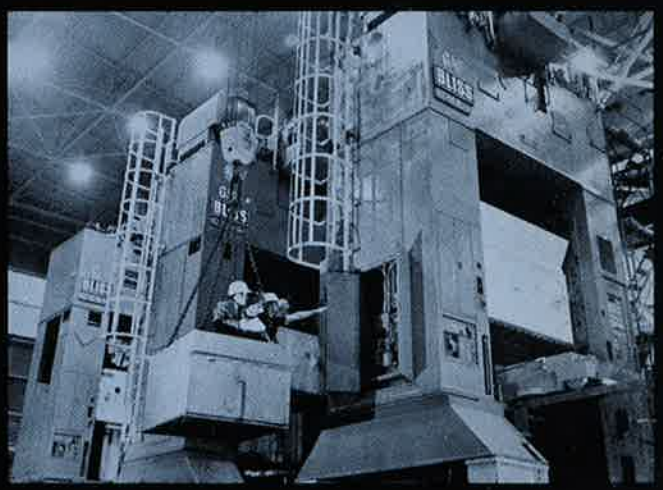
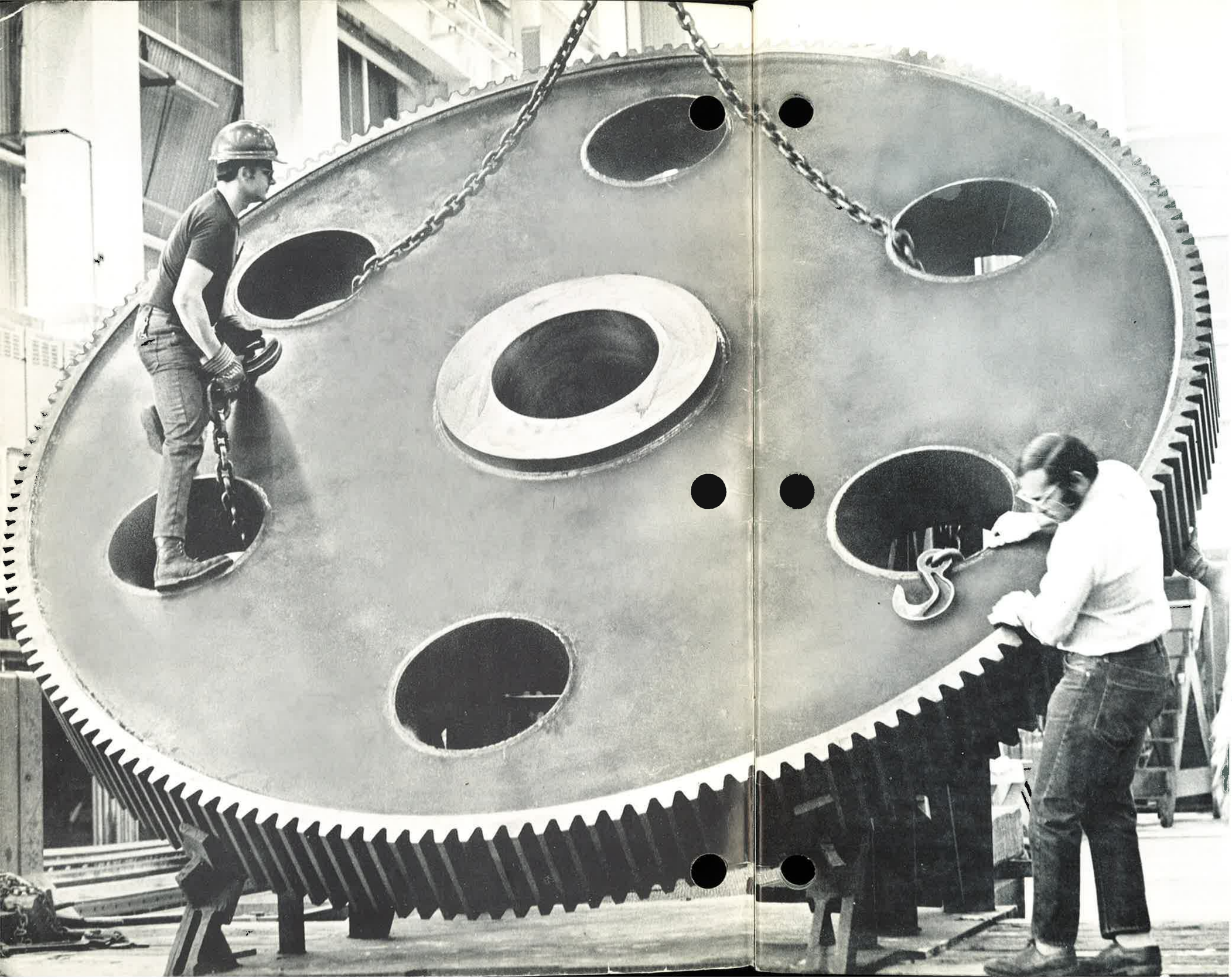
GW BLISS

# General Press Catalog

CATALOG 750

CATALOG 750





**BLISS**

# GENERAL PRESS CATALOG
## CATALOG 750

This is a short-form catalog made up of representative selections from the entire line of E. W. Bliss mechanical and hydraulic presses and special machinery. Detailed information on any of the Bliss equipment shown herein is available in the form of catalogs and data sheets. To obtain copies of this material, or for a discussion of your metalworking requirements, contact the nearest Bliss sales office or write directly to Bliss Press Headquarters, Salem, Ohio 44460.

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# BLISS SETS THE STANDARD OF VALUE

## *Value starts with an engineering concept . . .*

In years, Bliss's pressbuilding experience far outdates all others. Even more important, this experience has gone hand in hand with sustained leadership.

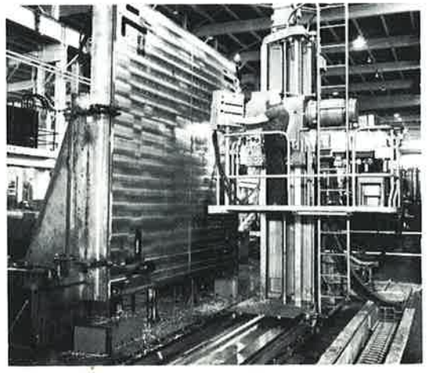
Since 1857, Bliss has pointed the way in improved press design, better materials of construction, and refinement of manufacturing techniques. To a significant degree, Bliss's present engineering capability is an extension of its historical position of leadership in the industry.



## *Value is shaped in the world's largest pressbuilding facilities . . .*

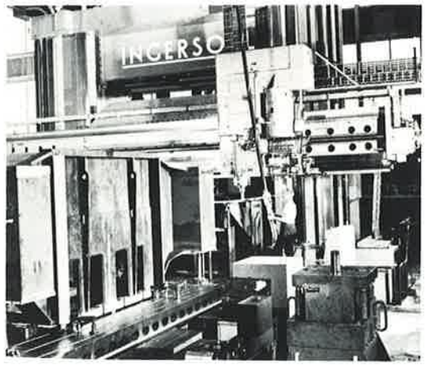
Facilities are the muscle of leadership. It's long been a Bliss policy to invest heavily in the physical plant needed to sustain a "can do" rather than a "make do" philosophy. Result is the largest and most versatile aggregate pressbuilding capability in the world.

This tape-controlled drilling machine typifies the constant upgrading of production facilities at Bliss plants.

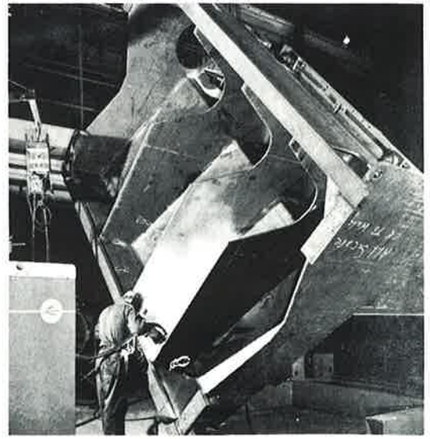


Castings continue to occupy an important place in smaller press construction. Meehanite castings are of the highest quality.

Part of a recent expansion program, this planer mill helps achieve peak efficiency while increasing production - - both objectives being reflected in added value to the customer.




Weldments make up a large part of modern press construction. Bliss's press division has crane capacity for individual lifts to 400,000 pounds; numerous massive welding positioners; floor-to-hook clearance of 58 feet; and car-type stress relieving furnaces of 14' x 14' x 32' inside dimensions.



# BLISS SETS THE STANDARD OF VALUE

## *Value is assured by an exacting Quality Assurance program . . .*

Bliss's Quality Assurance Program is a three-part operation: 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.

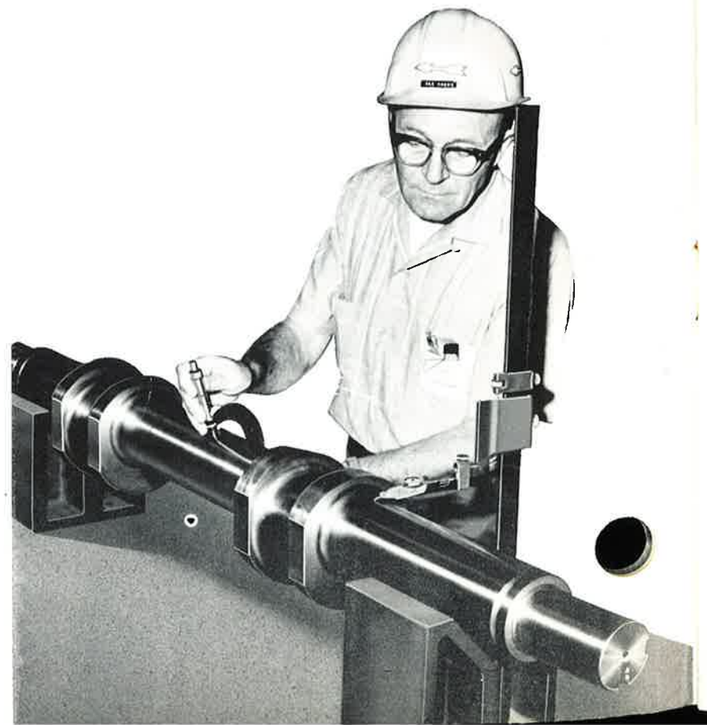
Pre-production Quality Control is handled by laboratory personnel under the supervision of metallurgists and welding engineers. It determines proper materials, processing procedures, and surface treatments.

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

Process capability studies are regularly performed to assure continued 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 the customer's specifications and to Bliss's own exacting standards of manufacturing and performance.

Recent federal legislation has heightened the interest in noise levels. Noise testing is an important part of the Bliss Quality Assurance Program.



Major press components are inspected throughout manufacture and during final assembly.



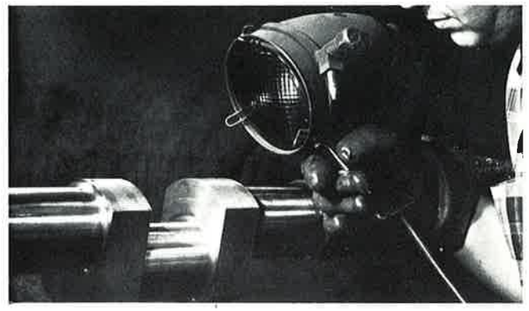
## *Value is maintained by an unequalled Customer Services Organization . . .*

Inventive design, reliable construction, and careful quality control produce value in presses. Service - - the concern with continuing high performance of Bliss equipment in the field - - gives depth to the total picture of value.

Bliss's inventory of service parts is huge - - approximately 85% of all parts orders are filled off the shelf. Service parts production has priority over all other manufacturing; parts are scheduled and inventories monitored by EDP. For large scale maintenance, conversion, and modernization projects, Bliss maintains service centers throughout the country and indeed, throughout the world, with resident managers and experienced staffs of field service men. Some 42 factory-engineered conversion assemblies are available for upgrading older presses in the customer's shop and complete, A-1 rebuilds with new press warranties are available from the Bliss plants.

Bliss's manufacturing philosophy demands that every Bliss press be a testimonial to Bliss value . . . and that it continue to deliver that value as long as it is in service.

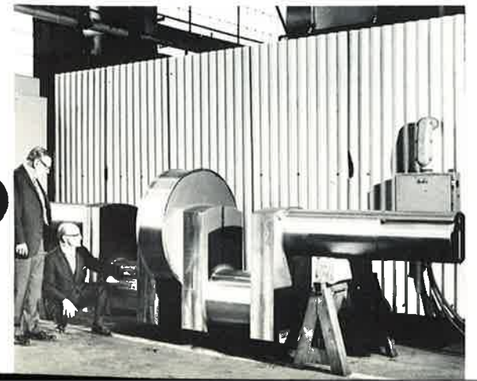
Parts inventories valued at over a million dollars are maintained at Bliss plants.



Magnaflux inspection of a crankshaft for rebuild. Every component in an A-1 factory rebuild goes through the new press Quality Assurance Program.

Checking parallelism on a rebuilt OBI. Bliss rebuilds carry a new machine warranty.

Large, one-of-a-kind components are manufactured under top priority at Bliss's Salem Plant.



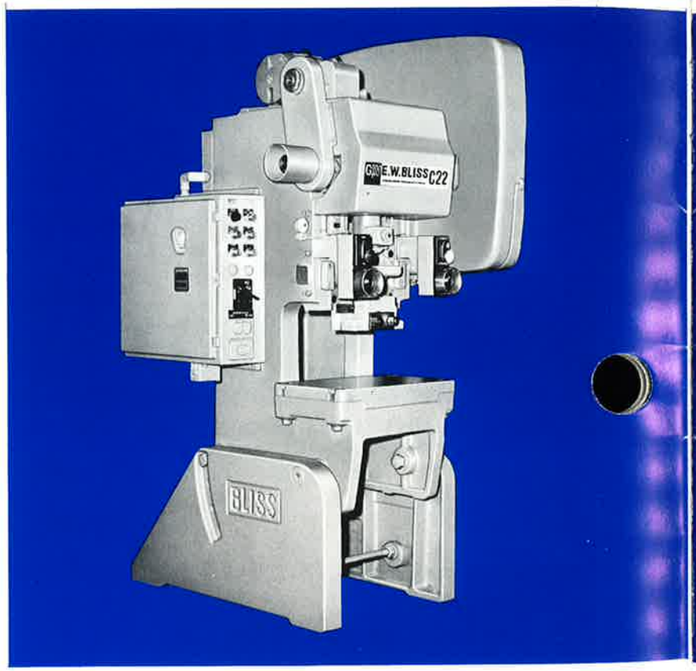
# BLISS

## INCLINABLE PRESSES 22 TO 110 TON

### Workhorses of the industry

Bliss Inclinable Presses are used for all types of metal forming operations including blanking, perforating, forming, bending, drawing, assembly, and combination die. Available in a wide range of standard sizes from 22-ton to 250-ton, Bliss Inclinables can be fitted with many optional features and accessories. They are offered in either flywheel or geared drives, and with a combination air friction clutch and brake. All are available with variable speed drives. To facilitate handling and increase production, Bliss manufactures a complete line of feeds such as roll (single and double), dial, transfer, and other types. Every Bliss Inclinable with geared drive is machined to accept a standard die cushion, which can be added at any time during the life of the press without field modification. The Bliss line of Inclinables includes presses of 22, 35, 45, 60, 75 and 110 tons capacity in standard cast Meehanite construction. Presses of 150, 200, and 250-ton capacities are of welded steel frame construction.

All Bliss Inclinable Presses are built in full conformity with the ANSI B11.1-1971 Code as we interpret it. For Bliss's interpretation of the Code as regards the responsibilities of the builder and the user, plus other data on Code compliance, write to E. W. Bliss for the portfolio: "B11.1 As We See It!"




## C-22

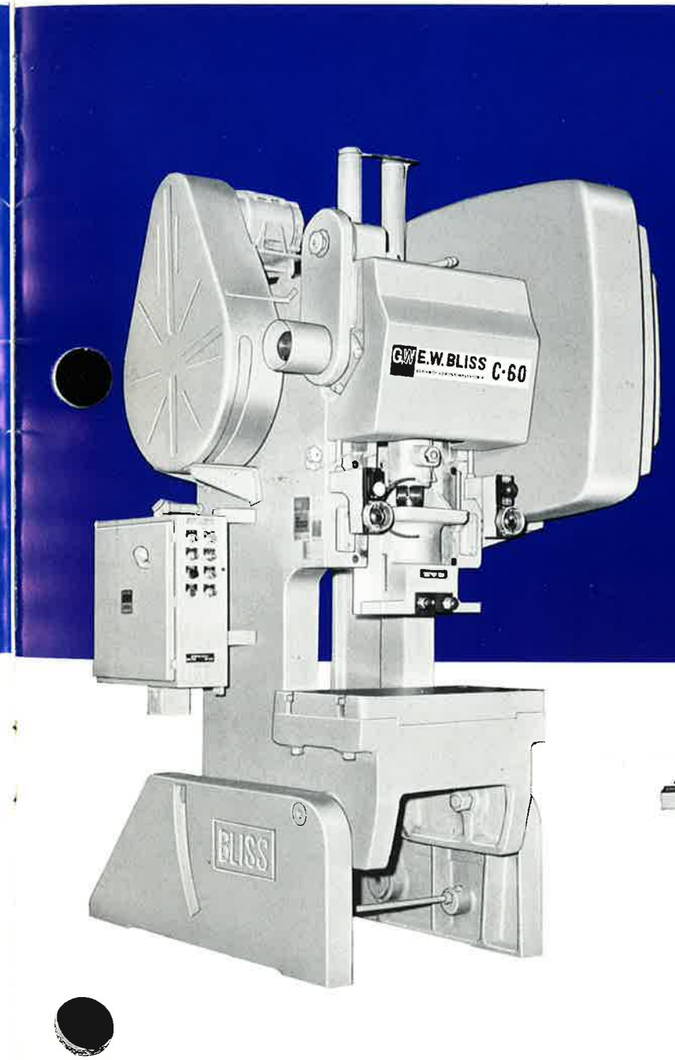
This 22-ton press is used for a wide range of light blanking, forming, and assembly operations. It is adaptable to many types of feeds and workholder devices to speed production.

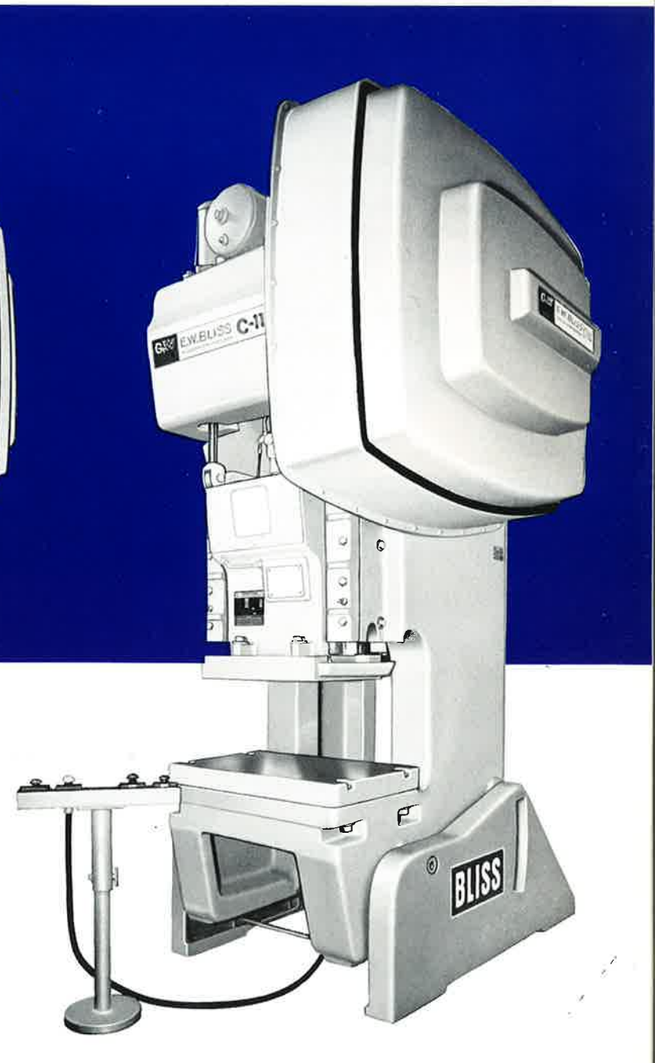
## C-60

This 60-ton Inclinable is typical of the medium size "C" series line of Inclinable presses. Cast Meehanite frames and careful design specifications of these presses result in a very low deflection of .0015 inch maximum per inch of throat depth. Generous die space and easily accessible work area simplify die setup. Models up to 60 tons capacity are equipped with V-type gibs. A wide choice of drives, clutches, optional features and accessories is available to suit virtually any job requirement. All "C" Series Inclinables with geared drive are machined to accept the standard "UCO" type cushion.

## C-110

Larger "C" Series Inclinables, such as the 75 and 110-ton models, combine the same basic design characteristics of the smaller "C" presses with added features required for larger jobs. Air counterbalances for the slide are standard equipment on these units. A motorized slide adjustment is optional; six-point gibbing with replaceable bronze liners is used on all C-75 and C-110 presses for better support and alignment of the more massive slides of the larger presses. Ball-joint connections are standard on all "C" Series presses through 110 tons capacity.

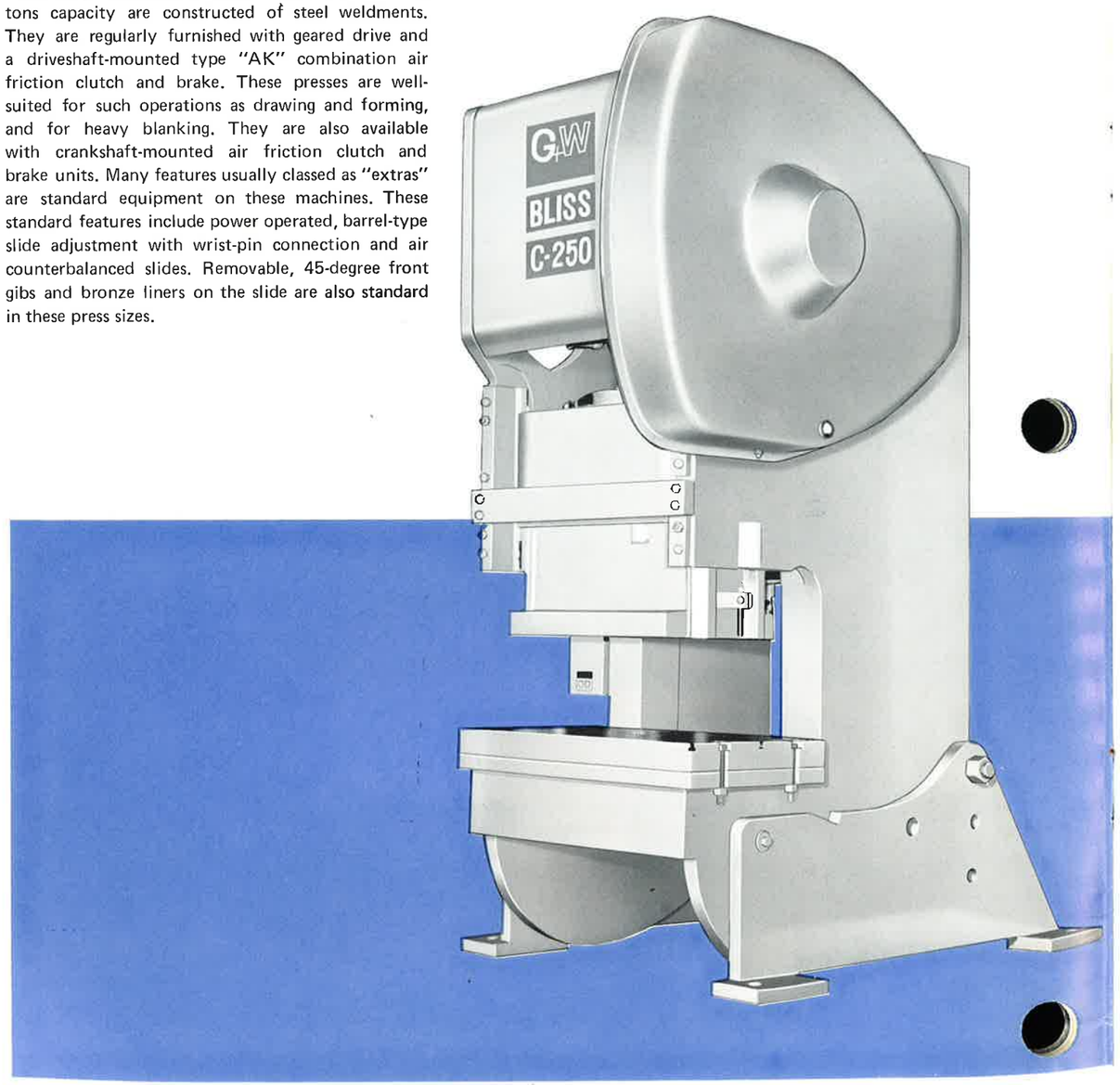


# BLISS

## INCLINABLE PRESSES 150 TO 250 TON

These large Inclinable Presses of 150, 200 and 250 tons capacity are constructed of steel weldments. They are regularly furnished with geared drive and a driveshaft-mounted type "AK" combination air friction clutch and brake. These presses are well-suited for such operations as drawing and forming, and for heavy blanking. They are also available with crankshaft-mounted air friction clutch and brake units. Many features usually classed as "extras" are standard equipment on these machines. These standard features include power operated, barrel-type slide adjustment with wrist-pin connection and air counterbalanced slides. Removable, 45-degree front gibs and bronze liners on the slide are also standard in these press sizes.

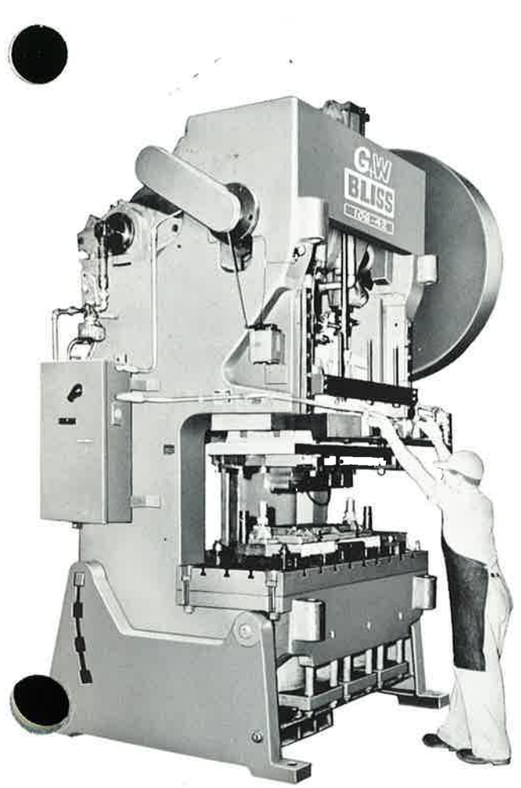


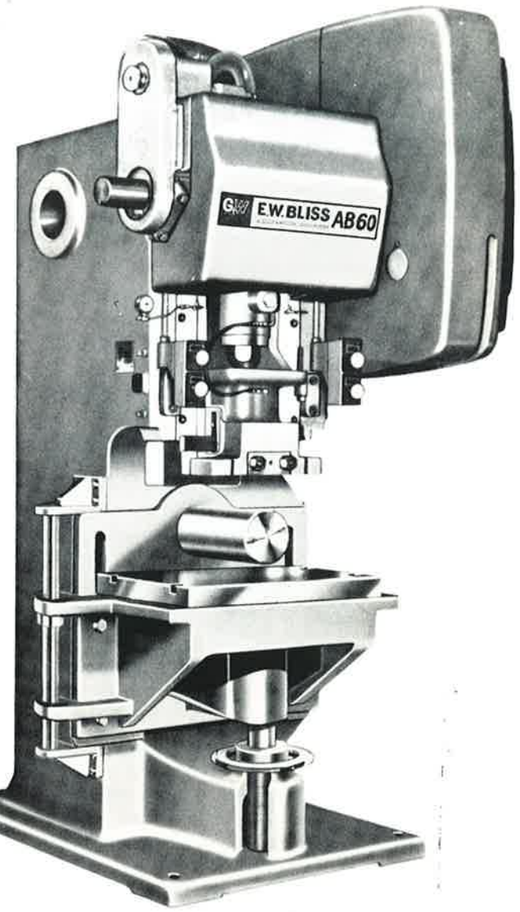



# BLISS

## DOUBLE CRANK INCLINABLES

Available in capacities from 18 to 175 tons, the double crank inclinable offers several advantages in certain manufacturing situations. The wide beds, for example, with easy access from three sides, help accommodate large or irregular shaped workpieces. An optional inclining feature facilitates gravity disposal of scrap or stampings. A flanged slide is standard, designed to handle wide dies or a series of dies for multiple or progressive die work. Twin cranks distribute forces evenly over the working area, resulting in greater accuracy and longer die life. The double crank series performs a wide variety of punching, shearing, perforating, and stamping operations. Models up to, and including 75 tons, are available as either non-geared or single-geared units. Over 75 tons, these presses are single-geared.




## HORN PRESSES

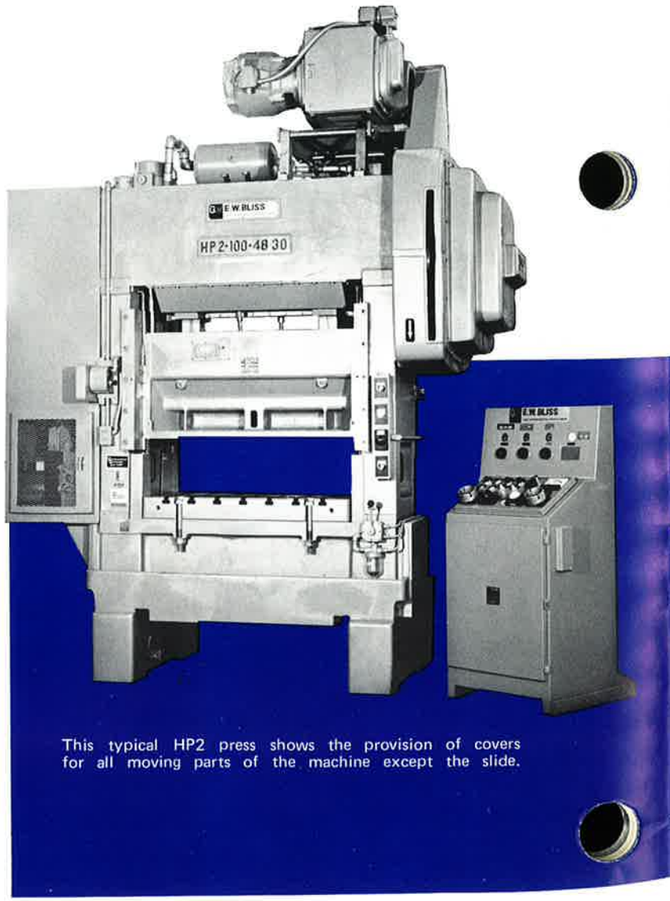
Bliss Horn Presses are designed for hook forming, seam closing, riveting, cylinder perforating, and other work requiring special horns. They are also well-suited to conventional blanking and forming jobs requiring a table or bed. Adjustable table height adds flexibility, permitting use of dies with a wide range in shut-height. Available in capacities from 22 to 60 tons, they are regularly furnished with an air friction clutch.

# BLISS

## HP2 HIGH PRODUCTION PRESSES

The Bliss HP2 Series High Production Presses are the current generation of the original high production, doublecrank, precision presses pioneered by Bliss to meet the demands of progressive die work. The current design incorporates innovations and improvements based on 30 years' experience in building this equipment. The current HP2's are a new design providing improved ease of operation, adjustment and maintenance. Constructed of cast Meehanite, they provide the ultimate in rigidity, stamping precision, load distribution, and die life. Standard capacities range from 25 to 400 tons.

HP2's are rugged from the floor up. Uprights, slides, and beds are designed for maximum rigidity. The Bliss deflection standard in bending and shear for both bed and slide is .001" per foot between tie rod centers with the load evenly distributed over the center 2/3 of the bolster. This, coupled with the superior vibration-damping qualities of the Meehanite frames and pre-stressed steel tie rod construction, results in maximum precision and die life. Crankshafts are balanced and counter-weighted to reduce eccentric forces. Other features include standard variable speed drive with remote speed control, liberal size die area, console control, and recirculating oil lubrication. Extremely accurate square corner gibbing provides eight-point guidance of the slide. This results in precise alignment enabling new highs in slide-to-bed parallelism. The Bliss standard is .0005" per foot, not to exceed .002", left to right and front to back, thus giving longer die life and more precise finished products. The Bliss "CKU" combination air friction clutch and brake with "unsticker" is standard. The precision type "R" rack-and-pinion roll feed is used with this press for feeding stock side-to-side or front-to-back.



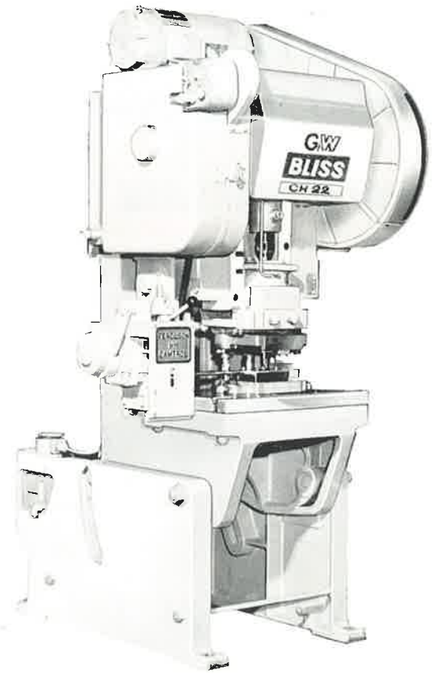

This typical HP2 press shows the provision of covers for all moving parts of the machine except the slide.

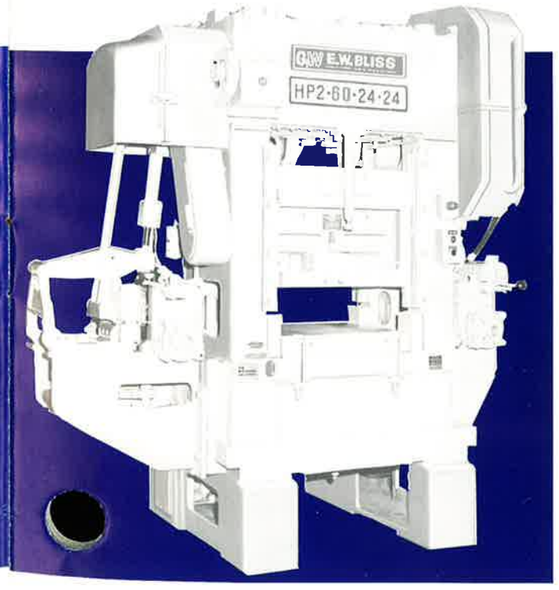


# BLISS

## HIGH SPEED GAP FRAME PRESSES CH Series

These high-speed gap frame presses incorporate a number of modifications to the standard "C" Series Inclinable line which account for their efficient and trouble-free operation at the much higher speeds employed with continuous, automated feeding. Usually non-geared, these presses are available in capacities from 22 to 60 tons, and operate at speeds as high as 1200 strokes per minute. Because of their design and high speeds, they are well-suited for the production of large quantities of small and medium parts such as washers, snap rings, electrical, and electronic components. Frames are of cast Meehanite; slides ride in solid bronze gibs for smooth operation at high speeds. A fast-acting Bliss "SU" clutch with power "unsticker" is mounted on the counter-weighted crankshaft. A large, separate brake provides quick stops in the event of a misfeed detection, or regular stops at top of stroke. A variety of controls, feeds, and optional features makes the CH-Series easily adaptable to specialized customer operations.




A typical HP2 press and double roll feed with covers removed for photo only.

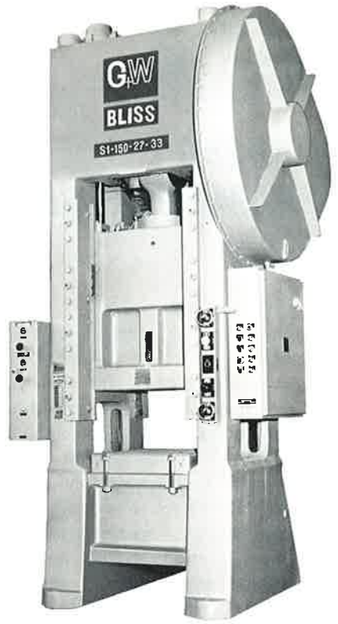
# BLISS

## SINGLE ACTION TOP-DRIVE PRESSES

### Crankshaft Design - Cast Frame

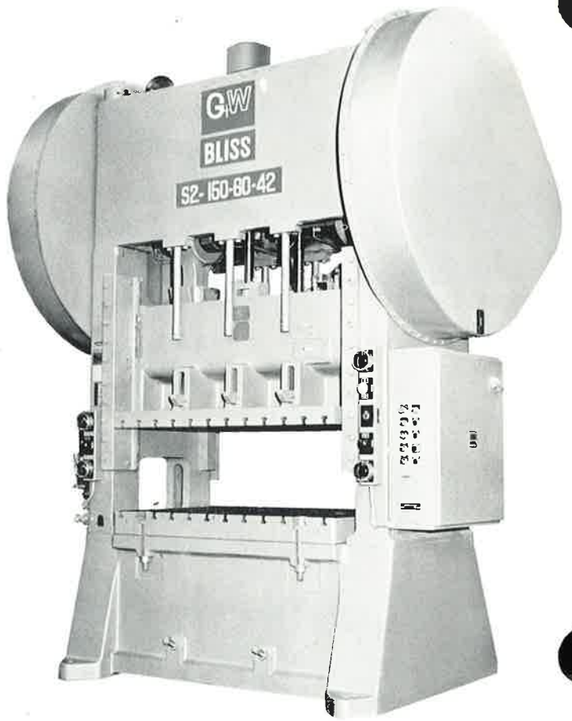
## ONE-POINT PRESSES

Bliss straight-side, one-point (S1) presses are widely used for blanking, piercing, stamping, forming, and similar operations on medium-sized parts. Available in capacities from 100 to 600 tons, they are used extensively in the automotive, appliance, aircraft, hardware, farm machinery, and furniture industries. The S1 presses feature four-piece tie rod construction with bed, box-type crown, slide, and uprights of cast Meehanite. Barrel-type slide adjustment permits long adjustments to accommodate dies in greatly varying heights. The type-"AK" single-disc pneumatic friction clutch and brake is standard equipment.




## TWO-POINT PRESSES

Bliss straight-side, two-point (S2) presses are used for blanking, forming, drawing and other operations on a wide variety of parts where die size dictates two-point design. Available in capacities from 100 to 400 tons, the S2 press is of the same basic four-piece tie rod construction as the S1, using the same clutch and incorporating the same design features. These presses can be equipped with Bliss die cushions, knockouts, automatic feeds, and special lubrication systems to suit customer requirements. They are available, as are the S1 series, with either single- or twin-end drive.





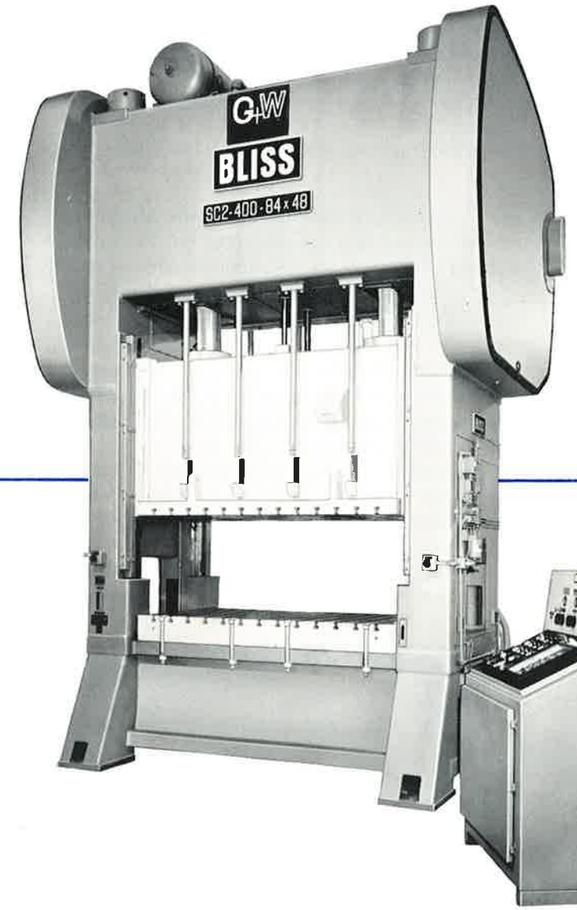

# BLISS

## SINGLE ACTION TOP-DRIVE PRESSES

### Crankshaft Design - Welded Construction

Bliss crankshaft presses with welded frames (SC2) are used for general purpose forming, drawing, and blanking operations. They are suitable to either short or long production runs. Available in capacities from 150 to 400 tons, these presses are offered in a wide range of bed areas. They can be furnished as either non-geared, single-geared, or double-geared machines with either single-end or twin-end drives.

Standard units are of the non-inbuilt design with various degrees of inbuilding available as an option. Design features include 8-point gibbing, air counterbalances, provisions for bar-type knockouts, automatic recirculating oil lubrication, motor-driven slide adjustment, and either the type "AK" or "CKU" combination clutch and brake. Many optional features are available such as overload devices, tie rod tensioning devices, die cushions, and a variety of feed arrangements.

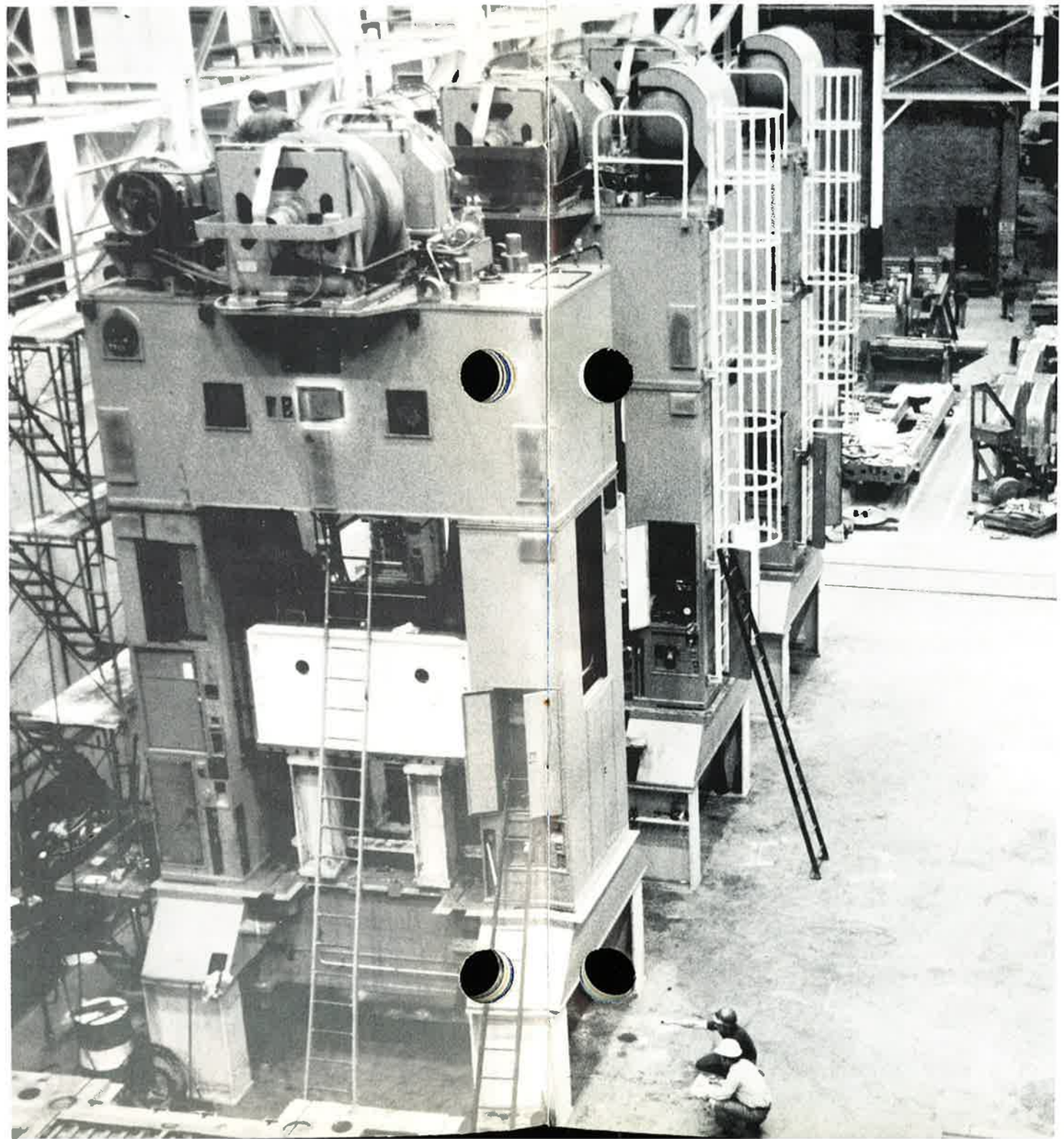


# BLISS

## SINGLE ACTION TOP-DRIVE PRESSES

### Eccentric Gear Design - Welded Construction

These straight side, single action, eccentric gear (SE2) presses are the latest generation of Bliss designs, brought to a high degree of standardization. They cover a broad range of industry requirements and are widely used for forming, drawing, and blanking operations. They are the most rugged of the straight-side, top-drive presses. Frames are of welded steel throughout, designed for maximum rigidity and accessibility. Available in J.I.C. standard tonnages of 200 to 2000, these presses offer an extreme range of bed sizes and length of stroke.



A line up of large Bliss automotive presses undergoing inspection.



BLISS

## DESIGN FEATURES

The standard Bliss eccentric gear press is of the non-inbuilt design with varying degrees of inbuilding, including fully enclosed, available as an optional extra. Standard design features of these presses include:

(1) 8-point gibbing for full guidance of the slide at all four corners in both directions of lateral thrust.

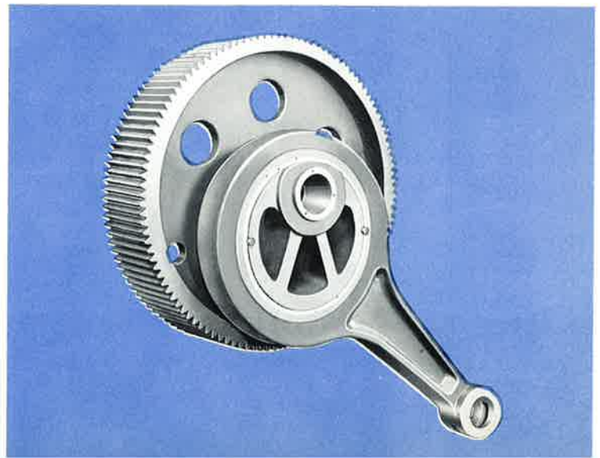
(2) Slide and bed are rigid, stress-relieved weldments. Bed deflection in the standard press is guaranteed not to exceed .002" per foot of die space with the rated load evenly distributed over 2/3 of the distance between tie rod centers. These calculations take into account both bending and shear deflection. Lower deflection ratings may be provided, when required, at slight additional cost.

(3) Counterbalance cylinders.

(4) Automatic recirculating oil lubrication with high pressure, positive displacement serving all points.

(5) Either the type "AK" clutch and brake or the type "DK-FK" low inertia, independent clutch and brake.

To satisfy special production requirements, these presses can be furnished with a variety of optional features to insure optimum production and efficiency. These features include: bar-type knockouts, automatic control devices, overload protection, tie-rod tensioning devices, fast die-setting and cycle controllers, die cushions, and automatic feeds. These presses can be easily adapted for a variety of Bliss rolling bolster configurations. Rolling bolster installations most frequently incorporate special control devices to help realize the most from this equipment. Some of the devices that can be furnished are: automatic die clamps, bolster elevating mechanisms, slow-inch provision for die setting, and bolster hold downs. These presses can be equipped with a variety of feeds for either side-to-side or front-to-back feeding.

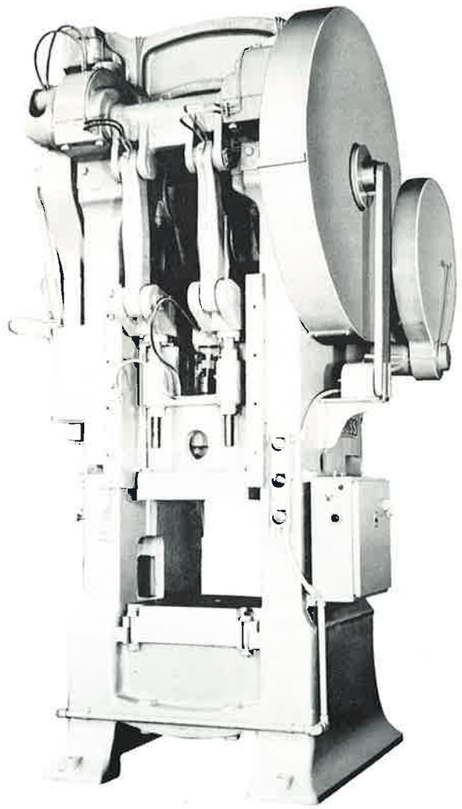


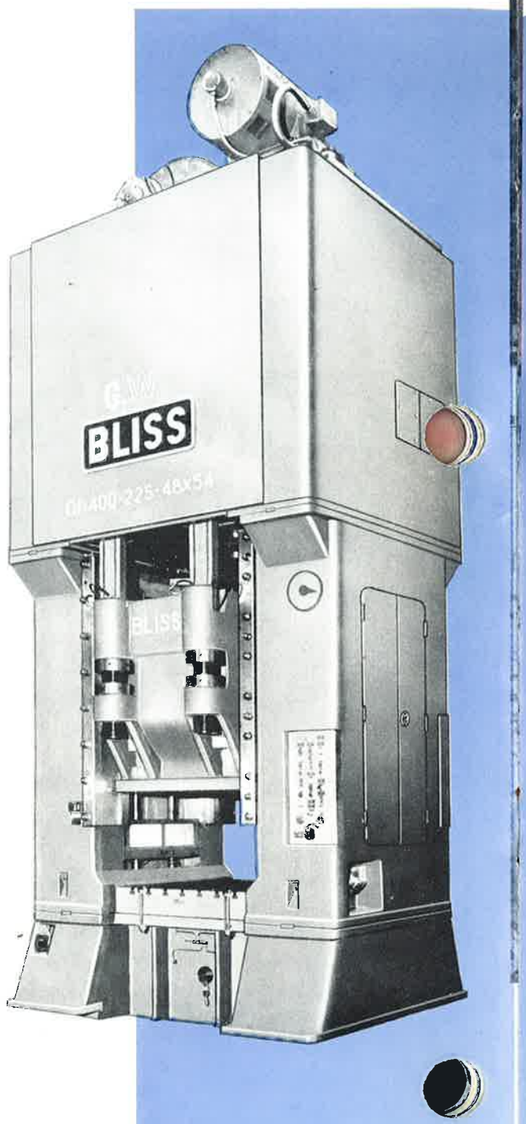
**BLISS**

# DOUBLE ACTION TOP-DRIVE PRESSES

## SINGLE CRANK TOGGLE DRAWING PRESSES

These presses are available in capacities from 60 to 175 tons. They are used for shallow and deep drawing operations, and for forming round, square, and irregular shapes. The toggles operate the blankholder and provide a dwell period that allows the plunger to perform the complete draw. Constructed of cast Meehanite, these presses are popular with makers of stainlesss steel, aluminum, and copper kitchen utensils, automotive components, electrical parts, watch cases, and home appliance components. The Bliss Type "AK" pneumatic friction clutch and brake is standard on this design.





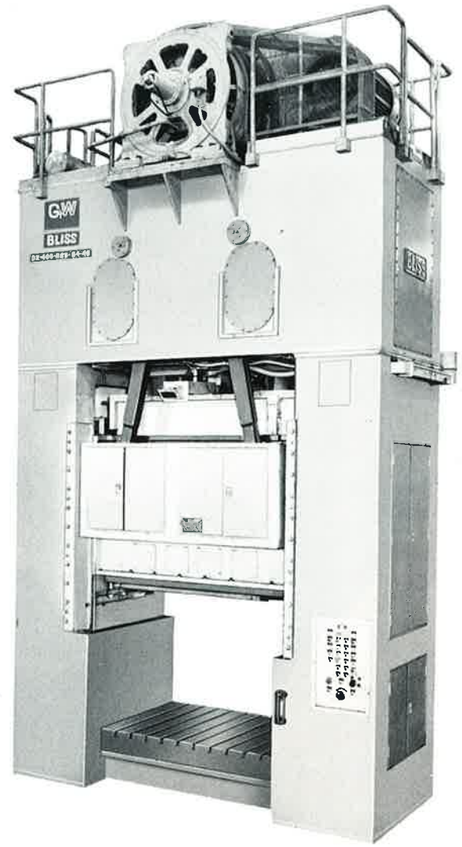

## ONE-POINT PRESSES

These presses are used for heavy, deep drawing over a relatively small area and for draws requiring more blankholding pressure than can be obtained from a cushion on a single action press. On these double-action presses, the Bliss toggle mechanism transfers the entire blankholding load to the frame, allowing the crankshaft to deliver nearly all its power to the plunger. This press line is characterized by heavy frames of four-piece tie rod construction with components of fully stress-relieved welded steel. Plunger adjustment is motorized and the blankholder adjustment is made manually. Either the type "AK" combination clutch and brake or the independent type "FK" clutch and "DK" brake can be furnished. Air counterbalance is standard on both the inner and the outer slides. A variety of optional features includes Bliss die cushions with locking device, which can be installed at any time without modification; overload protection comprised of interlocked hydraulic and electrical systems which stop the press in the event of overload; hydraulic pinch adjustment on blankholder; automatic or semi-automatic slide positioning which speeds die changes and helps protect dies; and a slow-inch mechanism which permits the set-up man to produce an actual work piece under inching conditions.

These presses are used for producing automotive brake drums, crankcase pans, deep tubs, lawnmower bodies, wheelbarrow trays, and other heavy stampings. Smaller sizes and tonnages produce kitchen utensils and small appliances. Capacities range from 200 to 2000 tons on the plunger.

## TWO AND FOUR POINT PRESSES

Similar in construction, function, and features to the one-point presses, these machines are used to produce larger parts when die size dictates a more even distribution of tonnage to the die area. Examples are large automotive panels, bathtubs and sinks, caskets, aircraft parts, and metal furniture. The inner and outer ram adjustments are motorized. Capacities range from 200 to 1600 tons on the plunger.



# BLISS

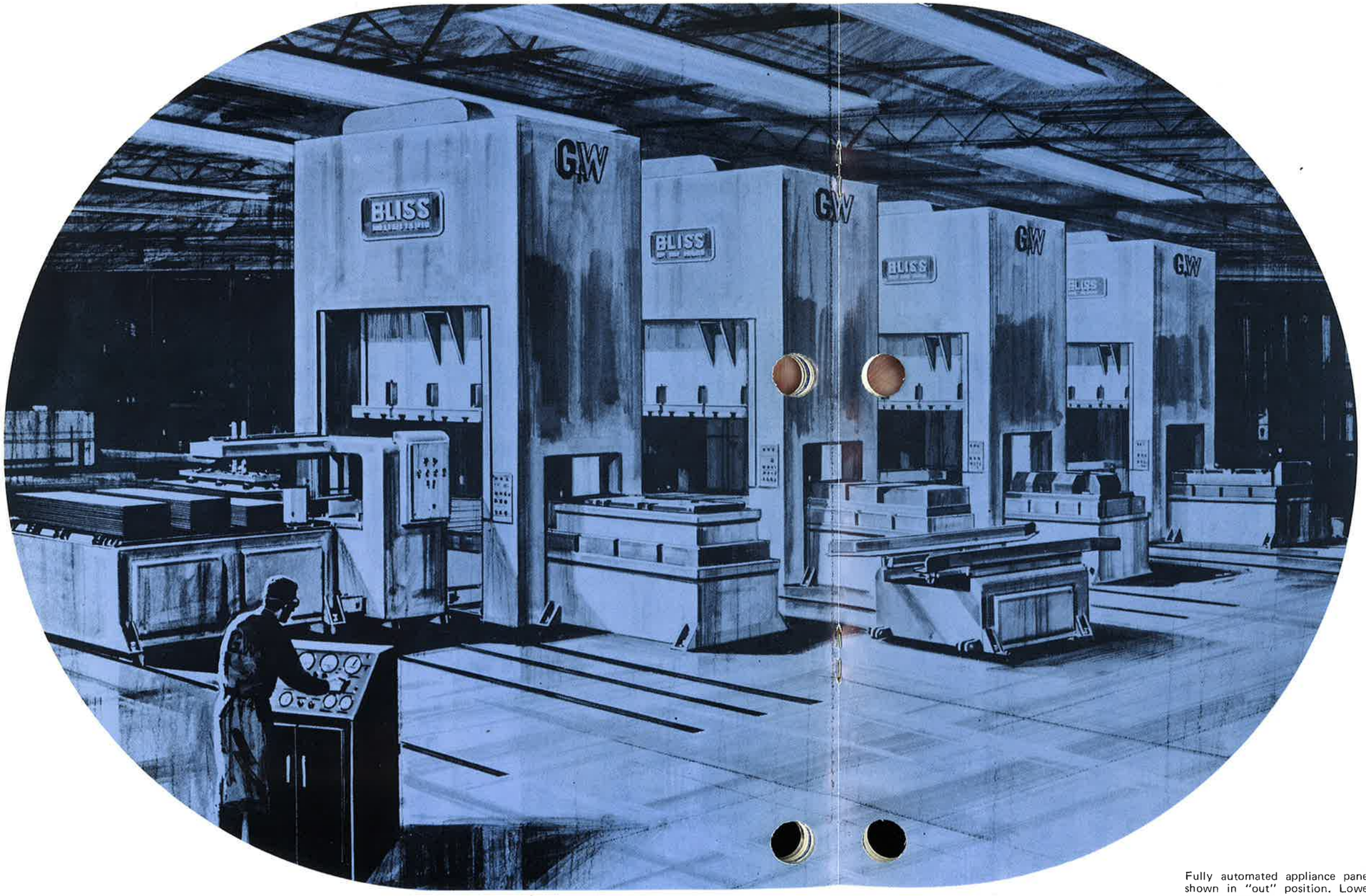
## *OFFERS . . . A UNIQUE CONCEPT IN SYSTEMS AUTOMATION*

Four identical Bliss Presses with quick die-change bolsters and floor-mounted, self-contained materials handling devices linking them into an integrated production unit. And at the end - - a finished appliance panel being produced at a sustained, high rate of production.

This Bliss Automated System is typical of the kind of production package Bliss is supplying to appliance, automotive, implement, and other large-volume press facilities concerned with rising costs of production. With Bliss doing the entire job - - layout, press selection, tooling, and accessories - - you know exactly where you stand in amortizing your new equipment.

The equipment is operative; the economics are proved. If you have a requirement for 750,000 or more parts annually of compatible size and shape, this is the systems automation concept to consider.

For more information on systems now in operation, write or phone the Bliss Systems Group, Hastings, Michigan.



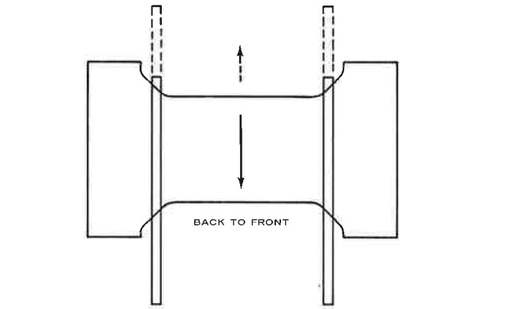

Fully automated appliance panel line. First transfer unit shown in "out" position. Lower die shoes are on table to show accessibility for interchanging die sections.

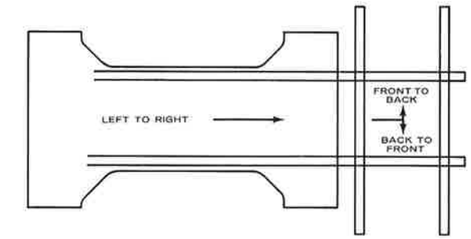
# BLISS

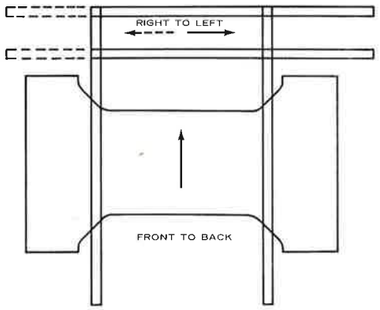
## ROLLING BOLSTER PRESSES

The obvious advantage of rolling bolsters on a production line . . . faster and more accurate die-change . . . is by no means the only benefit derived from this major advance in press technology. Reduced inventories, parts storage, and parts handling are direct results of rapid die-change. While rolling bolsters can be designed for almost any type of press, they are most often used in conjunction with large straight-side top-driven or under-driven presses, either single or double-action types.

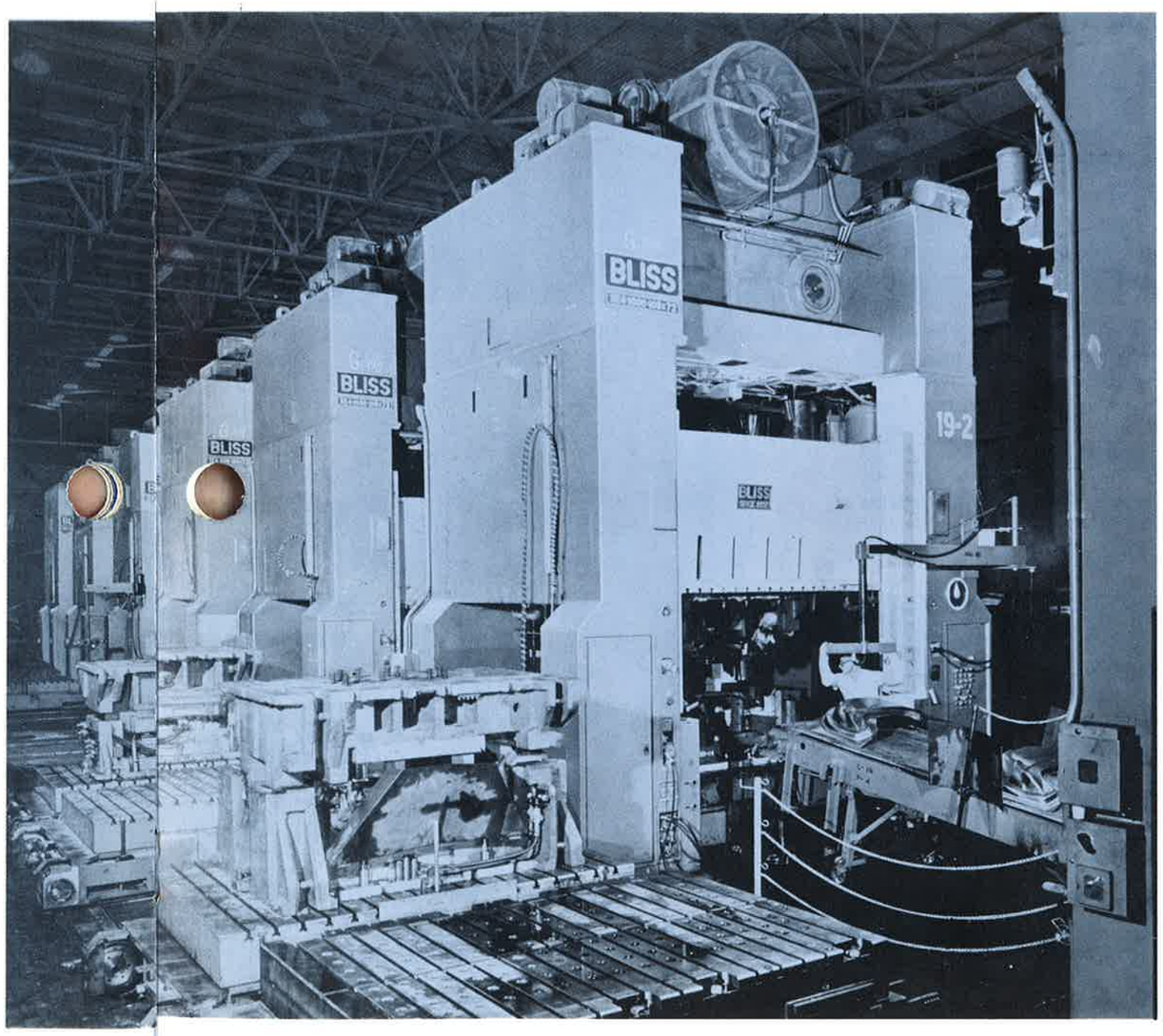
The bolsters are self-powered, interlocked, and controlled at the master panel. While one die stamps out parts, another die can be secured to a bolster outside the press. Changing large dies merely involves moving the rolling bolster with die attached into the press and automatically positioning and clamping it in place. Die changeover time is often reduced from hours to minutes. More than two bolsters are sometimes used, and various bolster arrangements are available to suit individual plant requirements. Some typical Bliss rolling bolster configurations are shown at right. Other features of these presses are: automatic die clamps, bolster clamps, automatic slide-positioning devices, hydraulic overload protection, and tonnage indicators.



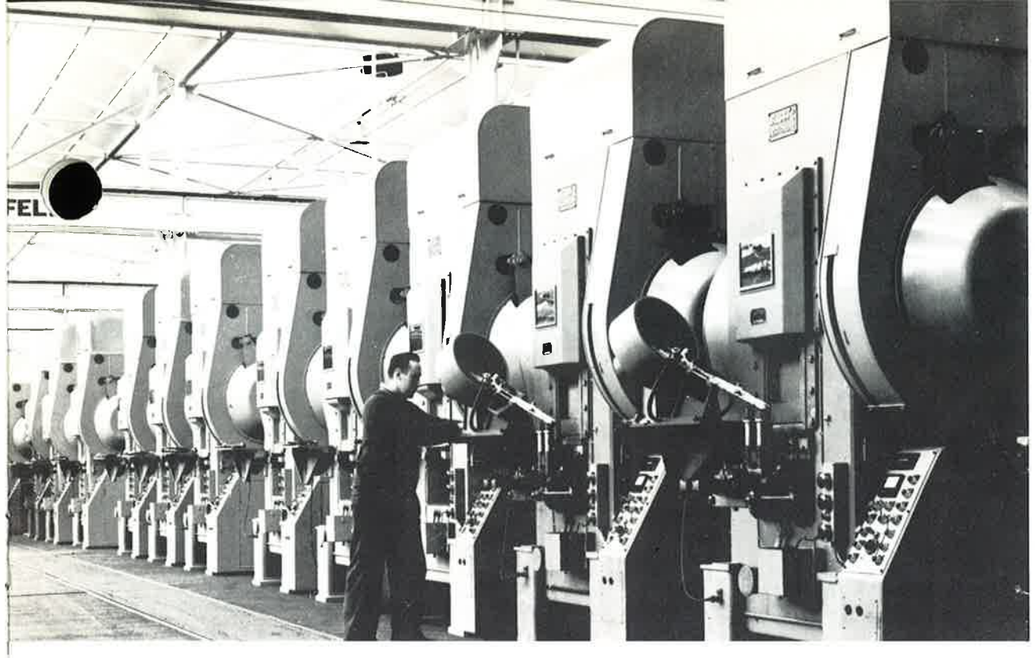

------ DENOTES ALTERNATE MOVEMENT



# BLISS

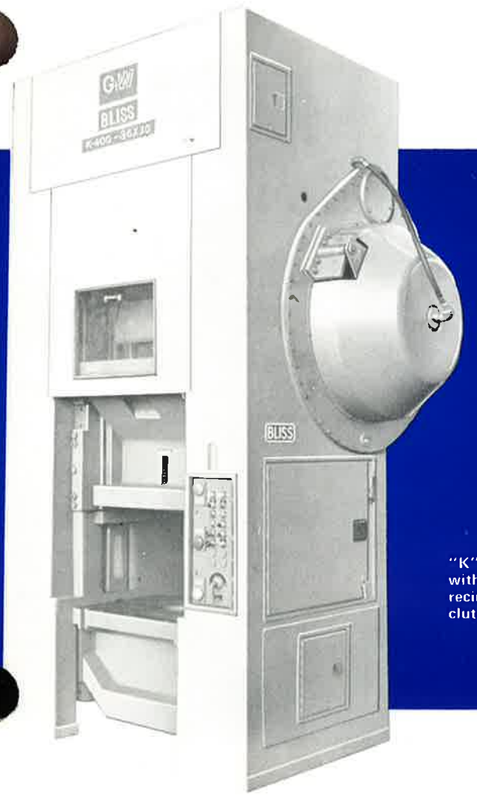
## KNUCKLE JOINT PRESSES

Bliss Knuckle Joint Presses are ruggedly designed for heavy work requiring high tonnage close to the bottom of the stroke. Types of work performed are coining, embossing, extruding, heading, sizing and swaging. They have been especially valuable in replacing expensive straddle-milling operations to achieve thickness tolerances of ± .001 inches. These presses, equipped with automatic feeding devices, are capable of high rates of production such as those maintained in leading mints throughout the world. Bliss Knuckle Joint Presses are available in standard sizes in capacities from 150 to 4000 tons. On presses of 800 tons and up, the clutch is usually the Bliss Type "AK", arranged for mounting on the backshaft. Lining plates on both clutch and brake are easily removed without disassembling the clutch or taking it off the press. Knuckle Joints are available with four-piece cast Meehanite frame, or with welded steel construction. "K" series Knuckle Joints are completely enclosed with welded steel uprights and cast slide, bed, and crown. They are available in capacities from 400 to 4000 tons and feature a crankshaft or a backshaft mounted clutch and brake.



This line of 200-ton knuckle-joint presses is minting coins at speeds from 90 to 180 strokes per minute.


Cast Meehanite Knuckle Joint press.



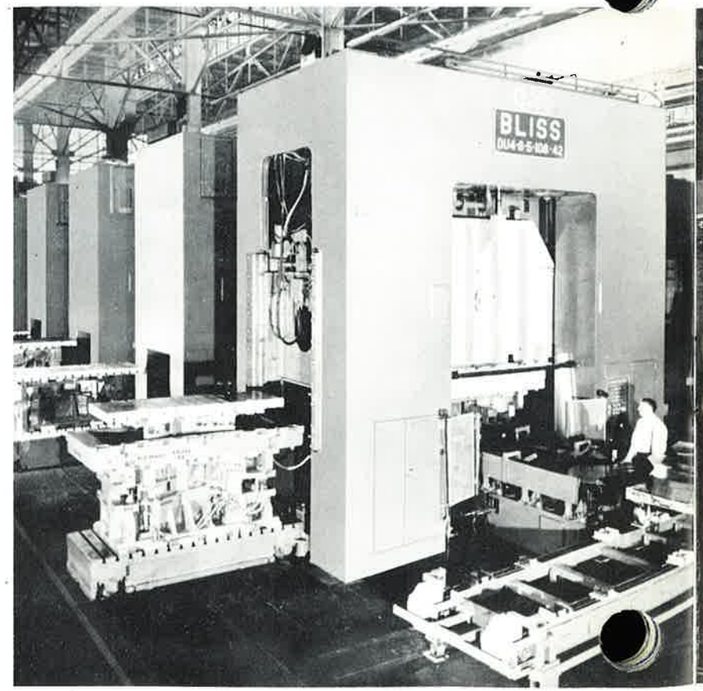

"K" series Knuckle Joint features welded steel uprights with cast Meehanite slide, bed, and crown, automatic recirculating oil, and a crankshaft- or a backshaft-mounted clutch and brake.

# BLISS

## SINGLE AND MULTI-ACTION UNDERDRIVE PRESSES

## TWO AND FOUR POINT; SINGLE, DOUBLE AND TRIPLE ACTION

Used for drawing large sheet metal parts and for trimming, seaming, restriking, forming, and other heavy operations, these presses are available in a wide range of sizes and capacities to meet customer specifications. Popular for the flexibility it offers in plant layout, the underdrive press's low overall height makes installation in modern one-story buildings practical. The entire drive mechanism of these presses is below the production floor level. This important characteristic makes it possible to perform routine maintenance without interfering with daily production. The Bliss link-type drive, mounted below the floor level, provides a high mechanical advantage in converting rotary motion to vertical motion of the slide. These presses will not stick at bottom stroke, due to the design of the rockershafts which rock to within 5 degrees of vertical alignment. A demountable gear case, containing all drive gearing except the bedmounted main gear, is mounted on the underside of the press and can be removed for maintenance and service. A minimum of gears is used to drive the press, resulting in low inertia load on the drive as well as a higher tripping rate and longer life for the Bliss air friction clutch and brake. Special features of underdrive presses include "inching" mechanisms for aiding in die-setting; a rotary limit switch to synchronize stops, starts, interlocks, motion, and time of auxiliary press equipment into the press cycle; Bliss die cushions; and various other controls and adjustments.

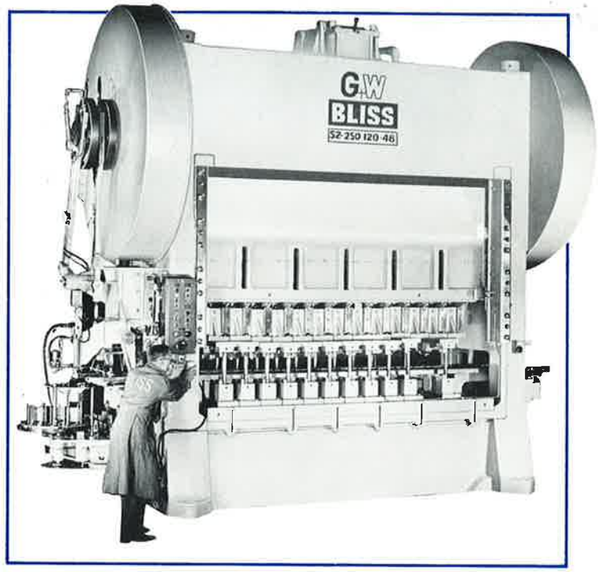




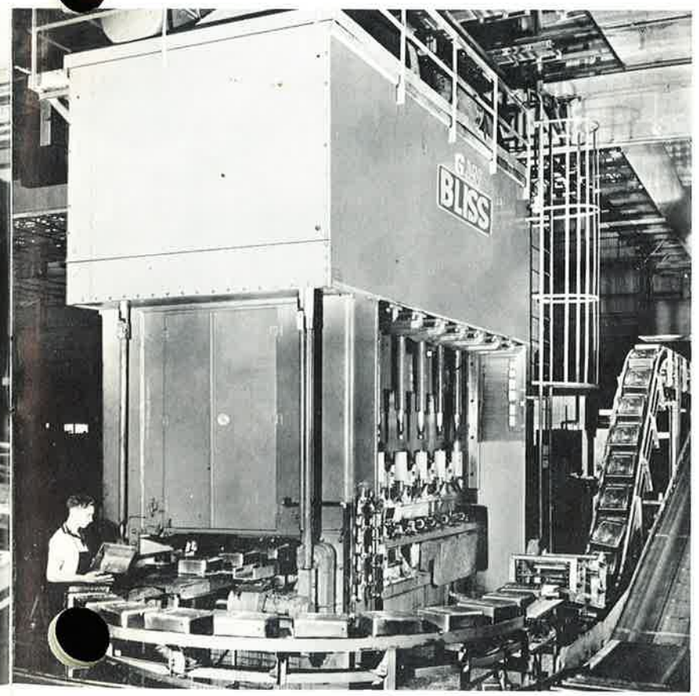

# BLISS

## TRANSFER FEED PRESSES

Bliss introduced the transfer feed press in 1896 and since then has built well over 1200 of these units. Bliss transfer feed presses are found in industries where large quantities of uniform parts are made, such as ordinance material, automotive, appliance, and can-making. A typical arrangement employs a conveyor linkage fitted with workholder devices to carry the parts through a series of progressive dies in the same press. Industries employing mass production techniques are turning not only to the transfer feed press, but to entire systems of such presses to speed production and improve quality and part uniformity. Where part size prohibits the use of a single press, Bliss can furnish a synchronized line of presses with a transfer mechanism between presses that can operate either front-to-back or side-to-side.




This press represents the 1000th transfer feed press manufactured by Bliss. It is a 250 ton unit and produces 1680 starter end plates per hour.




Every hour, this 700-ton machine produces 600 deep-drawn vegetable pans. The Bliss S2-700-192 x 48 straight side press has a seven-station transfer feed, single-roll feed, power-driven stock straightener and coil cradle. The first station completely forms the pan while succeeding stations trim, punch holes, and form and trim the sides.

# BLISS

## *HYDRAULIC PRESSES*
## *HYDRO-DYNAMIC® PRESSES*

Besides its many types of mechanical presses, Bliss offers a complete line of general purpose hydraulic presses as well as many special designs. These range from small, general purpose machines to giant extrusion presses of 35,000 tons capacity. Designs include single and double action types, open rod and housing construction, with die cushions, feeds, die slides, sliding or rolling bolsters, and many other accessories. Whatever the type, all Bliss hydraulics are distinguished by the simplified Bliss Hydro-Dynamic circuitry . . . a design which has proved itself in hundreds of installations . . . outstanding for year-in, year-out service with a minimum of maintenance.

Other Bliss design features provide easy die set-up and protection against overloading either press or dies.

Closing stroke drive - - permits fast starting and high speed approach and return.

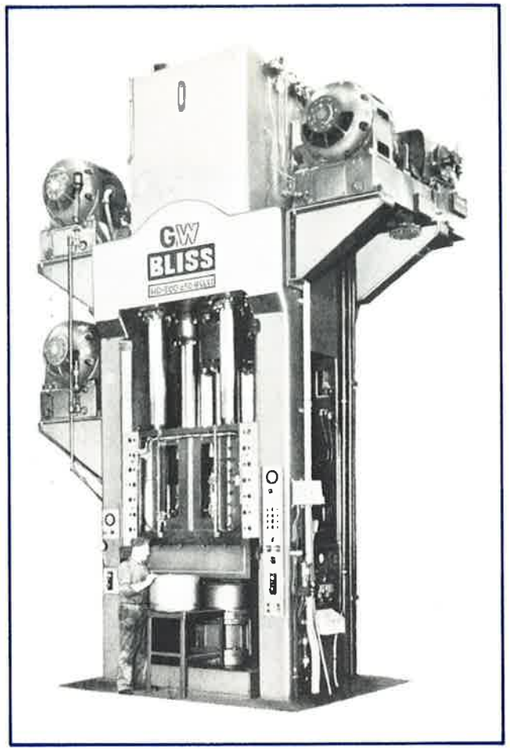
Universal electric control - - allows speed change and reversal by ram position.

Stop button on cycle control - - permits instant stopping at any point in the cycle.

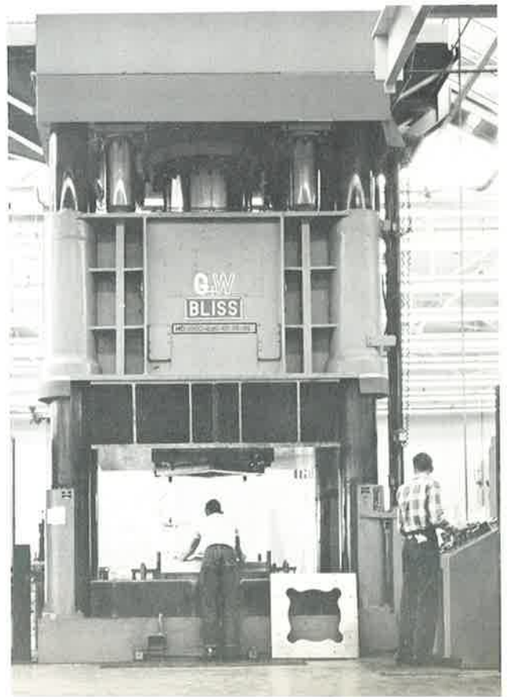
Inching by push buttons - - aids in die setup. Press stops on release of button. Only one operator is required: no signaling.

No work, no pressure - - pump by-passes during idle periods and saves wear on the pump and components.

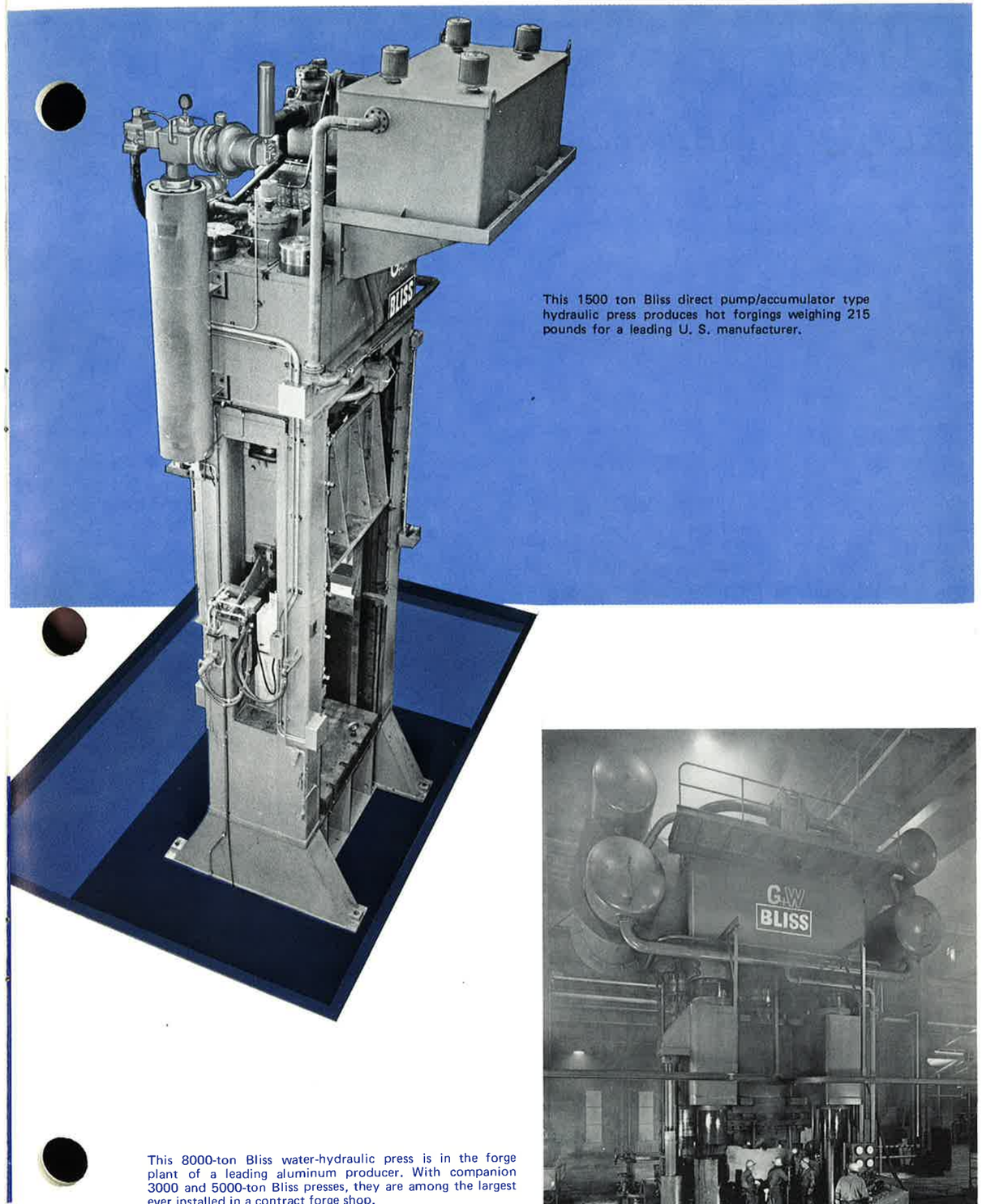
Positive cooling and filtering - - provides clean fluid at all times for better operation and long life of hydraulic components.




This double action press is located in the plant of a major supplier of automotive and appliance parts. The operation shown is a redraw of a domestic washing machine tub. The press has a capacity of 500 tons on the plunger and 250 tons on the blankholder.

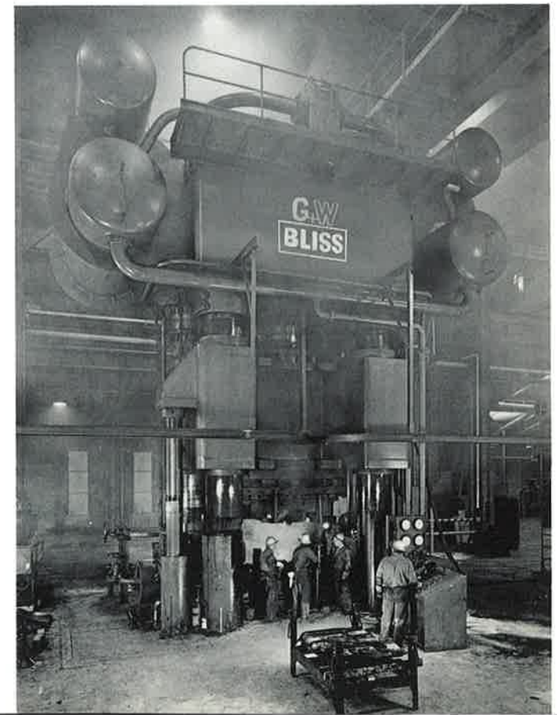



Electronic control on this double action press provides precise control for deep drawing, blanking and forming missile parts to close tolerances. Console controls ram speeds and motions as well as cushions from one station.




This 1500 ton Bliss direct pump/accumulator type hydraulic press produces hot forgings weighing 215 pounds for a leading U. S. manufacturer.

This 8000-ton Bliss water-hydraulic press is in the forge plant of a leading aluminum producer. With companion 3000 and 5000-ton Bliss presses, they are among the largest ever installed in a contract forge shop.



# BLISS

## SPECIAL PURPOSE PRESSES

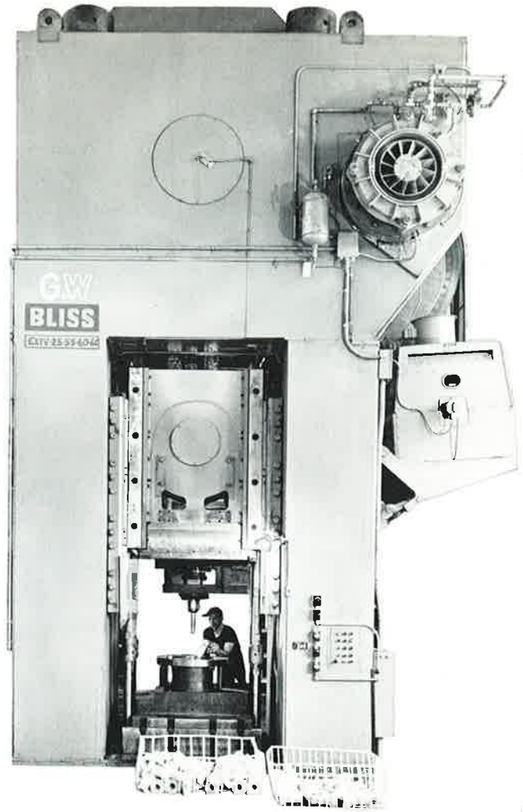
The presses shown on the preceding pages represent various Bliss standard press lines. The company's technical know-how and facilities have also been applied to many unique manufacturing problems beyond the scope of standard equipment, resulting in a number of special purpose presses. A representative sampling of these specially-built units is shown in this section.

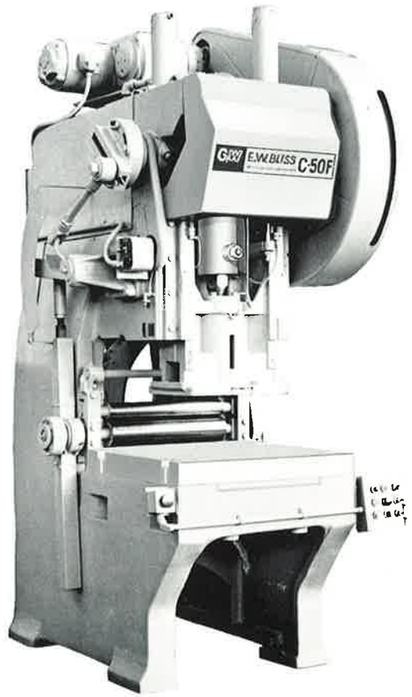
## MECHANICAL COLD EXTRUSION PRESS

World's largest cold extrusion press, this 2500-ton giant puts the squeeze on production costs by turning out 350, twenty-pound axle spindles per hour. Four press operations are employed in this order: backward extrusion and piercing, forward extrusion, combination forward and backward extrusion, and final nosing (done on another Bliss press). It produces a part that is close to its "finish" dimensions, and stronger than the original metal because of the cold working.

## AUTOMATIC FOIL PRESS

The Bliss C50F press is designed for the high-speed production of foil products such as pie plates, cake pans and TV dinner trays. This 50-ton machine employs a companion Bliss rack and pinion feed for back-to-front feeding. Designed for long feed lengths involving wide but very thin material, it will maintain extremely accurate feeding at high speeds over years of use. A self-locking powered-in motion micro-feed length adjustment by air motor is available as are such special features as removable front section which permits die and bolster to be changed as a unit. Cast Meehanite frame with fixed legs insures the rigidity and stability necessary for long life of large and close-fitting dies.






# BLISS

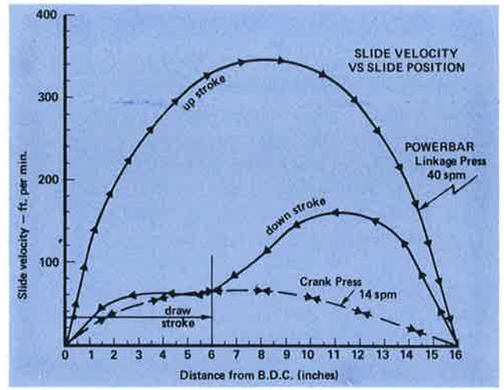
## POWERBAR™ PRESS

A conventional crank press of 16-inch stroke has a maximum slide velocity of approximately 60 feet per minute over the 6-inch draw portion of the stroke when the press crank is rotating at 14 rpm. A Powerbar Press of equivalent stroke has a maximum slide velocity of 66 feet per minute over the 6-inch draw stroke with the press crank turning at 40 rpm.

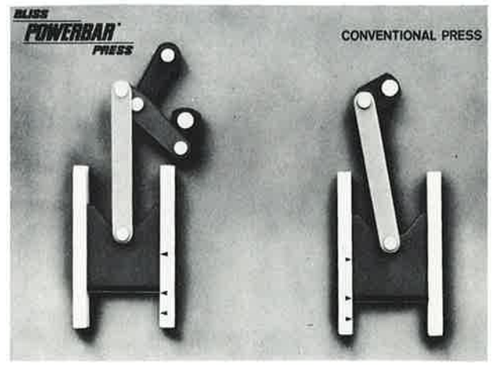
Because it can exert full capacity high above bottom, and maintain this force throughout a long working stroke, a Powerbar Press delivers unprecedented high volumes of work energy per cycle and per minute.

Because of its fast approach and return and slow working stroke, it permits more strokes per minute than any existing draw press without accelerating the actual draw rate beyond practical limits.

The method of energy transmission to the workpiece during the working portion of the stroke results in a nearly constant force throughout the stroke. Thus, there is no need to select an oversize press for long, deep draws to get the tonnage needed several inches above bottom. A Powerbar press rated at 200 tons can develop its full tonnage more than six inches above bottom. A conventional drive would have to be rated at 500 tons to deliver 200 tons at 6" above bottom.




Slide velocity is nearly constant during the work stroke. Uniformity of slide velocity and force, especially desirable in deep drawing, forging and extrusion work, was hitherto obtainable only in hydraulic presses.

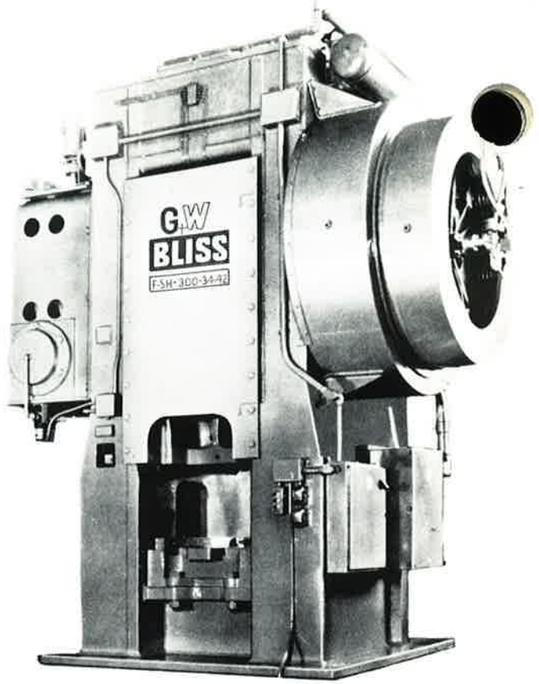

The elements of a typical Powerbar drive are a powerdriven crank, two intermediate links, and a fourth link connecting the drive to the slide of the press. Changing the relative lengths and geometric arrangements of these elements develops a wide variety of motions.

# BLISS

## SPECIAL PURPOSE PRESSES
## MECHANICAL FORGING PRESS

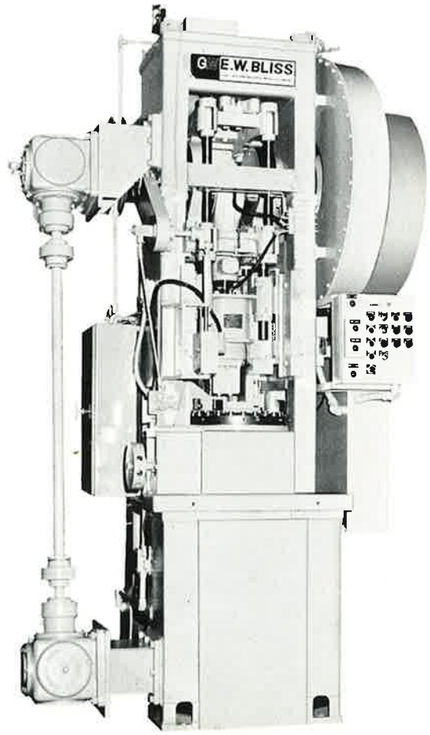
Bliss high speed forging presses range in capacities from 500 to 5000 tons and are of single point design. They have rugged, stress-relieved welded steel frames, built to absorb the heavy work load imposed by forging operations. Main stress members are located on each side of the die seat and extend from the bottom of the bed to the top of the crown. Their unusually heavy sections keep frame elongation to a minimum. A heavy plate which is integral with the two front gibs is also secured to these members. This plate and massive frame tying members in the rear oppose inward deflection toward the ram ways.

Ram has long and continuous gib ways extending up into the crown to keep dies in alignment during off-center loading.




## DOUBLE ACTION CAM PRESSES

These special double-action drawing presses use hardened cams on the crankshaft to actuate the blankholder slide. They are preferred to toggle presses for high speed drawing. Often they are furnished with dial feeds driven by a power takeoff from the press.

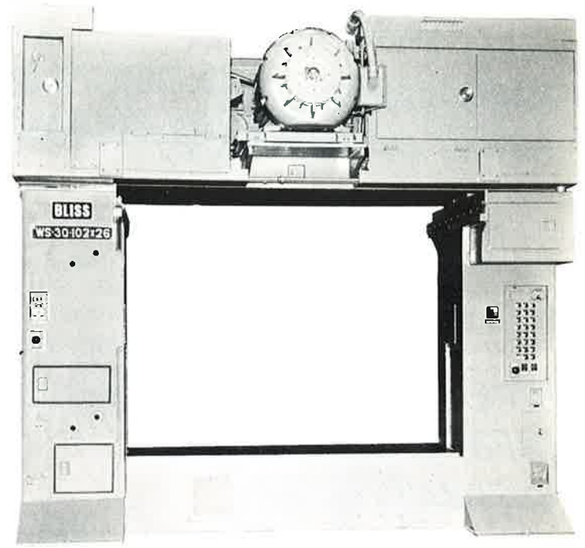





# BLISS

## WELDING PRESSES

These presses are used primarily by the automotive industry to speed production of body parts permanently assembled by welding. They are also well-suited for many similar jobs in the appliance industry. The Bliss line of welding presses includes cloverleaf, straight side, and gap frame designs. Complete inbuilding of controls and piping results in both a modern appearing and highly accessible design. Gibs are also enclosed and totally protected from welding splatter. Combination eccentric gear and segment drive has a low inertia loading which lengthens the life of the clutch. The press is a two-cycle, up-acting type. Gear case is mounted in the crown . . . can be easily removed to expose the drive for fast service. The welding press is equipped with a Bliss quill mounted special friction clutch. Clutch and brake linings can be replaced without disassembly.




102 x 26 Straightside Welding Press

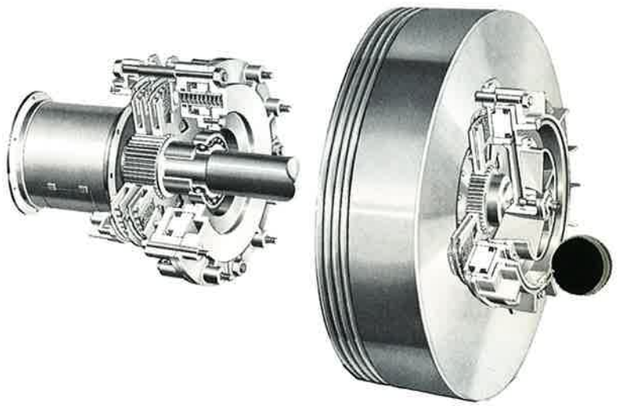

126 x 126 Cloverleaf Style Welding Press

## BLISS CLUTCH . . . HEART OF THE PRESS

The clutch is the heart of the press and Bliss offers a variety of mechanical and air friction units to suit all requirements. Their record of reliability and service is unsurpassed in the industry.

## TYPE "FK-DK" LOW INERTIA CLUTCH AND SEPARATE BRAKE

Where heat dissipation rates cannot be achieved conveniently with a combination clutch and brake, the independent clutch and brake design is recommended. Pin and bushing arrangement enables rapid change of linings which are interchangeable with those of the combination clutch and brake design. Where needed, the low inertia brake design lends itself to the use of multiple discs for more rapid heat dissipation, which also permits controlling torque on the brake independently of heat dissipation requirements. Both clutch and brake can be adjusted for lining wear.



## TYPE "CKU" AIR-FRICTION CLUTCH WITH UNSTICKER

This combination clutch and brake mounts on the crankshaft. On geared presses, the main gear runs continuously. Advantages: reduces flywheel slowdown, cuts power consumption, distributes tooth wear evenly. This arrangement also allows exceptionally high single tripping without overheating. Linings can be quickly replaced without dismantling the clutch. The unsticker block permits the power of the press to be used in freeing presses that are stuck on bottom. The socket for the unsticker block is electrically interlocked with the press controls.

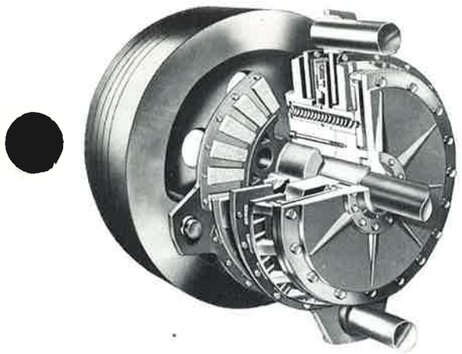


BLISS

CLUTCHES

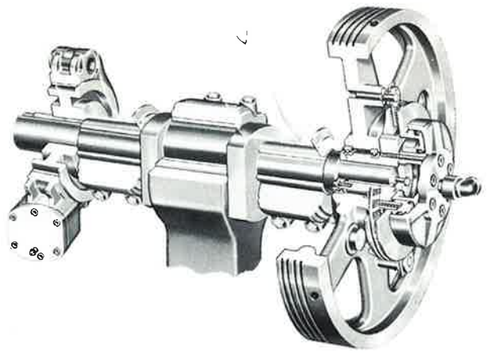
## TYPE "AK" ADJUSTABLE DISC AIR-FRICTION CLUTCH AND BRAKE

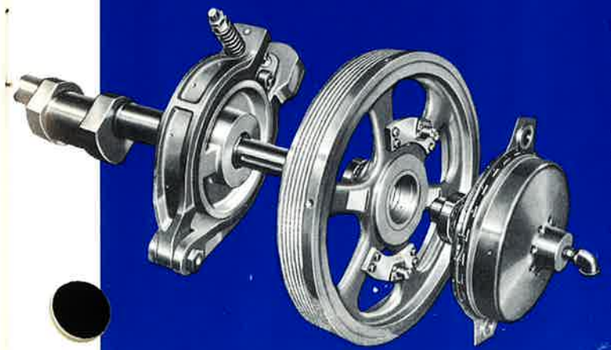
This clutch is most often specified for medium and large Bliss Straight Side Presses. Its outstanding record for reliable, low maintenance service is due to a number of unusual design features. The action is extremely fast due to short travel of the driving disc. Clutch and brake act as a single unit, preventing overlapping engagement. Clutch and disc "float" in their mountings and align themselves automatically. Plates create a centrifugal blower effect to help cool friction surfaces. Lining plates can be replaced without removing the clutch or dismantling the press.



## TYPE "SU" CLUTCH WITH UNSTICKER AND SEPARATE BRAKE

Used in high speed applications the Bliss type "SU" clutch with power driven unsticker and large separate brake is a crankshaft-mounted, disc type clutch with provision for jogging and barring for die setup. It provides rapid engagements and disengagements with minimum lining wear. When required, linings can be easily replaced. An integral part of the clutch is the unsticking device which provides fast. easy freeing of a press stuck on bottom.





## CLUTCH CONVERSION PACKAGES TO ANSI B11.1-1971 STANDARDS

Here's the quickest way to upgrade the performance of older presses while assuring compliance with the ANSI B11.1-1971 Code, as we interpret it. The air friction clutch conversion package includes all air and electrical controls and is easily mounted to a Bliss OBI press or other models of the flywheel or geared-type. We will provide layout drawings for you to mount and wire the air and electrical controls along with installation diagrams to guide you during installation. Drawings are also provided showing modification of the crankshaft, flywheel, or main gear. Or, if you prefer, Bliss will make the conversion in its shops. Conversion and modernization kits and services are also available for presses other than those manufactured by E. W. Bliss.

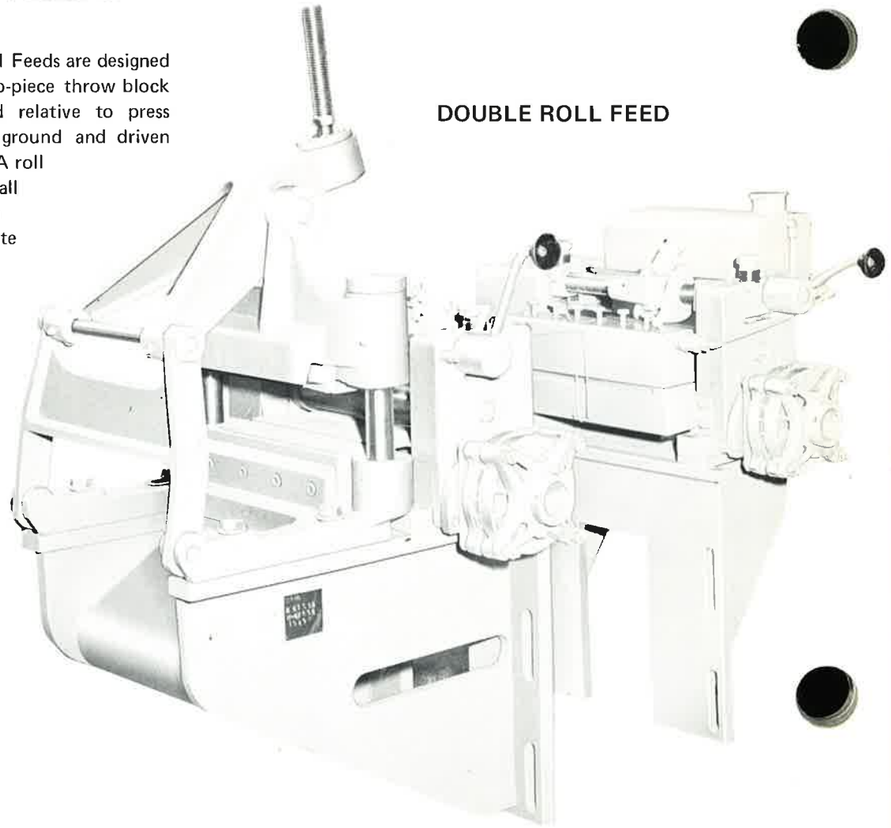
## FEEDS

The production rate of any press, no matter how carefully engineered, can be no better than its feed. Both press and feed are partners in production, and are of equal importance in determining both the speed and accuracy of any operation. Bliss for years has had press engineers design and supervise the building of feeds. Mechanical feeds convert the presses to which they are attached into automatic or semi-automatic machines. In addition they facilitate material handling and increase production. Basic feeds available are: single roll, double roll, transfer, and dial types. In addition Bliss also offers transfer feeds and custom feeds for special requirements, as well as feed accessories including coil cradles, stock straighteners, scrap cutters and special stock-handling equipment.

## TYPE "G" ROLL FEEDS

All Bliss precision Type "G" Roll Feeds are designed for use with Bliss Presses. A two-piece throw block permits precise timing of feed relative to press cycle. Rolls are hardened and ground and driven by hardened gears running in oil. A roll release permits precise release for all piloting requirements. A precision over-running clutch insures accurate feeding, and roll brakes are the efficient disc-type, air cooled. Feed level is quickly adjusted by ratchet wrench.

Type "G" Feeds are offered with a choice of drives. For general feeding requirements over a wide range of feed length, rack and pinion drive is usually selected. And for short increments up to 4", a lever-type drive is recommended.



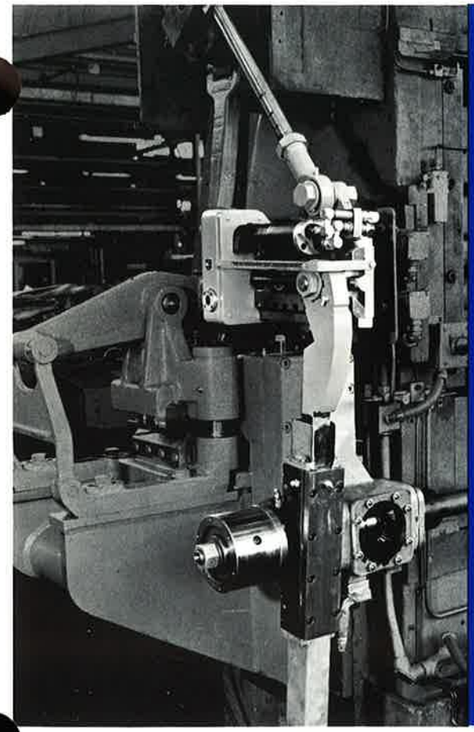
DOUBLE ROLL FEED

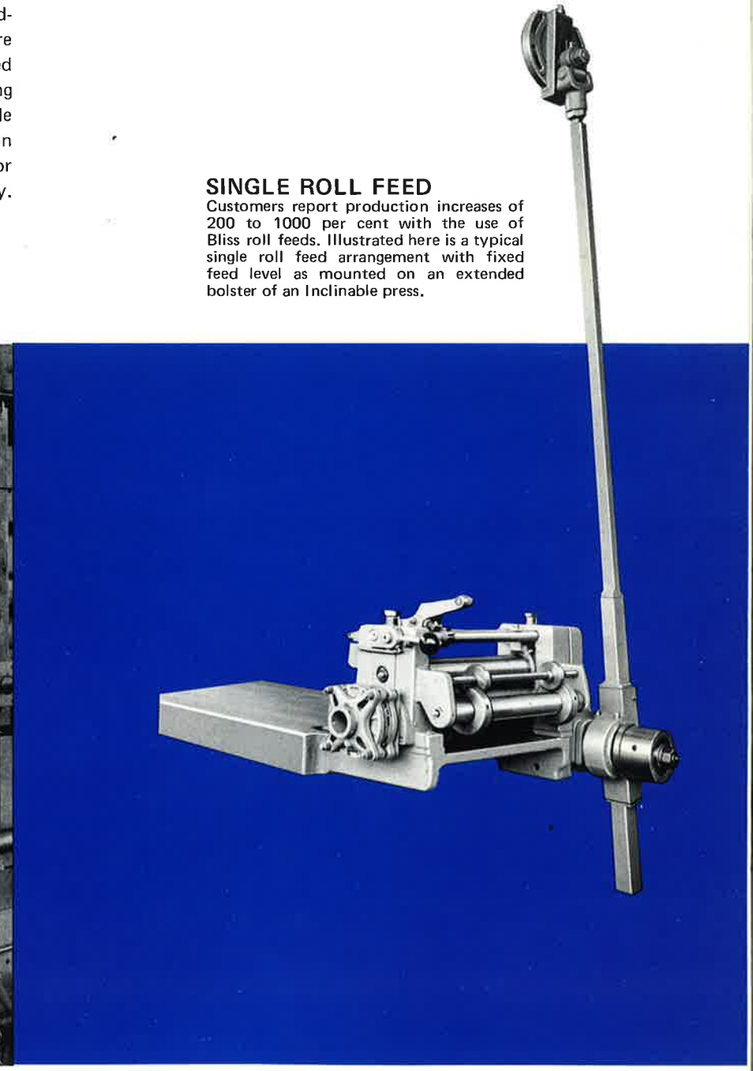




## POWER MICRO-IN-MOTION ADJUSTMENT

The Bliss In-Motion feed adjustment is powered through the entire feed length. Tedious manual setup changes at awkward points on the press, with alternating startups and stops, are completely eliminated. Instead, pushbuttons actuate a geared-down air motor - - while press and feed are operating - - shortening or lengthening the feed over its entire length. All feed adjustments, including both coarse and fine, are combined into a single quickly accomplished step. Control of the in-motion adjustment is accomplished entirely from the floor with obvious advantages in both speed and safety.





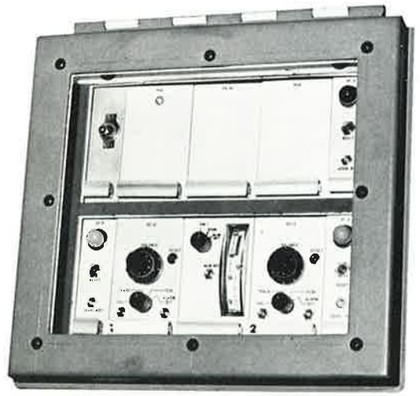
SINGLE ROLL FEED
Customers report production increases of 200 to 1000 per cent with the use of Bliss roll feeds. Illustrated here is a typical single roll feed arrangement with fixed feed level as mounted on an extended bolster of an Inclinable press.

Feed covers removed for illustrative purposes.

# ACCESSORIES

## LOAD INDICATOR VISULOAD

The Bliss Visuload System consists of a solid-state instrument for direct reading of total load and load distribution in per cent of rated capacity. Either two or four sensors are bolted permanently to the press frame, and the portable plug-in amplifier unit contains the controls and meter.



### THE BLISS PAK

For permanent installation, the Blisspak load monitor offers an even more sophisticated system in a choice of mounts and enclosures. Beside indicating the load, it also stops the press in the event of an overload.

## DIE CUSHIONS

Equipping a Bliss or any make of press with a Bliss die cushion greatly extends its range of work. A cushion not only supplies the blankholding pressure for a wide range of drawing and forming operations but can also be used as a lift out pad.

Bliss builds cushions in a wide variety of styles and capacities, including pneumatic and hydro-pneumatic units. Standard cushions can be installed in side-by-side multiples for large bed areas or stacked to increase cushion tonnage in relatively small die space. Cushions can be either internally or externally guided. When the dimensions of a press bed opening and cushion tonnage will not permit installation of a standard cushion, Bliss can furnish special designs.

Special features available with Bliss cushions include locking devices, snubbers, and motorized position adjustment between top of cushion and bottom of bolster.

### BLISS CUSHION DESIGNATIONS

UC — Inverted cylinder pneumatic, single unit

UCO — Inverted cylinder pneumatic, single unit with slug chute

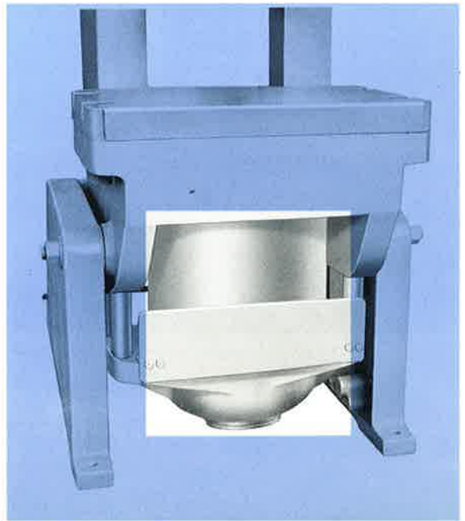
UCC — Inverted cylinder pneumatic, two stacked units

UCCC— Inverted cylinder pneumatic, three stacked units

EH — Self-contained hydro-pneumatic

FH — Non-self-contained hydro-pneumatic

L — Suffix denoting locking device on any of the above

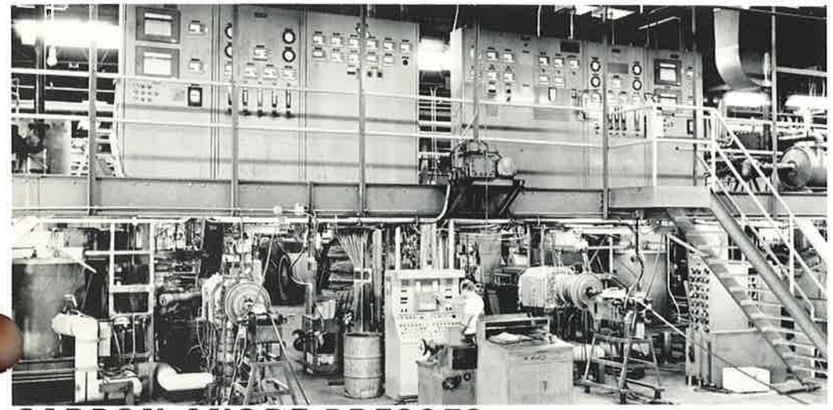




# BLISS CUSTOM-DESIGNED PRESSES

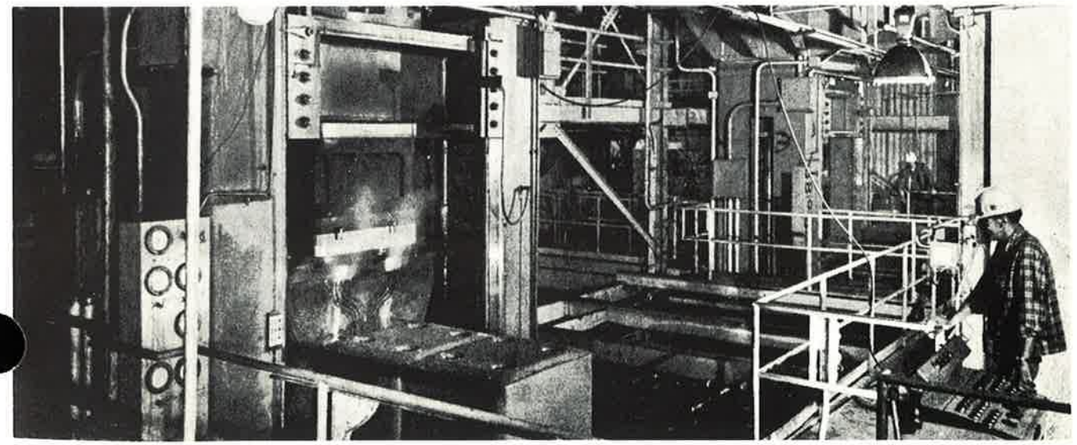
## LEAD EXTRUSION SYSTEMS

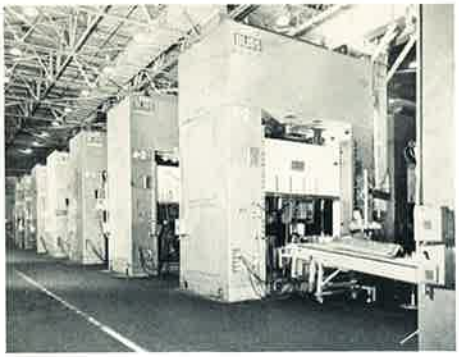
Hydraulic lead extrusion systems are custom-designed for the rubber hose and electric cable industries. In this process, lead is extruded **continuously** around the hose or cable to support it during vulcanizing. Bliss also builds lead encasing presses for use where production runs are shorter and dies are changed frequently.



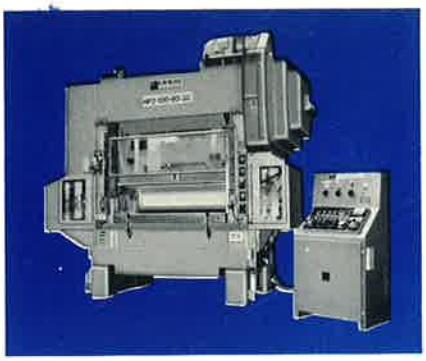
## CARBON ANODE PRESSES

Bliss Hydraulic Carbon Anode Presses form the carbon anodes used in the electrolytic production of aluminum: They are fully automated and are provided with the special motions and multiple pressing cycles needed for extreme uniformity in the finished anode.

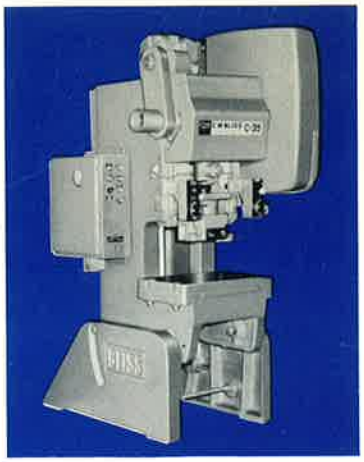




STRAIGHT SIDE ECCENTRIC PRESSES



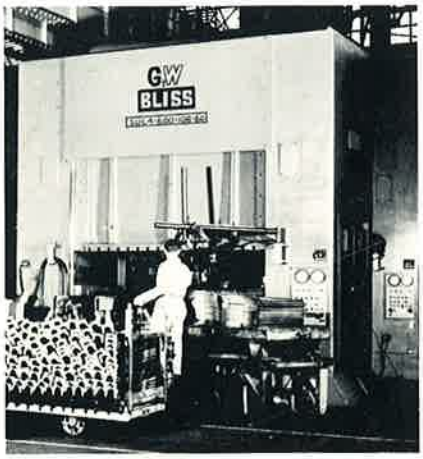
HIGH PRODUCTION PRESSES



INCLINABLE PRESSES

# Bliss sets the Standard of Value in Metalworking Presses

KNUCKLE JOINT PRESSES

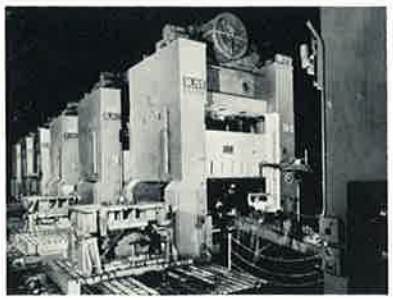



SINGLE AND MULTIPLE ACTION
UNDER-DRIVEN PRESSES

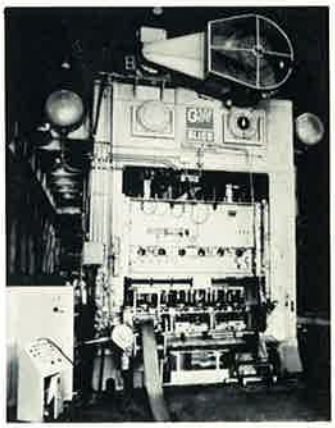

STRAIGHT SIDE
WELDED FRAME PRESSES


POWERBAR PRESSES


WELDING PRESSES



ROLLING BOLSTER PRESSES



TRANSFER FEED PRESSES

GW **E.W. Bliss Division**

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