Nidec PRESS & AUTOMATION / MINSTER

E2

ECCENTRIC SHAFT STRAIGHTSIDE PRESSES

1,780 - 14,235 kN
200 - 1,600 US Tons Capacity

PRODUCT OVERVIEW

The E2 is a two-point, eccentric shaft, precision press that has been designed to provide unsurpassed quality production in demanding, high speed and close tolerance progressive and transfer dies applications. Its proven design and reputation has been the standard within the stamping world for more than 70 years.

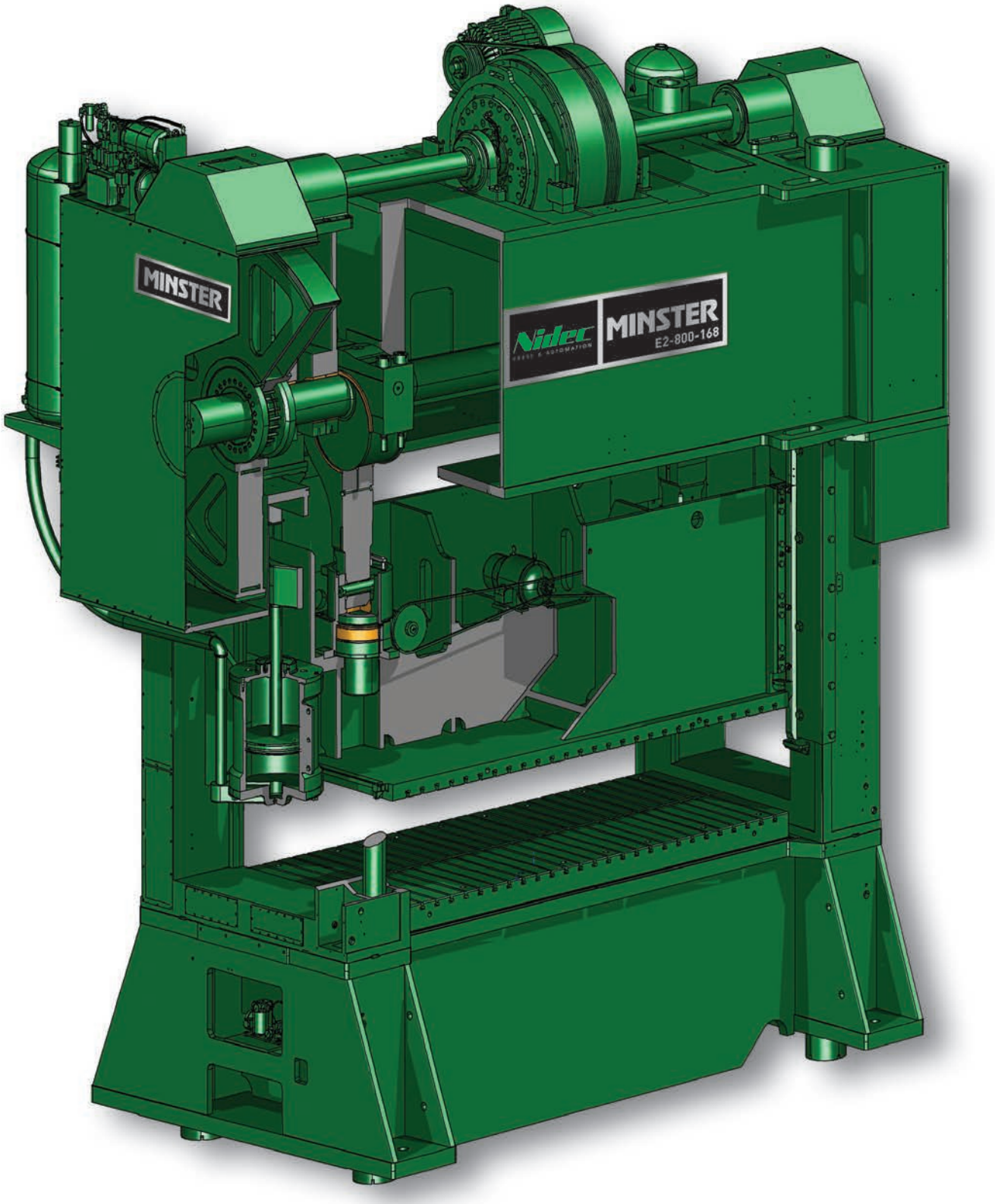
1 Bottom-dead-center repeatability of 0.0003" and reduced punch penetration result in increased die life for close-tolerance dies.

2 Superior resistance to off-center loading as a result of precision slide guiding maintained by full-length gibs and twin drive arrangement.

3 Combination hydraulic clutch and brake provides superior stopping times, allowing the utilization of die protection at higher speeds.

4 The slide adjustment mechanism is designed with buttress threads which have a larger area of contact to resist snap-thru forces than standard V-threads.

5 Integrated system functionality available from Nidec Press & Automation exclusive brands


MINSTER
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E2-800-168

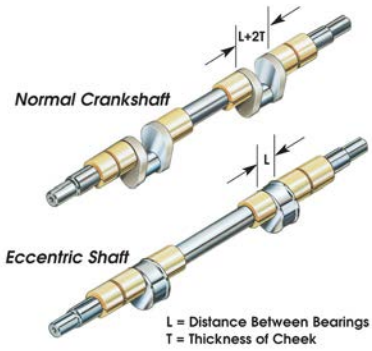
STANDARD FEATURES

Tie Rod Construction with Heavy Uprights for Frame Rigidity

To provide increased durability, E2 tie rods and tie rod nuts are designed and manufactured to assure an extremely long life even in non-ideal conditions. The tie rods on the E2 are machined with a groove in the bottom to permit the lower portion of the nut to flex and distribute its load over the entire nut. This allows the nuts to withstand loads that would cause standard nuts to fail.

Eccentric Shaft

Minster's one-piece forged eccentric crankshaft is precision ground, holding unsurpassed accuracies that provide superior dynamic parallelism and increased die life in close tolerance dies.



8-Point Gibs For Precision Slide Guiding

Precision slide guiding is maintained by the close tolerance, solid bronze, 8-point gib arrangement. The full-length gibs guide the slide throughout the stroke, regardless of position. This assures excellent slide-to-bed parallelism at all times, promoting clean piece part material fracture, high part accuracy, and increased die life.

Crown & Bed Provide the Strength and Accuracy Required in a Precision Press

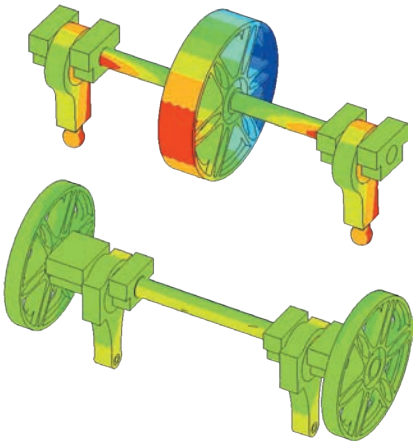
Welds designed for high cycle fatigue life are used in all load bearing areas to maintain durability and reliability. The eccentric shaft bearings are line bored in the crown to hold an alignment tolerance of ±.001" to provide an accurate load bearing support for the eccentric shaft.

STANDARD FEATURES

Drive Arrangement

The Minster E2 utilizes opposing twin helical gears. The advantages of Minster's twin drive arrangement include:

- Improved slide parallelism throughout the working portion of the stroke
- Virtual elimination of any torsional deflection between connections thus maintaining slide parallelism through the work stroke
- Improved dynamic parallelism when subjected to off-center loading



FEA analysis comparing the torsional wind up of a twin drive press to that of a center drive press with the same size shaft shows that when the maximum rated tonnage is applied evenly to each, the vertical deflection of the center drive press is twice that of the twin drive press. The result is a less stiff press and increased punch penetration in snap thru applications.

E2 MonitorFlow®

The patented Minster MonitorFlow system supplies a continuous flow of pressurized and filtered oil to all lubrication surfaces ensuring reliable operation. It monitors flow and pressure to individual points and pressure within the entire system. A variable speed lube pump motor with pressure transducer feedback is used to present oil to the MonitorFlow System. This arrangement maintains constant oil pressure through plant ambient and press temperature variations.

Individual flow switches monitor oil flow to various locations. Monitoring flow and pressure in this manner enables fault detection from both broken and/or plugged lines. The press is stopped, and a diagnostic message is displayed on the control screen indicating the location of the fault.

Patented Minster Hydraulic Clutch & Brake Unit

Minster's combination hydraulic clutch and brake produces the maximum torque possible providing faster starting and stopping, resulting in increased production. A patented segmented drive disc design provides safe and reliable operation, variable clutch torque and easy maintenance. In addition, Minster's clutch and brake unit requires no adjustment and years of maintenance-free operation, resulting in less downtime.

The Minster combination hydraulic clutch and brake provides the ability to single stroke at high rates while simultaneously providing unparalleled stopping time ability that is critical for high speed applications and in-die sensing.

Production Management Control (PMC)

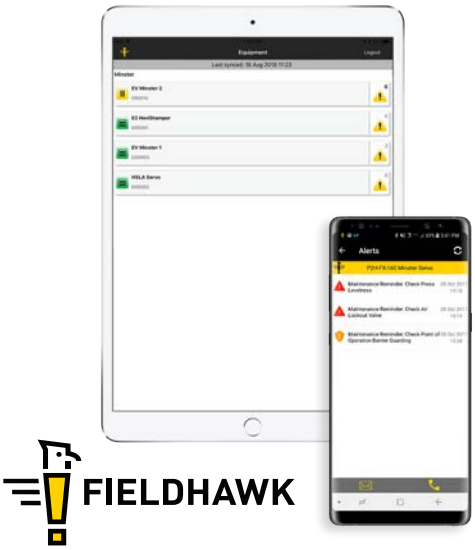
Incorporates all press functions including:

- 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 and counterbalance controls.

FieldHawk - Industry 4.0

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

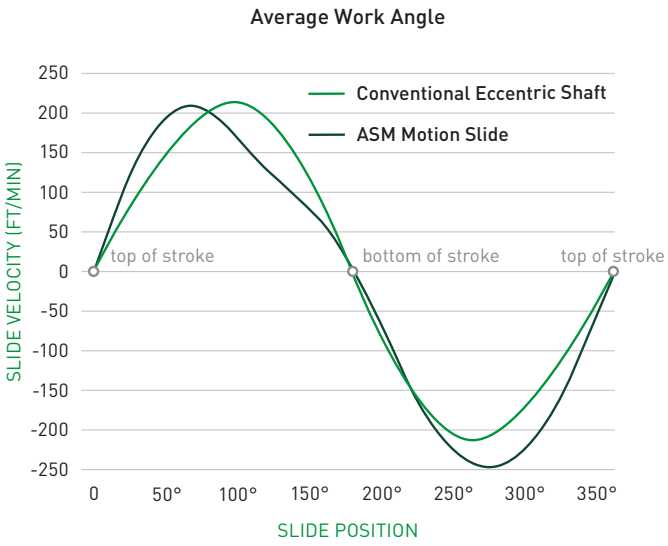


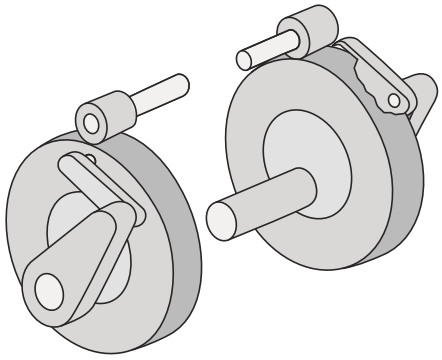
OPTIONAL FEATURES

Alternative Slide Motion

Some applications may be better achieved in a press with a slide velocity less than that obtained from a conventional eccentric shaft press. With this in mind, Minster offers Alternative Slide Motion (ASM) as an option on E2 presses.

Benefits of the ASM Drive:
Slower, more consistent slide velocity through the work angle; and reduced heat generation in the die.





As shown to the left, the ASM option provides reduced slide velocity through the work portion of the stroke and faster slide velocity through the remaining portion of the stroke as compared to a conventional drive running at the same SPM.

Hydraulic Tie Rod Nuts

Hydraulic tie rod nuts are offered as an optional method of pre-stressing the frame. If a die becomes jammed at the bottom of the stroke, tie rod preloading can be quickly released by applying hydraulic pressure to the nuts and removing the spacers. The design of the tie rod nut maintains the frame and drive stiffness for extended die life.

Moving Bolster System

The Moving Bolster System is designed to move the bolster in and out of the front or rear of the press to help facilitate die changes.

Available in uni-directional and bi-directional configurations featuring self-lifting wheel truck assemblies each powered by a hydraulic motor.

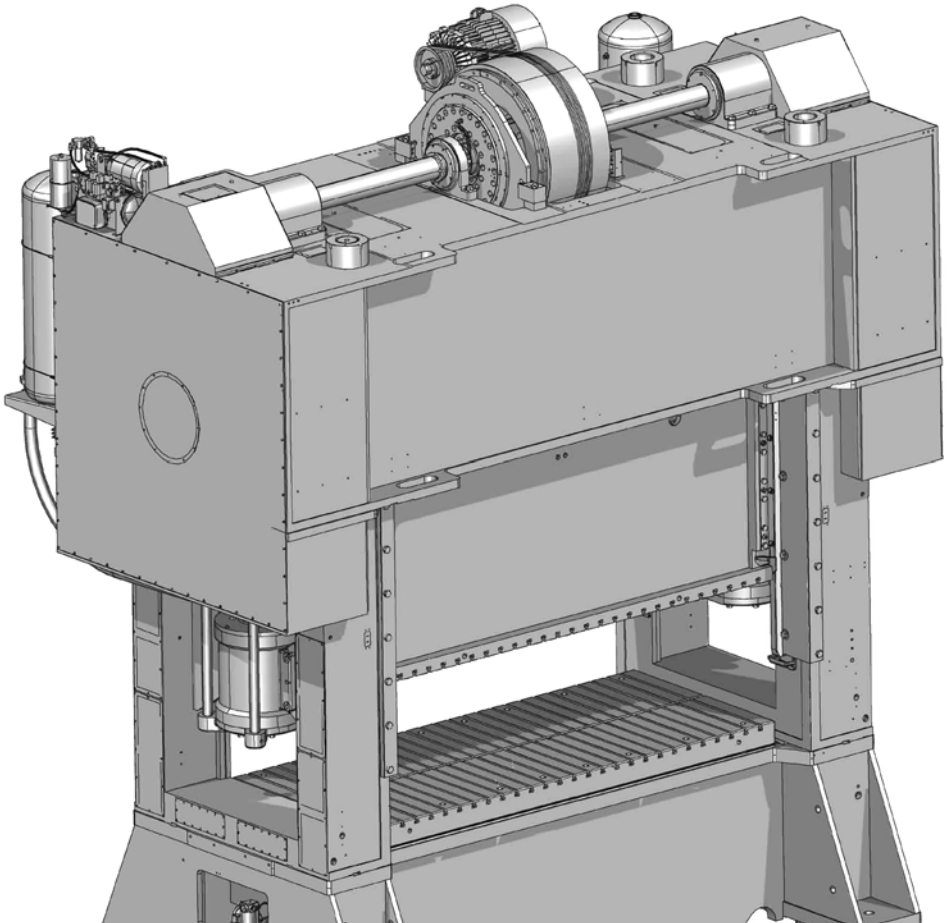
Controls interlocked to press controls for powering the bolster in and out of the press.

Hydraulic Overload Protection

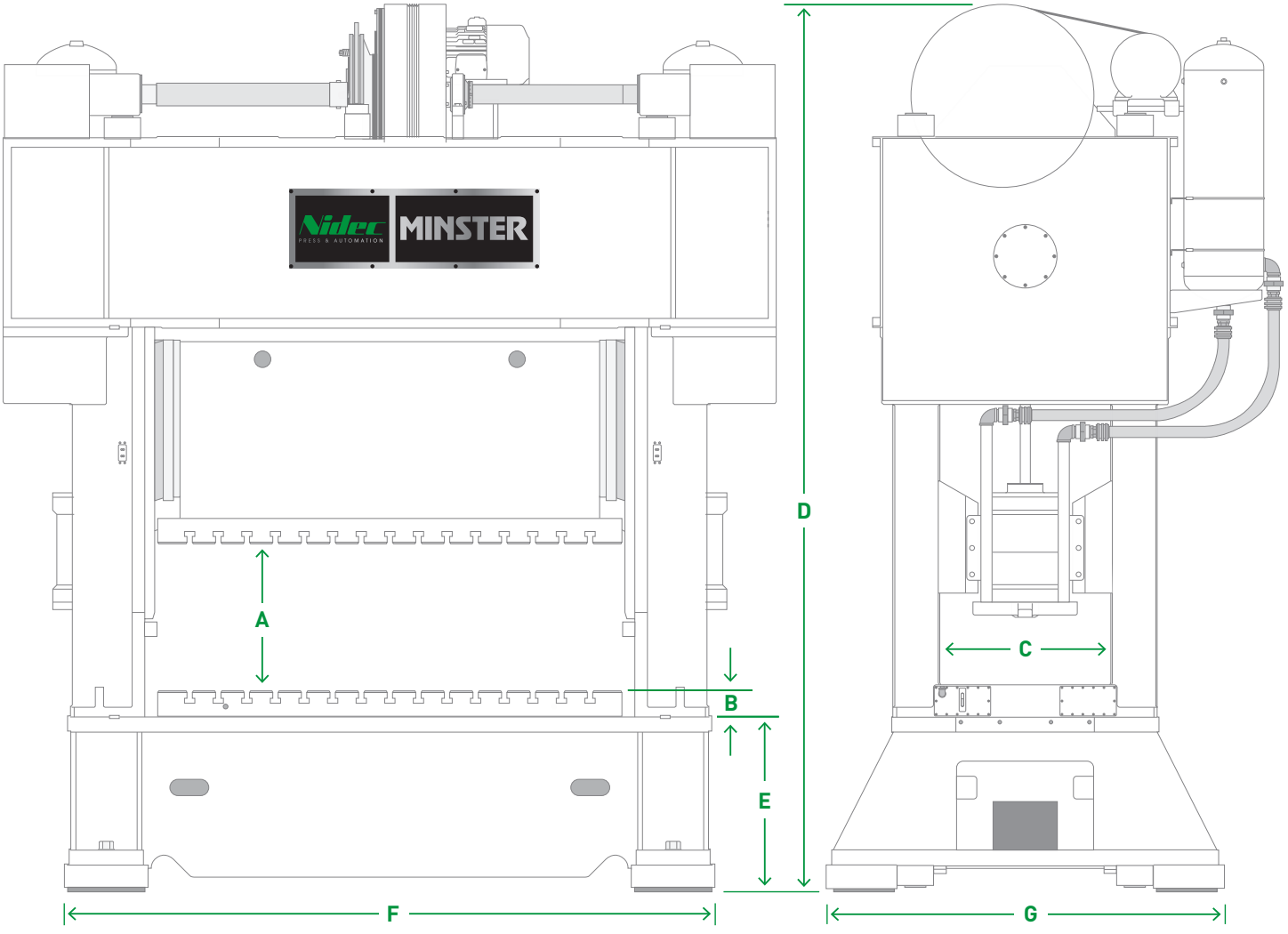
The Minster Hydraulic Overload is designed to release quickly and uniformly in an overload condition.

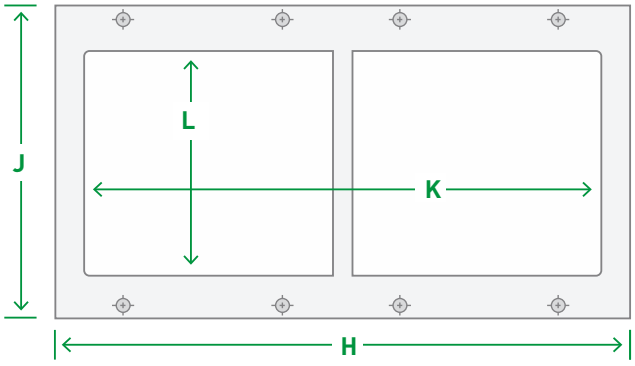
Additional Available Options

- Feed pad arrangements
- Crankshaft extensions
- Die safety blocks
- Press mounts
- Stock lubrication system
- Die space enclosures
- Light curtains
- Special slide/bolster machining
- Safety railing
- Die cushions
- Quick die change solutions
- Duplex receptacle(s)
- Tie rod heaters
- Sliding pendant for press & die set-up
- Air blow off
- Die area lighting
- T-Stand, operator's station
- Robotics integration



SPECIFICATIONS & DIMENSIONS





				E2-200		E2-300			E2-400		
	Capacity @ Distance Off Bottom [1]			1,780 kN / 6.4 200 US tons / 0.25		2,670 kN / 6.4 300 US tons / 0.25			3,560 kN / 6.4 400 US tons / 0.25		
	Maximum Speed (SPM) Per Standard Stroke Length Std. Drive (ASM Drive)	Stroke Length	8 in 205 mm	100 (100)		100 (80)			100 (80)		
			10 in 255 mm	100 (100)		80 (80)			100 (60)		
			12 in 305 mm	100 (90)		80 (80)			80 (50)		
			14 in 355 mm	80 (80)		60 (60)			60 (50)		
	Shutheight Adjustment (Std.) [2]			150 mm 6 in		150 mm 6 in			150 mm 6 in		
A	Shutheight on Bolster (SDAU) (Std.)			610-1,120 mm 24-44 in		610-1,120 mm 24-44 in			610-1,120 mm 24-44 in		
B	Bolster Plate Thickness			125 mm 5 in		150 mm 6 in			150 mm 6 in		
C	Upright Opening [3]			635 mm 25 in		840 mm 33 in			1220 mm 48 in		
	Drive Motor HP/kW (Std.)			30 kW 40 HP		30-37 kW 40-50 HP			40-56 kW 40-75 HP		
D	Approximate Overall Height (Std.) [4]			4,875-5,665 mm 192-223 in		5,030-5,813 mm 198-229 in			5,945-6,605 mm 234-260 in		
	Width of Press **mm/inch**			**1,830/72**	**2,440/96**	**1,830/72**	**2,440/96**	**3,050/120**	**2,440/96**	**3,050/120**	**3,660/144**
	Approximate Weight - Press Only [5]			28,800 kg 64,000 lbs	36,000 kg 80,000 lbs	40,500 kg 90,000 lbs	48,600 kg 108,000 lbs	56,250 kg 125,000 lbs	63,000 kg 140,000 lbs	73,800 kg 164,000 lbs	90,000 kg 200,000 lbs
H x J	Area of Slide & Bolster (R-L x F-B)			1830 x 1220 mm 72 x 48 in	2440 x 1220 mm 96 x 48 in	1830 x 1220 mm 72 x 48 in	2440 x 1220 mm 96 x 48 in	3050 x 1220 mm 120 x 48 in	2440 x 1525 mm 96 x 60 in	3050 x 1525 mm 120 x 60 in	3660 x 1525 mm 144 x 60 in
K x L	Opening in Bed - Maximum (R-L x F-B) [6]			1675 x 610 mm 66 x 24 in	2285 x 610 mm 90 x 24 in	1675 x 610 mm 66 x 24 in	2285 x 610 mm 90 x 24 in	2845 x 610 mm 112 x 24 in	2285 x 610 mm 90 x 24 in	2895 x 610 mm 114 x 24 in	3050 x 610 mm 138 x 24 in
E	Floor to Top of Bed [7]				910 mm 35.75 in			865 mm 34 in			1170 mm 46 in
F x G	Overall Floor Space (R-L x F-B)			2755 x 1830 mm 108.5 x 72 in	3365 x 1830 mm 132.5 x 72 in	2895 x 2080 mm 114 x 82 in	3505 x 2080 mm 138 x 82 in	4115 x 2080 mm 162 x 82 in	3670 x 2945 mm 144.5 x 116 in	4280 x 2945 mm 168.5 x 116 in	890 x 2945 mm 192.5 x 116 in

1. Consult Minster for full tonnage high in stroke.
2. Consult Minster for shutheight adjustment other than standard.
3. Consult Minster for upright openings other than standard.
4. Overall height may be reduced on some presses if headroom problem exists (Special drive mounting can be supplied at extra cost.)
5. All weights listed are based on single-geared, twin-drive type having standard stroke and shutheight and do not include electrical controls, drive motor or auxiliary equipment.
6. In widths over 1830mm, there will be a front-to-back support rib(s) across bed opening - normally in the center.
7. E2-1000-204 & 240, E2-1200-204 & 240, and E2-1600 will require a pit.

SPECIFICATIONS & DIMENSIONS

Dimensions on Pg. 12			E2-600				E2-800	
Capacity @ Distance Off Bottom [1]			5,340 kN / 6.4 mm 600 US tons / 0.25 in				7,120 kN / 12.7 mm 800 US tons / 0.50 in	
Maximum Speed (SPM) Per Standard Stroke Length Std. Drive (ASM Drive)	Stroke Length	205 mm 8 in	100 (80)					
		255 mm 10 in						
		305 mm 12 in	80 (60)				70 (60)	
		355 mm 14 in						
		405 mm 16 in	60 (50)				60 (60)	
		510 mm 20 in	50 (50)				50 (50)	
		610 mm 24 in					40 (40)	
Shutheight Adjustment (Std.) [2]			255 mm 10 in				255 mm 10 in	
A Shutheight on Bolster (S.D.A.U.) (Std.)			610-1,120 mm 24-44 in				610-1,120 mm 24-44 in	
B Bolster Plate Thickness			180 mm 7 in				205 mm 8 in	
C Upright Opening [3]			1,345 mm 53 in				1,600 mm 63 in	
Drive Motor HP/kW (Std.)			37-112 kW 50-150 HP				75-112 kW 100-150 HP	
D Approximate Overall Height (Std.) [4]			6,300-7,060 mm 248-278 in				7,440-6,280 mm 293-326 in	
Width of Press		**mm/inch**	**2,440/96**	**3,050/120**	**3,660/144**	**4,265/168**	**3,660/144**	**4,265/168**
Approximate Weight - Press Only [5]			84,000 kg 185,000 lbs	102,000 kg 225,000 lbs	170,100 kg 238,000 lbs	118,350 kg 263,000 lbs	124,650 kg 277,000 lbs	146,250 kg 325,000 lbs
H x J Area of Slide & Bolster (R-L x F-B)			2440 x 1525 mm 96 x 60 in	3050 x 1525 mm 120 x 60 in	3660 x 1525 mm 144 x 60 in	4265 x 1525 mm 168 x 60 in	3660 x 1830 mm 144 x 72 in	4265 x 1830 mm 168 x 72 in
K x L Opening in Bed - Maximum (R-L x F-B) [6]			2285 x 660 mm 90 x 26 in	2895 x 660 mm 114 x 26 in	3050 x 660 mm 138 x 26 in	4115 x 660 mm 162 x 26 in	3050 x 760 mm 138 x 30 in	4115 x 760 mm 162 x 30 in
E Floor to Top of Bed [7]			1,170 mm 46 in				1,520 mm 59.75 in	
F x G Overall Floor Space (R-L x F-B)			3835 x 3050 mm 151 x 120 in	4445 x 3050 mm 175 x 120 in	5055 x 3050 mm 199 x 120 in	5665 x 3050 mm 223 x 120 in	5210 x 3710 mm 205 x 146 in	5760 x 3710 mm 229 x 146 in

See Notes on Page 11

E2-1000				E2-1200				E2-1600	
8,900 kN / 12.7 mm 1,000 US tons / 0.50 in				10,675 kN / 12.7 mm 1,200 US tons / 0.50 in				14,235 kN / 12.7 mm 1,600 US tons / 0.50 in	
60 (60)				60 (60)				60 (60)	
60 (60)				60 (60)				60 (60)	
50 (50)				50 (50)				50 (50)	
40 (40)				40 (40)				40 (40)	
305 mm 12 in				305 mm 12 in				305 mm 12 in	
635-1,270 mm 25-50 in				635-1,270 mm 25-50 in				635-1,270 mm 25-50 in	
230 mm 9 in				230 mm 9 in				265 mm 10.5 in	
1,600 mm 63 in				1,600 mm 63 in				1,600 mm 63 in	
112-150 kW 150-200 HP				112-150 kW 150-200 HP				112-225 kW 150-300 HP	
7,800-9,700 mm 307-382 in				7,850-9,195 mm 309-362 in				9,220-10,235 mm 363-403 in	
3,660/144	**4,265/168**	**5,180/204**	**6,095/240**	**3,660/144**	**4,265/168**	**5,180/204**	**6,095/240**	**5,180/204**	**6,095/240**
166,950 kg 371,000 lbs	179,000 kg 395,000 lbs	215,450 kg 475,000 lbs	258,500 kg 570,000 lbs	187,200 kg 416,000 lbs	193,500 kg 430,000 lbs	235,900 kg 520,000 lbs	272,200 kg 600,000 lbs	326,600 kg 720,000 lbs	385,500 kg 850,000 lbs
3660 x 1830 mm 144 x 72 in	4262 x 1830 mm 168 x 72 in	5180 x 1830 mm 204 x 72 in	6095 x 1830 mm 240 x 72 in	3660 x 1830 mm 144 x 72 in	4265 x 1830 mm 168 x 72 in	5180 x 1830 mm 204 x 72 in	6095 x 1830 mm 240 x 72 in	5180 x 1980 mm 204 x 78 in	6095 x 1980 mm 240 x 78 in
3050 x 760 mm 138 x 30 in	4115 x 915 mm 162 x 36 in	5030 x 915 mm 198 x 36 in	5945 x 915 mm 234 x 36 in	3050 x 760 mm 138 x 30 in	4115 x 915 mm 162 x 36 in	5030 x 915 mm 198 x 36 in	5945 x 915 mm 234 x 36 in	5030 x 965 mm 198 x 38 in	5945 x 1015 mm 234 x 40 in
	1,520 mm 59.75 in		2,025 mm 79.75 in		1,520 mm 59.75 in		2,025 mm 79.75 in		2,235 mm 88 in
5210 x 3710 mm 205 x 146 in	5760 x 3710 mm 229 x 146 in	6730 x 3710 mm 265 x 146 in	7645 x 3710 mm 301 x 146 in	5210 x 3710 mm 205 x 146 in	5760 x 3710 mm 229 x 146 in	6730 x 3710 mm 265 x 146 in	7645 x 3710 mm 301 x 146 in	6885 x 3710 mm 271 x 146 in	7800 x 3710 mm 307 x 146 in

See Notes on Page 11

Nidec
PRESS & AUTOMATION

One Brand: A World of Resources

Nidec Press & Automation is the full service pressroom provider of choice for businesses in more than 90 countries and on six continents. Comprised of leading press room product brands, we ensure a complete offering of machinery, services and technology to meet your exact needs, enabling you to rely on one source.

Discover the freedom to achieve, to maximize and to drive your operation to exceed your goals. At Nidec Press & Automation, your success is the core of our focus and how we design our solutions to meet the rigid needs of the metal forming industry.

Choosing to work with us means you gain a constant resource with a global footprint, the brightest minds behind our solutions, and backed by regionally based OEM support ready to work as a natural extension of your team.

Our promise to you is simple:
We're with you whenever and wherever business takes you.

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Transfer
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Container Cupping
Container End-Conversion
Container Shell
Gap/D-Frame

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

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

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A single source solution that will help you find the efficiencies you want — all from the products, services and technology of Nidec Press & Automation.

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