PNEUMATIC CLAMPS

LOW COST OF OWNERSHIP, EXCEPTIONAL FLEXIBILITY, AND UNSURPASSED IN RUGGEDNESS

2-JAW CLAMPS
PIN CLAMPS
SWING CLAMPS
STAMPING CLAMPS
FRAME CLAMPS
TOGGLE CLAMPS
IDENTIFICATION & CRIMPING CLAMPS
DIE LIFTERS
PHD Pneumatic Clamps and Die Lifters are for use in automated sheet metal stamping in transfer presses, welding, metal forming, assembly applications and for sheet metal handling equipment. PHD offers many styles, sizes, and options of heavy-duty pneumatic clamping products including 2-jaw clamps, toggle, swing, and pin clamps, as well as identification marking clamps, frame clamps, lifters, gauges, and crowders.

To request literature, visit www.phdinc.com/resources/inforequest/

PHD Clamp facilities are located in Huntington, Indiana.
PHD Clamps are rugged, long life actuators. Customer-driven, lab and field-tested designs ensure peak performance throughout the life of the product. You can be assured PHD Clamp products work right the first time and perform as expected every time. PHD Clamp products exhibit excellent wear characteristics and longevity which minimize the need for repair and costly down time, thus maximizing productivity and profitability.

Excellent delivery saves you money by getting you back to business faster.

PHD offers a variety of components already designed to fit unique requirements. If your application requires a modified component from outside our large database of designs, our team is ready to help. We welcome special requests, regardless of quantity or frequency of order.

Our products can be rebuilt and put back in service for continued savings. Plus, you will receive a “like new” warranty. See back page for more information.

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PHD Clamps have become the industry standard for handling sheet metal in automotive transfer presses and other workholding/transfer applications. All PHD Clamps are customer-driven designs with on-site testing.

**GRM, ARM OVER, PIN LOCATING, SWING ARM CLAMP APPLICATIONS**

- **Grab slip sheet in depalletizing machine**
  - Series GRM Size 1 Standard Jaw Style

- **Automate pallet binding machine**
  - Series GRM Size 2 Needle nose Jaw Style

- **Move filled bags from conveyor to carton**
  - Series GRM Size 2 Standard Jaw Style

- **Handle sheet metal for automotive stamping press**
  - Series GRM Size 2 Standard Jaw Style

- **Hold sheet panels securely in position during welding application. Clamp pin retracts fully into part support.**
  - Series PHD Pin Locating Clamps

- **Hold part down during automated trimming operation**
  - Series PA Swing Arm Clamps

Visit [www.phdinc.com](http://www.phdinc.com) for more information.
Hold door panel components together for robotic welding process. PHD clamps are ideal for various motions and speed in setting parts
- Series PC Swing Arm Clamps
- Series PLKD Pin Locating Clamps
- Series PEC Arm Over Clamps

Hold door panel components together for robotic welding process. Cam design allows for more part thickness variation without having to adjust
- Series PEC Arm Over Clamps

Hold snowmobile tunnel parts for automated welding and riveting process
- Series PA Swing Arm Clamps

Hold tubular parts during welding process
- Series PEC Arm Over Clamps

Secure tubes during robotic welding
- Series PA Swing Arm Clamps

Set ATV frame components together during robotic welding
- Series PB Swing Arm Clamps
- Series PEC Arm Over Clamps

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The Series GRM Clamp continues to be the industry-leading pneumatic actuator of choice for material handling solutions worldwide. Its simple design and rugged construction have proven customer satisfaction and loyalty since 1998. Three standard sizes (25, 32, and 40 mm bores), 13 standard jaw styles, and countless options and accessories make the Series GRM Clamp the most versatile and modular clamp in the world.

**GRM2/GRM4 Pneumatic Workholding Clamp**
- Grips and locks on panels with varying thicknesses without adjustment
- 13 jaw styles
- Sheet metal handling applications
- Modular designed tips
- Simple design, long life
- Fully field-repairable

**GRM1 Miniature Pneumatic Workholding Clamp**
- 2 jaw styles
- Lightweight and high grip force
- Sheet metal handling requiring compact design
- Modular designed tips for various thicknesses
- Simple design, long life
- Fully field-repairable

13 Jaw Styles & Modular-Designed Tips

The Series GRM Clamp has 13 standard jaw styles and numerous jaw openings available to fit your application requirements. If you are unable to locate a jaw style that suits your application needs, contact your local distributor or a member of PHD for assistance.
PART POSITIONING AND HOLDING

The Series PLC, PLK, and PLKD Clamps are ideal for part positioning and holding applications. See below for how each series performs its own particular specialty.

Designed for welding applications, the completely enclosed finger/pin designs keeps weld slag out. In addition, the internal locking mechanism retains the part if pressure is lost. All pin clamps are available in a wide range of pin diameters and styles to fit your specific application needs.

PLC Robust Pneumatic Pin Clamp

Used to locate and clamp a part through a hole or slot
Ideal for part clamping in weld areas
Enclosed finger design keeps weld slag out

PLK Pin Clamp

Completely enclosed finger/pin
5 or 10 mm clamping stroke with 3 pin styles; short, medium, and long pin top shapes
Available in pin diameters from 12.00 to 30.00 mm diameter
Position sensing provides open or closed sensing with industry standard AC or DC weld field immune switch mounted in protected housing
Can be built as drop-in replacement for competitor units

PLKD Disappearing Pin Clamp

Locating pin retracts fully into part support for ease of panel removal
Retractable pin allows for sideways loading and unloading
Available with single or dual switch position sensing

Pin Holding

Disappearing Pin Designs
PART POSITIONING AND HOLDING

The Series PA, PB, and PC Swing Arm Clamps offer the ability to swing the arm out of the way of the part, giving clearance for part placement and removal. The simple designs provide multiple sizes and left and right arm rotations.

PA Pneumatic Swing Clamp
Simple design, small size, high clamp force, and long life
Five sizes with left and right arm rotations
Ideal for automated workholding

PB Pneumatic Swing Clamp
3 ball mechanism provides longer life than competitor’s single pin design
Options for long or short strokes
Easy drop-in replacement
Four bore sizes with short or long strokes
Left or right arm rotations
Ideal for automotive, packaging, assembly, and general automation

PC Tapered Pneumatic Swing Clamp
Feature tapered rod end for easy angle adjustment as well as mounting patterns for drop-in replacements
Left or right rotations are available

Swing Arm Designs
Swing arms allow clearance for part placement and removal

Superior Design for Longer Life
All PHD swing arm clamps are rotated into position by three hardened steel balls running against a hardened steel spline. This superior design outlasts the competitor’s single pin design.

90° rotation
360° arm placement

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IDENTITY MARKING & CRIMPING SYSTEMS

The Number Cruncher® and PNC Mongo are cost-effective marking systems that stamp part numbers, dates, shift codes, and logos into sheet metal, plastic, and other materials. Both units may also be used to simply crimp and form materials.

PNC Number Cruncher® Clamp

- Provides cost effective solution for stamping identification characters into parts
- High clamp force produces characters in draw quality steel
- Operates quietly in less than 0.24 seconds
- Force: Up to 48,330 lb at 87 psi [215.0 kN at 6.0 bar]
- Weight: Up to 116 lb [52.6 kg]
- Three sizes available

PNC MONGO Clamp

- Force: 60,000 lb at 87 psi [266.9 kN at 6.0 bar]
- Weight: 154 lb [69.9 kg]
- Size: (2) 7 in bore cylinders
- Higher force for heavy duty crimping and forming applications
- Accommodates Series PNC Number Cruncher® jaw tooling

Quick Tooling Identity & Crimping

Install or remove jaw tooling by pulling retractable plunger

Heavy Duty Identity & Crimping

Crimping steel wire like this can be accomplished with a standard PNC clamp and special jaw tooling.

The PNC Mongo Clamp is capable of generating 60,000 lb [266.9 kN] of total clamp force. The PNC Mongo provides twice the force of a standard PNC Clamp.

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**Series PFC, PFC Mongo**

**HEAVY DUTY CLAMPING FORCE**

The Series PFC Frame Clamps provide a high force clamping solution specifically designed for heavy duty workholding and welding applications in the automotive industry. Jaws with NAAMS™ mounting patterns allow for fast field setup while optional weld-field immune switches provide position feedback for continuous operation. In addition, weld cover options increase the longevity of the product in high contamination environments, thus reducing costly down time.

### PFC Frame Clamp

- Securely holds heavy parts in place
- Power window of 0.137 in [3.5 mm]
- Wide jaw space allows for clamping large parts
- NAAMS™ mounting patterns for ease of tooling interface
- Force: 11,250 lb at 87 psi [50.0 kN at 6.0 bar]
- Weight: 75 lb [34.0 kg]

### PFC Mongo Clamp

- Rugged cam design provides consistent clamping force throughout a wide power window
- Securely holds heavy parts in place
- Long and short jaw travels
- Modular design allows changes from short jaw travel to long jaw travel by simply moving pivot pins
- Force: Up to 50,000 lb at 87 psi [222.4 kN at 6.0 bar]
- Weight: 700 lb [317.5 kg]

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**Heavy Duty**

The PFC Mongo is shown here shaping automotive frames.

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CLAMPIB18
Other Clamp Solutions

PART POSITIONING AND HOLDING

PEC Pneumatic Toggle Clamp (Arm Over)
- Superior part holding for assembly and welding applications
- Clamps and locks over last six degrees of rotation
- Retains part in the event of pressure loss

PSP Pneumatic Shot Pin Actuator
- Short body length, high pin package accuracy, and the best repeatability in its class
- Urethane wipers or optional bronze scrapers provide excellent protection from contamination
- Designed for long life and accuracy in welding and assembly areas

PHL Heavy Duty Pneumatic Lifter Slide
- Simple design, compact size, long life and the ability to handle high off-center loads
- Available as drop-in replacement for General Motors Global Die Standards. See catalog for details
- Built-in rod compliance eliminates side load on cylinder piston rod, thus increasing life
- Cost effective replaceable composite bearings

PDG Pneumatic Disappearing Gage Slide
- Simple design, compact size, long actuator life, and absorbs high impact forces
- Compact design allows it to fit inside a progressive die where it will retract or “disappear” from the work area as panels move to the next stage of processing
- Ideal for stopping and positioning sheet metal panels or other parts

PDK Pneumatic Crowder Slide
- Simple design, compact size, long actuator life, and absorbs high impact forces
- Built-in rod compliance eliminates side load on the cylinder’s piston rod
- Ideal for pushing sheet metal into location for precise positioning

PLL Pneumatic Light Lifter Slide
- Simple design, compact size, long actuator life, and the ability to absorb high impact forces
- Compact size allows the unit to fit inside the press and close to the panel to accommodate short tooling arms
- Ideal for lifting lightweight sheet metal panels out of dies

High-Temp Solutions

- Proven performance at temps over 1700°F [927°C]
- Hot-forming/stamping applications
- Dissipating shields minimize radiant heat
- Coated tips to reflect heat
- High-temp seals and lube

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Rebuild Program

**REBUILD**
**REPAIR**
**RECYCLE**

A green solution that helps your bottom line.

Return your old units for rebuilding

Get a 12 Month “Like New” Warranty

**SAVE MONEY**

PHD’s rebuild program can reduce your facilities’ needs for and costly expenses associated with: training curriculums, increased employee workloads, inventory for repair/replacement parts, and unnecessary equipment and floor space for rebuilds.

- PHD’s Rebuild Program refurbishes your existing PHD products with all new wear items
- Rebuilt units offer the same PHD quality that you’re used to, but for a fraction of the cost of a new unit, reducing your total cost of ownership
- Rebuilt units are placed back into service, thus reducing your total cost and saving valuable components from scrap
- All PHD factory rebuilt units receive a 12 month “like new” warranty

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