A Nidec Group Company

MINSTER®

All for dreams

BULLETIN 125F

MINSTER®

CUPPING, SHELL & CONVERSION PRESSES

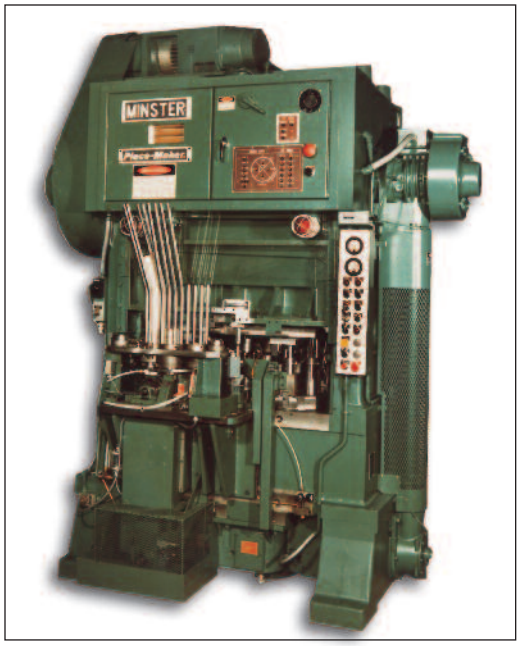
60 - 300 TONS CAPACITY

Container Equipment

TECHNOLOGICALLY ADVANCED TO PROVIDE
GREATER FLEXIBILITY AND INCREASED PRODUCTION

MINSTER CONTAINER EQUIPMENT

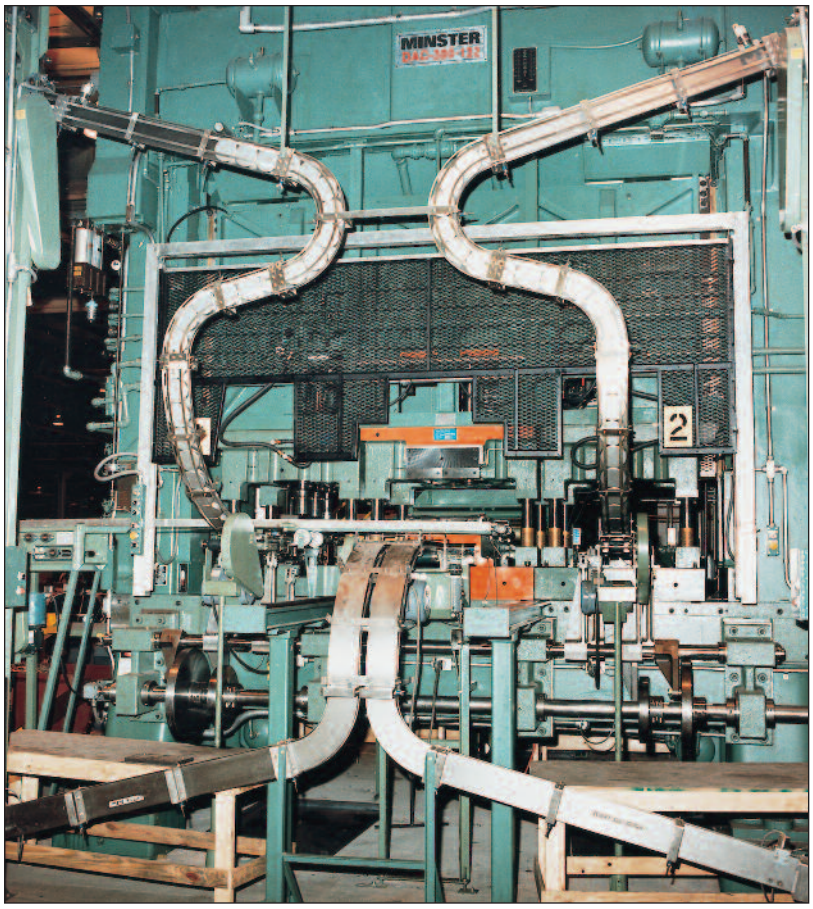
INTRO



The Minster Machine Company has a long history of innovation and involvement in the development of presses for the can-making industry around the world.

Early work with the originators of the "easy-open" can end has resulted in Minster's becoming the world's foremost builder of presses for easy-open end conversion. This success is based on a design that meets the industry's demand for high production speeds and extreme, consistent accuracy. Minster presses have been used with several sophisticated end conversion tooling systems and are currently in operation in approximately 70 countries around the world. Minster continues to develop new designs and improved manufacturing techniques for end conversion presses.

Since the mid 1960's, Minster has been building presses for the production of two-piece sanitary food cans and easy open ends. During that time designs have been constantly improved and refined, and today, Minster has become the unquestioned leader in presses for production of shells, easy open ends, cups and redrawn cans.



Development of the Minster Double Action Cupping press in the early seventies marked Minster's entry into the D&I can making area.

In the decade following, the Double Action Cupping Press has become the industry's first choice for producing cups in both D&I beer/ beverage can lines and draw/redraw sanitary food can lines. Its prominence grew based on its high-torque, high energy drive and the mass, rigidity and precision needed for the production of drawn cups with uniform wall thickness.

In its tradition of combining experience and innovation, Minster is introducing new high-output presses for producing beer/beverage and sanitary food can ends with extreme precision to handle down-gauging for material savings.

Minster's can machinery knowledge is also finding very successful application in the production of high volume products having similar configuration to cans . . . such as automotive oil filter cans and battery cases.

If you want to produce high volume products, with speed and precision, put Minster's can machinery experience to work for you!

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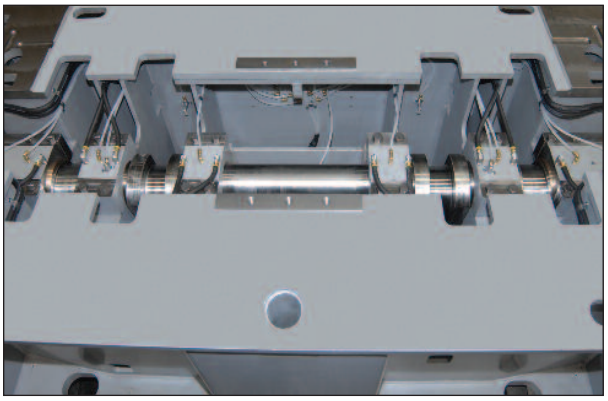
BENEFITS



Full eccentric shaft is supported in the heavy, reinforced crown by eight bronze bearings, each constantly lubricated by a recirculating lube system.

Exceptional Stability

Heavy, massive crown and bed of fabricated steel, plus uprights of high tensile cast iron, combine to provide an extremely rigid, low-deflection press frame of four-piece tie-rod construction.

Maximum Rigidity

The energy of the press is transmitted to the slides* directly over the work area through a four point eccentric shaft of forged steel and four connections. (Two connections per slide) This shaft provides extra stiffness and incorporates an exceptionally large bearing area (precision alloy-bronze main and eccentric bearing bushings are used). The full eccentric shaft also permits bearings to be located immediately next to the eccentrics for maximum support.

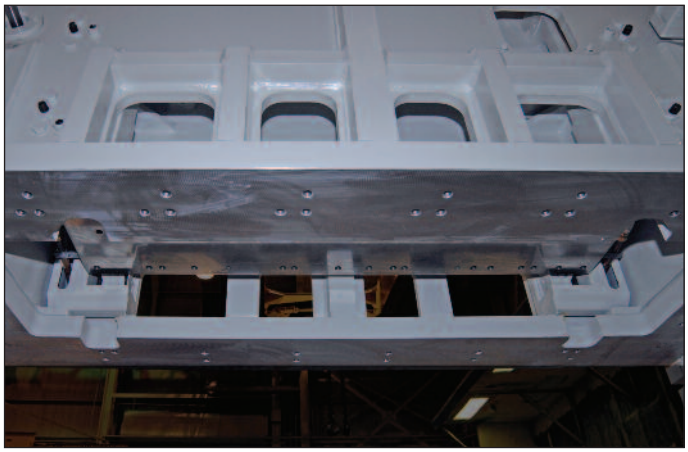
**Single-action machines (SAS) provide the same features with one slide.*

Fast, Simple Shutheight Changes

Heavy barrel-type adjustment system provides solid slide support and makes shutheight changes easy. Either slide can be manually adjusted, independently, simply by turning the adjustment shaft on that slide. A digital micro shutheight meter on each slide indicates the shutheight in inches and thousandths.

Quick Stopping

Minster cupping and shell presses are equipped with a Minster Combination Hydraulic Flex Disc Friction Clutch and Brake. The synchronized action of these clutch and brake units provides quick stopping.



View looking up at slide faces. Outer slide guided within the uprights, inner slide guided within the outer slide.

Excellent Slide/Bed Parallelism

The design and construction of the high tensile cast iron inner slide and the heavy steel outer slide produces minimum deflection. The inner slide is guided within the outer slide. Four connections, two to each slide, are screw-type and, for shutheight changes, each pair is adjustable as a set from one point through a cross-shaft. This allows the press user to maintain accuracy of slide to bed parallelism at all shutheight settings.

Slide-guiding accuracy and parallelism are also maintained by the exceptionally long and precise gibbing and by hydrostatically-guided pistons on the H-Series. Both inner and outer slides are guided throughout the entire stroke. On the gib-guided machines, the outer slide runs in eight adjustable bronze-lined gibs which are accurately squared with the press bed. The inner slide is guided by 45° adjustable front ways and 90° flat rear ways.

On the piston-guided presses, slide pistons provide guiding stiffness aided by hydrostatic oil pockets located to isolate the slide from the angular front-to-back movement of the connections.

Identically paired eccentric throws keep the slides parallel with the bed at all points in the stroke.

Easy Part Removal

On upright presses, finished parts can drop through the bed to conveyors beneath. After cutting, scrap can be dropped to conveyors at the back of the press. Large openings allow conveyors to run out in any direction — front, back, left, or right. Parts can also be removed easily with low-profile conveyors in slotted bolster.

BENEFITS

Longer Bearing Life ~ Closer Clearances

Gib-guided presses are lubricated by Minster's patented MonitorFlow recirculating lubrication system which provides a continuous oil film on all bearing surfaces. This assures longer bearing life and closer clearances for increased precision. The system also lubricates the gears, gibs and counterbalance cylinders.

An electronic flow-sensing package checks the amount of lubricant being pumped to all main and connection bearings. Flow to all gibs is constantly monitored to detect blocked lines. This system will detect faults due to broken or blocked lines, clogged filters, low oil level in reservoir or a worn pump.

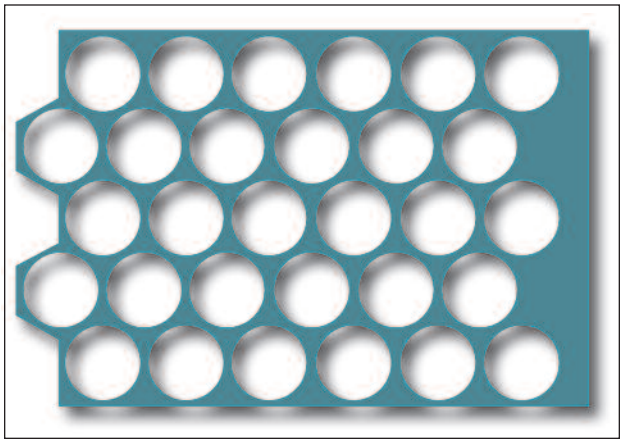
H-Series machines feature single point passage lubrication, eliminating individual bearing orifices and flow switches. Both systems provide exceptional oil control.

Positive Support of Slide & Die Weight

Two pneumatic counterbalance cylinders on the outer slide and one on the inner slide support the weight of the slides and tooling. Pressure can be adjusted to fit tooling being used.

Material Savings

The large bed width enables the use of full mill width material, saving the cost of slit coil, while the accuracy of the press allows for much less skeleton web resulting in more material savings.



The accuracies of the press and feed combine to minimize web thickness.

Auxiliary Equipment

Minster can supply feeds, lubricators, pull off stands, reels, coil cars and upenders to complete your container making system. Minster's servo feeds provide accurate feeding for maximum material efficiency.

Photo above shows a Minster DAC-150 Cupping Press, Servo Feed, Lubricator, Double Arm Uncoiler, Coil Car and Inegrated Control.

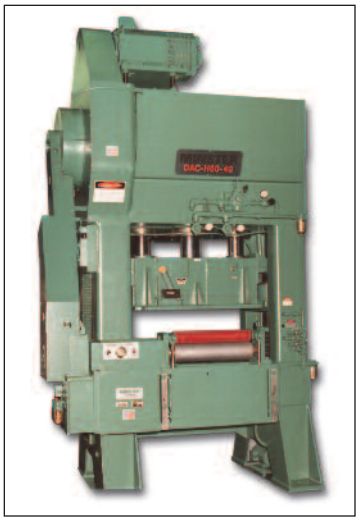
Features of Minster's H-Series Presses.

- Flywheel press with belt-driven auxiliary flywheel - eliminates gears.
- Hydraulic Clutch/Brake mounted on the crankshaft - allows stopping in less than one stroke.
- Reciprocating dynamic balancer helps maintain precise BDC repeatability and eliminates the need for a special foundation.
- Low inertia drive and slide.
- Single point passage lubrication - eliminates individual bearing orifices and flow switches.
- Completely sealed lubrication system.
- Temperature-Stabilized Frame — Maintains B.D.C. Repeatability and Guiding Accuracy.
- Crankshaft and drive can be removed from the top of the machine.
- Hydrostatic piston guiding system provides the ultimate in silde guiding precision.
- Quick lift slide - provides for quick and easy tool access and release of die jams at bottom of the stroke.

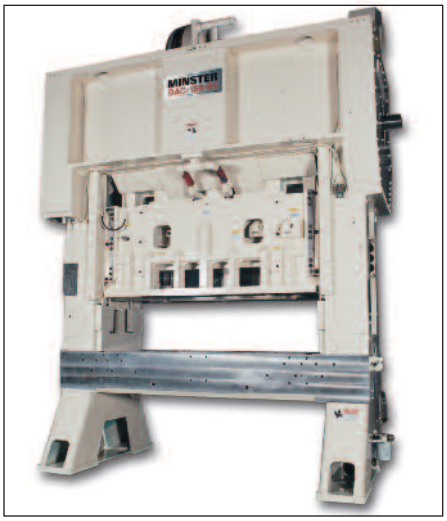
MINSTER CONTAINER EQUIPMENT

DOUBLE ACTION CUPPING PRESSES

Oil filter cases, beaded food cans, and drawn & ironed beverage cans - all produced on Minster DAC Series presses.



DAC-H60-40



DAC-150-84

DAC-H165-96

DOUBLE ACTION CUPPING PRESS SPECIFICATIONS & DIMENSIONS

Metric Dimensions Appear In Italics

PRESS MODEL	TONNAGE	BED WIDTH	STROKE OF SLIDE		SPEED
			Inner	Outer	
DAC-H60	60	40″ *1015 mm*	5″ *125 mm*	2″ *50 mm*	100-300 S.P.M.
DAC-100	100	66″ *1675 mm*	5″ *125 mm*	2″ *50 mm*	100-240 S.P.M.
DAC-150	150	84″ *2135 mm*	5″ *125 mm*	2″ *50 mm*	100-250 S.P.M.
		84″ *2135 mm*	7.5″ *190 mm*	4.5″ *115 mm*	70-145 S.P.M.
		84″ *2135 mm*	12.5″ *320 mm*	10″ *250 mm*	40-80 S.P.M.
DAC-H165	165	96″ *2440 mm*	5.0″ *125 mm*	2.0″ *50 mm*	150-350 S.P.M.
DAC-300	300	96″ *2440 mm*	13″ *330 mm*	10″ *250 mm*	50-100 S.P.M.
		132″ *3350 mm*	16″ *405 mm*	10″ *250 mm*	40-80 S.P.M.

H - Designates Hydrostatic Piston Guiding.

Predominate specifications are listed above. Others are available -- Please consult Minster for your specific requirements.

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DOUBLE & SINGLE ACTION SHELL PRESSES

DAS-H100-52

OPT-H200-101

SAS-H60-48

P2H-100-48

P2H-160-63

SAS-H100-72

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DOUBLE & SINGLE ACTION SHELL PRESSES

DOUBLE ACTION SHELL PRESS SPECIFICATIONS & DIMENSIONS

Metric Dimensions Appear In Italics

PRESS MODEL	TONNAGE	BED WIDTH	STROKE OF SLIDE		SPEED
			Inner	Outer	
DAS-H60	60	40" *1015 mm*	3.5" *90 mm*	2.5" *65 mm*	100-300 S.P.M.
DAS-H100	100	52" *1320 mm*	3.5" *90 mm*	2.5" *65 mm*	100-300 S.P.M.
			4" *100 mm*	3.5" *90 mm*	
OPT-H200	200	101" *2565 mm*	4.75" *120 mm*	3" *75 mm*	100-400 S.P.M.

Note: Maximum Press Operating Speed may vary with stroke length and phase angle combination.

SINGLE ACTION SHELL PRESS SPECIFICATIONS & DIMENSIONS

Metric Dimensions Appear In Italics

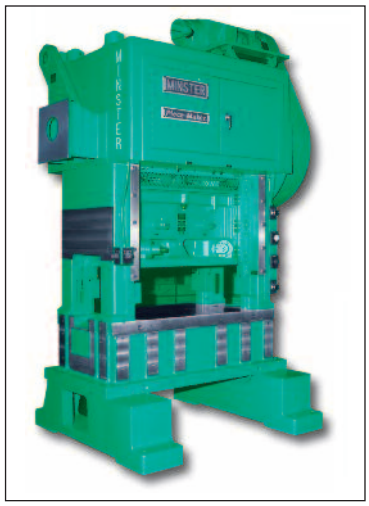
PRESS MODEL	TONNAGE	BED WIDTH	STROKE OF SLIDE	SPEED
SAS-H60	60	48" *1220 mm*	1.75" *45 mm*	100-650 S.P.M.
			2.50" *65 mm*	100-450 S.P.M.
P2H-100	100	48" *1220 mm*	2.56" *65 mm*	90-330 S.P.M.
			3.94 *100 mm*	90-275 S.P.M.
P2H-160	160	63" *1600 mm*	2.95" *75 mm*	70-300 S.P.M.
			3.94" *100 mm*	70-250 S.P.M.
			4.92" *125 mm*	70-200 S.P.M.
SAS-H100	100	72" *1830 mm*	1.75" *45 mm*	100-550 S.P.M.
			2.75" *70 mm*	100-375 S.P.M.

H - Designates Hydrostatic Piston Guiding.

Predominate specifications are listed above. Others are available -- Please consult Minster for your specific requirements.

END CONVERSION PRESSES

ECH-125



P2-100

Minster has been a major supplier of extremely accurate high-speed presses for adaptation of sophisticated tooling systems used in the production of "easy-open" can ends.

Minster's EC and ECH End Conversion presses are dynamically-balanced permitting higher speeds, and the main bearings give exceptional support to the eccentric shaft to resist deflection and reduce stress.

Precision slide guiding is maintained by the close- tolerance 8-point gibbing arrangement on the EC press and a combination hydrostatic/hydrodynamic piston guide system on the ECH press. This assures excellent slide-to-bed parallelism at all times, contributing to the consistent close score tolerance necessary for high part accuracy.

EC-100-QL

A quick lift slide feature is also available to raise the slide for quick access to inspect dies, clear jams or correct tooling problems. The design of this system is a major time saving feature, and assures return to exact shutheight.

- Heavy Duty Combination Hydraulic Clutch and Brake — Allows Starting and Stopping Within One Stroke.
- Temperature-Stabilized Frame — Maintains B.D.C. Repeatability and Guiding Accuracy.
- Press Mounted on Spring Isolation Mounts. (EC & ECH only)
- Will Accept Either 2, 3, or 4-Out Tooled Systems.
- New Lubrication System Provides Complete Oil Control.
- Hydrostatic/Hydrodynamic Piston Guided Slide.
- Low Inertia Slide and Moving Members — Allows for Higher Speeds.
- Single Point Passage Lubrication — Eliminates Individual Bearing Orifices and Flow Switches.
- Open-Top Crown Construction — Allows for Crank Assembly to Be Removed Intact.

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END CONVERSION PRESSES

END CONVERSION PRESS SPECIFICATIONS & DIMENSIONS

Metric Dimensions Appear In Italics

PRESS MODEL	TONNAGE	BED WIDTH	STROKE OF SLIDE	SPEED
P2-100	100	42″ *1065 mm*	2.5″ *64 mm*	80-350 S.P.M.
		48″ *1220 mm*		
EC-100-QL	100	48" *1220 mm*	1.75″ *45 mm*	0-550 S.P.M.
			1.62″ *41 mm*	0-600 S.P.M.
ECH-125	125	44" *1115 mm*	1.62″ *41 mm*	0-700 S.P.M.
			1.38" *35 mm*	0-750 S.P.M.

H - Designates Hydrostatic Piston Guiding.

QL - Designates Quick Lift Slide for tool access and release of jam at bottom of stroke -- standard feature on EC-100-QL and ECH-125 press models.

Predominate specifications are listed above. Others are available -- Please consult Minster for your specific requirements.

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