

# P2H

# PRECISION STRAIGHTSIDE PRESSES

560 - 1,424 kN 630 - 1,600 Metric Tons Capacity

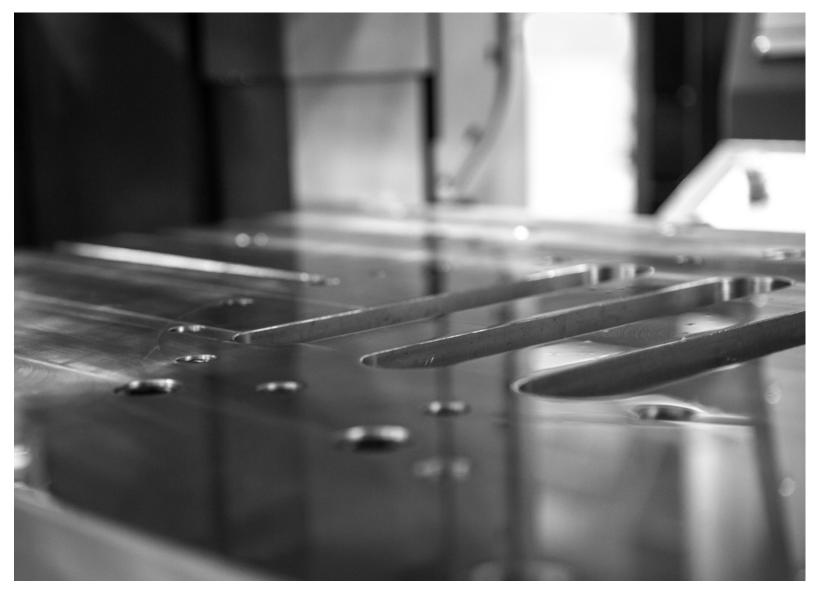


MINSTER (

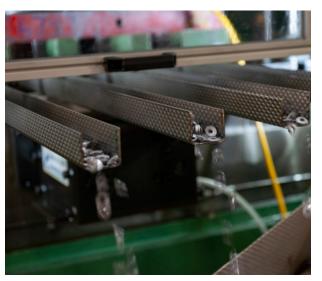
# **PRODUCT OVERVIEW**

P2H presses are designed for universal stamping applications. The flexibility of an 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.









- The P2H cast iron frame, forged high strength, alloy steel drive train rated to full press tonnage and 50% reverse loading, reduces overall press vibration levels.
- The quick lift slide feature facilitates die inspection, material threading and misfeed troubleshooting, contributing to overall production efficiency.

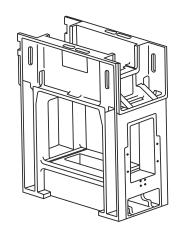
- The drive system bearing design promotes prolonged machine accuracy and die life.
- All main and connection bearings have full film lubrication with pressurized oil supplied to each bearing within the crankshaft. The consistent oil film gives the ultimate dynamic bearing stiffness and longevity.

# STANDARD FEATURES

#### **Cast Iron Frame**

The cast iron frame of the P2H 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.

# One-piece frame on P2H-63 & P2H-100 Four-piece frame on P2H-160



# **Hydraulic Slide Lockup**

Eliminates clearance in slide adjustment parts to reduce the effects of snap-through forces and punch penetration, thus reducing vibration.

# Combination Hydraulic Flex Disc Clutch and Brake

Includes dual clutch valves providing quick starts and faster stopping times for high production speeds.

# Air Operated Flywheel Brake

Electrically interlocked with "stop" circuit eliminates "coasting" resulting in quicker access to die area.



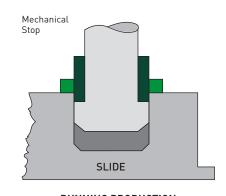
# Clearance Removed by Hydraulic Preload with Resulting Clearances

P2H Adjustment Screw with Hydraulic Lockup

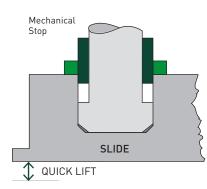
Adjustment Screw without Hydraulic Lockup

#### **Quick Lift Slide**

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.



RUNNING PRODUCTION



DIE INSPECTION

## **Hydrostatic Piston Drive**

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.

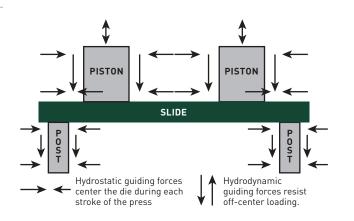


# **Monitored Lubrication**

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.

# **Slide Guiding**

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.



# STANDARD FEATURES

#### Motorized Shutheight Adjustment

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

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

# **Production Management** Control (PMC)

Incorporates all press functions including:

- Full machine diagnostics detailing all press and feed line faults
- Multiple selectable languages
- Open architecture which allows for greater convenience in planning and maintenance.
- PLC and color touch screen technology; all press and feed line functions can be monitored for efficient diagnosis of production line faults

Available popular options include: die protection, load monitoring as well as automatic shutheight controls.

# FieldHawk - Industry 4.0

FieldHawk is a cloud-based communications mobile application designed to communicate with your NP&A stamping press lines from your IOS or Android mobile devices. Cloudbased, secured communications allows all authorized users to check machinery status from anywhere you can get phone service and/ or an internet connect, reducing downtime.



# **Integral Press Shock Mounts**

Standard press mounts are designed as an integral part of the frame and serve as levelers 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.



# Mirco-Speed Barring

The P2H is available with micro-speed barring that allows for easier die set-up.

# **OPTIONAL FEATURES**

## Infinitely Adjustable Stroke

Provides more flexibility and higher production capability:

- 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 barring feature and allows for easier die set-up
- Extremely accurate bottom-deadcenter 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
- Optimized 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

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

# The hydraulic overload valve is attached

change requirements.

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 Nidec

Minster for answers to your quick-die-

**Hydraulic Overload Protection** 

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

# **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.

# 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.

# **OPTIONAL FEATURES**

## **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 counterbalance cylinders.



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Integrated Controls

# METAL FORMING PRESS APPLICATIONS

Mechanical
Servo
Transfer
High-Speed & Electrical
Electrical Vehicle (EV)
Lamination
Container Cupping
Container End-Conversion
Container Shell
Gap/D-Frame

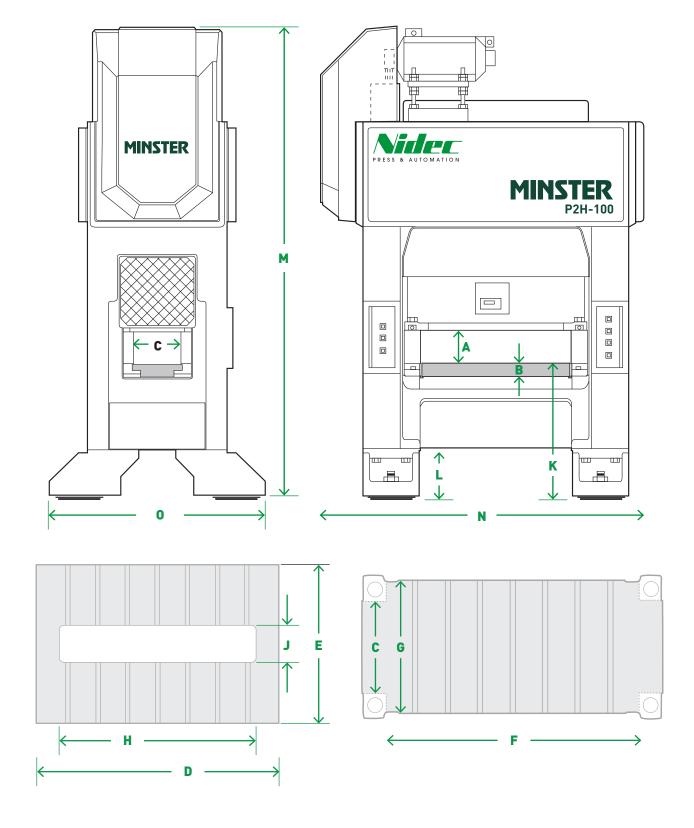
#### **AUTOMATION**

Press Tending / Robotics Integrated Transfers High Speed Servo Feeds High Speed Gripper Feeds Heavy-Duty Coil Lines

#### GLOBAL SERVICE NETWORK

Field Service
Remanufacturing
Spare Parts
Technical Service
Training
Planned Maintenance
Inspection & Audit
Relocation
Upgrade Services
Engineering Services

# **SPECIFICATIONS & DIMENSIONS**



			P2H-	63-40	P2H-100-48			P2H-100-63			P2H-160-63			P2H-160-75			P2H-160G-75				
	Tons Capacit	630 <b>kN</b> / 71 <b>Tons</b>			1,000 / 112			1,000 / 112			1,600 / 180			1,600 / 180				1,600 / 180			
	Distance off	Standard	1.5 mm / .06 in N/A			1.5 mm / .06 in 3 mm / .12 in			1.5 mm / .06 in 3 mm / .12 in			1.5 mm / .06 in 3 mm / .12 in			1.5 mm / .06 in 3 mm / .12 in			6 mm / .24 in 10 mm / .39 in			
	Bottom	High Energy																			
			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 in	250	600																
			25 mm 0.98 in	250	550	25 mm 0.98 in	250	550	25 mm 0.98 in	250	525										
				250	500	30 mm 1.18 in	250	500	30 mm 1.18 in	250	475	30 mm 1.18 in	200	400	30 mm 1.18 in	200	400				
				250	450	40 mm	250	450	40 mm	250	425	40 mm	200	400	40 mm	200	400				
	Stroke Speed		1.57 in 50 mm	250	400	1.57 in 50 mm	250	400	1.57 in 50 mm	250	375	1.57 in 50 mm	200	350	1.57 in 50 mm	200	350				
			1.97 in 65 mm	250	350	1.97 in 65 mm	250	350	1.97 in 65 mm	250	325	1.97 in			1.97 in						
			2.56 in 75 mm	250	300	2.56 in 75 mm	250	300	2.56 in 75 mm	250	275	75 mm	200	300	75 mm	200	300				
			2.95 in	200		2.95 in 100 mm	250	275	2.95 in 100 mm	225	250	2.95 in 100 mm	150	250	2.95 in 100 mm		250	100 mm	120	150	
						3.94 in	250	2/3	3.94 in	225	230	3.94 in 125 mm			3.94 in 125 mm	150		3.94 in 150 mm			
												4.92 in 150 mm	150	200	4.92 in 150 mm	150	200	5.91 in 200 mm	120	150	
					25 mm		35 mm				35 mm	5.91 in	150	200 25 mm	5.91 in	150	200 25 mm	7.88 in	100	120 100 mm	
		Min. Stroke	0.98 in			35 mm 1.38 in			1.38 in			25 mm 0.98 in			0.98 in			3.94 in			
	Adjustable	Max SPM @ Min. Stroke	500 SPM			450 SPM			425 SPM			400 SPM			400 SPM			150 SPM			
	Stroke	Max. Stroke	75 mm 2.95 in			100 mm 3.94 in			100 mm 3.94 in			125 mm 4.92 in			125 mm 4.92 in			200 mm 7.88 in			
		Max SPM @ Max. Stroke		2	75 SPM	250 SPM			225 SPM			200 SPM			200 SPM			120 SPM			
	Shutheight A		75 mm 2.95 in			100 mm 3.94 in			100 mm 3.94 in			100 mm 3.94 in			150 mm 5.91 in			150 mm 5.91 in			
	QA Slide Trav		25-100 mm			12-115mm			12-115mm			12-115mm			12-165 mm			12–165 mm			
Α	(Depending on SH) SH Range on Bolster (Std.)		0.98–3.94 in 225–300 mm			0.50-4.50 in 280-380 mm			0.50-4.50 in 280-380 mm			0.50-4.50 in 350-450 mm		0.50-6.50 in 350-500 mm		0.50-6.50 in 350-500 mm 450-600 mm					
			8.90–11.80 in 100 mm			11.0–14.94 in 100 mm			11.0–14.94 in 100 mm			13.78–17.72 in			13.78–19.69 in 125 mm		13.78–19.69 in 17.72–23.62 in 125 mm				
В	Bolster Thickness		3.94 in			3.94 in 560 mm			3.94 in 560 mm			4.92 in			4.92 in 630 mm			4.92 in 630 mm			
С	Passline Opening (F-B)		330 mm 13.10 in			22.0 in			22.0 in			24.80 in			24.80 in			24.80 in			
DxE	Area of Bolster (R-L x F-B) (Std)		1,000 mm x 630 mm 39.40 x 24.80 in			1,220 mm x 800 mm 48.0 x 31.50 in			1,600 mm x 800 mm 63.0 x 31.5 in			1,600 mm x 850 mm 63.0 x 33.50 in			1,900 mm x 850 mm 74.8 x 33.50 in			1,900 mm x 850 mm 74.8 x 33.50 in			
FxG	Area of Slide (R-L x F-B) (Std)		1,000 mm x 630 mm 39.40 x 24.80 in			1,220 mm x 660 mm 48.0 x 26.00 in			1,600 mm x 660 mm 63.0 x 26.00 in			1,600 mm x 850 mm 63.0 x 33.50 in			1,900 mm x 850 mm 74.8 x 33.50 in			1,900 mm x 850 mm 74.8 x 33.50 in			
НхJ		Opening in Bolster (R-L x F-B)		800 mm x 160 mm 31.50 x 6.25 in			1,000 mm x 190 mm 39.40 x 7.50 in			1,300 mm x 190 mm 51.20 x 7.50 in			1,300 mm x 250 mm 51.20 x 9.80 in			1,600 mm x 250 mm 63.00 x 9.80 in			1,600 mm x 250 mm 63.0 x 9.80 in		
	Opening in Bed		876 mm x 230 mm			1,015 mm x 360 mm			1,400 mm x 360 mm			1,300 mm x 370 mm			1,600 mm x 370 mm			1,600 mm x 370 mm			
К		Distance Floor to		34.50 x 9.00 in 1,095 mm			40.0 x 14.20 in			55.00 x 14.20 in 1,135 mm			51.20 x 14.60 in 1,180 mm			63.00 x 14.60 in			63.0 x 14.60 in		
	Top of Bolster Distance Floor to		43.10 in 380 mm			44.70 in 430 mm			44.70 in 430 mm			46.40 in 300 mm			46.40 in 300 mm			46.40 in 300 mm			
L	Bottom of Bed		15.0 in 3,550 mm			17.0 in 3,930mm			17.0 in 3,930mm			11.75 in 4,050 mm			11.75 in 4,526 mm			11.75 in 4,780 mm			
М	Overall Heigh	Overall Height		139.50 in			155.00 in			155.00 in			160.00 in			178.20 in			188.75 in		
N	Overall Width	erall Width		2,345mm 92.30 in			2,940mm 115.75 in			3,321 mm 130.75 in			3,588 mm 141.20 in			4,042 mm 159.10 in			3,660 mm 3,700 mm 144.00 in 145.50 in		
0	Width at Feet		1,640 mm 64.50 in			1,780 mm 70.00 in			1,780 mm 70.00 in			2,030 mm 80.00 in			2,030 mm 80.00 in			2,030 mm 80.00 in			
	Main Drive Motor (Standard 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			30 kW 40 HP			37 kW 50 HP			
	Press Shipping Weight		11,800 kg 26,000 lbs			18,600 kg 41,000 lbs			20,865 kg 46,000 lbs			30,400kg 67,000 lbs			34,020 kg 75,000 lbs			34,930 kg 77,000 lbs			

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