A Nidec Group Company

MINSTER®

All for dreams

BULLETIN 136F

P2H

PIECE-MAKER

63-160 TONS CAPACITY



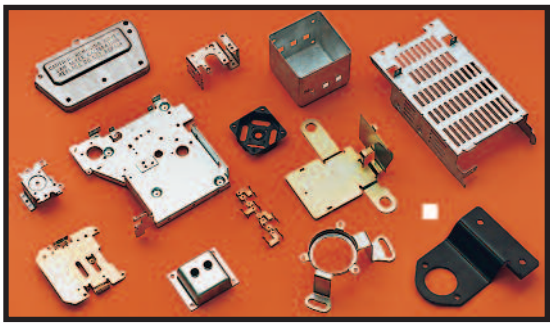
P2H Series Presses

HIGH PERFORMANCE COMBINED WITH DURABILITY RELIABILITY
AND SERVICEABILITY IN STRAIGHT SIDE PRECISION PRESSES

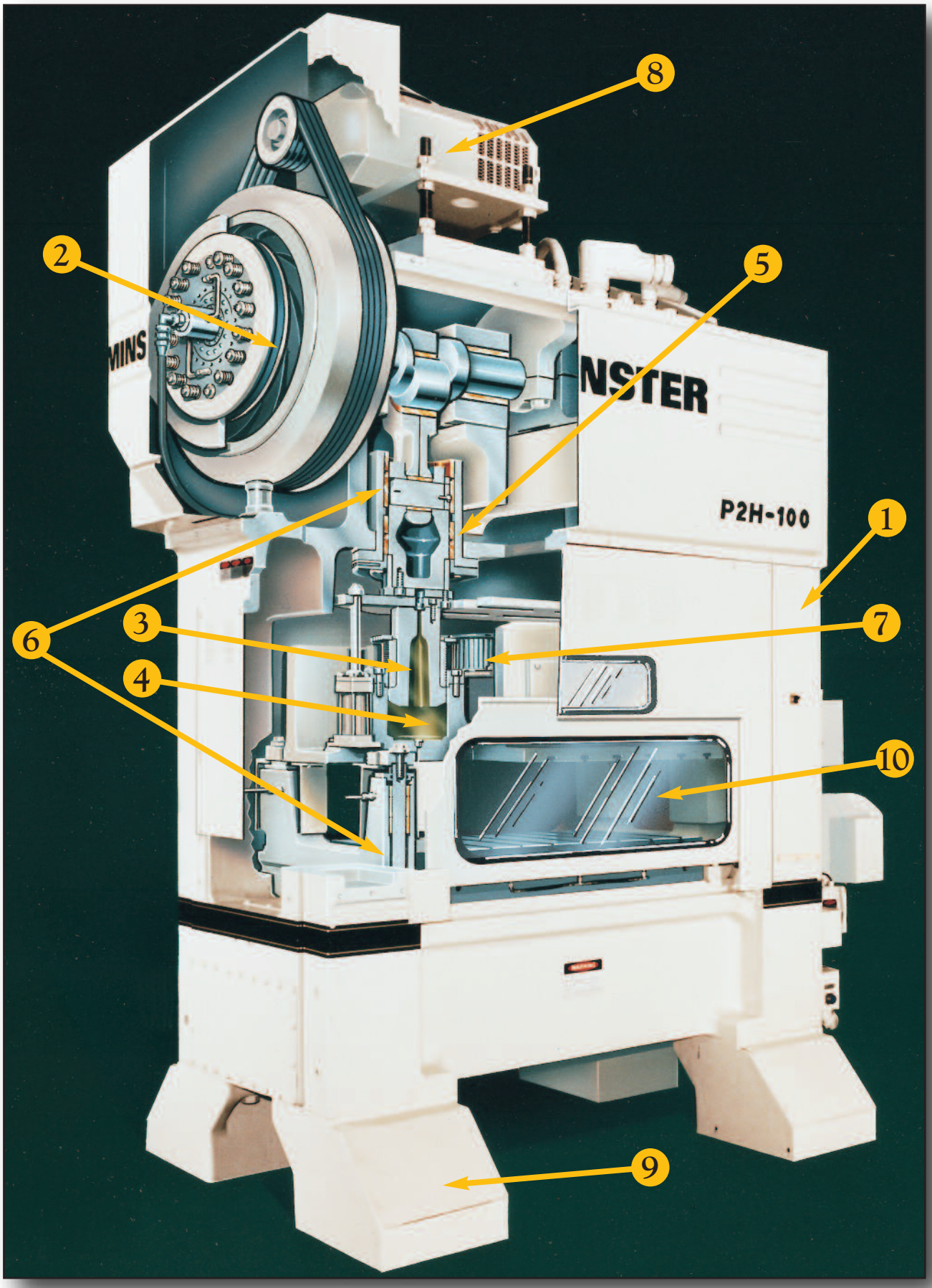
INTRO

Precision Straight Side Presses

P2H presses are designed for universal stamping applications. The flexibility of available adjustable stroke and quick access slide with motorized shutheight adjustment expand the use of the machine from flat blanking to multiple forming or drawing operations. The rigid guiding system, combined with hydraulic overload and hydraulic clutch and fast braking provide the ultimate in part precision, die life and productivity.



Minster P2H 100 with optional adjustable stroke.

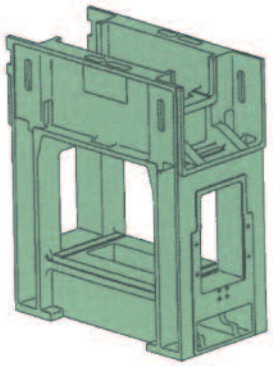


003

STANDARD FEATURES

Cast Iron Frame. 1

The cast iron frame of the Minster has increased mass to better dampen the overall press vibration level. Operator controls are conveniently flush mounted in the upright design. The open top of the frame provides easy access for routine maintenance.

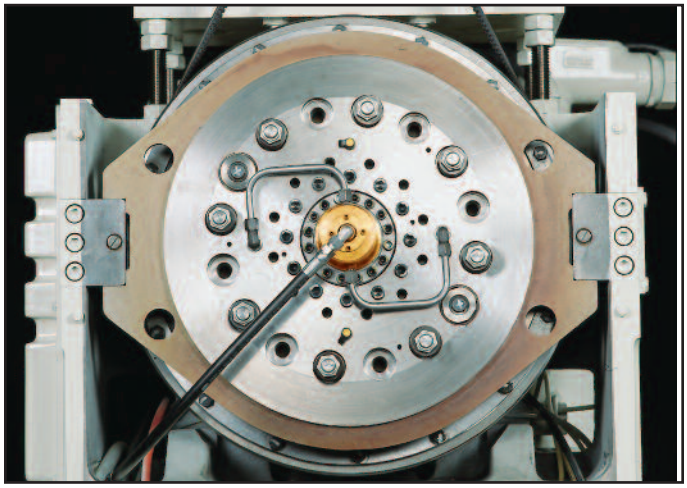


Minster P2H-63 and P2H-100 frame.

(Minster P2H-160 frame is 3-piece construction.)

Hydraulic Flex Disc Clutch and Brake. 2

Minster's combination hydraulic clutch and spring-applied brake provides quick starts and fast stops. Faster stopping allows higher production speeds while maintaining the integrity of your tooling protection systems with its reduced stopping angle at the higher speed.

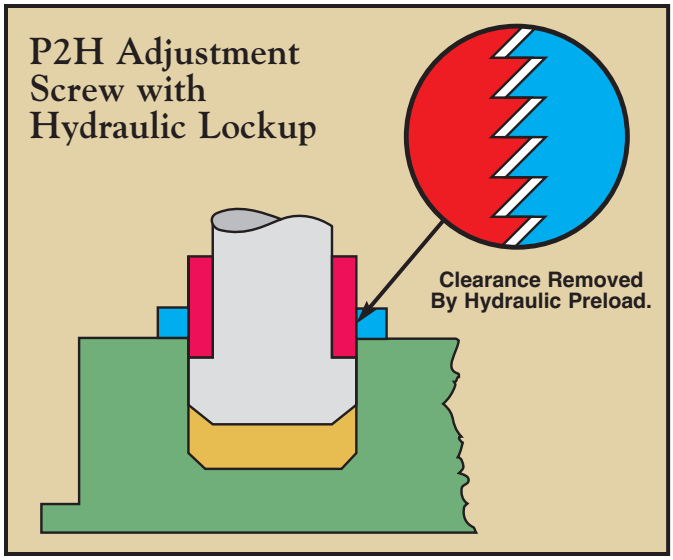


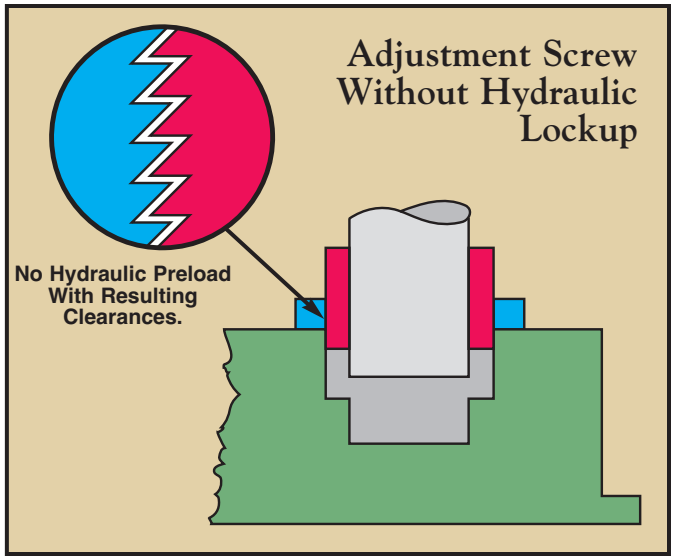
Flywheel Brake.

Electrically interlocked with the drive "Stop" circuit, the flywheel brake eliminates "coasting" after the drive motor has been shut off, allowing work in the die area to begin much sooner.

Hydraulic Slide Lockup. 3

The hydraulic locking system of the P2H removes all clearances in the slide adjustment parts, reducing the effects of snap-through forces and punch penetration. This, along with reduced vibration, increases die life because of increased production between die sharpenings.





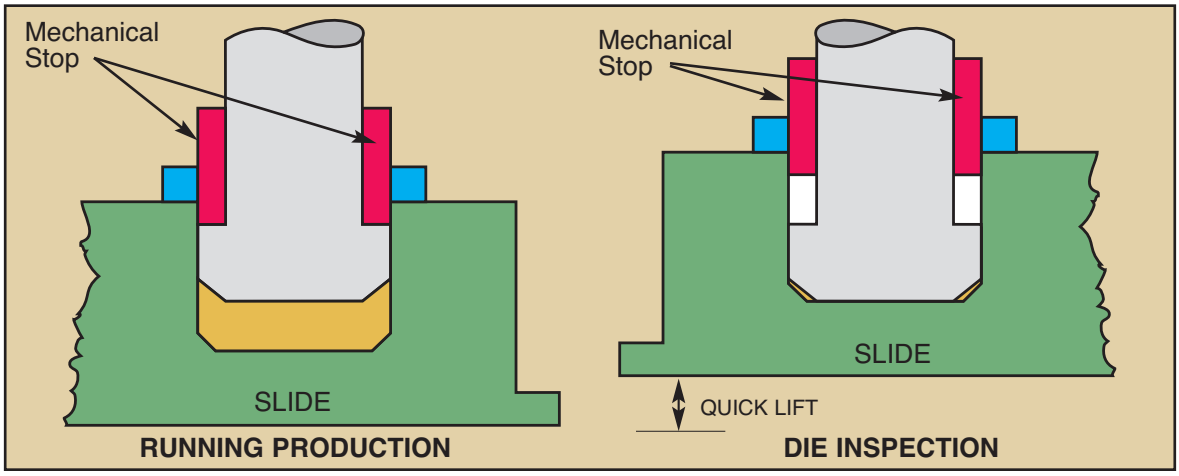
004

P2H PIECE-MAKER

STANDARD FEATURES

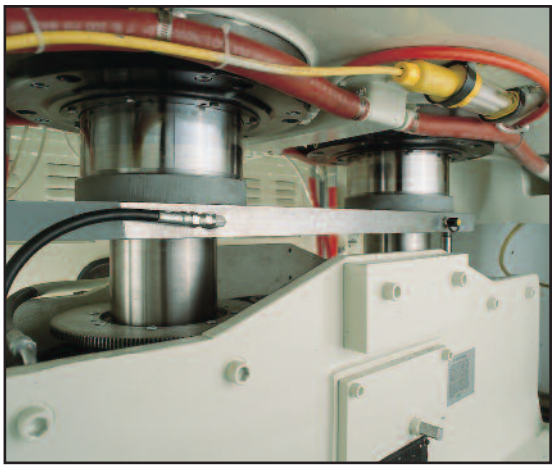
Quick Lift Slide. 4

Quick access to dies is provided by a hydraulic system which lifts the slide to a fixed open position. The hydraulic system returns the slide to the original shutheight position against a mechanical stop, maintaining accurate tool settings. This feature facilitates die inspection, material threading and misfeed troubleshooting, contributing to overall production efficiency.



Hydrostatic Piston Drive. 5

The P2H drive includes two large diameter hydrostatically guided pistons. Large wrist pins and connection bushings are lubricated through the crankshaft with pressurized oil, increasing tensile stiffness and providing the ultimate in bottom-dead-center repeatability. The drive system bearing design promotes prolonged machine accuracy and die life.

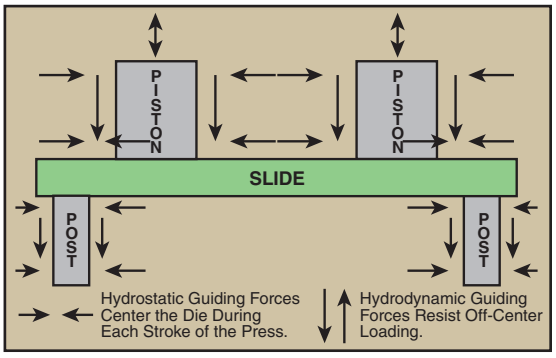


Slide Guiding. 6

The P2H guiding system assures positive centering of the slide and resistance to off-center loads. The slide is piston driven and guided by sixteen hydrostatic centering pads plus four hydrodynamic guide posts which are at material pass line level. Punch to die clearance is maintained and die life is extended.

Monitored Lubrication.

All main and connection bearings have full film lubrication with pressurized oil supplied to each bearing within the crankshaft. The system is designed to stop the press in the event of an interruption of the oil flow. The consistent oil film gives the ultimate dynamic bearing stiffness and longevity resulting in better bottom-dead-center repeatability and die life.



Motorized Shutheight Adjustment. 7

The motorized shutheight adjustment with digital readout eases and speeds the die setting procedure, contributing to longer production time and better part production as a result of accurate repeatable die settings.

Main Drive Motor. 8

The P2H variable frequency main drive motor is totally enclosed, fan-cooled, variable speed and provides proven durability and increased torque response.

005

Integral Press Shock Mounts. 9

Standard press mounts are designed as an integral part of the frame and serve as levellers in addition to vibration absorbers. Mount adjustment screws with fine threads reduce adjustment torque. Covers protect the screws from debris which could gall the threads.

P2H PIECE-MAKER

OPTIONAL FEATURES

Infinitely Adjustable Stroke

Provides more flexibility and higher production capability.

Features Include:

- No limit on stroke length within the range.
- Quick and simple pushbutton adjustment.
- Dial-in, or pushbutton stroke length via die number automatically sets stroke & shutheight for easy changeover.
- Provides micro-speed part blanking/forming feature and allows for easier die set-up.
- Extremely accurate BDC repeatability and parallelism.

Benefits Include:

Short Stroke for Flat Blanking Operations:

- Higher Production Speeds for Blanking Dies.
- Reduced Vibration and Noise.
- Reduced Punch Impact Velocity.
- Die Guide Pins Can Remain in Bushings.

Long Stroke for Forming & Drawing Operations:

- Increased Forming Range.
- Longer Feed Cycle.
- Optimize Press Stroke for Draw Applications.
- Increased Access for Die Maintenance.

High Speed Drives.

The P2H is available with high speed drives for increased part productivity. Refer to the specifications on page 8 for availability and speeds.

Die Area Doors. 10

The P2H frame is designed to accept an integral lift-type enclosure which is both mechanically and electrically interlocked.

High Energy Drive.

Available on the P2H 100 and P2H-160, an auxiliary flywheel doubles the available energy and produces a higher rating off the bottom of the stroke.

Servo MINSTER FLEX DRIVE Available.

Ask for Bulletin 189.

Die Rollers & Die Clamping.

Minster P2H presses are easily equipped with die rollers and clamping to speed up die changing and further enhance press uptime and productivity. Consult Minster for answers to your quick-die-change requirements.

Hydraulic Overload Protection.

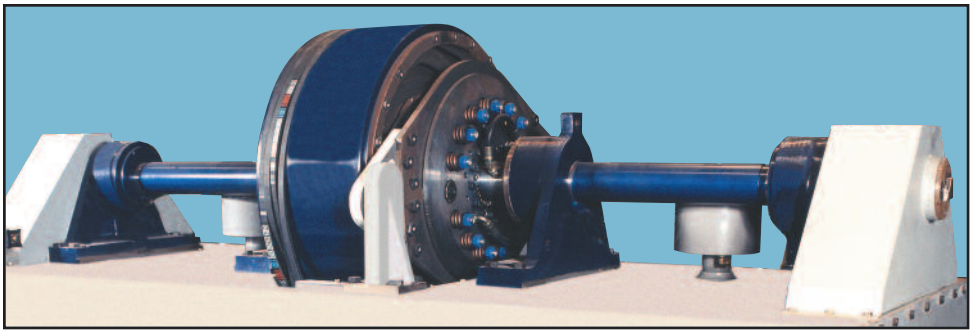
The hydraulic overload valve is attached directly to the slide and is pressure activated immediately relieving the overload. In addition, a flow switch initializes the stop circuit to help protect expensive dies.

Shutheight Thermal Stabilization System.

For more stringent applications which require extremely tight shutheight control, a Shutheight Thermal Stabilization System is available. This unique feature is integrated into the press lubrication and hydraulic system.

006

Single-Geared Twin Drive Arrangement



Available on the P2H-160, this arrangement is designed for slower speed and/or higher energy applications. In this arrangement, Minster's hydraulic clutch and brake unit is mounted on the drive shaft on top of the crown. This drives the eccentric shaft from both ends through opposed helical gears, promoting die parallelism, even in off-center loading conditions. The geared version of the P2H is available with longer stroke lengths than the flywheel version, and is equipped with air counter balance cylinders.

P2H PIECE-MAKER

STANDARD ELECTRICAL FEATURES

Production Management Control (PMC)

This full featured press control was designed and integrated by Minster and incoporates all press functions including:

- Full machine diagnostics detailing all press & feed line faults.
- Selectable supervisor lockout for each function.
- Clutch/Brake start-stop.
- Motor controls.
- Tool storage.
- Energy saver mode.
- Preventative maintenance monitoring.
- Programmable Limit Switch.
- Counters.
- Stopping time indicator.
- Reason for recent stop.
- Crank position indicator including distance off bottom.

The PMC utilizes open architecture which allows for greater convenience in planning and maintenance. It incorporates a PLC and color touch screen technology; and, all press and feed line functions can be monitored for efficient diagnosis of production line faults.

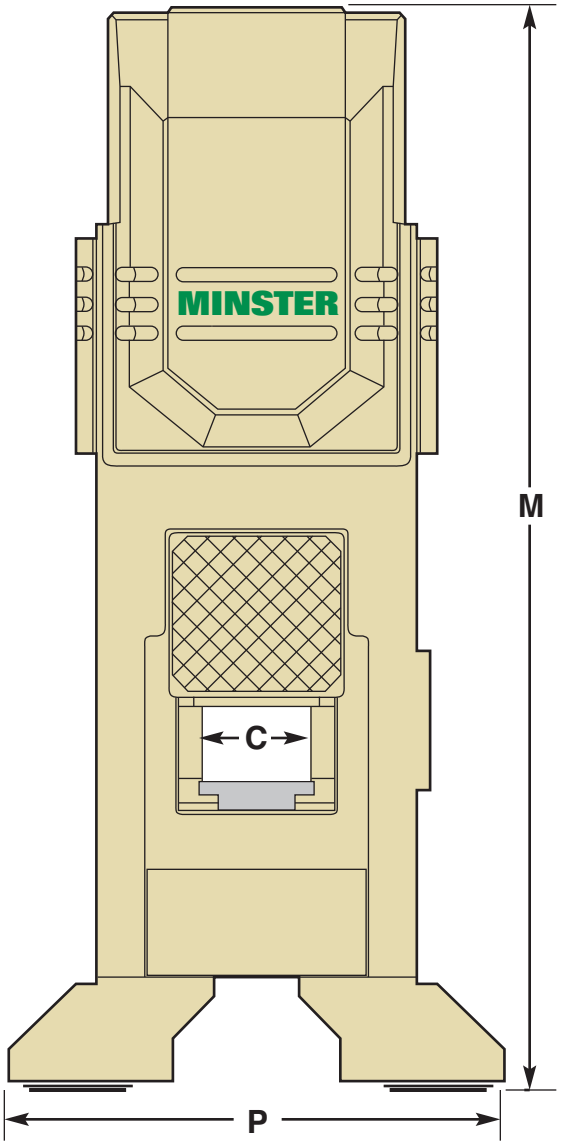
Available popular options include:

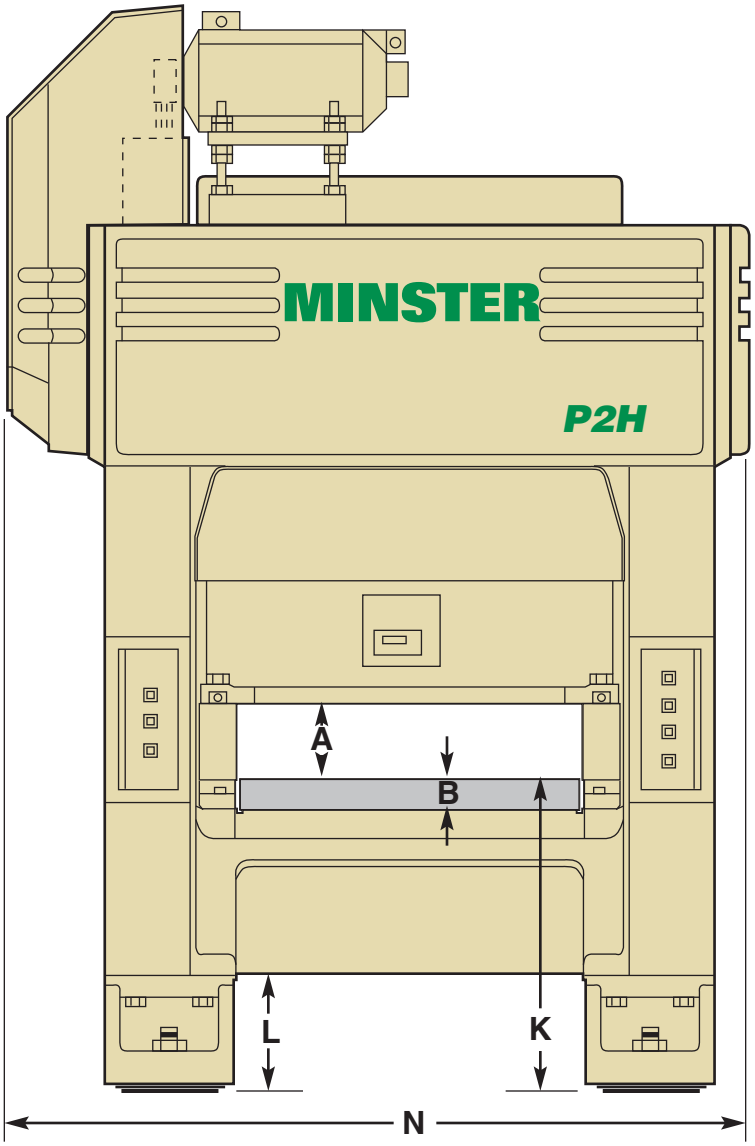
- Additional tool storage.
- Die protection with Auto Tune technology.
- Load Monitoring.
- Automatic shutheight and counterbalance control.
- Hydraulic overload protection.
- Vibration severity monitoring.

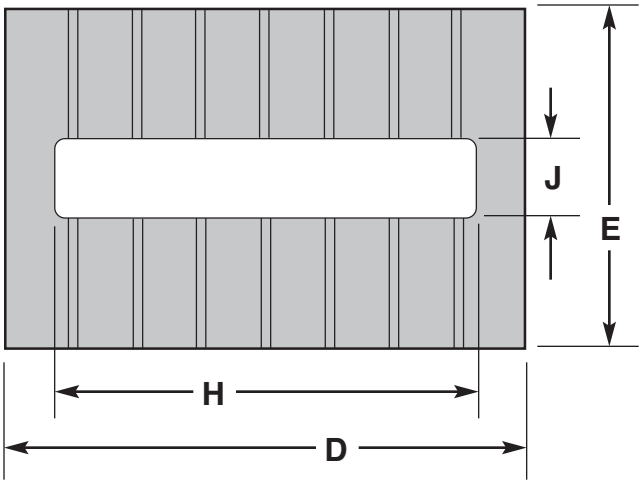
P2H Specifications & Dimensions

Dimen.	PRESS MODEL		P2H-63-40			P2H-100-48			P2H-100-63			P2H-160-63			P2H-160-75			P2H-160G-75		
	Capacity		630 kN / *71 Tons*			1000 kN / *112 Tons*			1000 kN / *112 Tons*			1600 kN / *180 Tons*			1600 kN / *180 Tons*			1600 kN / *180 Tons*		
	Distance Off Bottom	Standard	1,5 mm / *.06"*			1,5 mm / *.06"*			1,5 mm / *.06"*			1,5 mm / *.06"*			1,5 mm / *.06"*			6 mm / *.24"*		
		High Energy	N/A			3 mm / *.12"*			3 mm / *.12"*			3 mm / *.12"*			3 mm / *.12"*			10 mm / *.39"*		
	Fixed Stroke vs. Speed		**Stroke Length**	**Std. Speed**	**Max.* Speed**	**Stroke Length**	**Std. Speed**	**Max.* Speed**	**Stroke Length**	**Std. Speed**	**Max.* Speed**	**Stroke Length**	**Std. Speed**	**Max.* Speed**	**Stroke Length**	**Std. Speed**	**Max.* Speed**	**Stroke Length**	**Std. Speed**	**Max.* Speed**
			20 mm *0.79"*	250	600															
			25 mm *0.98"*	250	550	25 mm *0.98"*	250	550	25 mm *0.98"*	250	525									
			30 mm *1.18"*	250	500	30 mm *1.18"*	250	500	30 mm *1.18"*	250	475	30 mm *1.18"*	200	400	30 mm *1.18"*	200	400			
			40 mm *1.57"*	250	450	40 mm *1.57"*	250	450	40 mm *1.57"*	250	425	40 mm *1.57"*	200	400	40 mm *1.57"*	200	400			
			50 mm *1.97"*	250	400	50 mm *1.97"*	250	400	50 mm *1.97"*	250	375	50 mm *1.97"*	200	350	50 mm *1.97"*	200	350			
			65 mm *2.56"*	250	350	65 mm *2.56"*	250	350	65 mm *2.56"*	250	325									
			75 mm *2.95"*	250	300	75 mm *2.95"*	250	300	75 mm *2.95"*	250	275	75 mm *2.95"*	200	300	75 mm *2.95"*	200	300			
						100 mm *3.94"*	250	275	100 mm *3.94"*	225	250	100 mm *3.94"*	150	250	100 mm *3.94"*	150	250	100 mm *3.94"*	120	150
												125 mm *4.92"*	150	200	125 mm *4.92"*	150	200	150 mm *5.91"*	120	150
												150 mm *5.91"*	150	200	150 mm *5.91"*	150	200	200 mm *7.88"*	100	120
	Adjustable Stroke Range vs. SPM	***Min. Stroke***	25 mm *.98"*			35 mm *1.38"*			35 mm *1.38"*			25 mm *.98"*			25 mm *.98"*			100 mm *3.94'*		
		Max. SPM @ Min. Stroke	500 SPM			450 SPM			425 SPM			400 SPM			400 SPM			150 SPM		
		Max. Stroke	75 mm *2.95"*			100 mm *3.94"*			100 mm *3.94"*			125 mm *4.92"*			125 mm *4.92"*			200 mm *7.88"*		
		Max. SPM @ Max. Stroke	275 SPM			250 SPM			225 SPM			200 SPM			200 SPM			120 SPM		
	Shutheight Adjust.		75 mm *2.95"*			100 mm *3.94"*			100 mm *3.94"*			100 mm *3.94"*			150 mm *5.91"*			150 mm *5.91"*		
	QA Slide Travel (Depending on SH)		25 mm - 100 mm *.98" - 3.94"*			12 mm - 115 mm *.50" - 4.50"*			12 mm - 115 mm *.50" - 4.50"*			12 mm - 115 mm *.50" - 4.50"*			12 mm - 165 mm *.50" - 6.50"*			12 mm - 165 mm *.50" - 6.50"*		
A	**SH Range on Bolster** (Std.)		225 mm - 300 mm *8.90" - 11.80"*			280 mm - 380 mm *11.0" - 14.94"*			280 mm - 380 mm *11.0" - 14.94"*			350 mm - 450 mm *13.78" - 17.72"*			350 mm - 500 mm *13.78"-19.69"*			350-500 mm *13.78"-19.69"*	450-600 mm *17.72"-23.62"*	
B	**Bolster Thickness**		100 mm *3.94"*			100 mm *3.94"*			100 mm *3.94"*			125 mm *4.92"*			125 mm *4.92"*			125 mm *4.92"*		
C	**Passline Opening (F-B)**		330 mm *13.10"*			560 mm *22.0"*			560 mm *22.0"*			630 mm *24.80"*			630 mm *24.80"*			630 mm *24.80"*		
D x E	**Area of Bolster (R-L x F-B)** (Std.)		1000 mm x 630 mm *39.40" x 24.80"*			1220 mm x 800 mm *48.0" x 31.50"*			1600 mm x 800 mm *63.0" x 31.5"*			1900 mm x 850 mm *74.8" x 33.50"*			1900 mm x 850 mm *74.8" X 33.50"*			1900 mm x 850 mm *74.8" x 33.50"*		
F x G	**Area of Slide (R-L x F-B)** (Std.)		1000 mm x 630 mm *39.40" x 24.80"*			1220 mm x 660 mm *48.0" x 26.0"*			1600 mm x 660 mm *63.0" x 26.0"*			1900 mm x 850 mm *74.8" x 33.50"*			1900 mm x 850 *74.8" x 33.50"*			1900 mm x 850 mm *74.8" x 33.50"*		
H x J	**Opening in Bolster (R-L x F-B)**		800 mm x 160 mm *31.50" x 6.25"*			1000 mm x 190 mm *39.40" x 7.50"*			1300 mm x 190 mm *51.2" x 7.50"*			1600 mm x 250 mm *63.0" x 9.80"*			1600 mm x 250 mm *63.0" x 9.80"*			1600 mm x 250 mm *63.0" x 9.80"*		
	Opening in Bed (R-L x F-B)		876 mm x 230 mm *34.50" x 9.0"*			1015 mm x 360 mm *40.0" x 14.20"*			1400 mm x 360 mm *55.0" x 14.2"*			1600 mm x 370 mm *63.0" x 14.60"*			1600 mm x 370 mm *63.0" x 14.60"*			1600 mm x 370 mm *63.0" x 14.60"*		
K	**Distance Floor to Top of Bolster**		1095 mm *43.10"*			1135 mm *44.70"*			1135 mm *44.70"*			1180 mm *46.40"*			1180 mm *46.40"*			1180 mm *46.40"*		
L	**Distance Floor to Bottom of Bed**		380 mm *15.0"*			430 mm *17.0"*			430 mm *17.0"*			300 mm *11.75"*			300 mm *11.75"*			300 mm *11.75"*		
M	**Overall Height**		3550 mm *139.50"*			3930 mm *155.0"*			3930 mm *155.0"*			4320 mm *170.0"*			4526 mm *178.2"*			4780 mm *188.75"*		
N	**Overall Width**		2345 mm *92.30"*			2640 mm *104.0"*			3025 mm *119.0"*			3588 mm *141.2"*			4042 mm *159.1"*			3660 mm *144.0"*	3700 mm *145.50"*	
P	**Width at Feet**		1640 mm *64.50"*			1780 mm *70.0"*			1780 mm *70.0"*			2030 mm *80.0"*			2030 mm *80.0"*			2030 mm *80.0"*		
	Main Drive Motor (Std. Speed)		11,25 kw *15 HP*			15 kw *20 HP*			15 kw *20 HP*			22,5 kw *30 HP*			22,5 kw *30 HP*			30 kw *40 HP*		
	Main Drive Motor (High Speed)		15 kw *20 HP*			18,75 kw *25 HP*			18,75 kw *25 HP*			30 kw *40 HP*			37 kw *50 HP*			37 kw *50 HP*		
	Press Shipping Wt.		11.800 kg *26,000 Lbs.*			18.600 kg *41,000 Lbs.*			20.865 kg *46,000 Lbs.*			34.020 kg *75,000 Lbs.*			32.615 kg *77,000 Lbs.*			32.615 kg *77,000 Lbs.*		

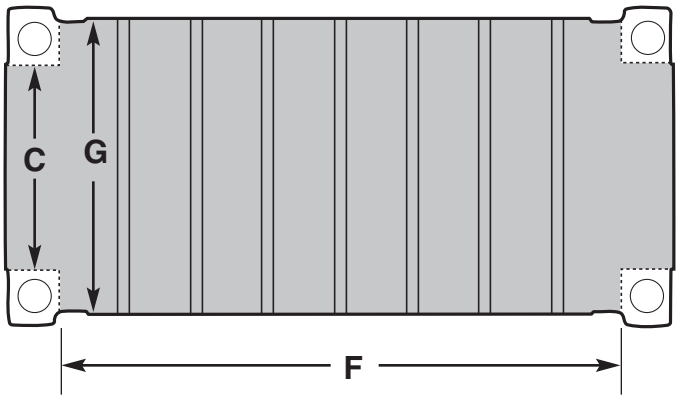
***Maximum speeds are 25-50 SPM slower on adjustable-stroke machines.** **† Consult Minster for sizes &specifications other than standard.**







BOLSTER



SLIDE FACE

009

Minster GmbH,
Halblech, Germany,
Telephone: (49) 8368 9134 0

Nidec Shimpo,
Kyoto, Japan
Telephone: +81-75-958-3606

Nidec Minster, Minster,OH, Telephone: +1(419) 628-2331

Nidec Minster S. de R. L.
Querétaro, Mexico
Telephone: (52) 442-253-1671

Minster China,
Ningbo, China
Telephone: +86 574 8630-8020

Before You Invest in New Material Forming Technology, You're Invited to Visit Our Manufacturing, Training, Research, Parts and Service Facilities to See How "Minster Quality" is Built Into All of Our Products and Services.

A Nidec Group Company
MINSTER®

A Century of Heritage Pressed Into a Lifetime of Quality

240 WEST FIFTH STREET • MINSTER, OHIO 45865-0120 U.S.A. • PHONE: (419) 628-2331 • FAX: 419-628-3517

www.minster.com

Minster Has Sales and Service Offices Located Throughout the World
Contact Minster Direct For The Name of Your Global Representative

500PP415