

# Solutions for the Glass Industry

*Rugged design and long life for hot glass bottle transferring applications*



*Hot Glass  
Transferring*


*Drop-in  
Replacements*

*Long Life  
Construction*

GLASS01A



PHD is a member of the  
MAC Distributor Network

**phd**   
SOLUTIONS FOR INDUSTRIAL AUTOMATION

[www.phdinc.com](http://www.phdinc.com)

# Reduce downtime and increase production throughout the plant.



## Let us handle your glass

PHD has the long life actuators you need for many solutions throughout your plant. PHD offers an extensive line of pneumatic actuators that are known for long life and high quality. Over our 60 years of innovation, we have extended our product offerings to include built-to-need components, price alternative components, electric actuators, specialty workholding clamps, and motion control robots. From single actuator solutions, to multi-unit systems, PHD and Yamaha Robotics can provide complete solutions for practically any glass handling process.

# Glass Tong Head Grippers



In this application, the PHD angular glass tong head gripper is designed to take out and place extremely hot glass containers (bottles, jars, etc.) from a forming machine onto a conveyor.

The standard design ML315156 includes a locking ramp which locks in place when jaws are full open.

The adjustable opening angle design ML315208 uses a cam slot and roller bearing. This design uses a smooth closing with cushioning through the cam slot design. The adjustment screw sets or changes the opening angle.

#### Products:

- ML315208 (Adjustable)
- ML315156 (Non-adjustable)

SPECIFICATIONS	
WEIGHT	862 g [30.4 oz]
BORE	40 mm
JAWS OPEN ANGLE	37.4° (Adjustable on ML315208)
JAWS FULL CLOSE ANGLE	5°
JAW MATERIAL	Pre-Hardened Steel
BODY	Coated
SPRING OPEN	Spring Installed Between Body and Piston

- Mechanical locking: Gripper jaws are locked on full open, thus eliminating jaws & tooling being exposed to additional moments of inertia during gob/bottle transfer onto the conveyor.
- Cam Slot Design: For more grip force, the theoretical grip force with the jaws at parallel is about 347N at 6 bar [78 lb at 87 psi] and 85 N at 2 bar [19lb at 29 psi].
- Integrated Smooth Closing™: The cushioning is built into the cam slot of the jaws. This is for handling bottles softer to avoid finish cracks.
- Very Precise Jaw Movement: For consistent, repeatable pick up. No pin breaks or jaw play!
- Less Downtime: Designed for more than 10 million cycles
- Drop-in Replacement: Replaces Emhart, BDF, Bottero, GPS, Lattimer and other glass bottle forming machines

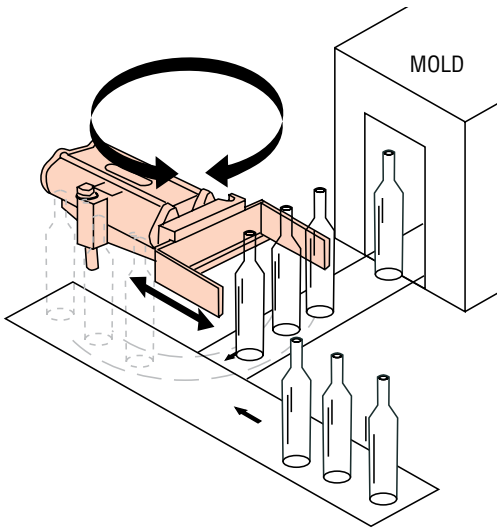


ML315208 (Adjustable)  
Replaces previous ML314047



ML315156 (Non-adjustable)  
Replaces previous ML314727  
and ML313449

# Glass Pusher Slide



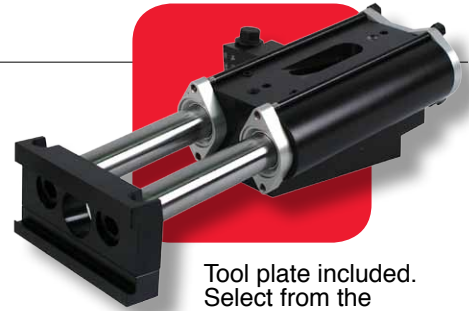
Hot "ware" (bottles) are removed from the mold and released in front of the Pusher Slide which extends and rotates at the same speed as the adjacent conveyor system, delivering the product to the conveyor.

The PHD slide is designed to handle the high temperature of the environment as well as the dirt and molten glass that migrate onto the moving parts of the slide.

#### Products:

- ML310814 (Slide and Tool Plate)
- ML310815 (Slide and Tool Plate)
- ML310035 (Slide only)

- Direct replacement for existing angle slides on Bottero and Emhart machines.
- Faster retract speed due to special quick exhaust valve.
- Long life design due to the choice of seals, coatings, close tolerance machining, and assembly withstanding the environment.
- Rod scrapers prevent contamination of internal seals and bearings promoting longer life.
- Lower cost unit offered without position adjuster.
- Easily field repairable with repair and seal kits.
- Energy savings due to larger rods and 20% smaller bores.



Tool plate included. Select from the options shown below.



Exhaust Deflector



\*ML310274  
(Ol/Emhart tool plate)  
Increased dead  
plate clearance



\*ML310279  
(Bottero tool plate)

SPECIFICATIONS	
TWIN BORE	Ø 1.575 in [40 mm]
STROKE	4.250±.028 in [108±.7 mm]
GUIDE SHAFTS	Ø 1 in [25.4 mm] Hardened, Ground Steel
BODY	PTFE Hardcoat Aluminum
TOOL PLATE	Steel
SEALS	Fluoroelastomer
BUSHINGS	Polymer
<b>Built-in quick exhaust valve on retract</b>	
<b>Cycle Speeds at 45 psi</b>	
Extend	29.3 in/sec [8.9 m/sec]
Retract	34 in/sec [10.4 m/sec]
<b>Cycle Time (Milliseconds) at 45 psi</b>	
Extend	145 ms
Retract	125 ms

**\*Also, select the tool plate for your deadplate clearance requirement.**