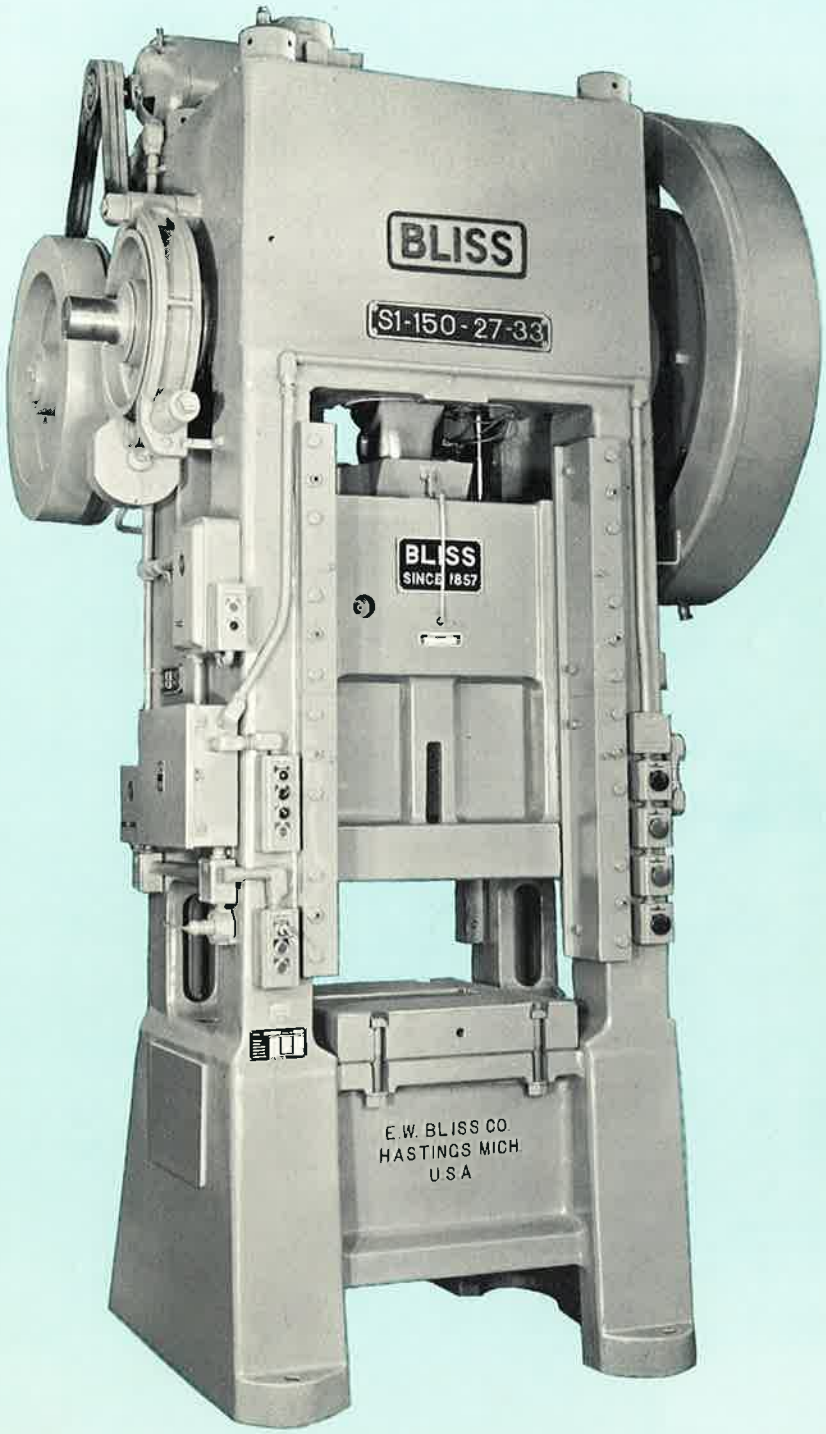
BLISS
SINCE 1857 ®

S1 PRESSES

STRAIGHT SIDE ONE POINT



Catalog 9-F

E. W. BLISS COMPANY
PRESS DIVISION • Hastings, Michigan

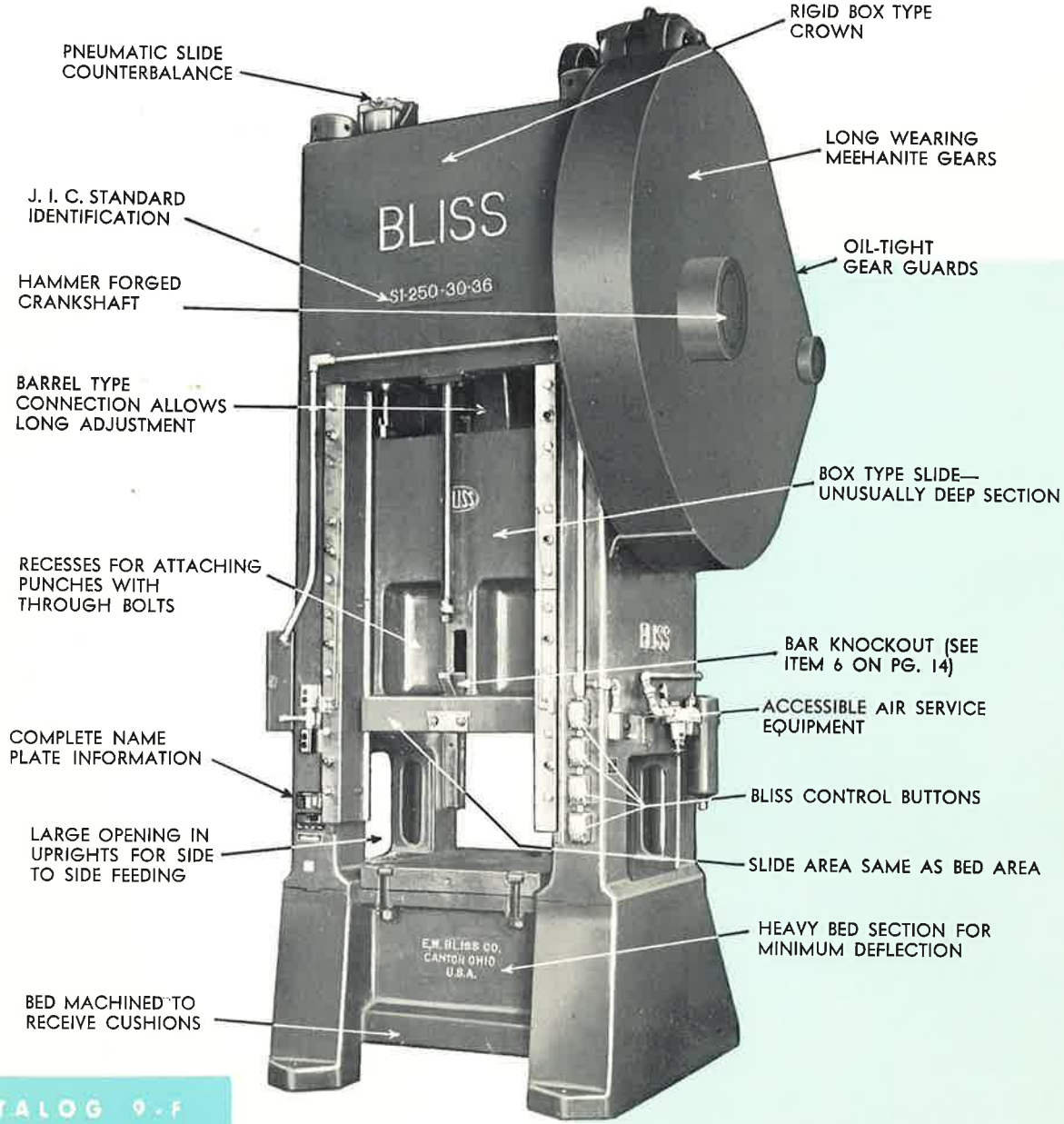
Features of BLISS S1 PRESSES

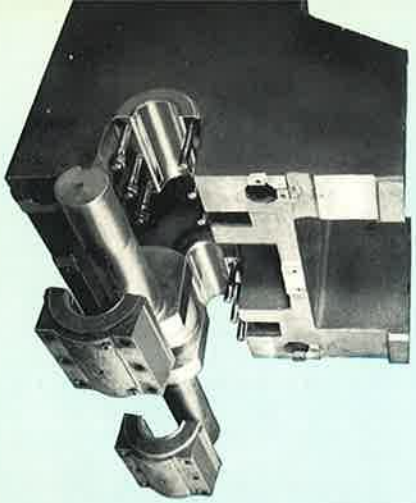
The modern Bliss S1 presses incorporate the rigidity and good appearance of box type crown construction with the ease and accessibility of adjustment that has always characterized Bliss machinery. These presses are designed to conform to standard specifications established by the Joint Industry Conference. They include such features as pneumatic slide counter-balance cylinders and motorized slide adjustment as standard equipment and are arranged to be adaptable to many other accessories such as Bliss-Marquette Die Cushions and bar type knock-outs.

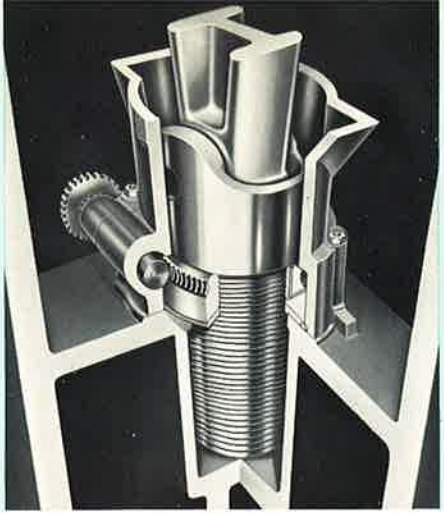
Bliss straight side single point presses are available in capacities ranging from 60 to 600 tons. All are equipped with right-to-left crankshafts which are rigidly supported in the crown by large bearing surfaces and deep sections.

Their four piece tie rod construction provides the rigidity and strength to handle a wide variety of stamping operations.

Complete specifications and dimensions for all presses in this line are given on pages 8, 9 and 10.







HEAVY BOX TYPE CROWN

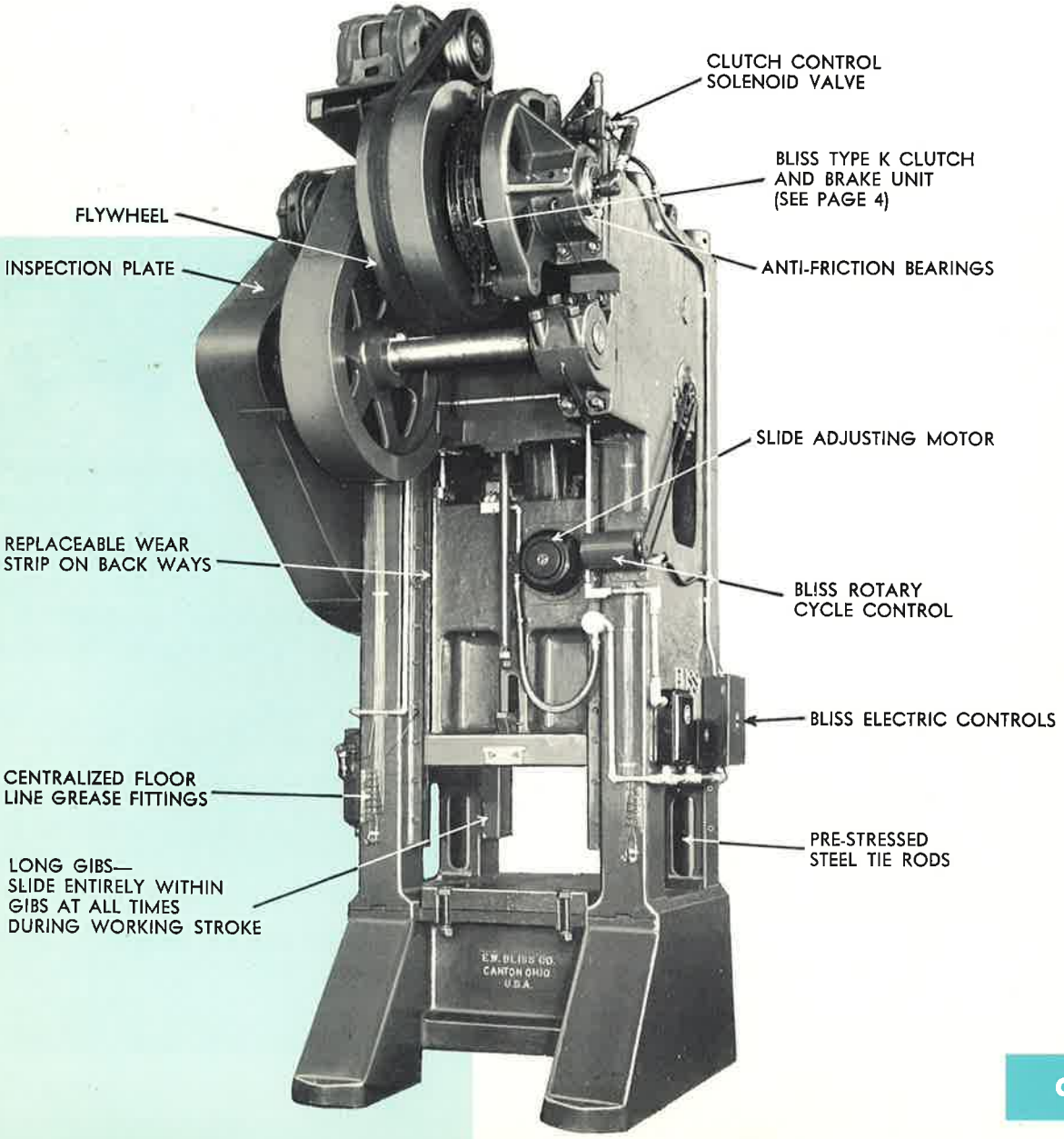
Deep sections and large bearings provide rigid support to the shaft.

MOTORIZED SLIDE ADJUSTMENT

Fully skirted sleeve and long bearing surface insure solid support even to limit of adjustment. Adjustment motor is self braking, assuring positive positioning of adjustment.

BED ARRANGED FOR DIE CUSHIONS

Beds of all Bliss S1 presses are arranged to receive Bliss-Marquette Die Cushions. The internally guided cushion illustrated is one of several types available.



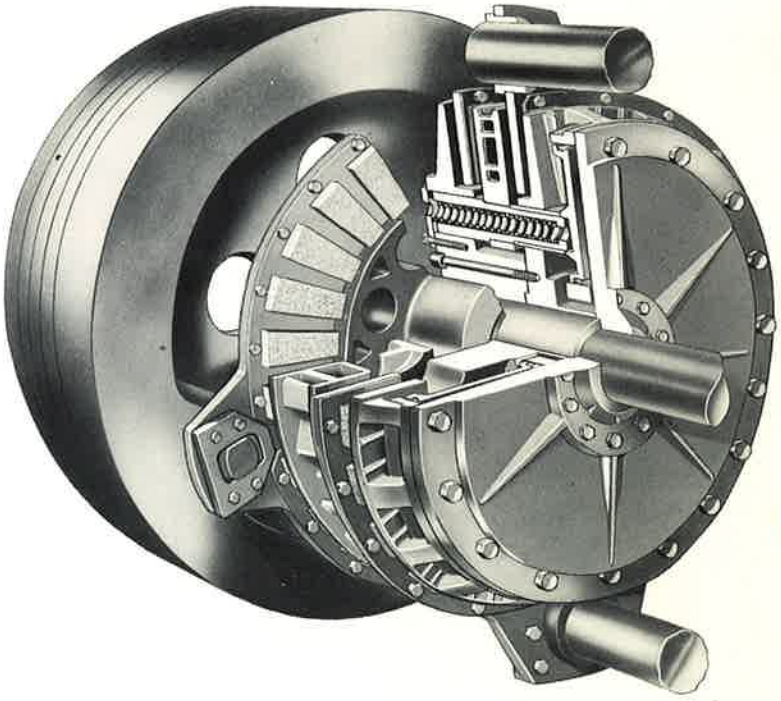
BLISS

CLUTCHES

INSTALLED ON S1 PRESSES

BLISS TYPE "K" SINGLE DISC PNEUMATIC FRICTION CLUTCH AND BRAKE

The Type "K" driveshaft mounted clutch is standard equipment on all geared S1 Presses. It is also furnished on non-geared S1 Presses, in which case the clutch is mounted on the crankshaft.

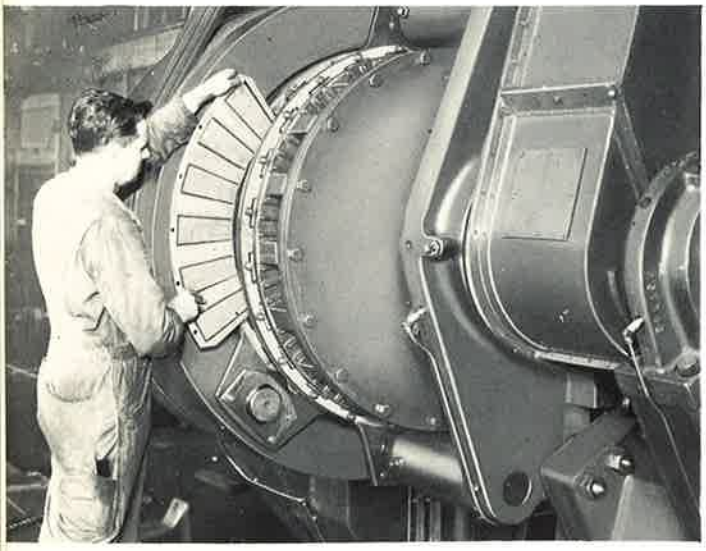


DEPENDABLE: Hundreds of units now giving trouble-free, round-the-clock service under difficult conditions.

FAST ACTING: Driving disc moves only a fraction of an inch between full engagement and full brake.

COOL RUNNING: Adequate, self-induced ventilation assures rapid heat dissipation. The friction plates themselves are arranged to assist centrifugal blower action, blowing a strong current of cooling air directly on the friction area.

SELF-ALIGNING: Clutch and brake friction discs "float" quietly in their mountings and align themselves automatically, preventing wear on the friction surfaces because of lateral motion and reducing vibration and noise.



Friction plates on both clutch and brake are removed easily without disassembling the clutch or removing it from the press.

POSITIVE ENGAGEMENT OR DISENGAGEMENT: Clutch and brake act as a single unit, preventing overlapping engagement. Brake is automatically set should power or air pressure fail.

NO ADJUSTMENT FOR WEAR NECESSARY: Plates are arranged for automatic compensation for wear. Difference in plate travel with new friction plates and travel with worn out plates is less than a half inch, and engagement is instantaneous in either case.

LININGS CYCLE-WELDED TO PLATES: Encourage rapid heat transfer. Cycle-welded bond holds firm at temperatures well above maximum operating temperature of clutch.

EASY SERVICING: Linings can be changed quickly without removing clutch from shaft or disassembling press.

BLISS ROLLING KEY CLUTCH....

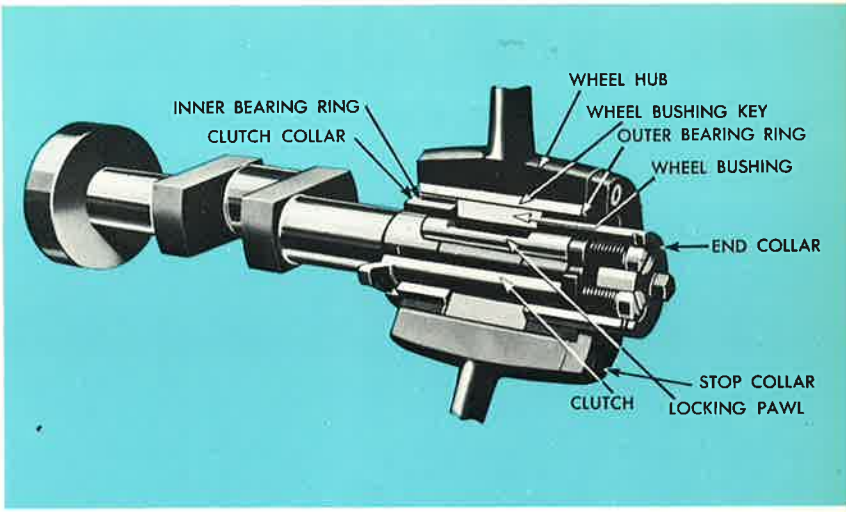
Often described as the most satisfactory positive clutch ever built, the Bliss patented Rolling Key Clutch is available on special order for use on all Bliss S1 presses up to 125 tons capacity. The Bliss "CK" clutch and brake, see below, is standard equipment on presses in this range.

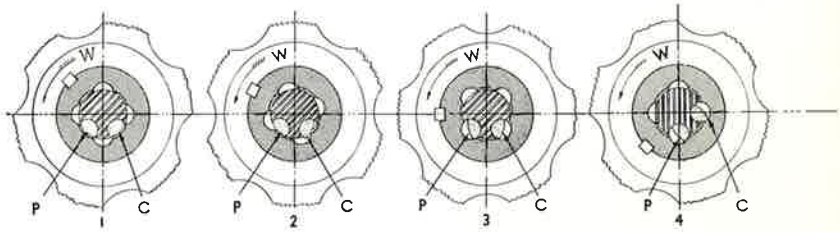
The Rolling Key Clutch operates on an entirely different principle than jaw and pin type clutches, as described in the accompanying illustrations. The engaging surfaces are large in area and close to the shaft axis, resulting in low velocities and greatly reduced strain on the working parts. Driving and locking members function independently of each other, allowing ample time for each to become fully engaged before impact, as illustrated.

Standard controls for the Rolling Key Clutch can be set for either single trip operation, with the press completing one stroke with each depression of the treadle, or for continuous operation. A few simple parts transform the standard brake into an automatic releasing brake for continuous press operation.

A pneumatic operator with electric push-button controls can also be installed with this clutch when desired.

The result, proved every day by the thousands of clutches in operation, is a mechanism which will withstand constant usage year-in and year-out with a minimum of attention.



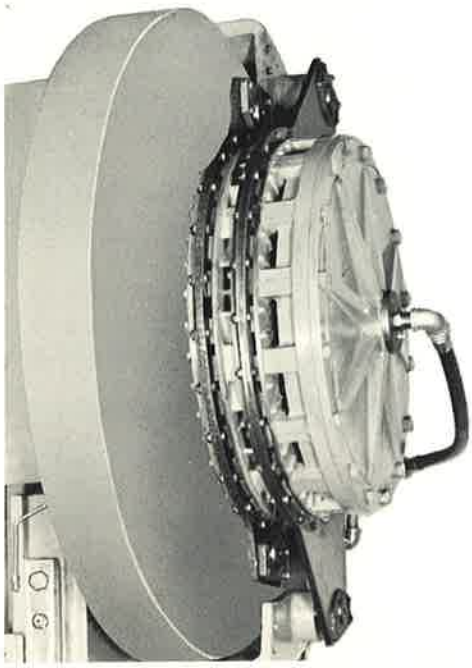


(1) Wheel running free. Clutch (C) and Pawl (P) out of engagement.

(2) Clutch (C) beginning to engage, with ample time to complete full engagement.

(3) Locking or "backing" pawl (P) beginning to engage, with 45 degrees to complete full engagement.

(4) Shaft (S) and driving wheel (W) locked tightly together.

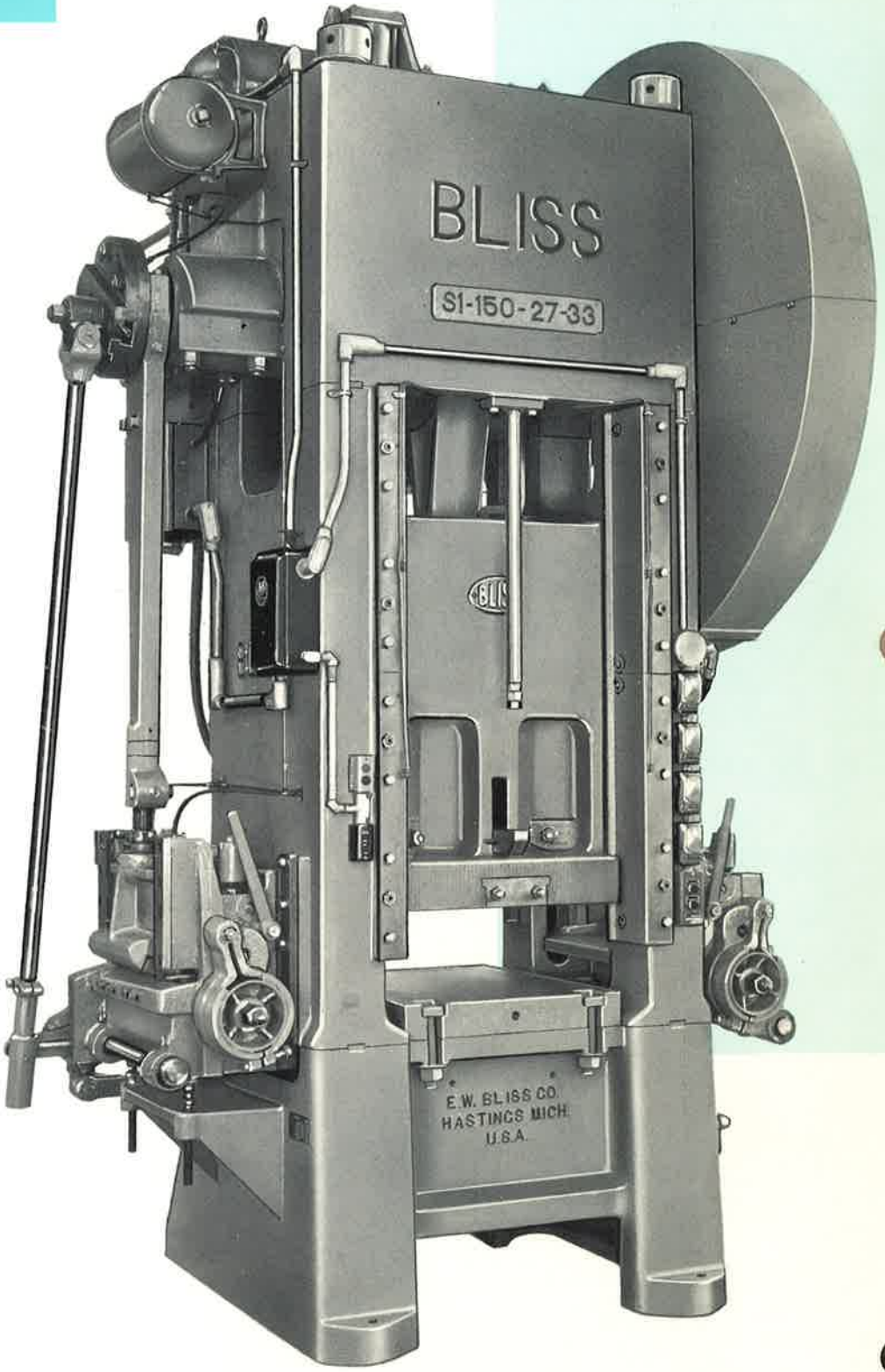


BLISS TYPE "CK" FRICTION CLUTCH

For Crankshaft Mounting

Essentially the same as the Type "K" clutch (Page 4), the Bliss "CK" clutch and brake is designed for crankshaft mounting on medium and small presses. It has the same dependable design features in addition to a number of its own advantages. By virtue of its crankshaft position, for example, it can operate at slower speeds than a backshaft clutch. Thus it permits a greater number of single trippings per minute. On geared presses, the "CK" is mounted in the main gear and eliminates the need to start and stop it with each clutch engagement. This greatly reduces flywheel slowdown and power consumption, and distributes tooth wear around the entire periphery of the gear.

BLISS S1-150 PRESS



This 150-ton single geared press is equipped with a Bliss double roll feed and scrap shear. This feed and other Bliss feeds can be furnished for S1 presses on special order. Automatic feeds can increase the output of presses as much as 50%.

This line-up of 200-ton S1 presses is in the plant of a major producer of agricultural equipment. These presses illustrate the adaptation of twin end drive for the crankshaft of Bliss S1 presses.

DIMENSIONS

BLISS S1 PRESSES

Press No.	S1-60*	S1-75	S1-100	S1-125	S1-150	S1-175*
Capacity near bottom of stroke Tons	60	75	100	125	150	175
Type of drive on crankshaft	Single Friction	Single Friction	Single Friction	Single Friction	Single Friction	Single Friction
Clutch regularly furnished						
Crankshaft						
Diameter at main bearings Ins.	4	4½	5	5½	6	6½
Diameter at crankpin Ins.	6	6¾	7½	8¼	9	9¾
Motor recommended for main drive HP	5	7½	10	10	15	15
Speed of motor—						
Non-geared Press RPM	900	900	900	900	900	900
Geared Press RPM	1800	1800	1800	1800	1200	1200
Stroke of Slide —						
Standard Ins.	**5**	**5**	**6**	**6**	**7**	**7**
Maximum Ins.	**8**	**8**	**10**	**10**	**12**	**12**
Strokes per minute —						
Non-geared press No.	**80**	**80**	**75**	**75**	**70**	**70**
Single geared press No.	**42**	**42**	**35**	**35**	**33**	**33**
Double geared press No.	—	—	**16-24**	**16-24**	**16-24**	**16-24**
Adjustment of slide Ins.	**6**	**6**	**6**	**6**	**8**	**8**
Motor recommended for adjusting slide HP-RPM	¾-1800	¾-1800	1-1800	1-1800	2-1800	2-1800
Slide area, LR x FB Ins.	**21x21**	**21x21**	**24x24**	**24x24**	**27x27**	**27x27**
Stem hole in slide (dia. x depth)† Ins.	3⅛x3	3⅛x3	3⅛x3	3⅛x3	3⅛x3	3⅛x3
Bed area, LR x FB Ins.	**21x24**	**21x24**	**24x30**	**24x30**	**27x33**	**27x33**
Bed opening, LR x FB Ins.	14x14	14x14	18x18	18x18	21x21	21x21
Width between gibs Ins.	21½	21½	24½	24½	27½	27½
Width between uprights Ins.	**26¼**	**26¼**	**29½**	**29½**	**33**	**33**
Bolster area, LR x FB Ins.	21x24	21x24	24x30	24x30	27x33	27x33
Bolster thickness Ins.	3	3½	4	4½	5	5
Standard die space, distance bed to slide, stroke down, adjustment up, standard stroke Ins.	**14**	**16**	**18**	**20**	**22**	**22**
Distance floor to bed Ins.	32	32	32	32	32	32
Floor space of legs (Approx.) LR x FB Ins.	42x47	42x47	46x56	46x56	51x56	51x56
Opening thru uprights, FB x top to bottom Ins.	14½x10	14½x10	19x15	19x15	19x15	19x15
Weight (S.G. — S.E.D.) Approx. Lbs.	11200	13900	19500	23500	30000	35500
Standard Cushion	CC-10-10-2	CC-12-12-2	CC-14-14-3	CC-16-16-3	CC-16-20-3	CC-16-22-3
Cushion Capacity Tons	8	11	15	20	25	29

Standard electric motor, mounted and wired, included for power slide adjustment.
†Clamping cap furnished on special order only.
*J. I. C. does not list S1-60 or S1-175 Presses.

DIMENSIONS FOR BLISS S1 PRESSES

Press No.	S1-200	S1-250	S1-300	S1-400	S1-500	S1-600
Capacity near bottom of stroke....Tons	200	250	300	400	500	600
Type of drive on crankshaft	Single Friction	Single Friction	Single Friction	Single Friction	Single Friction	Single Friction
Clutch regularly furnished						
Crankshaft						
Diameter at main bearings....Ins.	7	7½	8½	9½	10½	11½
Diameter at crankpin....Ins.	10½	11¼	12¾	14¼	15¾	17¼
Motor recommended for main drive....HP	20	20	25	30	40	50
Speed of motor—						
Non-geared Press....RPM	—	—	—	—	—	—
Geared Press....RPM	1200	1200	1200	1200	1200	1200
Stroke of Slide —						
Standard....Ins.	**8**	**8**	**8**	**9**	**10**	**11**
Maximum....Ins.	**14**	**14**	**16**	**18**	**22**	**22**
Strokes per minute —						
Non-geared press....No.	—	—	—	—	—	—
Single geared press....No.	**30**	**30**	**25**	**25**	**25**	**25**
Double geared press....No.	**14-22**	**14-22**	**16**	**14**	**12**	**12**
Adjustment of slide....Ins.	**10**	**10**	**10**	**10**	**12**	**12**
Motor recommended for adjusting slide HP-RPM	2-1800	2-1800	3-1800	5-1800	5-1800	5-1800
Slide area, LR x FB....Ins.	**30x30**	**30x30**	**36x36**	**36x36**	**42x42**	**42x42**
Stem hole in slide (dia. x depth)†....Ins.	3⅛x3	3⅛x3	3⅛x3	3⅛x3		
Bed area, LR x FB....Ins.	**30x36**	**30x36**	**36x42**	**36x42**	**42x48**	**42x48**
Bed opening, LR x FB....Ins.	21x21	21x21	24x24	24x24	27x27	27x27
Width between gibs....Ins.	30½	30½	37	38	42½	42½
Width between uprights....Ins.	**36½**	**36½**	**43**	**45**	**49½**	**49½**
Bolster area, LR x FB....Ins.	30x36	30x36	36x42	36x42	42x48	42x48
Bolster thickness....Ins.	5	5½	6	6½	7	7½
Standard die space, distance bed to slide, stroke down, adjustment up, standard stroke....Ins.	**24**	**26**	**28**	**30**	**34**	**34**
Distance floor to bed....Ins.	32	32	32	32	28	28
Floor space of legs (Approx.) LR x FB....Ins.	62x72	62x72	78x76	84x80	84x96	84x96
Opening thru uprights, FB x top to bottom....Ins.	25x20	25x20	28x24	28x24	30x28	30x28
Weight (S.G. — S.E.D.) Approx....Lbs.	46000	52000	68000	95000	115000	123000
Standard Cushion	CC-18-24-4	CC-20-26-4	CC-22-28-4	CC-22-32-4	FH-20-5	FH-20-5
Cushion Capacity....Tons	35	42	50	60	83	100

Standard electric motor, mounted and wired, included for power slide adjustment.
†Clamping cap furnished on special order only.

SPECIFICATIONS OF BLISS S1 PRESSES

These presses have been designed to standards adopted by the Joint Industry Conference Committee on press standards. Special attention is called to items (6) and (17), wherein standard J.I.C. T-slots, etc., are furnished on special order only.

1. Press frames are four-piece construction with parts keyed to maintain accurate alignment and held by pre-stressed steel tierods. The bed, uprights, crown and slide are constructed of Meehanite castings except for the larger sizes which may be of steel weldments. All parts are exceptionally heavy.
   a. Crowns are box type with deep cross sections, reinforced with internal ribs.
   b. Uprights are designed to withstand lateral stresses caused by uneven loading of slide.
   c. Beds are arranged to receive either pneumatic or hydro-pneumatic die cushions.

2. Barrel type slide adjustment permits long adjustment which is particularly advantageous when using dies varying greatly in height. The adjusting worm has anti-friction thrust bearings. Integral brake on adjusting motor insures positive lock to adjustment.

3. Slide Adjustment Electric Motor and Starter, mounted and wired, is standard equipment.

4. Air Cylinders to counterbalance the slide are located within the crown.

5. Slide Ways are extremely long. They are always in the gibs at all points of the adjustment and working stroke. Rear gibs are provided with removable wear plates.

6. All S-1 press slides are arranged for one bar knockout, with bar, bracket and other parts furnished on special order. Knockouts are front-to-back, with three 1⅛-inch drilled holes through the bottom flange of the slide to accommodate knockout pins. These holes are located one in the center of each of the knockouts and one each 9 inches in front and back of this center. S1-500 and larger presses can be arranged for three knockouts, 9 inches apart as extra. J.I.C. specified T-slots and drilled holes through the bottom flange can also be furnished on special order.

7. Punch stem hole is not standard on any size. A 3⅛ inch hole is drilled 3-inches deep on slide centerline of S1-400 Presses and smaller to provide clearance for dies having a punch stem. No clearance hole is provided for punch stem on S1-500 presses and larger. Bored punch stem holes and clamping caps can be furnished to special order.

8. Die Space has been standardized and is ample for a general class of work. However, the distance from the bed to the slide can be increased or decreased on special order.

9. Stroke of slide can be changed as required up to maximum stroke as listed on dimension pages on special order.

10. Friction clutches are standard equipment on all Bliss S1 Presses, both geared and non-geared. Rolling Key positive clutches can be furnished on S1-125 and smaller presses on special order.

11. Electric Air Clutch Control. In addition to a limit switch and electric control, one stop, one jog and two run buttons, mounted on front of right hand upright, are furnished.

12. A Releasing Brake is usually furnished on special order for presses equipped with the Bliss Rolling Key Clutch when the press is to be operated continuously in conjunction with an automatic feed.

13. Crankshafts are hammer forged of 1045 SAE steel. The crankpin diameters are approximately 50 percent greater than the main frame bearings.

14. Crankshaft and main connection bearings are bronze bushed. The intermediate shaft bearings on double and triple geared presses are also bronze bushed. Roller bearings are standard on all driveshafts.

15. All presses are furnished with a single driving gear on the crankshaft, although twin end drive is also available on special order.

16. Gearing is machine cut. Pinions are forged steel. Oil-tight guards are provided as standard equipment to permit main gears running in oil.

17. A plain cast Meehanite bolster is furnished. J.I.C. standard T-slots, pressure pin, dowel pin and lifting holes can be furnished on special order. Steel bolsters (SAE 1020) can also be furnished on special order.

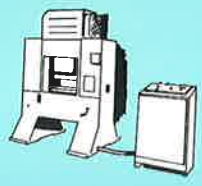
18. Lower liftouts, direct or cam actuated, can be fitted to any of these presses on special order.

19. Automatic Feeds and Auxiliary Devices can be furnished on special order.

20. Standard lubrication is by a floor line grease system to the gibbing and shaft bearings. Other types can be furnished on special order.

21. Main Drive Electric Motor and Starter can be furnished on special order.

These are the Products of E. W. Bliss Company



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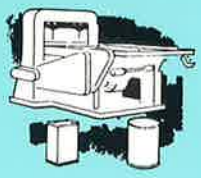

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BLISS SINCE 1857 ®

is more than a name...

The most significant feature of every Bliss machine is **missing** here, for it does not lend itself to description.

That feature is the reputation of the builder which, built upon generations of integrity and experience, is industry's assurance of dependable performance. In the past 100 years, Bliss has earned such a reputation, one that finds daily expression in the performance of its products. The Bliss name on your machine is a symbol of that reputation, and all it implies.

That is why we have said, and will continue to say, "Bliss is more than a name . . . it's a guarantee."

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