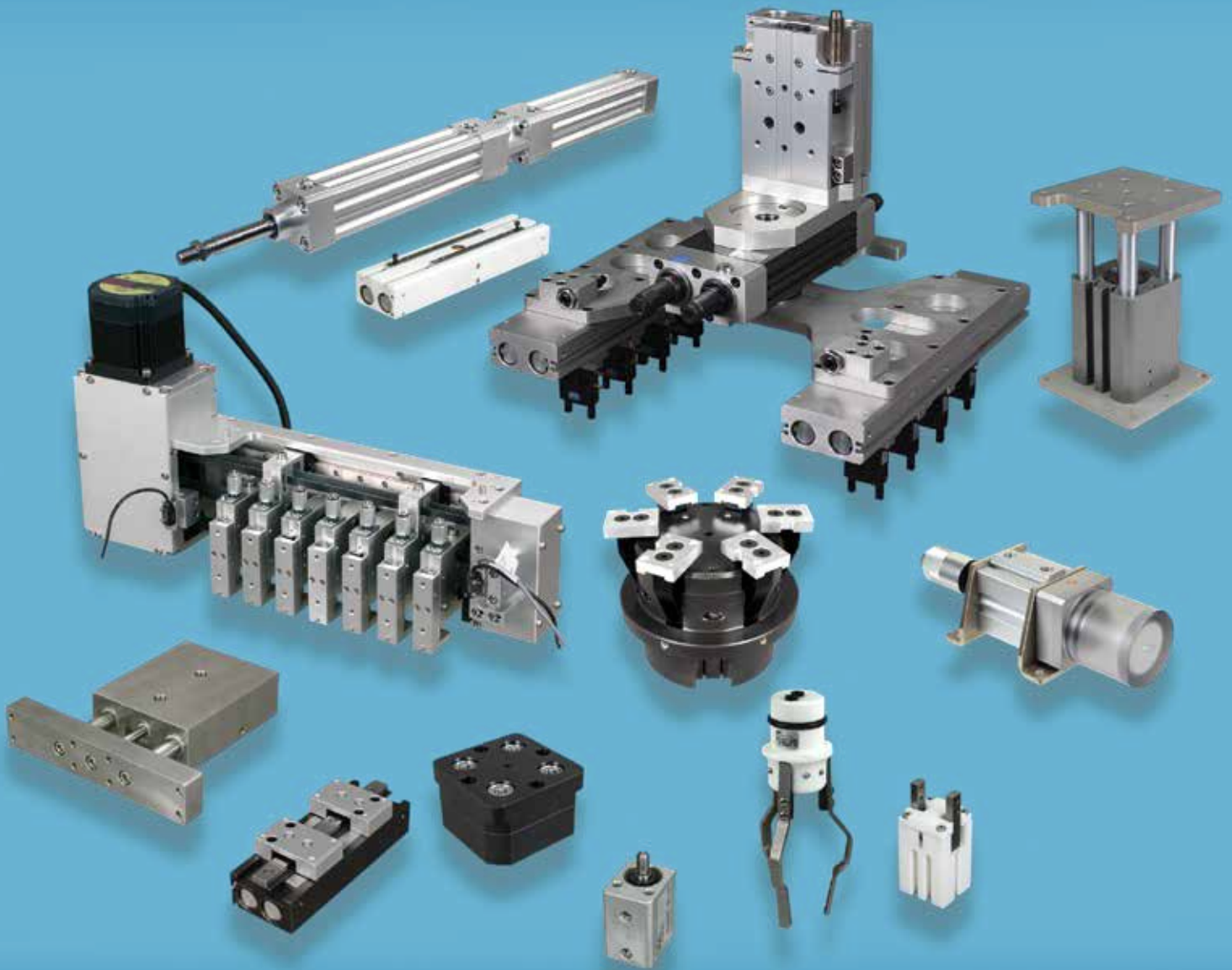


CUSTOM SOLUTIONS

Designed and Manufactured to Order





CUSTOM SOLUTIONS

Creating the Solutions That Make It All Possible

Our mission is to improve the way manufacturers do theirs. Our solutions empower efficiency and productivity, fueling your breakthroughs, innovations, and success. They're exactly what you need to build products that simplify, improve, and advance people's everyday lives.

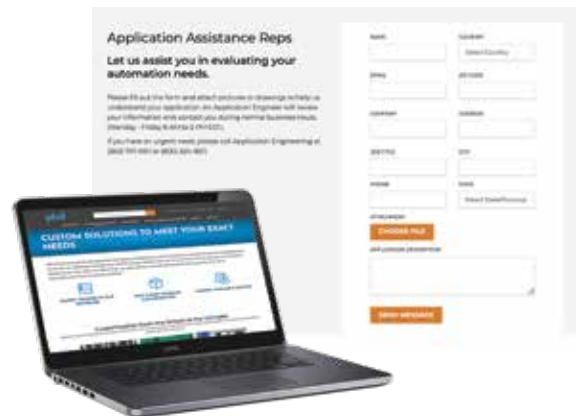
Nearly every standard unit PHD makes is manufactured to order. That's because PHD has such a wide variety of actuators, options and accessories available. We have the capabilities built into our factory systems to modify products within our everyday processes. Because of our flexibility, creating custom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

We have the engineering expertise and factory capability to design and build custom solutions for almost any industry and application. Currently, our database includes over 35,000 unique designs born out of a commitment to provide our customers exactly what they need. If an application requires a modified component, our team is ready to help. We welcome special requests for fully custom products, regardless of quantity or frequency of order.

Capabilities

- Most quotes delivered within eight working hours
- Dedicated application assistance
- 24 hours a day, 7 days a week service
- Fast delivery and competitive pricing
- Separate custom solutions engineering and manufacturing areas dedicated to our customers, ensuring prompt quotes and dependable delivery

Do you have an application for a specific need? Browse our always-growing industry segments to discover your specific industrial automation solution at www.phdinc.com/industries. There you will find industry-specific solutions displayed according to application use. View our many field-tested components by process or product type. If your industry is listed, we may already have a solution designed specifically to your needs!



CYLINDERS



ML311080 PVC Cylinder

All PVC construction
Fluoropolymer seals
Used in semiconductor industry



ML310600 Plastic Cylinder with Hollow Rod

Double hollow rod for vacuum
Chrome-plated piston rod
Light weight
Used in food industry



ML307798 Drain Cylinder

Direct replacement for Ellis drain cylinder
Unique corrosion resistant coating
Used in commercial laundry application



ML306345 Replacement Cylinder

OEM direct replacement for most discharge cylinders
12 mm bore x 10 mm stroke
Used in commercial laundry application



ML310898 PET Body with Stainless Steel Piston Rod

Switch ready
Fluoropolymer seals
Used in semiconductor industry



ML308838 Polymer PET Plastic Cylinder

Designed for part production in a deionized water environment
Fully field repairable
Simple design, long life
Double-acting
Longer bearing surface when compared to other cylinders
Used in semiconductor industry



ML307675 Drain Cylinder

OEM replacement for most LaVatec drain cylinders
Spring extend
Used in commercial laundry application



ML306554 Replacement Cylinder with Spring and Button Kit

Attached as shown
OEM direct replacement for most stopper cylinders
12 mm bore x 10 mm stroke
Optional button and spring kit available
Used in commercial laundry application



ML308775 Cylinder

Large bore cylinder
Aluminum smelting



ML310955 6 Cylinder Manifold

Common extend and retract ports
Incorporates extremely long life rod seals for durable wear requirements
Used in conveyor application



ML311558 Replacement for Braun Industrial Washer

Drop in replacement
Unique plating for longer life
Flexible 3 or 4 inch stroke internal adjustment for lower cost of ownership
Used in commercial laundry application



ML302550 Slide Gate Cylinder

Direct drop-in to existing competitor's cylinder. Bore is 32 mm diameter.
Strokes designed are 6, 7, 8, 9, and 11 inches
Other strokes are available
All units include a fastener kit which contains all hardware for replacement
Incorporates a 12 mm oversized rod for durability
Smooth deceleration and quiet operation
Used in food industry



ML313638 Cylinder

160 mm bore
Larger than standard bore OCV
Used in conveyor application



ML310064 Heavy Duty Non-Rotating Cylinder

32 mm bore x 1-1/2 in stroke
Non-rotating cylinder
MAC Valve ready
Combines PHD Series LCS Escapement and Series CTS Cylinder technology
Used in conveyor application

CYLINDERS



ML310417 Impression Cylinder

Replacement cylinder for a Speedmaster Heidelberg press
100 mm bore x 30 mm stroke
Back to back
MAC Valve ready
Long life and consistent response speed
Used in commercial printing industry



ML309911 Chain Tension Cylinder

Replacement for a Univer K200-050-0200 FM
PHD's Series CV Cylinder
50 mm bore x 200 mm stroke
Double power
Used in commercial printing industry



ML307067 CV Cylinder with Trunnion Mount

Front or rear trunnion mounting available on all CV sizes
Built in shock pads
Cushions available
Corrosion resistance available
Used in tire industry



ML310456 Blanket Wash Cylinder

Direct replacement for a Heidelberg blanket wash cylinder
Universal - rod can be on either side
40 mm bore x 10.5 mm stroke
16 mm rod
1/8 BSPP ports
Long life seals and bushings
Used in commercial printing industry



ML308995 Pusher Cylinder on Stacker

CLASS 4
Longer life on actuator. Piston is longer for added stability and to reduce bore wear.
PTFE Wear Ring provides piston support and enhances durability.
Dramatically decreased repair kit cost.
Bushing PTFE instead of bronze for longer life
Urethane seals for improved durability
Internal shock pads eliminate metal to metal contact
Includes cushion controls that are easily field repairable maximizing your investment.
Anodized aluminum alloy heads, caps and tube
Longer life on position sensors - Solid State versus Reed
Used in commercial printing industry



ML309773 CV Cylinder with CNOMO Mounting

Available for 20 - 100 mm bores
Available with stud mounting on both ends
Longer life than other CNOMO cylinders
Used in tire industry

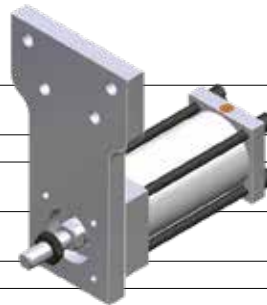


ML310053 Press Cylinder

63 mm bore x 45 mm stroke
1/8 BSPP ports
Long life bushing and wiper seal
Direct drop-in replacement cylinder for MAN Roland press cylinder
Used in commercial printing industry

ML305875 Chock Lock Cylinder

1-1/8 in bore x 1/4 in stroke, other bores and strokes are available
Long life design for low maintenance
Cylinder repairable for extended life providing long term savings
Wide range of options for easy application and reduced design time
Custom mount flange
Spring extend - air retract, single acting
Double rod for robust bearing support
Used in commercial printing industry



ML310107 Cylinder with Adjustable Center Trunnion Mount

Adjustable and fixed trunnions available for 32 - 100 mm bores
Built in shock pads
Cushions available
Corrosion resistance available
Used in tire industry

ELECTRIC



ML311179 Electric Cylinder

2.250 in total stroke
Stainless steel cover for motor
Unique heavy duty rod seal to protect from harsh environments

GRIPPERS/END OF ARM TOOLING



ML309749 Modular Device

Modular device
Two grip and rotate devices incorporated into one assembly
Mounting configuration designed to adapt direct to customer's robot



ML308793 6 Jaw Angular Gripper

75° jaw rotation
Designed for end of arm robotic tooling
Used in robotic application



ML308248 3 Position Gripper

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 air lines!
Switch ready for PHD Series 6790 Switches
Used in robotic application



ML310419 4 Jaw Gripper

Food grade grease
Unique FDA compliant plating and materials
Used in food industry



ML305843 3 Jaw Heavy Duty Rim Gripper

Large 3 jaw gripper
300 mm diametral travel
Used in robotic application



ML309693 Low Profile Gripper

Compact design provides high grip force and large moment capacities with low overall height
Two 40 mm bore cylinders per jaw provide high grip forces
Rugged design withstands high impact and shock load
Double acting for use in both internal and external gripping applications
Rack and pinion jaw synchronization provides minimal backlash
Synchronizer is enclosed, protecting mechanism from debris
TC fluoropolymer composite guide shaft bushings provide long life
Integrated elastomer rod and shaft wipers prolong bushing life in harsh environments
Multiple port locations provide versatile plumbing capabilities
Used in robotic application



ML302657 Polymer Series GRW with Stainless Steel Jaws

PET body and bushing
Stainless steel jaws and jaw guides
Fluoro-Elastomer seals
Jaw guides and seals lubricated with cleanroom compatible grease
Used in robotic application



ML311176 Series GRA Gripper with Stainless Steel Jaws

Food grade stainless steel jaws in place of standard GRA jaws
Incorporates food grade lubricants
Used in food industry



ML311181 Modular Device

Unique mounting plate configuration mounts to other new PHD components
Flexibility on changing part pick up points with precision
Used in robotic application



ML314143 CNC Machine Gripper

Manifold mount
Coolant powered operation
130 - 1000 psi high pressure unit
Customer specific jaws
Used in robotic application



ML312786 Magnetic Gripper

No expensive tooling
One less axis of motion
Variability of part pickup
Compact size
Stainless steel cap improves durability
Multiple sizes available based on customer application
No electric lines required



ML311515 and ML307748 Gripper and Unique Tooling

Replaces triple buck gripper on Unipress pressing machine
Long life
Used in conveyor application



ML311152 Unique Jaw Pads

Stationary tooling stand
Multiple uses
Modified to adapt to your jaw tooling configuration
Used in robotic application

GRIPPERS/END OF ARM TOOLING



ML311161 Bottle Gripper

10° Jaw opening with 3 point contact
Used to grip glass bottles of all types
Used in food industry



ML302657 Polymer Series GRW with Stainless Steel Jaws

PET body and bushing
Stainless steel jaws and jaw guides
Fluoro-Elastomer seals
Jaw guides and seals lubricated with cleanroom compatible grease
Used in semiconductor industry



ML313047 Spring Close Series GRH

Non-standard stroke - 60 mm total
Spring close unit
7.15 lb spring force (60 psi min)
Used in robotic application



ML313700 Gripper

Direct drop-in to an existing gripping device
Three jaw construction
0 degree closed/16 degrees open
PET body/Stainless steel jaws
Food grade lubrication
Stainless steel tooling included
Integrated push to connect fittings
Used in food industry



ML311876 Pepperoni Gripper

Based on Series GRW 16 mm unit
Stainless steel metallic components
PET plastic components
Viton shaft wipers and seals
Food grade lube
Used in food industry



ML310665 Lightweight Gripper

Series GRW size 16 design
PET body and aluminum jaws for lighter weight
Longer than normal travel
Used in robotic application



ML303025 PET Replacement Gripper

Designed for deionized water applications
Compact, lightweight design allows for maximum application flexibility
Double-acting for use in both internal and external gripping applications
Accepts select competitor switches, saving hours of downtime associated with switch change out. Contact PHD for more information.
Other configurations are available
Units are fully field repairable
Used in semiconductor industry



ML307562 Polymer PET Long Jaw Travel Gripper

Synchronized jaw travel
Long jaw travel
PET plastic body
Stainless steel jaws
Used in food industry

ELECTRIC



ML306079 Electric Variable Pick Head

Ideal for final packaging process
Motor driven pitch
Pneumatically driven vertical slides
Used in semiconductor industry



ML310629 Electric Gripper with Rail System

Open motor architecture - **Your Motor, Your Way**
Switch ready
Grip force = 30 lbf at surface of jaw



ML309746 Electric Long Travel Gripper

2.750 mm total jaw travel
Open motor architecture - **Your Motor, Your Way**



ML311373 Electric Ball Screw Driven Parallel Gripper

Internal bearing rail support
Synchronized jaw motion
25 mm total jaw travel
Stainless steel cover
Open motor architecture - **Your Motor, Your Way**



ML313640 Electric Series GRM

Electromechanical Clamp
Based on GRM1TF-6-60-00
Motor and Controller integrated
280 N clamp force
Used in automotive industry

**Your Motor
Your Way**



ML311257 All Plastic and Stainless Steel Parallel Gripper

Plastic body with stainless steel jaws, internal parts and fasteners
Synchronized jaw movement
Used in robotic application

LINEAR SLIDES



ML305733 Corrosion Resistant Plastic Slide

100% corrosion resistant
Materials used - PET & stainless steel
Rod scrapers
No grooves in body - easy to wash down, eliminating areas for bacterial growth
Stainless steel mounting inserts
Lightweight slide
Large guide shafts
Dual bore slide
Used in semiconductor application



ML309534 Valve Ready Slide

MAC Valve ready
Valve can mount on either side of slide housing
32 mm bore x 25 mm stroke
Tool plate designed to customer's specifications
Used in conveyor application



ML309548 Cantilever Rail Slide

Cantilever slide with rail bearing
32 mm x 250 mm
Shock absorber ready
Switch ready
Used in conveyor application



ML310870 Lift Table

Rigid construction for long life
Stainless steel piston rod and guide shafts
Used in semiconductor application



ML303439 Stainless Steel Slide

316 Stainless Steel
Wash down environment
Long life
Used in semiconductor application



ML310446 Tray Dumper Slide

Modular device
MAC Valve ready
Long life front wheel supplied with unit
25 mm bore x 3 in stroke
Incorporates PHD's Series SAH Slide
Rugged construction
Used in conveyor application

ML313108 SFP Pneumatic Variable Pick Head

Pneumatically changes pitch
Lower cost than electric pick head
Easy installation
Customer specified pitch and number of heads
Contact PHD for additional solutions or request to see a video
Used in semiconductor application



ELECTRIC



ML310393 Electric Slide with Washdown

Meets IP67 guidelines
AC servo with resolver
All stainless steel construction



ML307246 Corrosion Resistant Compact Heavy Duty Slide

100% corrosion resistant
Long life and field repairable
One size guide shafts
Heavy duty, rugged
Stainless steel stop collars
Bumpers
Used in food industry



ML310551 Air Spring Slide

Three guide shafts for additional support
Direct mount to robot
Tool plate can be modified to adapt to your tooling
Used in robotic application



ML313252 Conveyor Stop

Customer specified toolplate geometry
Reverse acting (pivot up with spring)
Used in conveyor applications



ML310717 All Stainless Steel with Unique Tool Plate

Food grade stainless components
Incorporates food grade lubricants
Used in food industry

ROTARY ACTUATORS



ML309208 Corrosion Resistant Plastic Rotary

Constructed of PET and stainless steel materials especially for wash down environments

Direct drop-in replacement

Option to repair the actuator if necessary

Reduced down time due to reliability and long life expectancy of the PHD product

Reduced product waste

Used in food industry



ML315060

Custom angle adjustments

Customer supplied sprocket geometry

Anti-washout food grade lubes

Bearing covers with corrosion resistant unit

Used in food industry

ML313598

Drop in competitor replacement

All stainless steel unit

3 position rotary

Used in food industry



ML309840 Rotary Actuator for Solar Panel Manufacturing

High torque, heavy duty

Wide variety of options and accessories

Free floating aluminum pistons with pressure and wear compensating piston seals provide long life and low friction

Heavy duty sealed ball bearings ensure shaft stability under heavy and high impact loading
Used in semiconductor industry



ML308855

Dual pinion rotary actuator. Pinions operate independently of each other.

Fluoro-Elastomer seals

Stainless steel pinions

Used in carpet industry

UNIQUE APPLICATIONS



ML314318

Electric escapement

Stepper motor driven

PHD designed and supplied internal controller

Used in conveyor application



ML315988

Drop in replacement for Emhart and BDF Improved pin design (main failure mode of competition)

Fewer moving parts than competition

High temperature seals and lubes to maximize life

Lightweight design



ML306457 2:1 Air Booster with MAC Valve

CLASS 5

Air booster

2:1 ratio

MAC Valve direct mount ready



ML313008

Air Docking Station

Fully field-repairable providing cost savings

Internal parts are enclosed bushings for wear resistance providing longer life

Black oxide finish for corrosion resistance

Fast delivery



ML312857 Quick Change Volumetric Pump

Adjustable volume

Clear pump for visual confirmation

Easy 90° turn of the pump to remove

Slide off piston design

Corrosion resistant and designed for autoclave

Size based on your requirements - Consult PHD



ML312726

Retention Cylinder

Drop-in replacement

50 to 4,000 psi operating pressure range - hydraulic

Field repairable, increases value and provides longer life

PHD offers rebuild program providing same warranty as new unit

Spring extend for ease of setup



ML312930

8 mm bore x 4 mm stroke

MAC bullet valve integrated

High speed actuator

REPLACEMENTS



ML311286

Replacement Cylinder with Long Life Rod Seal

Incorporates the PHD Series CR Cylinder Long life design



ML310933

Sealed Angular Gripper

GRB style gripper with sealed jaws and drive mechanism



ML307584 / ML304302

Angular Replacement Gripper

Replacement grippers

Direct drop-in replacement

Incorporates PHD's long life internal components