Gripper Selection Guide
The Right Gripper for Your Part

Robotic end effector solutions
Angular & parallel, many sizes & options available
For handling body panels & various sized parts
Superior design & delivery

ISO 9001 REGISTERED
Quality Management System Certified

GRIPPERIB15

PHD is a member of the MAC Distributor Network

www.phdinc.com
We have the experience, quality, and systems available to provide our customers the highest level of products and service.

Based in Fort Wayne, Indiana, PHD, Inc. is a leading manufacturer of pneumatic, hydraulic, and electric powered devices helping companies across all industries optimize automation and manufacturing processes. Our wide product range, unique options, and made-to-order manufacturing processes set us apart in the industry.

**STANDARD PRODUCTS**
Our full line of automation components provides flexibility, durability, and repeatability while welcoming the challenge of many different types of operating environments.

- Cylinders
- Escapements
- Grippers
- Linear Slides
- Rotary Actuators
- Clamps
- Multi-Motion Actuators
- Switches & Sensors

**DELIVERY & SUPPORT**
We provide fast delivery to reduce your inventory costs and keep your production schedule on track. Choosing and designing a solution for your specific industrial automation needs has never been easier or faster.

- Local and worldwide distributor support
- Powerful engineering software and web tools simplify and save design time
- Factory-trained application and industry specialists ensure a cost-effective and field-proven solution
- 1-3 day delivery on most products

**UNIQUE SOLUTIONS FOR UNIQUE NEEDS**
PHD has dedicated an engineering group, Unlimited Unique Solutions®, to exclusively meet unique requests by designing and building unique solutions based on specific requirements.

- Customer-driven solutions to meet application-specific needs
- PHD’s database includes more than 35,000 existing unique designs
- With 100,000 quotes in the database, most quotes are sent the same day
- Unique solutions are often delivered faster than a competitor’s standard product
- No minimum of quantity or frequency of order required

Because of our wide variety of actuators, options, and accessories, nearly every standard PHD unit is manufactured to order. Our factory capabilities allow us to modify standard products within our everyday processes, and producing a unique solution is simple and fast.
Discover myPHD, PHD’s updated online e-tool! New Sizing and CAD features have been added to simplify your design process.

Visit www.phdinc.com/myphd

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How does the rebuild program work?

- PHD’s Rebuild Program refurbishes your existing PHD grippers with all new wear items.
- Rebuilt grippers offer the same PHD quality that you’re used to, but for minimal cost versus purchasing a new gripper.
- Rebuilt grippers are placed back into service, thus reducing your total cost and saving valuable components from scrap.
- All PHD factory rebuilt grippers receive a 12 month “like new” warranty.
High grip force to weight ratio
Available with locking capability for retaining the part upon loss or removal of air pressure

NOTE: Gripping force shown for parallel units is at zero tooling length and 87 psi [6 bar] (pneumatic). The values shown are minimum produced. Optional spring assist can increase the gripping force shown or can be a safety device on the following types: Series 190/191, GRD, 5300, GRC, and GRT. The spring option can also be used to allow single acting operation of Series GRC, GRD, 5300, most 190/191, and GRT Grippers.
**ANGULAR GRIPPERS**

**GRV**
Grip Force: 2.0 to 28 lb [10 to 159 N]
Minimum Distance: 0.322 to 0.594 in [8.2 to 15.1 mm]

Compact, flexible design provides large moment capacities and long tooling lengths
Robust construction ensures long operating life
Double acting for use in both internal and external gripping applications

**8400**
Grip Force: 11.7 to 81 lb [52 to 359 N]
Minimum Distance: 0.200 to 0.62 in [5.1 to 16 mm]

Imperial
Compact size
Double acting for either internal or external applications

**5300 Oval**
Grip Force: 201 to 2167 lb [894 to 9639 N]
Minimum Distance: 0.81 to 1.68 in [21 to 43 mm]

Optional internal springs allow unit to be used as single acting gripper, for additional grip force, or for holding object without air pressure

**GRB**
Grip Force: 13 to 549 lb [57 to 2443 N]
Minimum Distance: 0.44 to 1.90 in [11.3 to 48.3 mm]

Three total jaw rotations are available 60°, 90°, and 180°
Potentially eliminates need for additional axis in some applications

NOTE: Gripping force is at the corresponding minimum distance (from the jaw pivot) at 87 psi [6 bar] (pneumatic). Optional spring assist can increase the gripping force or be a safety device on the Series 5300.

For a complete PHD gripper and product engineering catalog, go to phdinc.com/resources/inforequest/
PHD Electric Grippers as Robotic End Effectors

With the advent of electric actuation, there are now more robotic processes than ever used around the world. Electric components offer attractive features such as precise programmable control, device portability, increased application flexibility without the need for compressors, line maintenance, or required routing, and clean actuation for sanitary environments. PHD plays an active role in the robotic industry. Our electric end effectors on robotic arms, such as the Series EGRK grippers, are specifically designed as a robotic arm peripheral.

Contact PHD with your specific electric gripper needs at phdplus.phdinc.com

EGRK

Grip Force:
60 to 380 lb [269 to 1703 N]
Nominal Jaw Travel:
0.256 to 1.024 in [6.5 to 26 mm]
Low profile, high grip force
Exceptional gripping forces and high moment capabilities
High precision movement maintained
Ultra-rigid, wear-compensating, jaw guidance system
Choice of higher jaw speed or higher jaw force
Multiple mounting options

Consult PHD for more information.

PET GRIPPER
For medical industry applications

LONG TRAVEL GRIPPER
Enclosed, long jaw travel electric gripper

EGRT
Electric 3 jaw gripper for round parts
PHD Clamps

PHD Clamps have been a customer-specific line since their first design in 1998. The base product is the GRM Clamp which can be specialized in numerous ways, and that’s just the beginning. We have also designed products ranging from number stamping clamps to heavy and light part lifters. Every clamp product has been proposed by a customer and carefully designed around their needs. By meeting with the customer, we are able to quickly provide prototypes and beta models the customer can test on-site. Our engineers keep in contact with the customer throughout the entire process, making adjustments to the actuators as needed. Using this consultative approach allows PHD to create a product ahead of the competition that has a great need in the industry. It’s proven success time and time again.

Contact PHD with your specific clamp needs at 1-800-624-8511

Most clamps are fully field-repairable or can be returned to PHD for rebuild.

For more information, request the PHD Clamp Binder.
### Pin Clamps

**PLC**
- **Grip Force:** 223 lb [991 N]
- Used to locate and clamp part through hole or slot
- Ideal for part clamping in weld areas
- Enclosed finger design keeps weld slag out
- Full compliment of standard and special pin sizes available

**PLK & PLKD**
- **Grip Force:** 223 lb [991 N]
- Ideal for part holding and positioning in weld areas
- Enclosed finger design keeps weld slag out

### Swing Arm Clamps

**PA**
- **Grip Force:** 46 to 378 lb [204 to 1682 N]
- Rotates clamp arm into position before clamping with linear motion
- Ideal for part holding or transfer, Series PA features simple design and compact size for low weight, long life, and high clamp force

**PB/PC**
- **Grip Force:** 51 to 223 lb [226 to 992 N]
- Rotates clamp arm into position before clamping with linear motion
- Ideal for part holding or transfer, Series PB/PC features simple design and compact size for low weight, long life, and high clamp force

### Toggle Clamps

**PEC**
- **Clamp Torque:** 125 to 900 in-lb [14 to 102 Nm]
- Superior part holding for assembly and welding applications
- Clamps and locks over last six degrees of rotation

### PFC Frame Clamp
- **Total Clamp Force:** 7200 to 11250 lb [32027 to 50040 N]
- Securely holds heavy parts in place
- Power window of .150” [3.8 mm]
- Wide jaw space allows to clamp part closer to tooling surface

### PNC Number Cruncher®
- **Total Clamp Force:** 9000 to 15000 lb [40 to 60 kN]
- Stamp IDs into parts
- High clamp force at 70 psi [4.8 bar]
- Operates in less than .24 seconds
- Eliminates part changing downtime
UNIQUE SOLUTIONS ARE OUR SPECIALTY
Not because we have to, but because we want to.

Nearly every standard unit PHD makes is manufactured to order. That's because PHD has such a wide variety of actuators, options and accessories available. PHD has the capabilities built into our factory systems to modify products within our everyday processes. Because of our flexibility, creating Unique Solutions® is simple for PHD.

We have dedicated assembly cells, machining centers, and many engineers to design and build unique solutions for our customers. With over 34,000 unique designs and over 100,000 quotes already in our database, we can provide most quotes within eight working hours. We have the systems in place to provide the best delivery in the industry.

Position Feedback
ML306735 Linear transducer for jaw position feedback

Heavy Duty 3 Jaw Gripper
ML305843 Large 3 jaw gripper
300 mm diametral travel

Stainless Steel Plastic Gripper
ML302657 PET plastic body & stainless steel jaws

Hydraulic Steel Gripper
ML221538 Hydraulically driven
Manifold ported for simplified plumbing
Long jaw travel and compact package
Can be repaired in field for extended life and value.
Steel body and jaw covers with corrosion resistant plating.

CNC Quick Change Gripper
ML306580 Single acting hydraulic gripper, operates using pressurized coolant through the machine's spindle.
Mounting to fit CNC tool holder

Creating Unique Solutions is simple for PHD. We can make solutions simple for you!
4 Jaw Long Travel Gripper
ML304657
4 jaw synchronized gripper
25 mm travel per jaw

Series GRB Fixed Jaw Gripper
ML308635
Series GRB11-2-20 x 180 gripper
Fixed jaw
Rated for 500°F
Unique color jaws

GRB with Special Lube
ML303143
Unit with special high temperature non-toxic lubrication

GRW with Long Jaw Travel
ML301025
Longer than standard jaw travel

Lightweight Gripper
ML310665
GRW size 16 design
PET body and aluminum jaws for lighter weight
Longer than normal travel

Mono Gripper
ML219177
Long jaw travel
Spring assist closed
One fixed jaw to maintain accurate registration on gripped parts.

Dual Jaw Gripper
ML305289
2 sets of synchronized jaws
Each set of jaws are independently operated

PET Angular Gripper
ML301141
PET body and stainless steel jaws

Three Position Synchronized Rail Gripper
ML219177
Ground rail delivers high precision with minimal deflection
12 mm bore with 1:1 power to jaw force output
Jaws are synchronized via common pinion
Jaw positions at closed 0.00", 1.00", and 2.67"
Intermediate jaw position repeatable to ± .005"
Air centered intermediate position for use with pressure centered valve—requires only two airlines!
Switch ready for PHD Series 6790 Switches

Low Breakaway GRW
ML308186
Special seals for 20 psi max breakaway

Three Position Gripper
ML308123
Synchronized jaws
Replacement gripper

Robohand Replacement
ML307584
Direct replacement for Robohand RA-10

Robohand Replacement
ML304302
Direct replacement for Robohand RA-5

ML310165
Double Series GRS Gripper
2 Grippers in one body

REPLACEMENTS
**CYLINDERS • SLIDES**

**ROTARY ACTUATORS • ESCAPEMENTS**

We have a full line of components: cylinders, escapers, grippers, slides, rotary actuators, clamps, multi-motion actuators, and proximity switches and sensors to provide the motion you require. With millions of component variations, we can help move, turn, slide, lift, grip, reach, rotate, and clamp almost anything to increase your productivity.

Our components are completely modular. Using either bolt direct units or transition plates, our actuators can be combined to create millions of application variations.

If an application requires a modified component, our PHD Unlimited team is ready to help. We welcome special requests for unique products, regardless of quantity or frequency of order. Ask for the Unique Solutions brochure for more information.

The products, supported by our strong commitment to delivery, service, and quality, have made us a leader in the modular automation industry.

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**Series CV Cylinder**
Conforms to ISO 6431 and VDMA 24562 specifications
Available in eight bore sizes

**Series CRS Cylinder**
Compact size is ideal for applications where length is critical
High force, long life, and short stroke lengths ranging from 1/4" to 7" (6 to 175 mm)

**Tom Thumb® Cylinders**
Known for their durability and NFPA versatility
Multi-position, cleanroom, and non-rotating rod designs are available

**Series LC Single Rod Escapement**
For separating and releasing parts being presented from systems
Large rod bearing area ensures high side load capacity and long life
Available with switches

**Series 160 Double Rod Escapement**
Two fixtured, squared shafts with internally sequenced strokes work with your tooling to isolate a single part for continuation

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**Series SD Thruster Slide**
Exceptional performance and low price
Available in a variety of sizes
Streamlined, thruster style with up to 28" of travel

**Series SE Slide**
Rugged, precise linear motion with minimum deflection
Offer many options, high performance and exceptional value

**Series SFM Saddle Slide**
Multiple midstops
Space saving rodless slide design
Lowest deflection and highest moment capacity combination in the industry

**Series RIS Rotary Actuator**
Eliminates external air lines
Hollow pinion manifold
Available in 3 sizes with single and dual bore styles

**Series RA Rotary Actuator**
Retains zero backlash
5 sizes and 6 standard rotations
Oversize sealed ball bearings, large pinion shafts for heavy load stability and high load stopping ability

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For more information, request the PHD image brochure.