

PennEngineering®

FASTENER INSTALLATION EQUIPMENT
AND SYSTEMS

BULLETIN

PS

PEMSERTER®

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FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

Dedicated fastener-installation equipment, pioneered by PennEngineering, can deliver a competitive edge. No matter how demanding a job, our systems and expertise provide time-proven solutions.

We rolled out our first PEMSERTER® fastener-insertion press in 1967, which introduced fabricators and OEMs to an entirely new method for installing self-clinching fasteners. The benefits of installation speed, quality, and cost reduction quickly became apparent and remain true to this day.

As we have grown, our PEMSERTER brand has stood to identify a diverse product line ranging from simple hand tools to the most technologically advanced press systems available in the industry.

Our response over the years to evolving customer requirements has led to expanding equipment choices and enhanced engineering expertise.

Our equipment capabilities now incorporate “smart” tooling and software, automation, robotics integration, the in-die fastener installation system, and a whole new world of emerging fastener-installation technologies. Our sales and service options continue to keep pace.

At your service is an experienced tech force well-versed in hardware and systems. Every day we are prepared to handle the most challenging assembly problem or field a quick question. We invite your contact.

PEMSERTER® SERIES 3000™ AUTOMATIC INSERTION PRESS	SEE PAGES 3 & 4
PEMSERTER® SERIES 3000MB™ AUTOMATIC MULTI-BOWL INSERTION PRESS	SEE PAGE 5
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PEMSERTER® presses and systems will provide you with the most cost effective, accurate and reliable way to install our full range of genuine PEM® self-clinching and broaching fasteners.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 3000™ AUTOMATIC INSERTION PRESS

The new PEMSERTER® Series 3000™ automatic feed fastener-installation press can install self-clinching fasteners up to 30% faster than traditional systems to deliver comparable productivity gains. This press provides **71.2 kN / 8 tons of force and a 61 cm / 24" throat depth** and has full servo electromechanical actuation technology to provide significant improvement in operating consistency, improved reliability, increased efficiencies and minimized maintenance. Total elimination of hydraulic fluids provides an environmentally friendly system.

The Series 3000 press introduces “clean” technology without hydraulics to install all types of self-clinching fasteners rapidly, accurately, and permanently. The electromechanical servo drive optimizes ram function to achieve ideal and repeatable speed and force for proper fastener installation.

Among features, PC-based programming interfaces with Windows operating platforms for job versatility and customization. Menu-driven touch-screen controls, descriptive screen alerts, and an on-screen multi-media instructional video contribute to user-friendly operation and quick learning. Data logging capabilities allow for performance monitoring. A patented LIGHTSTREAM® Operator Safety System provides a continuous safeguard by ensuring ram force is applied only to fasteners.

All auto feed tooling used on the Series 2000 press can be used on the Series 3000 press.

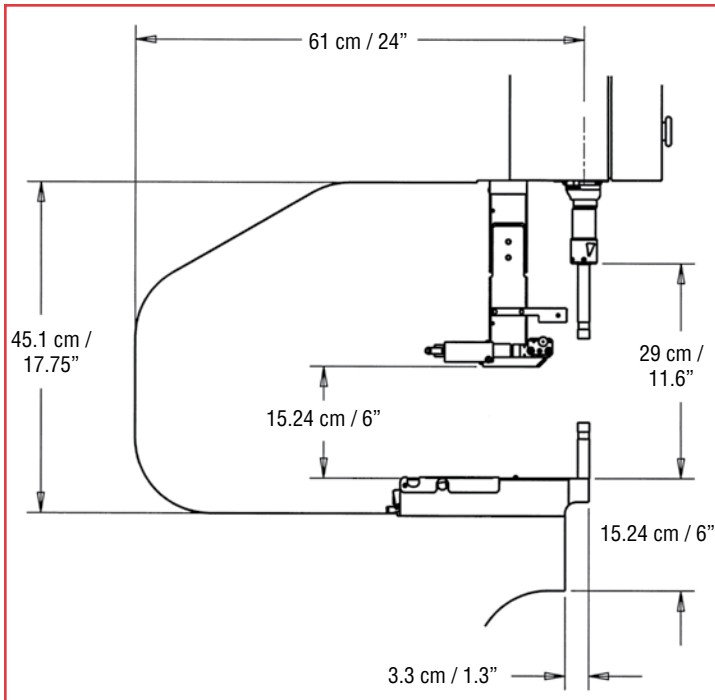


FEATURES AND BENEFITS

- **Intelligent Set-up System (ISS).** Automatically determines insertion force requirements.
- **“Optimized Motion Profiles”.** Eliminates need for “dwell time” and provides optimal fastener insertion.
- **PC Based Programming.** Push button, menu driven, touch screen control system.
- **Robot Ready.** Robot interface is standard.
- **Remote Monitoring.** Monitoring and troubleshooting through ethernet compatibility.
- **Data Logging.** Internal data for force and distance is measured and stored within the machine. Data collected can be downloaded to Windows operating platforms for QC documentation.
- **Multiple Pictures of Single Workpiece.** Digital pictures of workpiece for clarification of insertion points.
- **Multi Language Capable.** Screen commands standard in twelve languages.
- **Technical Videos.** Pre-loaded on-screen video instructions for machine set-up and tooling changeover.

FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 3000™ AUTOMATIC INSERTION PRESS



SPECIFICATIONS

Ram Force	1.8 to 71.2 kN / 400 to 16,000 lbs.
Ram Drive	Servo Electromechanical Actuator
Electric Requirements	240-250VAC, 60Hz, 20A, single phase or 240-250VAC, 50Hz, 20A, single phase
Air Requirements*	6 to 7 BAR / 90 to 100 PSI 6 mm / 1/4" dia. minimum line flow
Throat Depth	61 cm / 24"
Height	208 cm / 82"
Width	92 cm / 36"
Depth	126 cm / 49.5"
Weight	1,235 kg / 2,725 lbs.

*1 psi = 0.07 bar. 1 bar = 14.5 psi.

**Featuring
Full Servo Electromechanical
Actuation Technology**



CE

FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 3000MB™ AUTOMATIC MULTI-BOWL INSERTION PRESS

The multi-bowl insertion option consists of a single PEMSERTER® Series 3000® automatic fastener-installation press equipped with the QX™ Turret Tool system and up to three expansion bowls. With this set-up, a single operator can install up to four different types and/or sizes of nuts, studs, and standoffs in automatic feed mode with no tooling changes.

This four bowl system is more cost-effective, more reliable, easier to operate, and provides more manufacturing flexibility than a single machine with four fixed bowls. For more information on productivity savings and increased production throughput using the Series 3000 multi-bowl set-up, please contact your local PEMSERTER dealer.

FEATURES AND BENEFITS

- One-time part handling to install multiple fasteners.
- Incrementally field upgradeable.
- Universal tooling - no tooling change required during operation.
- Can automatically feed multiple insertions of four types of fasteners.
- Large capacity feeder bowls.
- Same features and benefits of a PEMSERTER® Series 3000® press.

CART SPECIFICATIONS

Electric Requirements	120V 60Hz or 230V 50Hz
Air Requirements*	6 to 7 BAR / 90 to 100 PSI
Height	118.75 cm / 46.75"
Width	50.8 cm / 20"
Depth	78.74 cm / 31"

*1 psi = 0.07 bar. 1 bar = 14.5 psi.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 2000® AUTOMATIC INSERTION PRESS

The PEMSERTER® Series 2000® press has established itself as the productivity leader in the world of fastener installation. This press has **71.2 kN / 8 tons of force and a 61 cm / 24" throat depth**. The high speed hydra-pneumatic actuating system delivers insertion speed that cannot be met by other insertion systems and the optional auto-feed capabilities insure that the fasteners are positioned quickly and accurately.

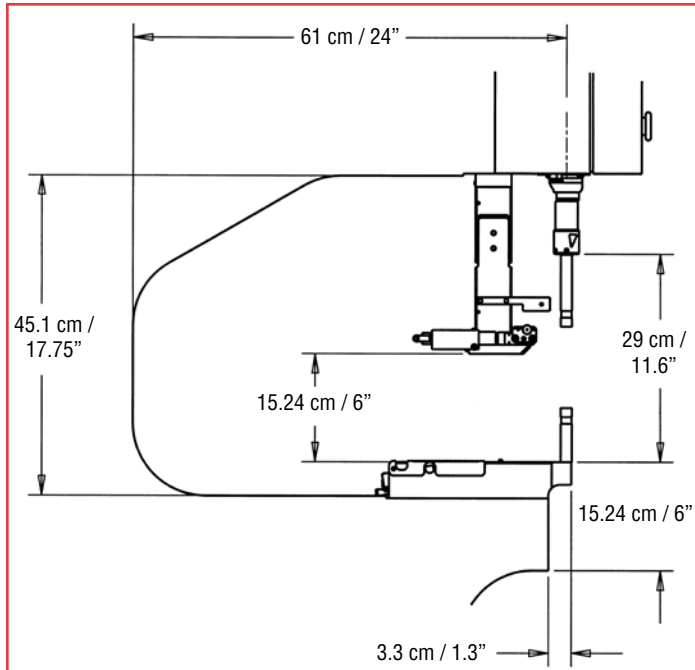
The Series 2000 press utilizes a programmable logic controller and a menu-driven touch screen operator interface system, in eleven available languages. Touch screens allow for quick-run-set-up, easy operator training, and precise fastener installation setups. They automatically alert and direct the operator to any safety or system faults for quick diagnosis.

The Series 2000 press has a unique patented LIGHTSTREAM® Operator Safety System. It is a wireless, fail-safe system that immediately detect when the main ram contacts any object, metallic or non-metallic, that should not be in its path. The LIGHTSTREAM® system provides a fast, precise, and reliable safety system that ensures ram force is only applied to fasteners during installation.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 2000® AUTOMATIC INSERTION PRESS



SPECIFICATIONS

Ram Force	1.8 to 71.2 kN / 400 to 16,000 lbs.
Pressure System Type	Air-Over-Oil
Electric Requirements	120V 60Hz 4A or 230V 50Hz 2A single phase
Air Requirements*	6 to 7 BAR / 90 to 100 PSI 12 mm / 1/2" dia. minimum line flow
Throat Depth	61 cm / 24"
Height	193 cm / 76"
Width	92 cm / 36"
Depth	126 cm / 49.5"
Weight	1,135 kg / 2,500 lbs.

*1 psi = 0.07 bar. 1 bar = 14.5 psi.

FEATURES AND BENEFITS

- Job search and recall mode allows operators to reference 300 stored jobs and return to previous jobs quickly and easily.
- PLC readily accommodates custom programs.
- Cast aluminum bowl with epoxy coating handles larger parts and performs quietly.
- Wide feeder track increases fastener-feeding rates.
- Large touch-screen and graphics contribute to operator-friendly operation.
- Ethernet capable.
- Adjustable ram stroke distance control in manual and bottom feed nut mode.
- Real-time installation force feedback displayed on screen.
- Fastener and batch counters.
- Descriptive screen alerts for operating errors.
- Smart dwell and force verification.
- Self-diagnostic system lets operator work with increased speed, accuracy, and confidence.
- Color-coded tooling for quick changeover.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 2000® PRESS WITH DUAL BOWL EXPANSION CART

The dual bowl expansion cart option and the QX™ Turret Tool system for use on the PEMSERTER® Series 2000® automatic fastener-installation press system provide a quick and efficient method to quickly change between anvil tools while handling the work piece to install different fasteners. With the use of the second bowl on the expansion cart and the QX™ Turret Tool System, you can install up to four different fasteners; two in automatic feed mode, and two in manual feed mode. A third bowl on a second expansion cart can also be added for appropriate applications.



FEATURES AND BENEFITS

- Four position color-coded, two positions are auto-feed, remaining two manual load with color-coded fastener tray.
- Touch screen setup for all four stations including selection of installation force and number of fasteners to be installed per work-piece.
- Once set-up, the press will not allow you to install a fastener out of sequence. Only properly installed fasteners are counted. Operator is notified by visual and/or audible signal that the chosen quantity of fasteners has been installed at that location and the turret automatically rotates to the next. When the work-piece is complete the turret rotates to the start location ready to begin the next work-piece.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

PEMSERTER® SERIES 4® PNEUMATIC PRESS

The PEMSERTER® Series 4® press is totally pneumatic providing short cycle time for increased productivity and **53.4 kN / 6 tons of force and a 45.7 cm / 18" throat depth** which provides clearance for a variety of chassis configurations. It is designed to install self-clinching fasteners in size M2 / #0 thru M10 / 3/8" in steel, and sizes up to M12 / 1/2" in aluminum panels or circuit boards.

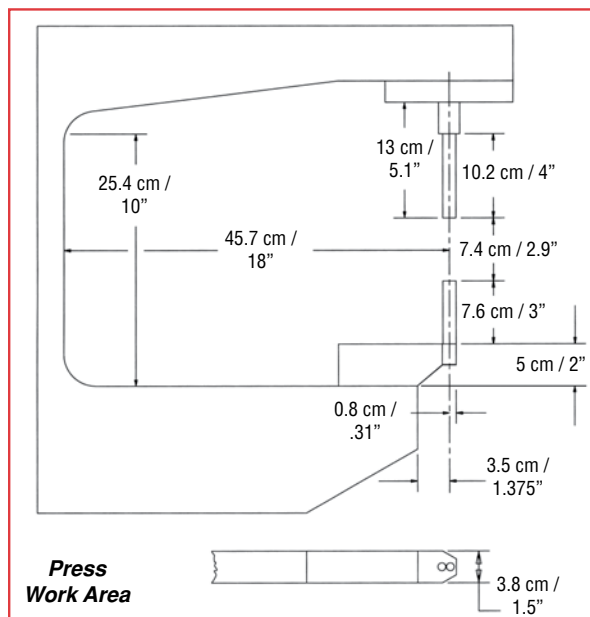


**New
Standard
Features**

SPECIFICATIONS

Ram Force	4.5 to 53.4 kN / 1,000 to 12,000 lbs.
Control System	Pneumatic Logic
Pressure System Type	Pneumatic / Lever
Air Requirements*	6 to 7 BAR / 90 to 100 PSI 12 mm / 1/2" dia. minimum line flow
Throat Depth	45.7 cm / 18"
Height (on cabinet)	167.6 cm / 66"
Width (of press)	43.2 cm / 17"
Weight	Press - 259 kg / 570 lbs. With Cabinet - 372 kg / 819 lbs.
Cabinet Dimensions	74 cm L x 66 cm W x 76 cm H 29" L x 26" W x 30" H

*1 psi = 0.07 bar. 1 bar = 14.5 psi.



FEATURES AND BENEFITS

- Insertion force adjustable from 4.5 to 53.4 kN / 1000 lbs. to 6 tons.
- Pneumatic power for speed, consistency, and simple operation. Requires shop air only.
- Integral point-of-operation safety.
- Adjustable positive ram stop.
- Large parts tray with dividers.
- Rapid tooling changeover, perfect for short production runs.
- Laser pointer, stroke counter, and lockable cabinet for tools and accessories storage.
- One-year parts warranty and two-year limited warranty on pneumatic components.

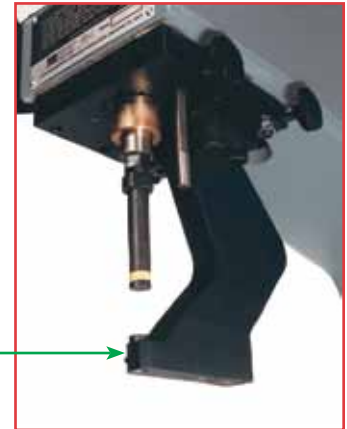
FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

OPTIONAL ANVIL HOLDERS FOR SERIES 4® PRESS

Optional anvil holders and tooling can be easily installed on all new and existing PEMSERTER® Series 4® press. When a workpiece flange and fastener location prohibits the use of standard tooling, the use of top or bottom mount, reverse flange anvil holders will often solve the installation problem.



*Bottom Mount
Reverse Flange
Anvil Holder.*



*Top Mount Reverse
Flange Anvil Holder
includes punch
and anvil.*

OPTIONAL QX4™ MANUAL TOOLING FOR SERIES 4® PRESS

The PEMSERTER® QX4™ manual Turret Tool System provides an efficient method to quickly change between four different anvil tools. The one-handed operation of this tool allows an operator to install four different types and/or sizes of fasteners with one set-up. The QX4 Turret Tool System can be easily installed on all new and existing PEMSERTER® Series 4® press.

- Lower installed cost. Four different fasteners installed with one machine set-up.
- Increased productivity. Set-up time reduced. Turret is easily rotated by hand and positively locks in place.
- Reduced risk of missing a fastener or damaging work-piece. Each position is color-coded with matching color coded parts trays.



OPTIONAL QX™ TOOLING FOR SERIES 3000™ AND SERIES 2000® PRESSES

For higher productivity and ease of operation, add up to two bowl expansion carts and the QX™ Turret Tool system to the PEMSERTER® Series 3000™ or Series 2000® press for a quick and efficient method to quickly change between anvil tools. With the use of the second and/or third bowl and the QX™ Turret Tool System, you can install up to four different fasteners; two or three in automatic feed mode, and the remainder in manual feed mode.

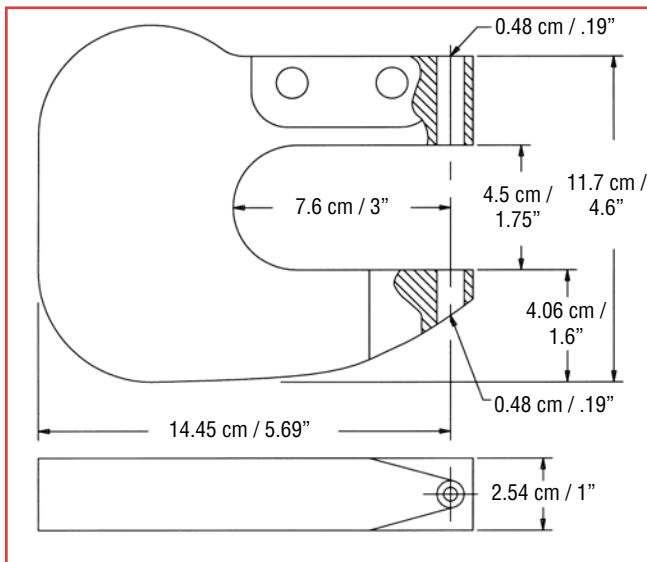
- Operation: Automatic rotation (on Series 3000 press) and automatic/manual rotation (on Series 2000 press) with pneumatic position lock.
- Configuration: 4 position color-coded, one position (Green) auto-feed, remaining three manual load with color-coded fastener tray.
- Touch Screen Setup for all four stations including selection of installation force and number of fasteners to be installed per work-piece.
- Ability to save multiple jobs for future quick set-ups.
- Only good installs are counted. Once set up, the QX™ job will not allow you to install a fastener out of sequence. Operator is notified by visual and or audible signal to rotate turret to next location or that the workpiece is complete per the QX™ job setup.



PEMSERTER® SERIES P3® PORTABLE PNEUMATIC HAND TOOL

The PEMSERTER® Series P3 fastener installation press is a portable power hand tool weighing only 4.6 kg. / 10 lbs. that can develop a **squeezing force of 22.2 kN / 5,000 lbs.**

With the PEMSERTER Series P3 press, you can easily install self-clinching nuts and studs in metric or unified sizes. The metric press kit contains punches and anvils to install nuts (S, CLS, and CLA) ranging from M2 thru M4 thread sizes and studs (FH, FHS, and FHA up to 12mm in length) ranging from M2.5 thru M4 thread sizes. The unified press kit contains punches and anvils to install nuts and studs up to 0.5" in length ranging from #2-56 thru #8-32 thread sizes.



FEATURES AND BENEFITS

- Pneumatic power for consistency and simple operation. Requires shop air only.
- Trigger controlled safety.
- Snap-in tooling changeover.
- Press includes metric or unified tooling.
- Can be bench-mounted. Back side of yoke has two predrilled and tapped holes for bench mounting. Mounting bracket hardware included.
- One-year parts warranty.

PEMSERTER® MICRO-MATE® HAND TOOL

The PEMSERTER® MICRO-MATE® press is a versatile hand tool weighing only 1.25 kg / 2 3/4 lbs. that can develop a **squeezing force of 1,134 kg / 2,500 lbs.**

The press kit contains one hand tool, one flat punch, seven punches and dies, one punch adapter bushing, one edge-depth guide, five fastener anvils and a storage case. The metric kit installs nut sizes M2 to M5, while the unified kit installs nut sizes #2-56 to #10-32.

FEATURES AND BENEFITS

- Equipped with punches and dies to punch fastener mounting holes in metal sheets.
- Changes to a flat punch and recessed anvil to easily install metric or unified self-clinching nuts.
- Ideal for prototype shops or short production runs.
- One-year parts warranty.



FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

THE STICKSCREW® SYSTEM

The STICKSCREW® system offers manufacturers an extremely fast, accurate and efficient method of small screw insertion.

This simple low-cost system combines a lightweight driver and “sticks” of up to 110 serially connected hex head screws. Simply insert the stick in the driver, index the first screw, squeeze the trigger, and place the tip of the protruding screw in the hole and the screw is driven home, twisting off cleanly when precise torque is reached.

Our StickShooter® air tools are lightweight, ergonomic, and quiet. These tools provide years of reliable operation. If needed, service and parts are available from the factory.

- Trigger activates pneumatic motor.
- Non-marring tip.
- Interchangeable and adjustable nose assemblies.
- IL-2000 operates on 90 P.S.I. using 1/4” air line.

For information on the StickScrew fasteners, consult Bulletin SST.



StickScrew® FlexArm

- Allows a higher level of consistent quality to be maintained.
- Operator can position the driver to the part more accurately.



In-Line StickShooter®
Model IL-2000



Pistol Grip StickShooter® Model PG-2000

- Operates on 90 P.S.I. using 1/4” air line

FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

IN-DIE FASTENER INSTALLATION SYSTEM

The PEMSERTER® in-die fastener installation system brings new dimensions to stamping capabilities. It incorporates the latest technologies to deliver the performance that is needed to compete in the highly competitive stamping industry. It eliminates the secondary operations typically required for fastener insertion, thus reducing overall labor costs, improving part quality and dramatically improving product through put.

As designed, the system interfaces with the die and the press with surprising ease. Through the use of a multi pin twist lock connector it is virtually plug and play. All that is needed to operate the system is a standard 110V (230V for Europe) receptacle and shop air.

Other advantages are that the standard tooling is in press removable and can handle complex work pieces reaching into areas generally considered inaccessible. Additionally, if required special tooling can be engineered to fit your specific application.

The complete in-die fastener installation system consists of the die tooling, fastener-feeding system module, the die-sensing module, and the support needed to make every project a success.



FEATURES AND BENEFITS

- Can be easily moved from press to press.
- In press removable tooling can be easily removed for maintenance.
- Easy interface with existing press controls.
- Touch screen operator interface.
- Self-diagnostics with extensive library of help screens.



System can be configured for single or multiple insertions

STANDARD IN-DIE TOOLING

Standard in-die tooling is available to meet the needs for most applications. Custom designed tooling is also offered to meet the needs of your specific application. Please call us for more information about your requirements. We will be happy to assist you to design the proper tool for your assembly.



Standard tooling kit.



Standard tooling.

FASTENER INSTALLATION EQUIPMENT AND SYSTEMS

IN-DIE FASTENER INSTALLATION SYSTEM



The system has the unique ability to be expanded for future applications. Select the expansion port option at time of order.

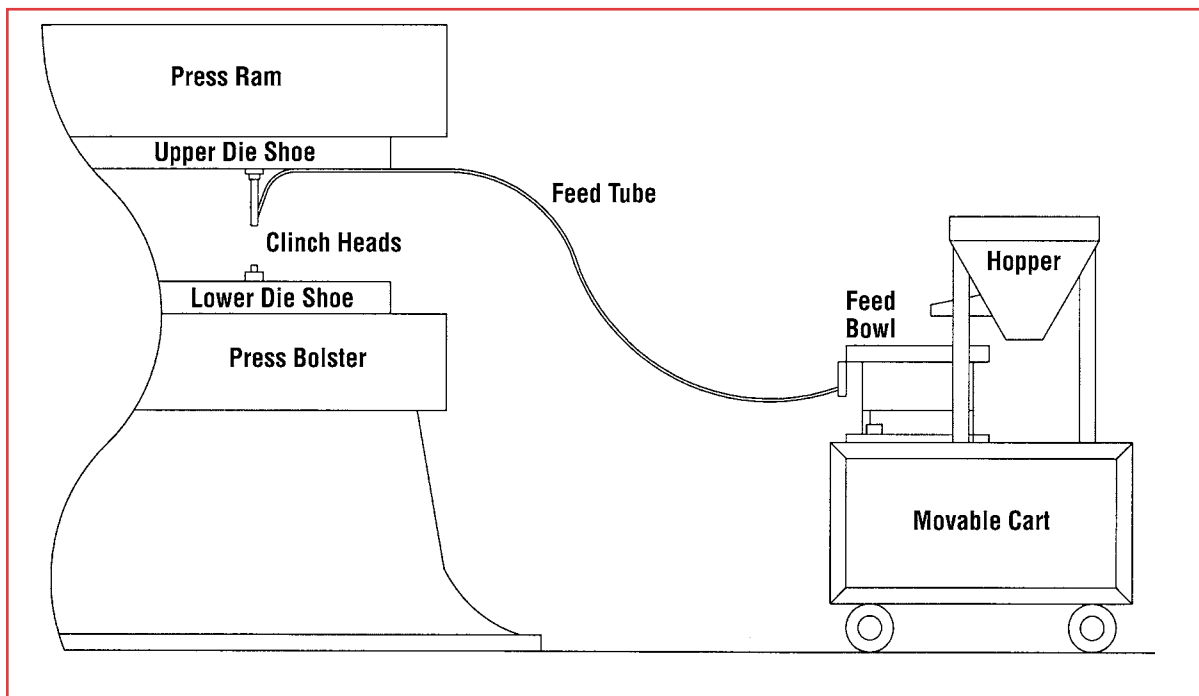


Expand the master system with the addition of an In-die PLUS module to add additional fastener feeding capabilities (example, add a stud to a multiple nut system, or add a nut to a multiple stud system.) Simply connect the fastener delivery tubing to the die and the communication connector to the master system and enter the new configuration into the touch screen control.



Can be equipped with multiple bowls or multiple configurations at time of order for a one piece system.

CONFIGURATION WITH A STAMPING PRESS



*For your local PEMSERTER® Dealer, or more
information on our installation equipment,
call us at 800-523-5321 (USA only) or 215-766-8853
or visit us at www.pemnet.com*



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