufacturing capacity is devoted to maintaining service parts inventory. More than 85% of all replacement parts orders are filled off the shelf.

Parts inventories valued at more than a million dollars are maintained at our plants. All the wear parts for standard machines are catalogued and stored.



... by an unequalled Service Organization

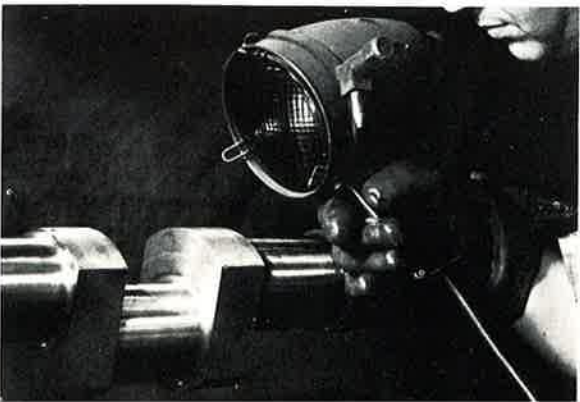
Well staffed service centers throughout this country and the world conveniently extend Bliss service to the local level. A wide variety of factory-engineered assemblies is available to update older presses in the customer's own shop; and complete A-1 rebuild service is offered at the Bliss plants at Hastings, Michigan and Salem, Ohio, and at authorized rebuild stations. Presses shipped to these locations are returned in like-new condition and with a new press warranty.



The Action Crew - an entire large department at the Hastings plant and another at the plant in Salem are responsible solely for service parts for the more than 300,000 Bliss presses now at work in the field. These dedicated engineers and mechanics have access to complete record sets on virtually every machine the company has built.



One of the most popular service items is the Bliss Clutch Conversion Kit, containing all the mechanical, electrical, and pneumatic components needed to convert a given Bliss press from positive (full revolution) clutch to pneumatic friction clutch. Spurred by the new federal safety legislation, interest in this and other Bliss modernization assemblies is further enhanced by the greater efficiency and productivity that result from upgrading older presses.



Inspecting a crankpin on a Magnaflux machine. This test, which discovers cracks invisible to the naked eye, is one of many given to the components of presses returned to a Bliss plant for complete re-manufacture.

BLISS

INCLINABLE PRESSES

The indelible stamp of leadership

Engineering experience in related fields of metalworking - - such as can machinery and rolling mills - - broadens the perspective of Bliss press designers . . . adds another dimension to Bliss's century-plus experience in pressbuilding. Volume production of Bliss Inclinales . . . far more than any other make . . . permits standardization in depth. Bliss Inclinaire Presses detailed in this catalog conform in every respect to the ANSI B11.1-1971 Code, as we interpret it. These are some of the reasons why Bliss Inclinales have outsold all others for more than three generations . . . and continue to do so.

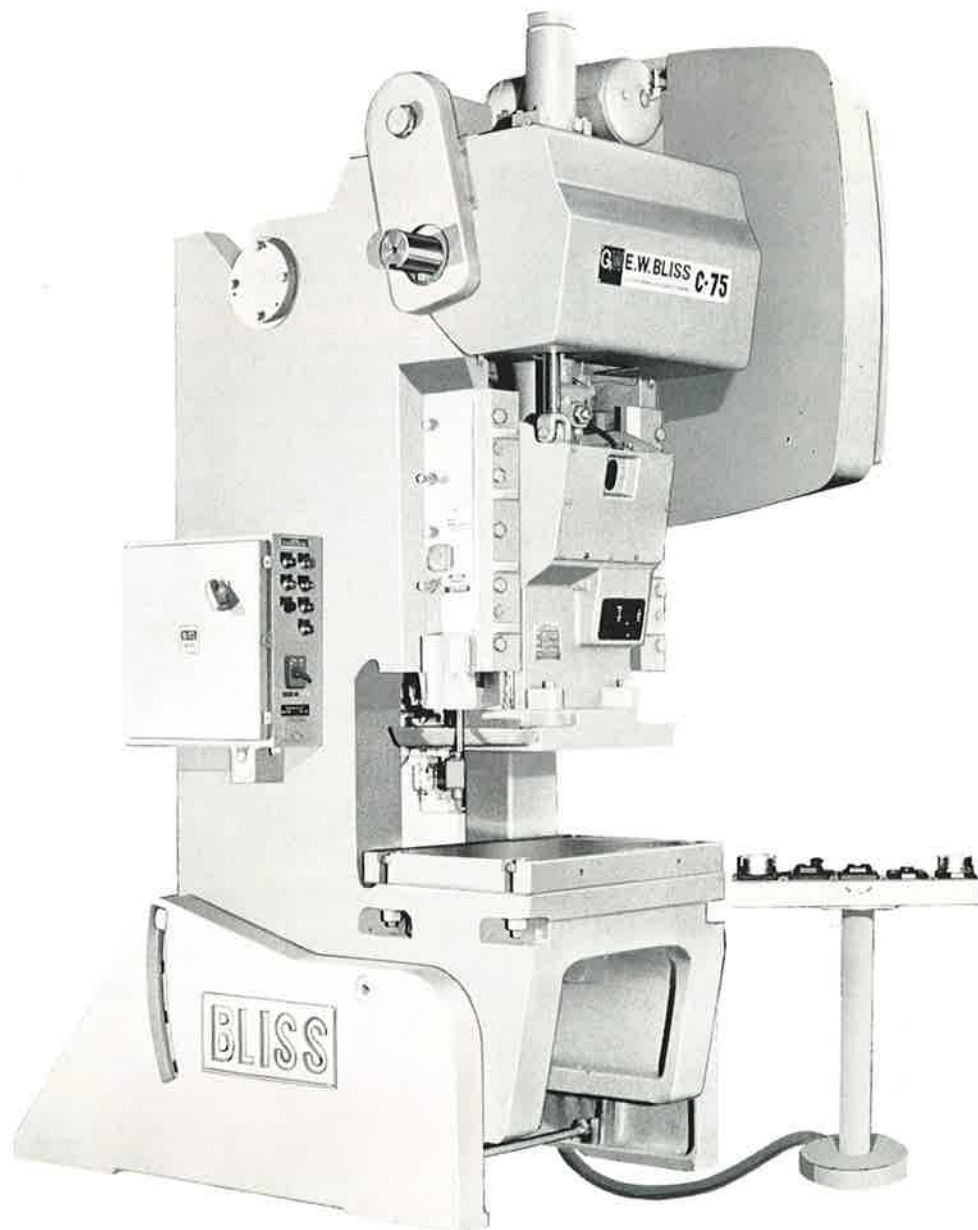
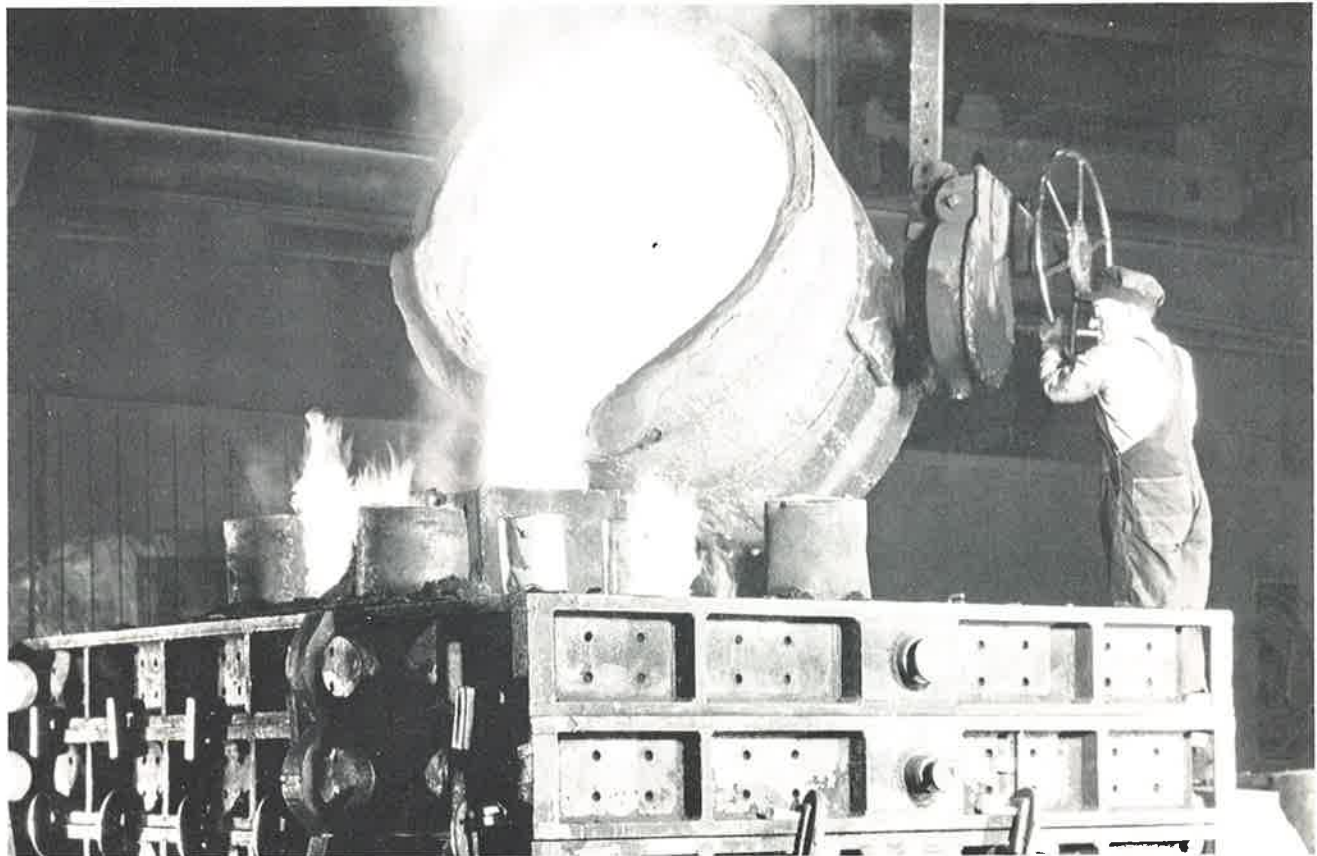


TABLE OF CONTENTS

Frame	9
Slide, Connection, Gibs.	10-11
Drive	12
Clutch and Brake	13
Standard Controls	14-15
Lubrication	16
Optional Equipment	
Variable Speed Drives	17
Motorized Slide Adjustment Shutheight Indicator	18
Optional Control Arrangements	19
Air Counterbalances	20
Inclining Mechanism Die Cushions	21
Roll Feeds.	22
Visuload	23
Specifications and Dimensions	24-29
Larger Bliss Inclinales	30
Combined Specifications	31

Bliss reserves the right to discontinue or change specifications, designs, or materials without notice, in keeping with sound engineering principles and modern practices.



MEEHANITE—The Superior Cast Frame Material

As a major builder of heavy equipment, Bliss offers modern equipment of both cast and welded construction.

For more than twenty years, Bliss has employed the exclusive meehanite process for its casting requirements. As part of the meehanite quality assurance program, Bliss maintains a constant check on casting quality. As a result castings are superior, providing the optimum in vibration and noise damping properties.



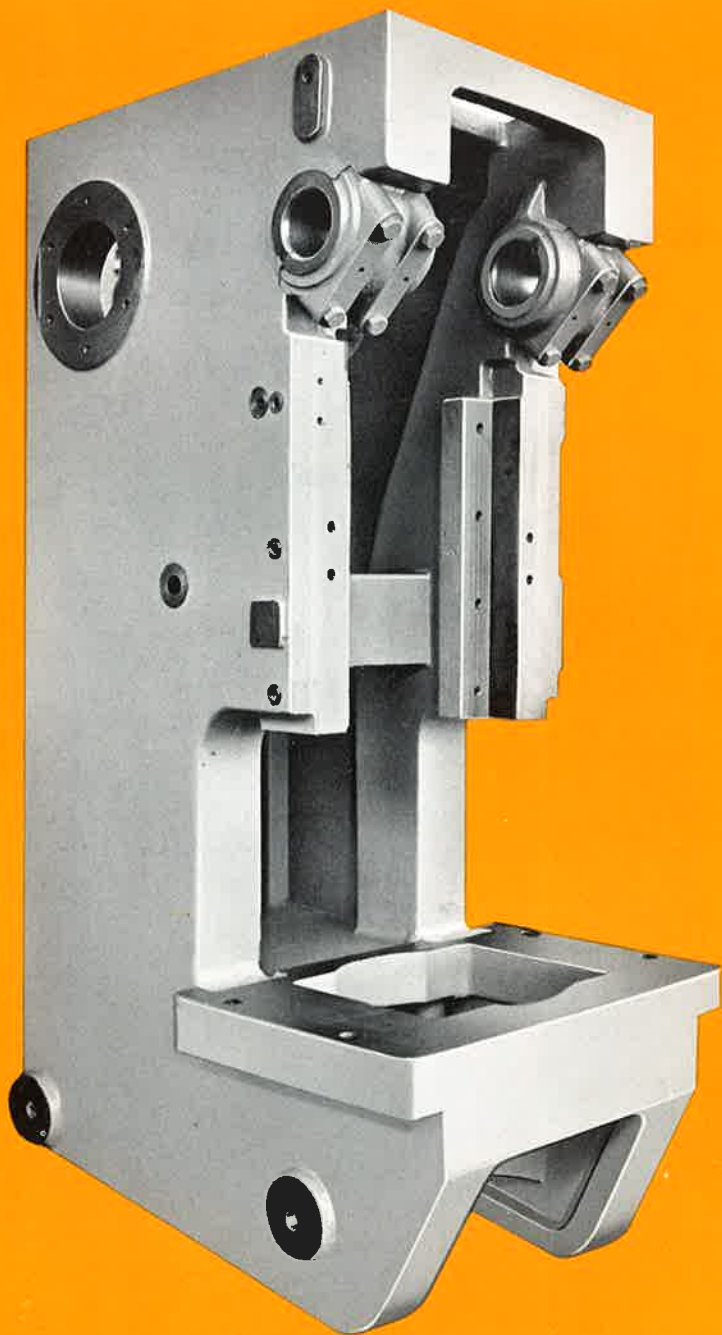
Cast Iron

Note the columnar crystals at right angles to the surface planes and how they form "planes of weakness" at their juncture.

Cast Meehanite

In the Meehanite process, the even distribution of graphite prevents unbalanced crystallization. Instead, the crystals are equiaxed, as shown, resulting in a strong and tough casting.

THE "C" SERIES FRAME



STRUCTURAL UNIFORMITY

Besides the chemical analysis given ordinary cast iron, quality control of Meehanite includes an accurate determination of graphite and an exceptionally fine and dense grain structure requirement that must be met by every pour.

These superior characteristics of Meehanite are reflected in its **predictability** as a material of construction. This uniformity, in turn, assures that **every** press will meet close design and performance specifications as to material strength and other characteristics. Another aspect of structural uniformity is close tolerances on critical dimensions. To achieve the highest practical degree of dimensional accuracy, parallelism and relationship of vertical and horizontal surfaces, Bliss uses multiple-head milling equipment and single-fixturing of major components.

MINIMUM DEFLECTION

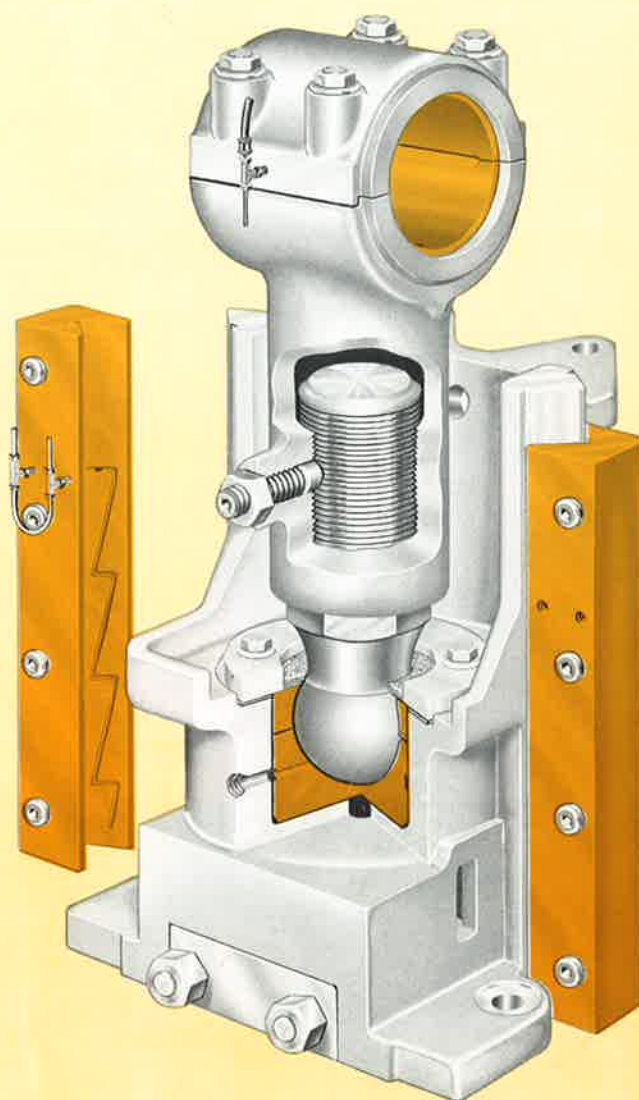
Uniformity of Meehanite as a material, plus the design of Bliss "C"-type press frames, results in a very low deflection characteristic. The most exacting in the industry, this specification for Bliss Inclinales of 22-110 tons is .0015" maximum deflection per inch of throat depth in the standard body at full rated capacity. Parallelism of bed to slide face is also held to close, uniform tolerance. Close control of these specifications results in more precise stampings and longer life of dies and wear parts.

C-22 THRU C-60**V-TYPE GIBS AND CONNECTION ASSEMBLY**

Shown are the slide assembly and solid bronze V-type gibs of "C" Inclinales of 22-60 tons. Long, rapid manual adjustment and firm locking of the adjusting screw are provided in this slide assembly. The V-gibs are replaceable and incorporate a simple, positive means of adjustment with three set-screws in the left hand gib.

Ball-joint connections, standard on all Inclinales thru 110 tons, are similar to those used on Bliss High Production presses. Thousands of production units have proved the superiority of this type of connection. Length of thread engagement provides extreme rigidity even at full extension of the adjusting screw. A shimpack is provided to maintain correct working clearances between the ball and ball seat. Ability of the ball-joint connection to maintain near-zero clearance, plus the positive locking provision in the slide adjusting screw, afford the best possible working conditions, even for jobs with significant "snap-thru" action such as heavy, fast blanking. The ball-joint is contained within the gibs at all positions of stroke and adjustment. Ball seats and split ball-cap bushings are of a very high quality of phosphor bronze.

A cross-bar knockout, working against adjustable positive stops, is standard on all sizes 22-110 tons.



SLIDES, CONNECTIONS AND GIBS

C-75 AND C-110



In designing a slide for the larger "C"-Series Inclines, a primary consideration was to achieve maximum stability of the slide for the heavy dies and greater tonnage ratings of these presses. For this purpose, six-point gibbing was used. As the new design evolved, it became practical to incorporate in it two new standard features: a demountable slide flange to increase the range of tooling possible in the presses; and integral oil catchers in the flange itself. Finally, various modular features were made compatible with the slide design and are offered as options. These include: motorized slide adjustment, shut-height indicator, and recirculating oil (see section on "Optional Features"). Long, rapid manual adjustment and ease of locking the adjusting screw are provided by this design. Simple, positive adjustment of the gibs is accomplished by means of shims.

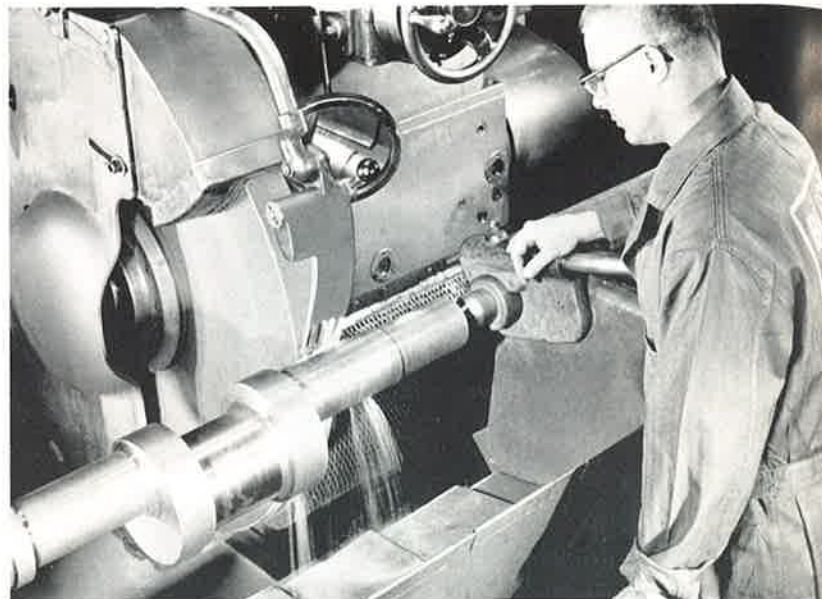
CRANKSHAFTS

Crankshafts are of optimum diameter to take full advantage of the rigid frames of the "C" design. They are forged from SAE 1045 steel, normalized for maximum shock resistance, machined and ground to extremely close tolerances. The result is a high degree of precision and long, trouble-free bearing life.

Crankshaft bearings are split and bushed with renewable bronze bearing liners. Liners are assembled in the bearing caps and finish-honed in place. A very high quality of phosphor bronze is used for these members.

Bearing design is such for all "C" presses that the crankshaft can easily be removed from the front of the press.

A crankshaft extension is provided for easy feed attachment.

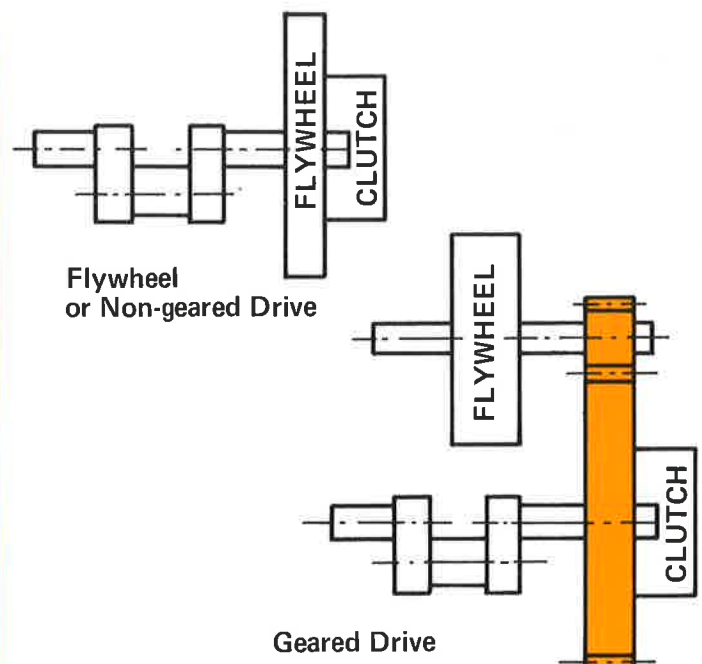


GRINDING

GEARED AND NON-GEARED PRESSES

In terms of energy transmission, inclinable presses are of two basic types - - flywheel (non-geared) and geared presses. The non-geared press is best suited to fast, light work in which the maximum expenditure of flywheel energy occurs throughout a small portion of the press stroke, such as in blanking, piercing, and very shallow drawing.

Gearing down the press drive permits the use of slower press speeds in combination with increased flywheel speeds. The greater flywheel energy available from increased flywheel speed enables the press to be used for longer work strokes. A greater portion of the stroke is available to do work without excessive flywheel slowdown. Geared presses, therefore, are preferred for such operations as drawing and forming and for heavy blanking.



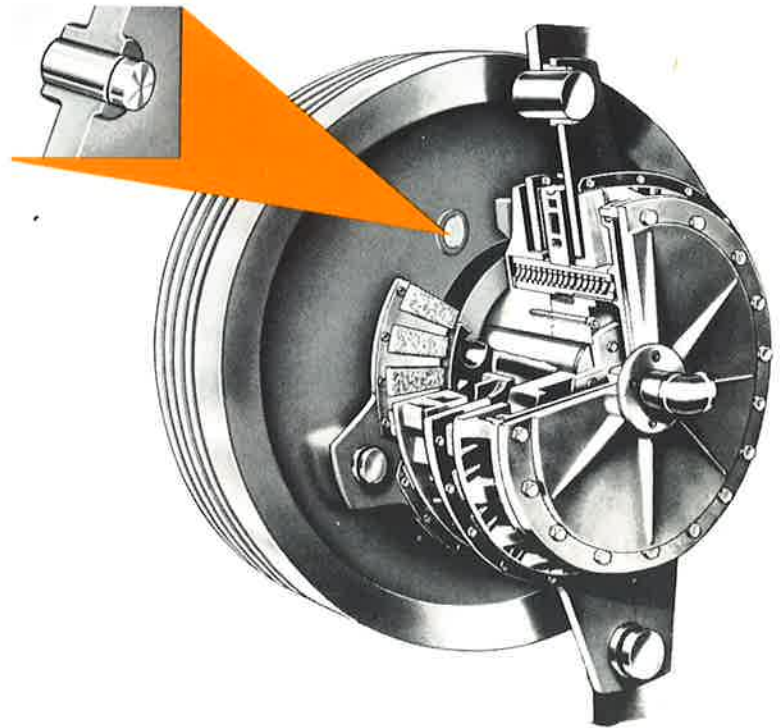
CLUTCHES

TYPE "CKU" CLUTCH WITH UNSTICKER

The type "CKU" Combination Air-Friction Clutch and Brake with Unsticker mounts on the crankshaft. On geared presses, the main gear runs continuously. This reduces flywheel slowdown, cuts power consumption, and distributes tooth wear around the periphery of the gear. Also, a crankshaft-mounted "CKU" clutch allows exceptionally high single trippings without overheating. Short, fraction-of-an inch travel between full clutch and full brake provides an extremely fast action.

Power drive for the unsticker is obtained by inserting a bumper pin in the flywheel or gear where it strikes against a lug on the clutch body to free a press stuck on bottom.

The socket for the unsticker pin is electrically interlocked with the press controls to prevent the press being operated with the pin in place except for the express purpose of unsticking the press. Because of its larger engaging surface, the "CKU" clutch operates at lower air pressures than many others of its type. Where recommended air pressures are not exceeded, the air clutch provides overload protection.



CHANGING LININGS

Both clutch and brake linings of the "CKU" unit are outside of the wheel for easy accessibility. This design, plus light-weight fiberglass covers, makes changing of linings a quick and relatively simple operation.

COMBINATION CLUTCH AND MOTOR CONTROL

For presses arranged with an air clutch, the Bliss Type #46H Combination Clutch and Motor Control is standard equipment. It is housed in an oiltight NEMA 12 enclosure with a hinged door that is interlocked with the disconnect switch.

On the panel are mounted the fusible disconnect switch, dual voltage transformer, motor starter, secondary fuse, and the clutch control relays. Wiring between the components conforms to N.M.T.B.A. standards with all terminals clearly numbered. Vinyl wireways house all wires neatly and safely.

The following are mounted in the side of the control enclosure on presses 22 thru 110; combination motor "Start-Stop" pushbutton; a 4-position keylock mode selector switch for "Off", "Inch", "Single-Stroke", and "Continuous"; and a 3-position keylock selector switch for "Bar", "Bump", and "Off".

The latter control is provided on all presses to enable power use of the unsticker. In addition to the keylock selector switch, a red warning light glows on the panel when the unsticker is out of its receptacle.

Standard operator's palm-type pushbuttons with ring guards are: "Run-Inch" (two), "Stop" (one), "Top-Stop" (one). A finger-type pushbutton "Continuous Preset" (one) is also standard.

Two detector outlets for customer convenience, mounted in the side of the enclosure, are standard equipment. One outlet is arranged for "Top-Stop" and the other for "Stop". The control also includes a rotary limit switch of the make-and-break-contact-type, cam actuated; a double solenoid air valve with self-monitoring feature and remote recock for air clutch actuation.

Control circuitry provides for "Inch" action whereby the slide will move only as long as both guarded palm buttons are held depressed; "Single Stroke" whereby the slide automatically stops at the top of its stroke even though both "Run" buttons continue to be depressed; and "Continuous Run" whereby, with the mode selector set for "Continuous", the press starts and runs when the "Run" buttons are depressed. It is also necessary to depress the "Continuous Preset" finger pushbutton just prior to depressing the "Run" buttons for continuous operation. The rotary limit switch is adjustable for desired top-stop to suit different press speeds and weights of dies.



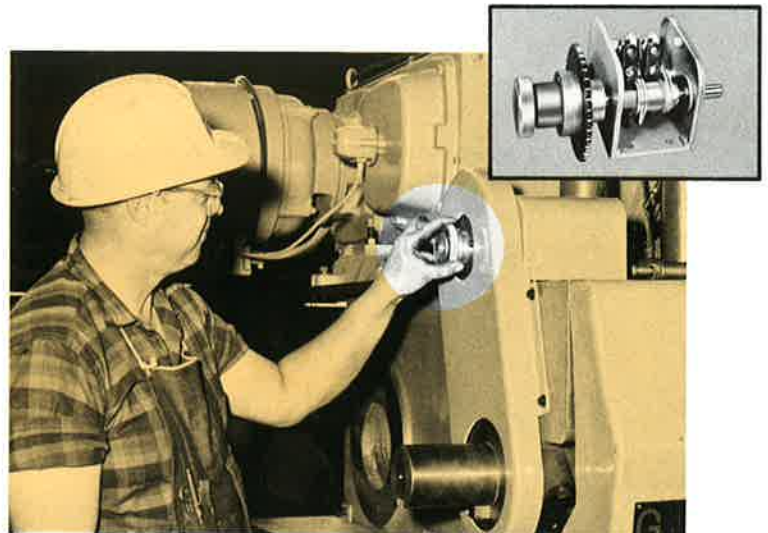
The clutch control has been designed for long, trouble-free operation, with particular attention paid to the operator's safety, protection of the equipment, and adequate size of the components. A preventive maintenance program, outlined inside the enclosure, has been developed to help maintenance engineers keep the machine in a safe operating condition.

N.M.T.B.A. standards have been followed throughout, including the wire size, panel location, and electrical component identification. All controls and circuitry are in full compliance with the ANSI B11.1-1971 Code, as we interpret it.

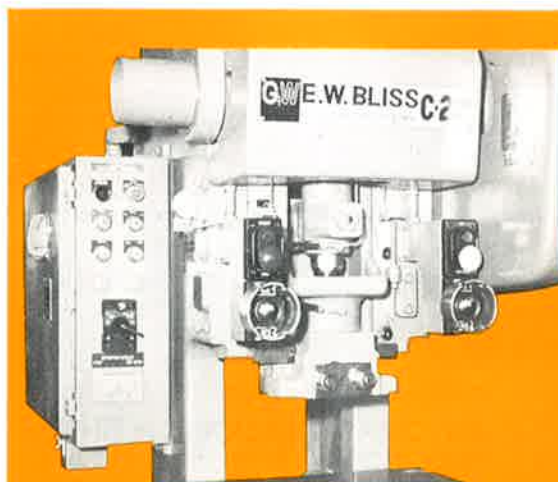
CONTROLS

LIMIT SWITCH FOR ADJUSTABLE "TOP-STOP" POSITION

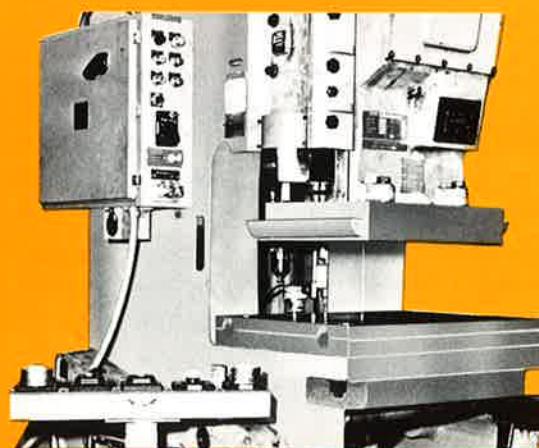
Presses equipped with the "CKU" combination air friction clutch and brake are furnished with a rotary limit switch with external adjustment. A pull/turn knob provides all necessary adjustments for varying top-stop position. This feature is standard on all sizes from 22 to 110 tons.



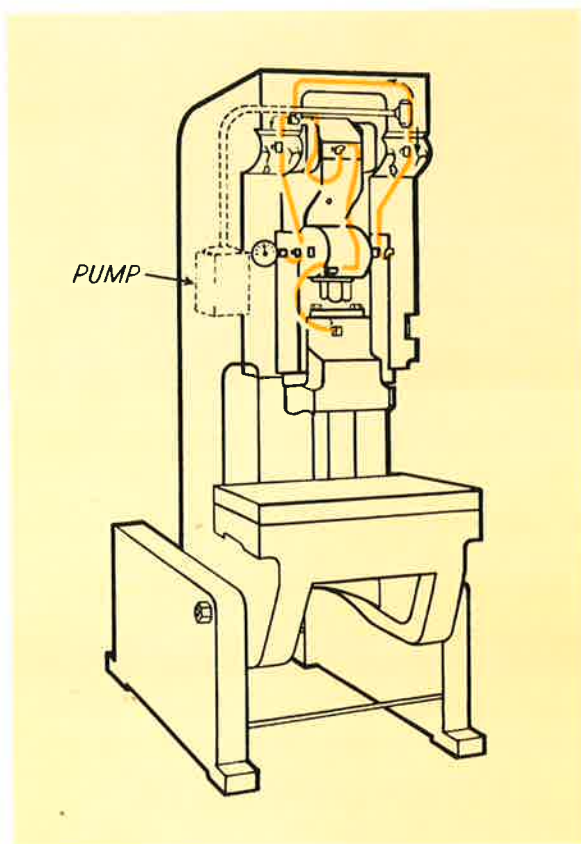
STANDARD CONTROL ARRANGEMENTS



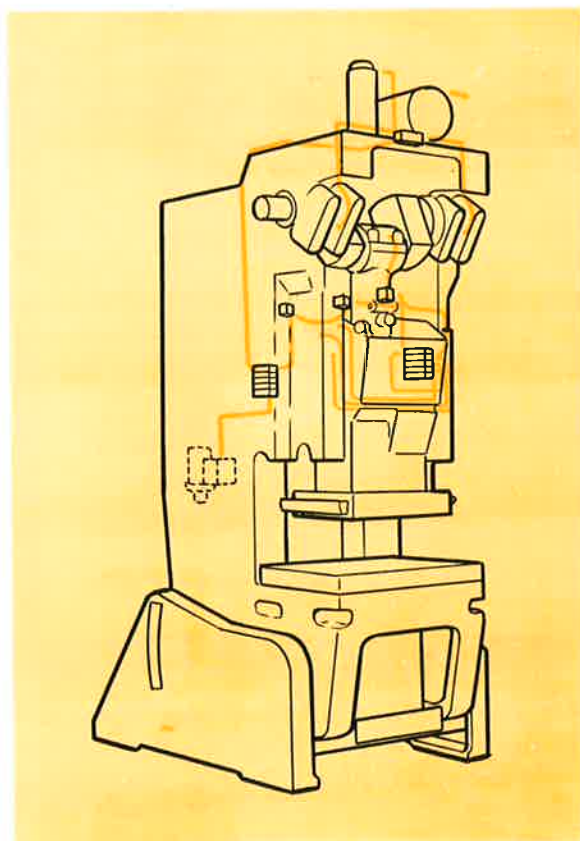
Standard on C-22 thru C-60



Combination arrangements on C-75 and C-110

LUBRICATION**STANDARD AUTOMATIC SYSTEMS****C-22 THRU C-60
MECHANICALLY-ACTUATED**

All Bliss Inclines are furnished with an automatic mechanically-actuated oil lubrication system as standard equipment. On sizes thru C-60, the system is actuated mechanically by the stroke of the press. A plunger is provided on the pump for manually priming the system.

**C-75 AND C-110
AIR-ACTUATED**

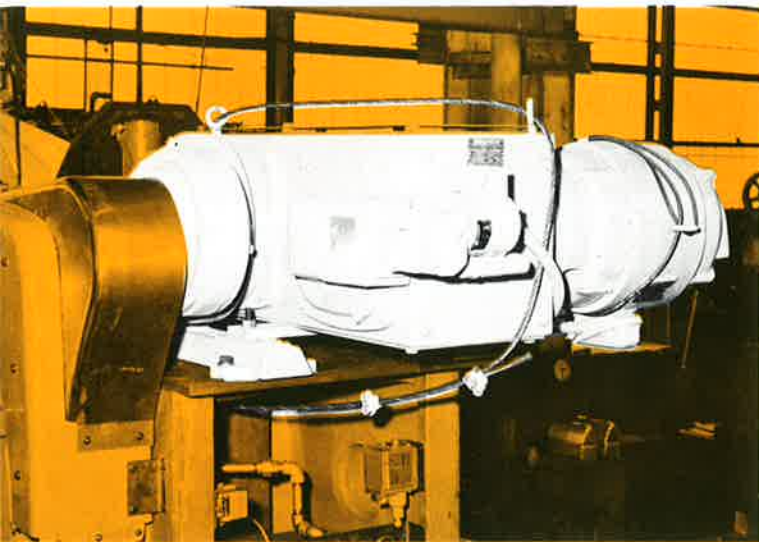
An electrically-timed, air-actuated, positive displacement-type oil lube system is standard on Bliss sizes C-75 and C-110. Metering blocks are placed throughout this system to assure a measured amount of oil to each of the large bearing surfaces of these presses. A rupture-disc in the positive displacement pump indicates pressure buildup in the system due to an obstruction.

**AUTOMATIC RECIRCULATING
OIL SYSTEM**

This option is available for all Bliss Inclines from C-22 thru C-110. With this system, all bearings are continuously lubricated without oil loss . . . providing the cleanest operation possible with least maintenance cost.

OPTIONAL EQUIPMENT

VARIABLE SPEED DRIVES



A mechanical-type variable drive. Note steel restraining cable for motor-drive assembly as specified in the ANSI B11.1-1971 Code.

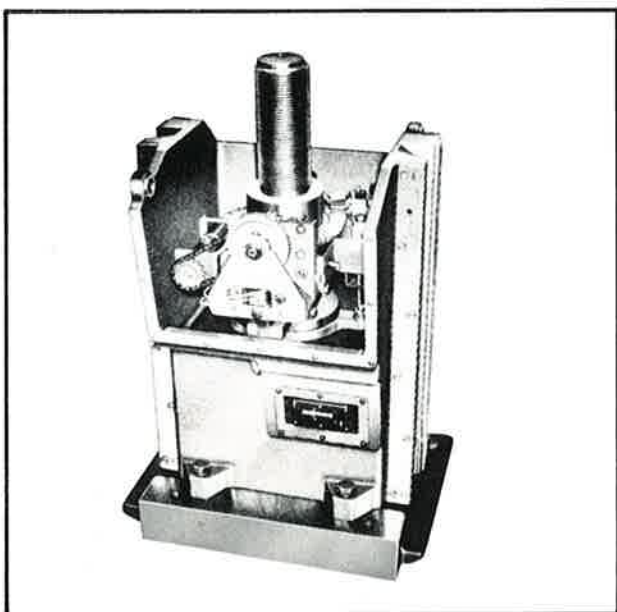
Often operating conditions make a *range* of press speeds in the same unit a desirable option. For this purpose, a variety of choices is available to Bliss customers with flywheels specially engineered for the application.

Such devices change the speed of the press throughout a predetermined range by either mechanical or electrical means. Mechanical variable speed drives employ two adjustable-pitch pulleys connected by a belt transmission.

Electrical variable speed drives work on the eddy current coupling principle and generally have a wider speed range than mechanical-type drives. They are usually set from the main control panel. These devices enable the press to deliver optimum performance over a wide range of applications, particularly for blanking with high speed, non-geared presses employing automatic feeds.

The variable speed drive package is available with remote speed adjustment and tachometer.

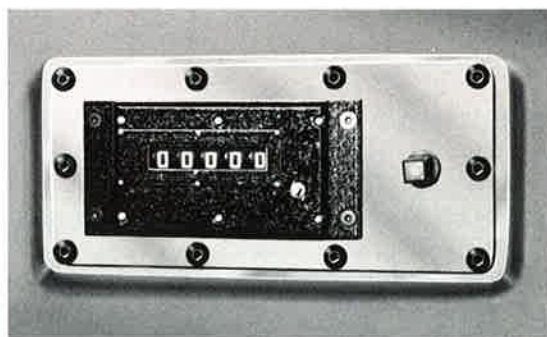
VARIABLE SPEED RANGES AVAILABLE									
C-22	C-35	C-45		C-60		C-75		C-110	
Non-Geared	Non-Geared	Non Geared	Single Geared	Non-Geared	Single Geared	Non-Geared	Single Geared	Non-Geared	Single Geared
85-170	75-150	70-140	30-60	70-140	30-60	55-110	30-60	50-100	25-50
90-180	80-160	75-150	35-70	75-150	35-70	60-120	35-70	55-110	30-60
95-190	85-170	80-160	40-80	80-160	40-80	65-130	40-80	60-120	35-70
100-200	90-180	85-170	45-90	85-170					
105-210	95-190	90-180		90-180					
110-220	100-200	95-190							
115-230		100-200							

**OPTIONAL MOTORIZED
SLIDE ADJUSTMENT**

On sizes C-75 and C-110 presses, a slide-adjusting air motor is available as an option. This motorized slide adjustment runs the slide through its full range very rapidly for quick die setting. Moreover, where very fine adjustment is required, a manual adjusting nut is readily accessible behind the slide cover. The slide is automatically locked into place when the slide-adjust cycle is completed, permitting all adjustments to be made from floor level.

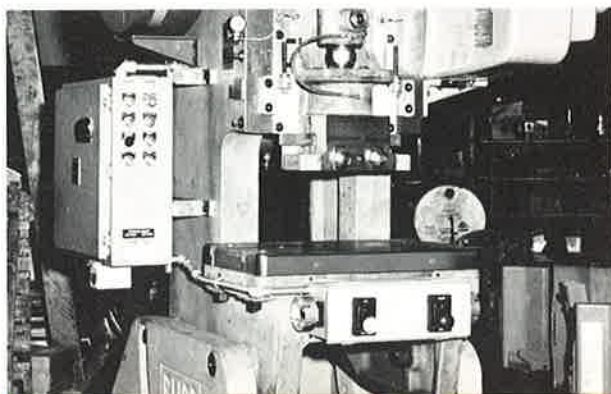
SHUTHEIGHT INDICATOR

Also available for sizes C-75 and C-110 is a five-digit shutheight readout mounted on the face of the slide. This device gives a direct reading of shutheight to one thousandth of an inch. Used in combination with the motorized slide adjustment, the shutheight indicator enables the operator to set his dies to a previously established shutheight in a few minutes.

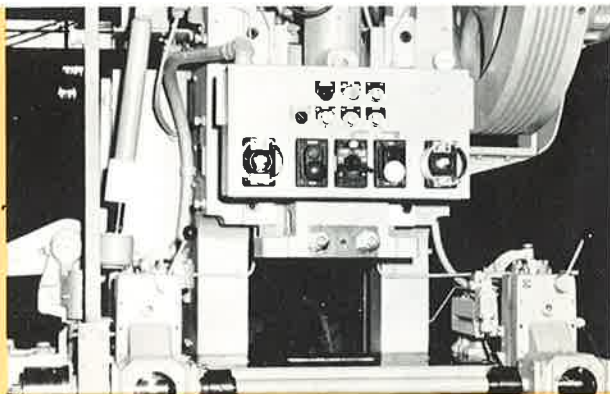


OPTIONAL EQUIPMENT

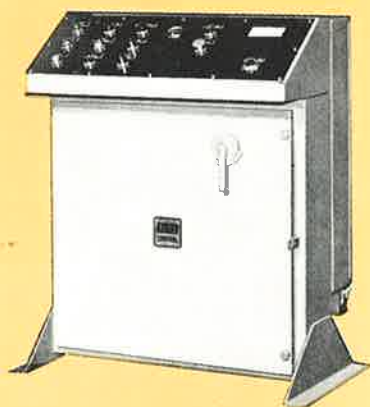
OPTIONAL CONTROL ARRANGEMENTS



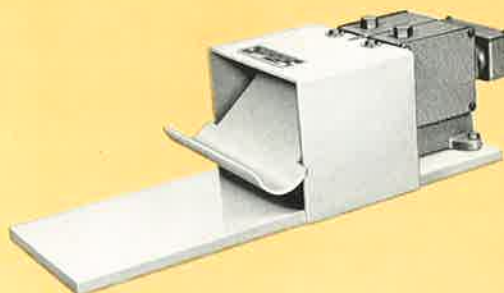
Buttons on bed



Cross bar mounted



Separate console



Foot switch

The modular design of Bliss standard controls permits a wide variety of optional arrangements of terminal control hardware. Buttons on the bed are often specified where it is desirable for the operator to be seated at the press. Mounting the buttons on a crossbar at eye-level enables the operator to control press functions without reaching across the stock pass-line when roll feeds are used. A foot switch leaves both of the operator's hands free for handling the workpiece outside the die area - -

such as for panel notching or strip feeding through blanking or progressive dies.

CAUTION: Federal safety regulations forbid the use of a foot switch unless the die area is fully guarded.

Another option is to remove all electrical controls from the press and house them in a conveniently located console. This arrangement is especially suitable for feed-equipped presses.



AIR COUNTERBALANCES

Air counterbalances are standard equipment on C-75 and C-110 presses. They are also available, and are recommended, for use with heavy dies and long strokes, as an optional feature on C-22 thru C-60 presses.

WHAT ARE AIR COUNTERBALANCES?

Air counterbalances are devices that support the weight of slide, connection, and upper die so that it is not suspended from the crankshaft bearings. Any geared press with long stroke (regardless of size), and any press with flanged slide for large, heavy dies, can benefit significantly from air counterbalancing.

HOW THEY WORK

Air counterbalances on Bliss C-series Inclines consist of one or two frame-mounted air cylinders with pistons connected by rods to the slide. Air pressure is adjustable to support the combined weight of the slide, connection, and various size dies. The effect of counterbalancing the reciprocating mass is to put all clearances on the "up" side of the assembly.

WHY COUNTERBALANCES ARE USED

Counterbalancing the slide prevents sudden shifting of clearances when the slide contacts the work. Weight is taken off the main bearings and the slide runs more freely. Bearing wear is significantly reduced and gear performance is improved, since the teeth of the gear float when the weight of the slide is removed from the drive train. The "Inch" function and slide adjustment are both made easier. Set-up is also facilitated.

OPTIONAL EQUIPMENT



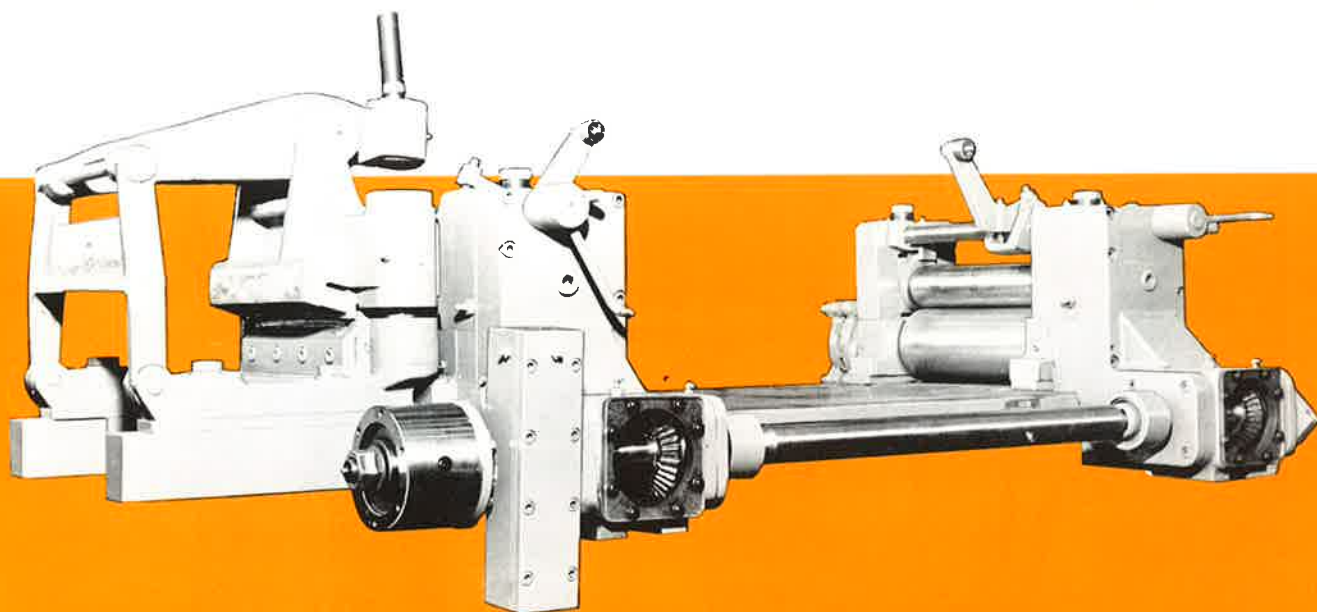
INCLINING MECHANISMS

A portable, ratchet-type inclining mechanism can be furnished for press sizes C-22 thru C-60 as an optional feature. This device is arranged so that it can be easily operated by hand from the side of the press. The unit is portable and can serve several presses of the same size.



DIE CUSHIONS

The inherent versatility of Bliss "C" Inclinales can be greatly extended by adding "UCO"-type die cushions to geared models. They supply blank-holder pressure for drawing and forming operations and can act as bottom knockouts or lift-out pads. Every geared Bliss Inclinaire now in service can be equipped with a Bliss cushion without modification. Selected specifications on pages 26-29 include Cushion model numbers for each press from 45 to 110 tons.



TYPE "G" ROLL FEEDS

For continuous operation, roll feeds are indispensable to maximum efficiency and enhance the productivity of any inclinable press. All Bliss Inclinable presses can be fitted with single or double roll feeds with or without scrap cutter and with numerous other accessories. Bliss Type "G" Roll Feeds are engineered specially for Bliss presses. They are fitted to the press and run in before shipment.

Mounting of single or double roll feeds on Bliss Inclinables is on an extension of the bolster (fixed-feed level). All feeds are equipped with covers as specified by the ANSI B11.1-1971 Code. All lube points are brought to common headers outside the covers for easy maintenance. Besides single and double roll feeds, Bliss furnishes a complete line of other feeds and feed accessories to meet any operating condition. For a complete description of the Type "G" Roll Feed line, write or ask your Bliss representative for Catalog Section 400.

OPTIONAL EQUIPMENT



PRESS TONNAGE INDICATOR

WHAT IT IS

The Bliss Visuload System consists of a solid state instrument of either two or four channel configuration and the corresponding two or four sensor units for direct reading of press loading and load distribution in per cent of rated capacity. Sensors are bolted permanently to the press frame. The portable, plug-in amplifier unit contains the controls and meter.

Load sensors are full-bridge force transducers, steel encapsulated and factory sealed against dust, moisture, and stray electric fields. They are mounted to the press using a simple jig and portable drill. They are factory calibrated, tested, and balanced for complete interchangeability. Initial calibration can be made with either static or dynamic loading.

These instruments are completely portable and one unit can serve an entire line of presses.

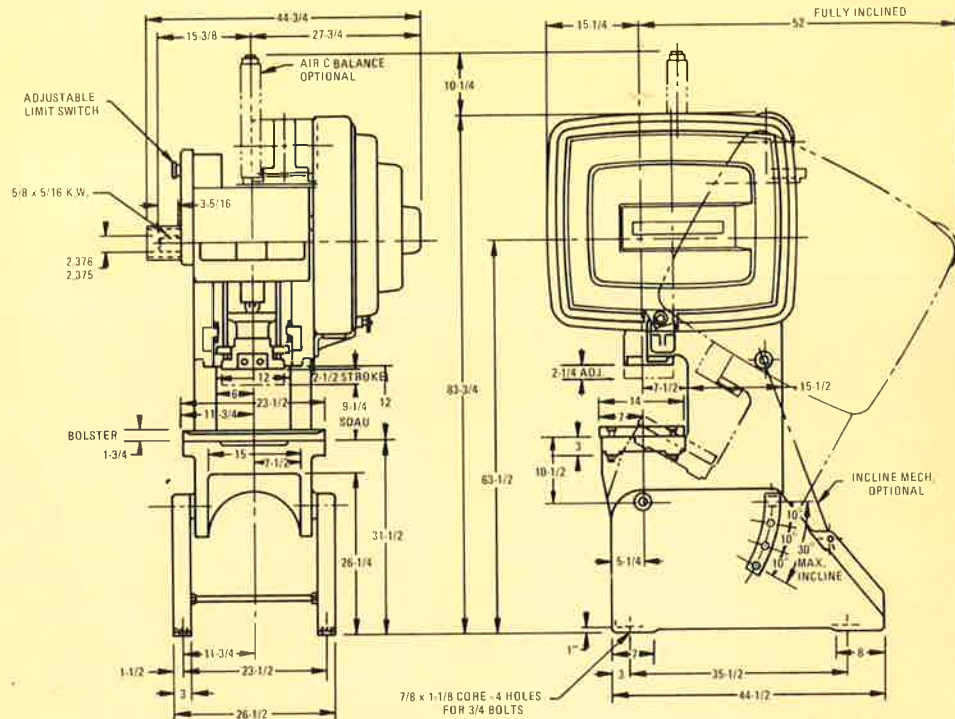
WHAT IT CAN DO FOR YOU

1. Reads directly the total press load, or individual sensor loading, in per cent of rated press capacity.
2. Reads "Peak" dynamic load, and retains this indication up to 30 minutes.
3. Reads directly the static load in a press stuck on bottom.
4. Indicates - - by extent of overload, or sudden change in load reading - - the likelihood of damage to press members, such as a stretched tierod.
5. Enables early detection of changes in stock thickness, loss of die lubrication, or alteration of metal characteristics.
6. Indicates pressure increase due to tool wear - - helps to schedule outages for die maintenance on an optimum basis.
7. Facilitates operation of press within rated capacity - - prolongs press and die life.
8. Speeds set-up to previously established optimum conditions of loading and load distribution.
9. Reads the change in pressure resulting from each adjustment of the connection screw.
10. Output jack allows use of chart recorder for tracking load exerted throughout each stroke of the press so that a permanent record of operating conditions can be made for each job.



BlissPak

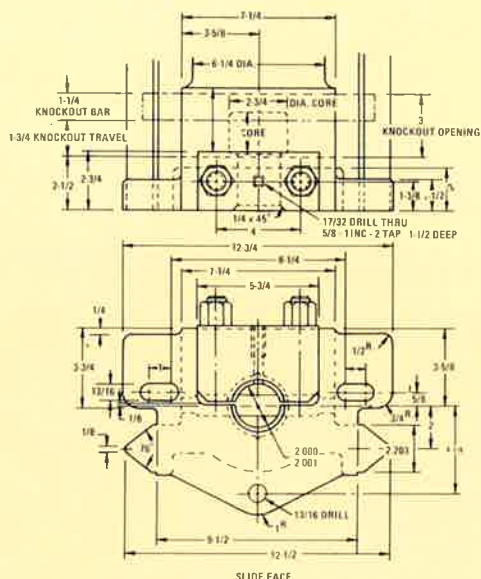
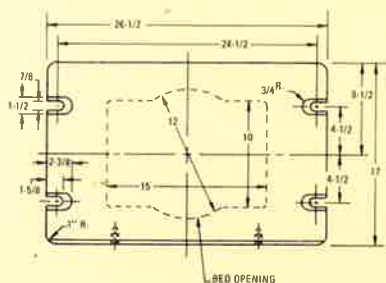
For permanent installation, Bliss offers the "BlissPak", a more sophisticated monitoring system in a choice of mounts and enclosures. In addition to the functions of the Visuload System, BlissPak has the capability of actuating an overload alarm and stopping the press. It can also be made to measure and indicate such parameters as vibration, displacement, SPM, and temperature.



Technical drawing of a bed opening with dimensions:

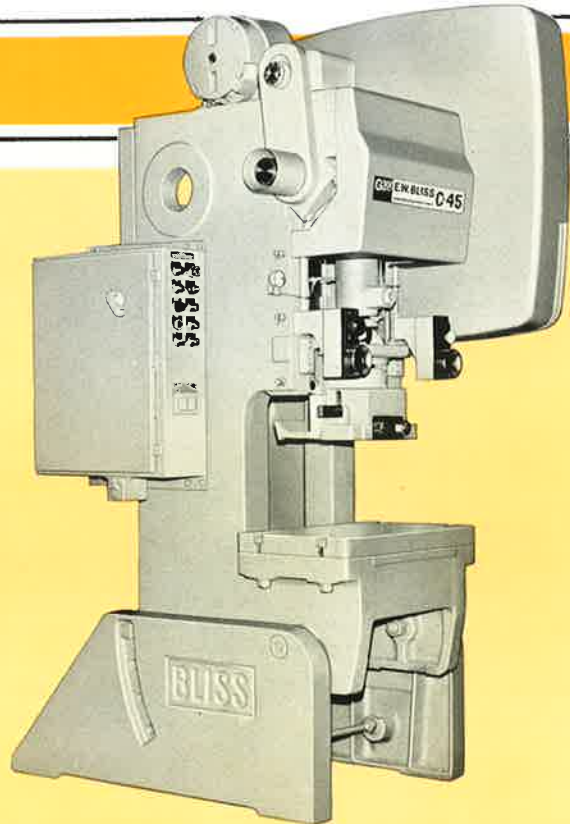
- Overall width: 23-1/2"
- Inner width: 21-1/2"
- Top left corner: 7/8" (radius), 1-1/2" (height)
- Top right corner: 3/4" R (radius), 7" (height)
- Bottom left corner: 1-5/8" (height), 2-3/8" (width), 1" R (radius)
- Bottom right corner: 5" (height), 5" (width)
- Inner opening width: 10-1/2"
- Inner opening height: 9"
- Bottom opening width: 13"
- Label: BED OPENING

24

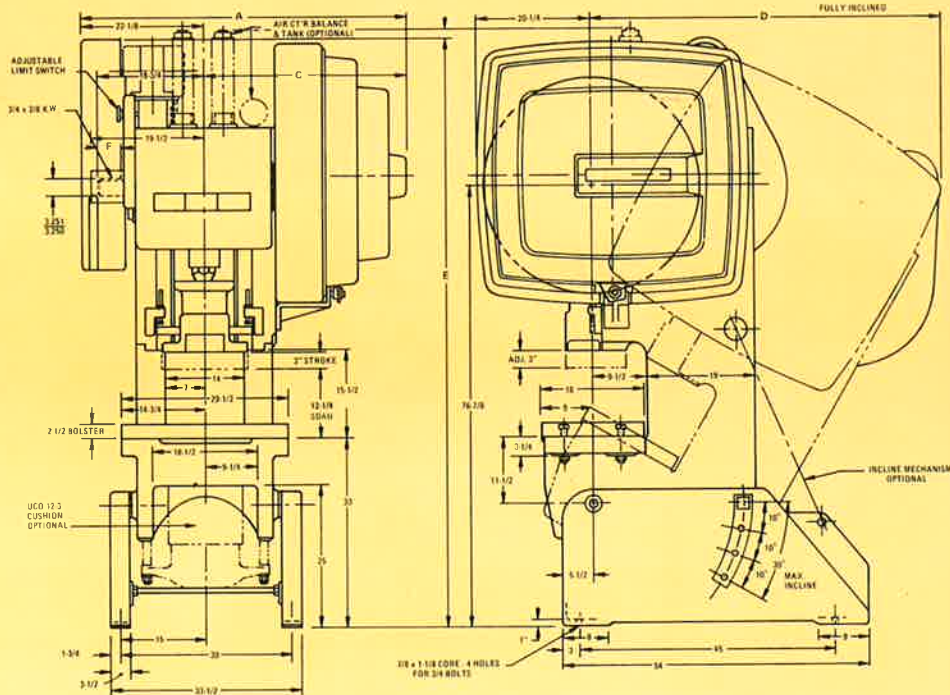


*Special frame available for bed to gibs up to 8" over standard.
**Standard Shutheight

25



C-45 45 TONS



SPECIFICATIONS

Rated Distance Above Bottom		
Non-geared	Ins.	1/16
Geared	Ins.	1/4
Crankshaft		
Diameter at main bearings	Ins.	3-1/2
Diameter at crankpin	Ins.	5-1/4
Bed to Gibs		
Ins.	Std.	15-1/2
Shutheight - Standard Body*		
2" stroke	Ins.	12-3/4
2-1/2" stroke	Ins.	12-1/2
3" stroke (standard)	Ins.	12-1/4**
4" stroke	Ins.	11-1/4
5" stroke	Ins.	10-1/4
6" stroke (maximum)	Ins.	9-1/4
Optional flanged slide area	Ins.	20 x 14
Reduction to Shutheight	Ins.	2-3/4
Strokes Per Minute		
Non-geared press		
Standard		110
Maximum-Air Friction Clutch (standard stroke)		175
Minimum (for intermittent stroking only)		100
Geared press		
Standard		50
Maximum-Air Friction Clutch (any stroke)		90
Minimum (for intermittent stroking only)		42
Bolster Area and Thickness	Ins.	29-1/2 x 18 x 2-1/2
Slide Area	Ins.	15 x 10-1/2
Adjustment of Slide	Ins.	3
Stemhole in slide - dia. x depth	Ins.	2 x 3
Standard Cushion - Geared press only		UCO-12-3
Cushion Capacity at 100 psi air pressure	Tons	5.6
Motor required	HP.	5
Speed		
Non-geared press	RPM.	900
Geared press	RPM.	1800
Weight, non-geared press, approx.		
with air clutch	Lbs.	7700
Weight, geared press, approx.		
with air clutch	Lbs.	8350

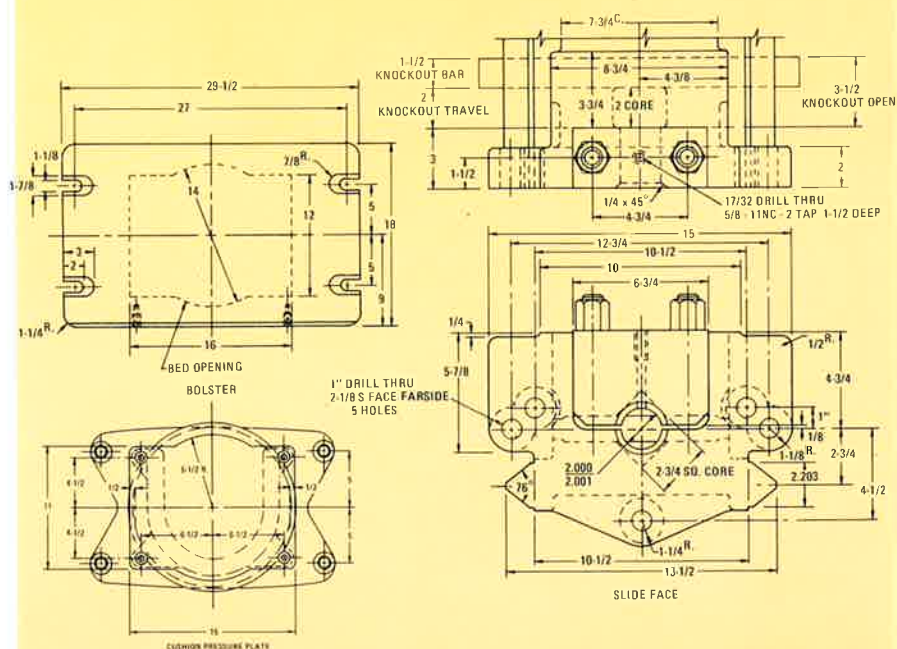
*Special frame available for bed to gibs up to 8" over standard.

**Standard Shutheight

DIMENSIONS

DRIVE	CLUTCH	A	C	D	E	F
Non-Geared	CKU	52-1/4	33-1/2	63	102-3/8	4-1/16
Geared	CKU	56-1/4	34-3/4	61	102-7/8	4-1/16

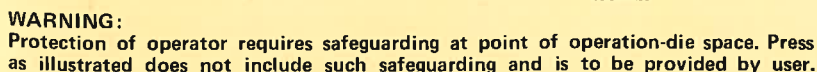
NOTE: Dimensions shown on drawings are the same for all combinations of clutch and drive for this model.



WARNING:
Protection of operator requires safeguarding at point of operation-die space. Press as illustrated does not include such safeguarding and is to be provided by user.



NOTE: Dimensions shown on drawings are the same for all combinations of clutch and drive for this model.



Rated Distance Above Bottom

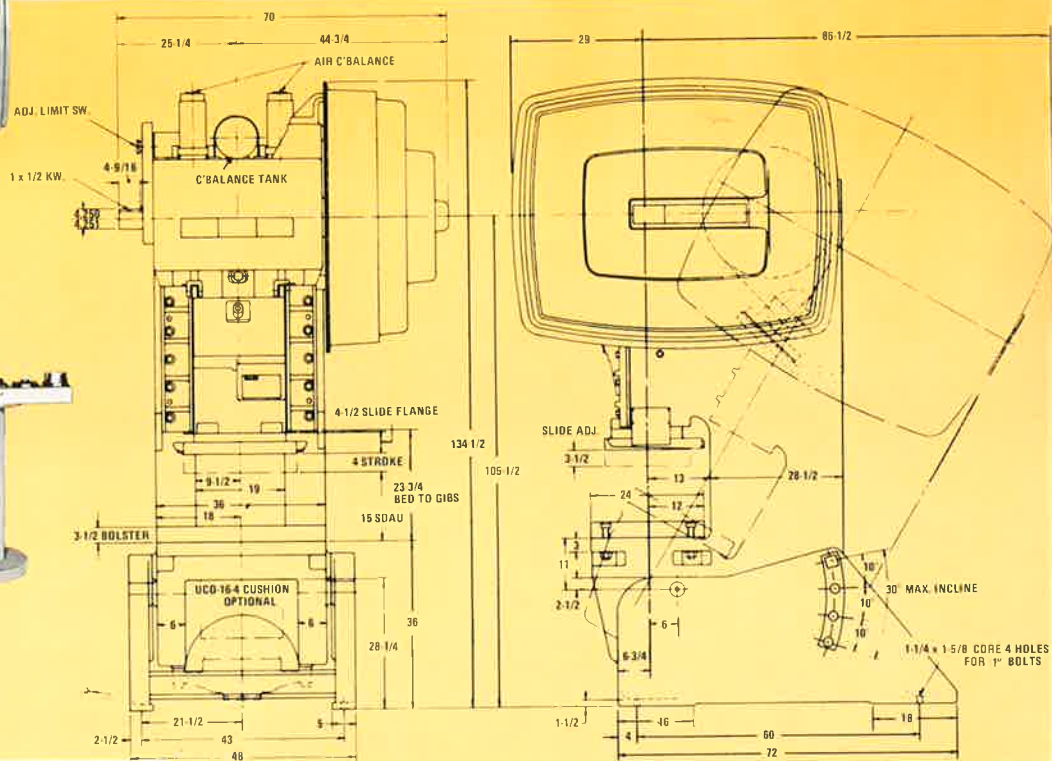
Strokes Per Minute

Non-geared press	
Standard	100
Maximum—Air Friction Clutch (standard stroke)	140
Minimum (for intermittent stroking only)	90
Geared press	
Standard	45
Maximum—Air Friction Clutch (any stroke)	80
Minimum (for intermittent stroking only)	38
Bolster Area and Thickness Ins.	32 x 21 x 3
Slide Area Ins.	17 x 12
Adjustment of Slide Ins.	3
Stemhole in slide — dia. x depth Ins.	2 x 3
Standard Cushion — Geared press only	UCO-14-4
Cushion Capacity at 100 psi air pressure . . Tons	7.7
Motor required HP.	5
Speed	
Non-geared press RPM.	900
Geared press RPM.	1800
Weight, non-geared press, approx.	
with air clutch Lbs.	11,000
Weight, geared press, approx.	
with air clutch Lbs.	12,050

*Special frame available for bed to gibs up to 8" over standard.
**Standard Shutheight

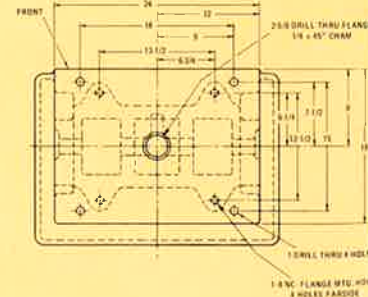
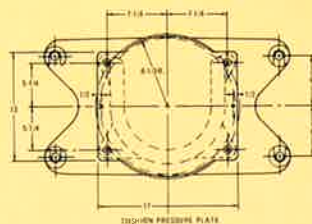
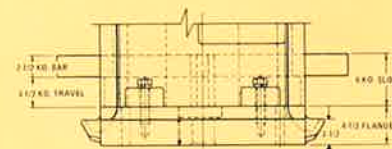
ADJ. LIMIT

1 x 1/2 KW.



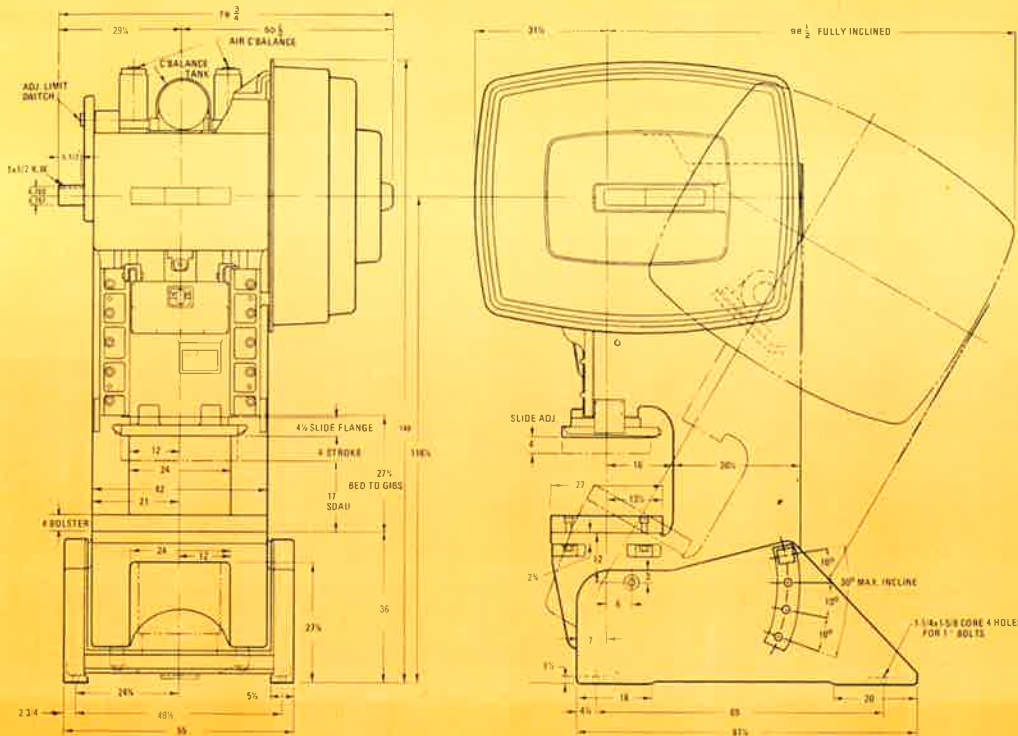
Non-geared	Ins.	1/16	
Geared	Ins.	1/4	
Crankshaft			
Diameter at main bearings	Ins.	4-1/2	
Diameter at crankpin	Ins.	6-3/4	
		Std.	Max.
Bed to Gibs	Ins.	23-3/4	25-3/4
Shutheight — Standard Body*			
2" stroke	Ins.	16	18
2-1/2" stroke	Ins.	15-3/4	17-3/4
3" stroke	Ins.	15-1/2	17-1/2
4" stroke (standard)	Ins.	15**	17
5" stroke	Ins.	14	16
6" stroke	Ins.	13	15
7" stroke	Ins.	12	14
8" stroke (maximum)	Ins.	11	13
Strokes Per Minute			
Non-geared press			
Standard		90	
Maximum — Air Friction Clutch (standard stroke).		120	
Minimum (for intermittent stroking only)		83	
Geared press			
Standard		45	
Maximum—Air Friction Clutch (any stroke)		80	
Minimum (for intermittent stroking only)		38	
Bolster Area and Thickness	Ins.	36 x 24 x 3-1/2	
Slide Area	Ins.	24 x 18	
Adjustment of Slide	Ins.	3-1/2	
Stemhole in slide — dia. x depth	Ins.	2-5/8 x 3	
Standard Cushion — Geared press only.		UCO-16-4	
Cushion Capacity at 100 psi air pressure.	Tons	10	
Motor required	HP.	7-1/2	
Speed			
Non-geared press	RPM.	900	
Geared press	RPM.	1800	
Weight, non-geared press, approx.			
with air clutch	Lbs.	19,500	
Weight, geared press, approx.			
with air clutch	Lbs.	21,000	

Technical drawing of a bed opening. The drawing shows a rectangular opening with rounded corners. The overall width is 35 and the overall height is 12. The opening itself has a width of 18 and a height of 14. The distance from the left edge of the opening to the left edge of the bed is 16 1/2. The distance from the right edge of the opening to the right edge of the bed is 18. The distance from the top edge of the opening to the top edge of the bed is 9. The distance from the bottom edge of the opening to the bottom edge of the bed is 3 1/2. The distance from the left edge of the opening to the left edge of the bed is 3 1/2. The distance from the right edge of the opening to the right edge of the bed is 3 1/2. The distance from the top edge of the opening to the top edge of the bed is 2 1/8. The distance from the bottom edge of the opening to the bottom edge of the bed is 1 3/8. The drawing is labeled "BED OPENING" at the top.

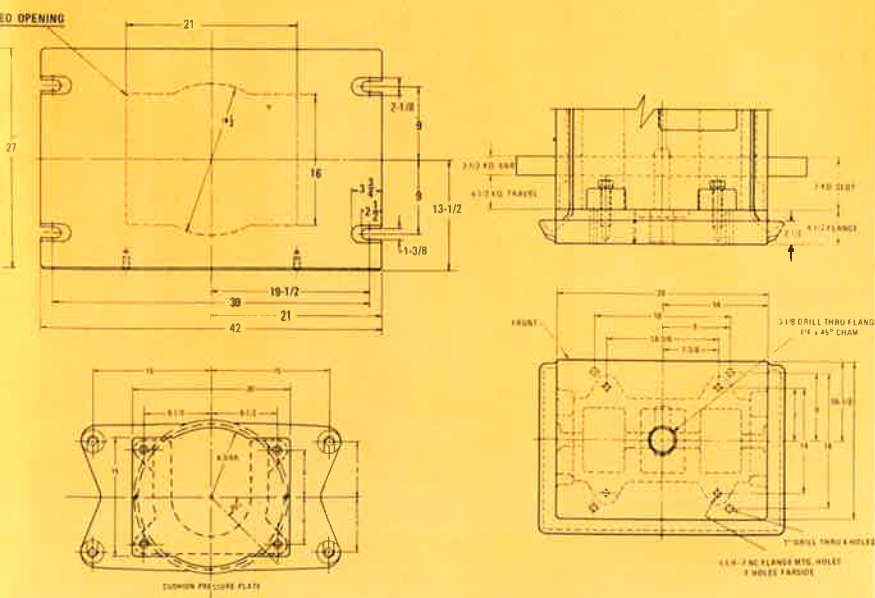


28

C-110 110 TONS



NOTE: Dimensions shown on drawings are the same for all combinations of clutch and drive for this model.



WARNING:
Protection of operator requires safeguarding at point of operation—die space. Press as illustrated does not include such safeguarding and is to be provided by user.

SPECIFICATIONS

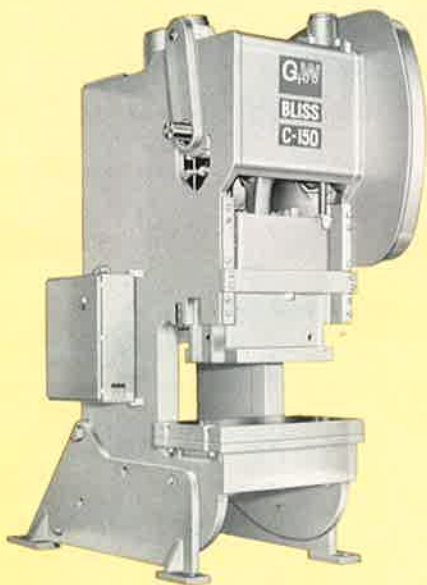
Rated Distance from Bottom		
Non-geared	Ins.	1/16
Geared	Ins.	1/4
Crankshaft		
Diameter at main bearings	Ins.	5-1/2
Diameter at crankpin	Ins.	8-1/4
Bed to Gibs	Ins.	Std. 27-3/4 Max. 29-3/4
Shutheight — Standard Body*		
2" stroke	Ins.	19 21
2-1/2" stroke	Ins.	18-3/4 20-3/4
3" stroke	Ins.	18-1/2 20-1/2
4" stroke	Ins.	18 20
5" stroke	Ins.	17-1/2 19-1/2
6" stroke (standard)	Ins.	17** 19
7" stroke	Ins.	16 18
8" stroke	Ins.	15 17
9" stroke	Ins.	14 16
10" stroke (maximum)	Ins.	13 15
Strokes Per Minute		
Non-geared press		
Standard		85
Maximum—Air Friction Clutch (standard stroke)		110
Minimum (for intermittent stroking only)		75
Geared press		
Standard		40
Maximum—Air Friction Clutch (any stroke)		60
Minimum (for intermittent stroking only)		34
Bolster Area and Thickness	Ins.	42 x 27 x 4
Slide Area	Ins.	28 x 21
Adjustment of Slide	Ins.	4
Stemhole in slide — dia. x depth	Ins.	3-1/8 x 3
Standard Cushion — Geared press only		UCO-18-5
Cushion Capacity at 100 psi air pressure	Tons	12.5
Motor required	HP.	10
Speed		
Non-geared press	RPM.	900
Geared press	RPM.	1800
Weight, non-geared press, approx.		
with air clutch	Lbs.	28,000
Weight, geared press, approx.		
with air clutch	Lbs.	30,000

*Special frame available for bed to gibs up to 8" over standard.

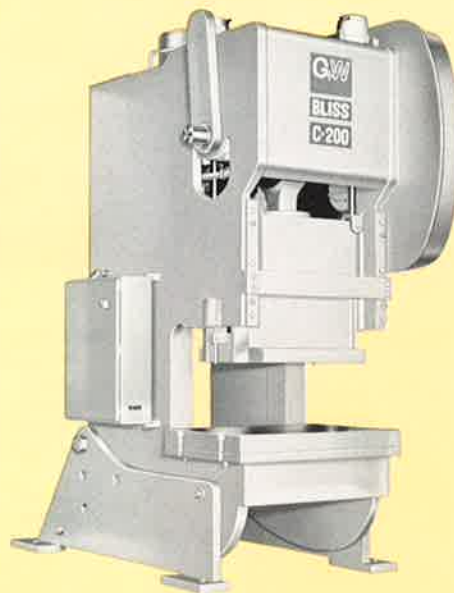
**Standard Shutheight

BLISS

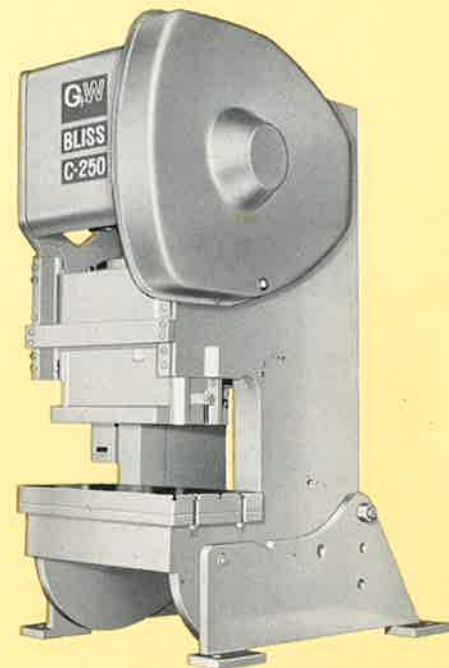
LARGER INCLINABLES



150 TONS



200 TONS



250 TONS

WELDED STEEL FRAME CONSTRUCTION

Bliss Inclinals above size C-110 are constructed of steel weldments, properly normalized and stress-relieved for dimensional stability. They are designed and equipped in full compliance with the ANSI B11.1-1971 Code, as we interpret it, and are compatible with a full range of options and accessories in keeping with modern pressroom practice. For additional information, write E. W. Bliss or consult your Bliss representative.

COMBINED SPECIFICATIONS

"C" SERIES INCLINABLE PRESS SPECIFICATIONS

TONNAGE	22	35	45	60	75	110
NON GEARED - CLUTCH	CKU	CKU	CKU	CKU	CKU	CKU
STROKES PER MINUTE						
STANDARD	150	120	110	100	90	85
MAXIMUM - CKU (Std. Stroke)	230	190	175	140	120	110
MIN. - (For Intermittent Stroking Only)	130	113	100	90	83	75
GEARED - CLUTCH						
STROKES PER MINUTE						
STANDARD	—	—	50	45	45	40
MAX. - CKU or AK (Any Stroke)	—	—	90	80	80	60
MIN. - (For Intermittent Stroking Only)	—	—	42	38	38	34
BOLSTER AREA x THICKNESS	ins.	23½ x 14 x 1¾	26½ x 17 x 2	29½ x 18 x 2½	32 x 21 x 3	42 x 27 x 4
SLIDE AREA	ins.	10¾ x 8¾	10¾ x 8¾	15 x 10½	17 x 12	24 x 18
SLIDE ADJUSTMENT	ins.	2¼	2½	3	3	3½

NOTE: NON-GEARED CKU SPEEDS IN EXCESS OF THOSE SHOWN ARE AVAILABLE WITH STROKE SHORTER THAN STANDARD.
GEARED CKU SPEEDS IN EXCESS OF THOSE SHOWN ARE AVAILABLE WITH SPECIAL FLYWHEEL DIAMETER AND/OR GEAR CHANGE.
ALSO, HIGH SPEEDS ARE AVAILABLE IN THE "CH" SERIES INCLINABLE PRESSES.
MOTORIZED ADJUSTMENT IS OPTIONAL ON 75 AND 110 TON MODELS.

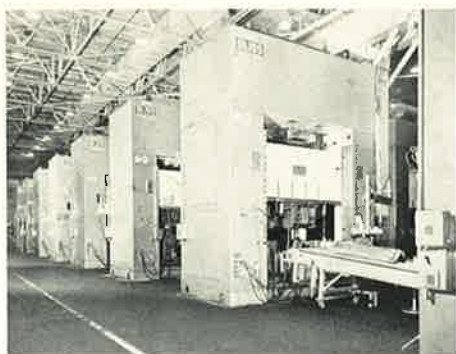
SHUTHEIGHT - STANDARD BODY **

BED TO GIBS												
	STD.	MAX.	STD.	MAX.	STD.	MAX.	STD.	MAX.	STD.	MAX.	STD.	MAX.
	12	13	14	15	15½	16½	16¾	18½	20	23¾	27¾	29¾
STROKE 2	ins.	9½	10½	11¼	12¼	13¾	15¼	16¾	16	18	19	21
STROKE 2½	ins.	★9¼	10¼	11	12	12½	13½	15	16½	17¾	18¾	20¾
STROKE 3	ins.	8¾	9¾	★10¾	11¾	★12¼	13¾	14¾	16¼	17½	18½	20½
STROKE 4	ins.	7¾	8¾	9¾	10¾	11¼	12¼	★14¼	15¾	17	18	20
STROKE 5	ins.	—	—	8¾	9¾	10¼	11¼	13¼	14¾	16	17½	19½
STROKE 6	ins.	—	—	—	—	9¼	10¼	12¼	13¾	15	★17	19
STROKE 7	ins.	—	—	—	—	—	—	11¼	12¾	14	16	18
STROKE 8	ins.	—	—	—	—	—	—	10¼	11¾	13	15	17
STROKE 9	ins.	—	—	—	—	—	—	—	—	—	14	16
STROKE 10	ins.	—	—	—	—	—	—	—	—	—	13	15
STROKE 11	ins.	—	—	—	—	—	—	—	—	—	—	—
STROKE 12	ins.	—	—	—	—	—	—	—	—	—	—	—
OPTIONAL FLANGED SLIDE AREA	14 x 10	14 x 10	20 x 10	20 x 14	20 x 15	INCLUDED						
REDUCTION TO SHUT HEIGHT	1¾		2	2¾	3	INCLUDED						

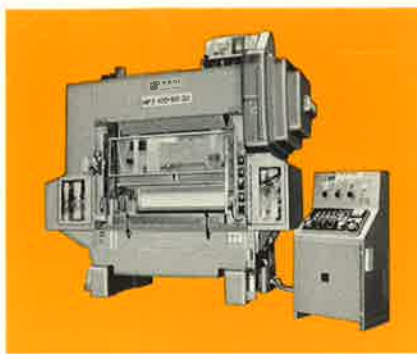
★STANDARD STROKE AND SHUT HEIGHT.

★★SPECIAL FRAME AVAILABLE FOR BED TO GIBS UP TO 8" OVER STANDARD ON MODELS TO 110 TONS

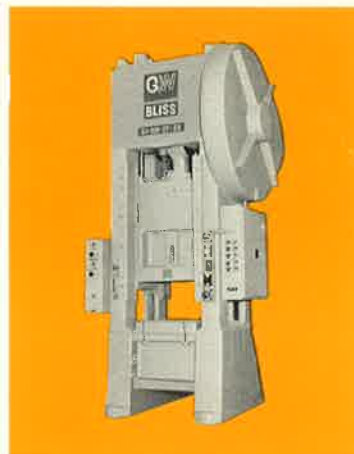
NOTE: ALL DEVIATIONS FROM STANDARD AVAILABLE AT EXTRA CHARGE.



STRAIGHT SIDE ECCENTRIC PRESSES



HIGH PRODUCTION PRESSES

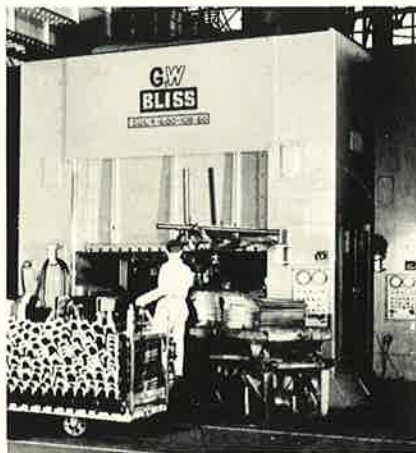


STRAIGHT SIDE
ONE POINT PRESSES

other Bliss presses



KNUCKLE JOINT PRESSES



SINGLE AND MULTIPLE ACTION
UNDER-DRIVEN PRESSES



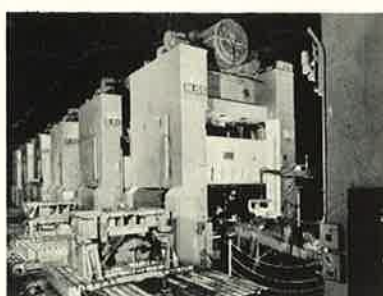
STRAIGHT SIDE
WELDED FRAME PRESSES



POWERBAR PRESSES



WELDING PRESSES



ROLLING BOLSTER PRESSES



TRANSFER FEED PRESSES



E.W. Bliss
Production Machinery Division

GULF + WESTERN MANUFACTURING COMPANY (HASTINGS)

Office and Plant:

1004 E. STATE ST., HASTINGS, MICHIGAN 49058 • (616) 945-2441