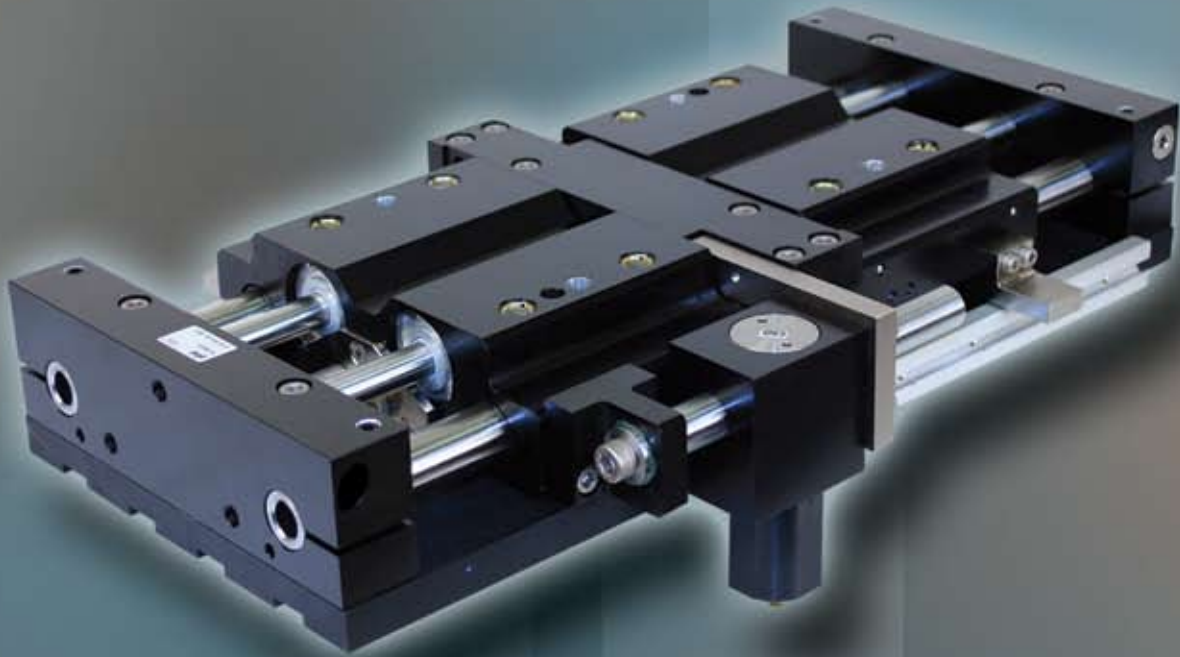


GRPL *SERIES GRPL* *LOW PROFILE GRIPPER*

*Compact Design Provides
High Grip Force and
Large Moment Capacities
with Low Overall Height*




**ISO-9001
CERTIFIED**
Quality Management
System Certified

MGRPL01-EC



PHD is a member of the
MAC Distributor Network

phd 
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ORDERING DATA: SERIES GRPL LOW PROFILE GRIPPER

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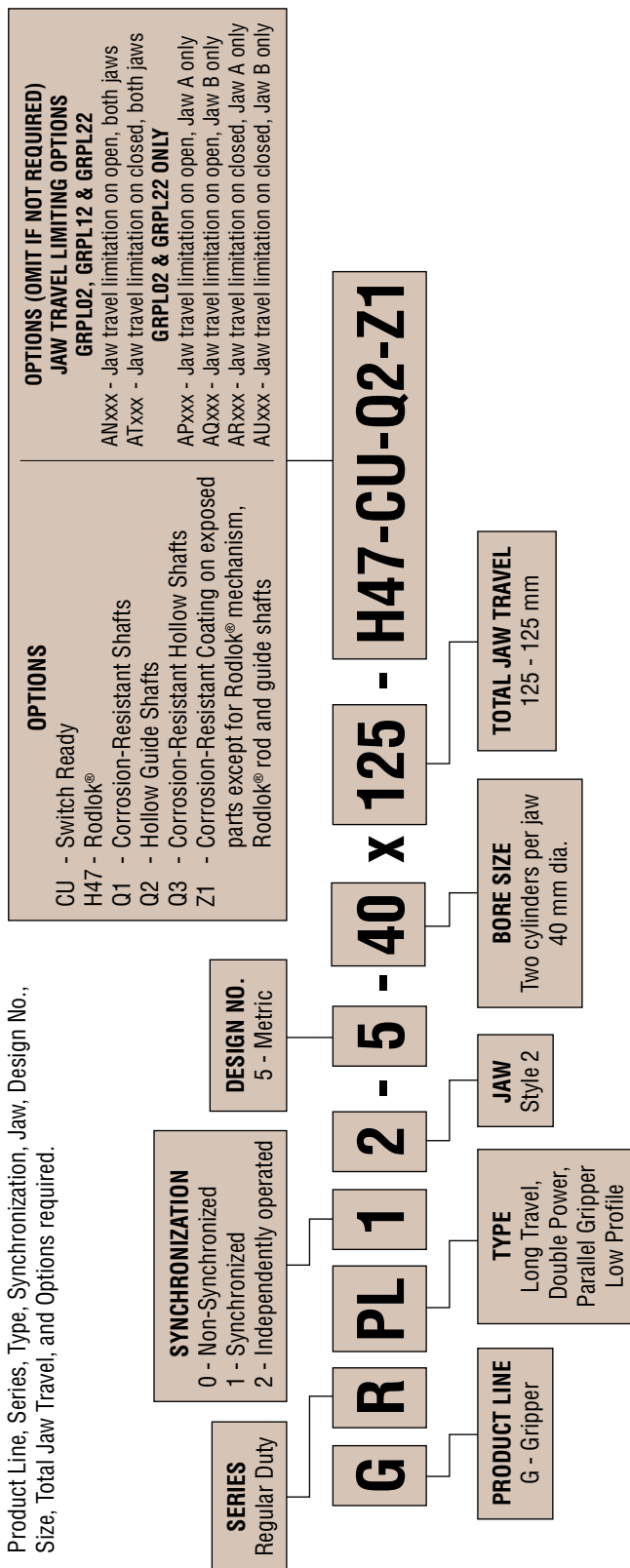
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Applications

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TO ORDER SPECIFY:

Product Line, Series, Type, Synchronization, Jaw, Design No., Size, Total Jaw Travel, and Options required.

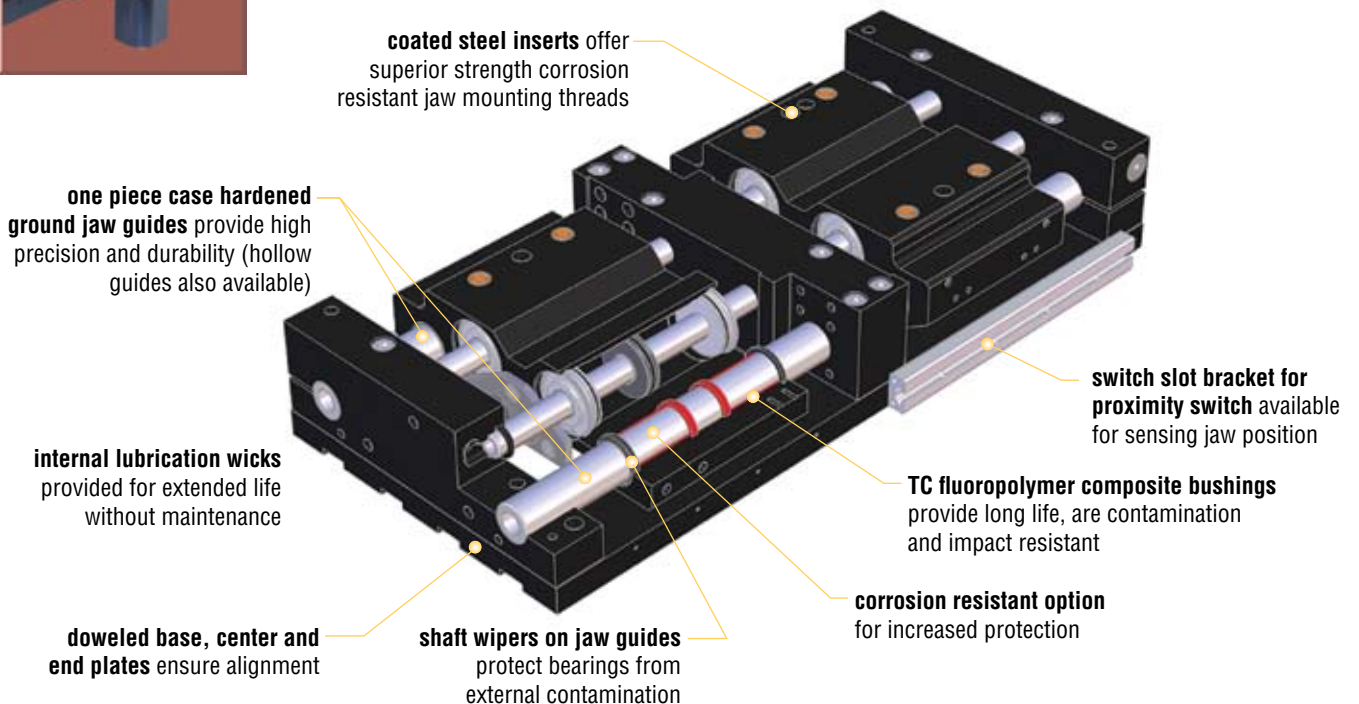
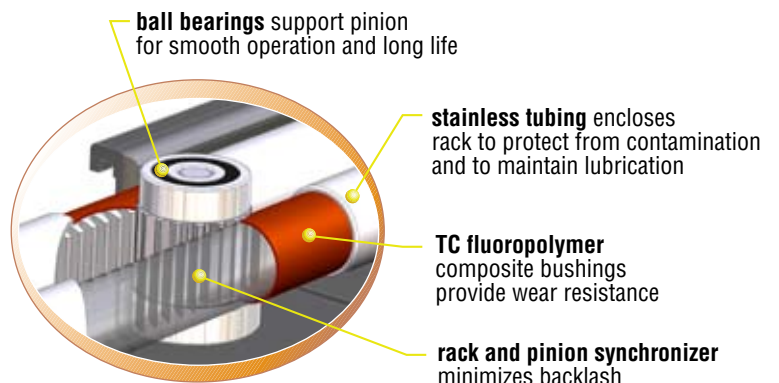


SERIES GRPL LOW PROFILE GRIPPER



Long Jaw Travel, Dual Cylinders Per Jaw, Low Profile, Reduced Weight, Low Jaw Deflection

optional Rodlok® holds jaw position if air pressure is lost



Major Benefits

- Low profile
- 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

Industry Uses/Processes

- Material handling of rolls, barrels, pallets, and containers
- Movement of large sand and investment castings
- Small engine block manufacture
- Automotive rim manufacture
- Aeronautical rim manufacture
- Agricultural wheel rim manufacture
- Clamping and fixturing during assembly operations
- Centering and registration of heavy parts
- Incorporation into space-restricted processing and manufacturing equipment

ENGINEERING DATA: SERIES GRPL LOW PROFILE GRIPPER

SPECIFICATIONS	SERIES GRPL
POWER SOURCE	Two integral pneumatic cylinders for each gripper jaw
WORKING AIR PRESSURE	2 bar min. to 7 bar max.
TEMPERATURE RANGE	-29° to 82°C
LUBRICATION	Permanent for Non-lubricated Air
GUIDE SHAFTS	Hardened & Ground Steel
BUSHINGS	TC Fluoropolymer Composite
JAWS	Anodized Aluminum Alloy
BODY	Anodized Aluminum Alloy
TOTAL JAW TRAVEL	125 mm
BORE DIAMETER (2 cylinders per jaw)	2 x 40 mm
UNIT WEIGHT (with hollow shafts)	20,7 kg (with -H47 option 22,7 kg)
MAX. TOOLING LENGTH AT 7 bar	400 mm

SEALS AND FLUIDS

All seals are compatible with standard paraffin-based lubrication oils used for pneumatic cylinders. For compatibility with other fluids, consult PHD.

LIFE EXPECTANCY

All standard units have been designed for a minimum of 5 million trouble free cycles, with minimal seal wear and backlash.

MAINTENANCE

Common with most PHD products, Series GRPL Grippers are fully field repairable. Repair kits, seal kits, and main structural components are available as needed for extended service life.

REPEATABILITY

Jaw position repeatability is within 0,05 mm of original centered position.

START-UP PROCEDURES

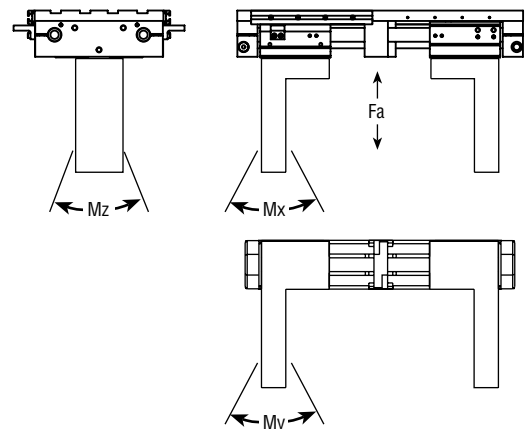
The Series GRPL Gripper should be securely mounted with all tooling and external flow control devices attached prior to applying pressure to unit. Care should be taken to provide adequate clearance for the jaws to open and close. At initial start-up, apply pressure slowly to the unit.

MAXIMUM ALLOWABLE FORCES AND MOMENTS

- Fa: 6672 N max. total for both jaws
- Mx: 565 Nm max. allowable moment per jaw, measured from jaw mounting surface
- My: 565 Nm max. allowable moment per jaw, measured from geometric center of jaw
- Mz: 678 Nm max. allowable moment per jaw, measured from jaw mounting surface

When calculating the value for Fa, include weight of tooling, part weight, acceleration, and external forces. When calculating values for Mx, My, and Mz, include the grip force per jaw, part weight, external forces, and acceleration as applicable.

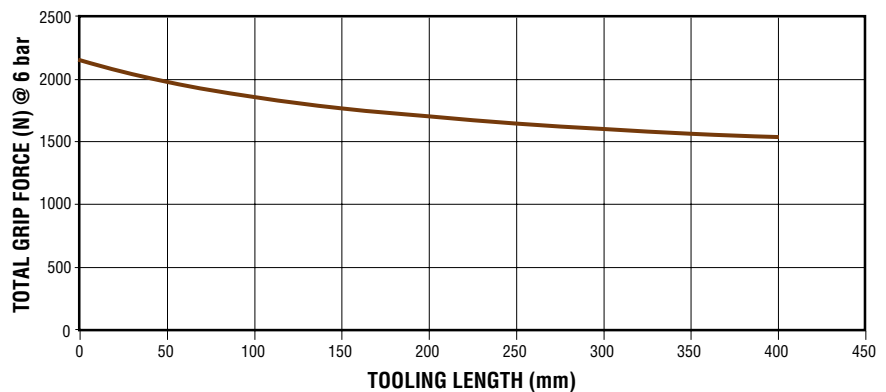
NOTE: Moment values assume the use of all threaded mounting holes.



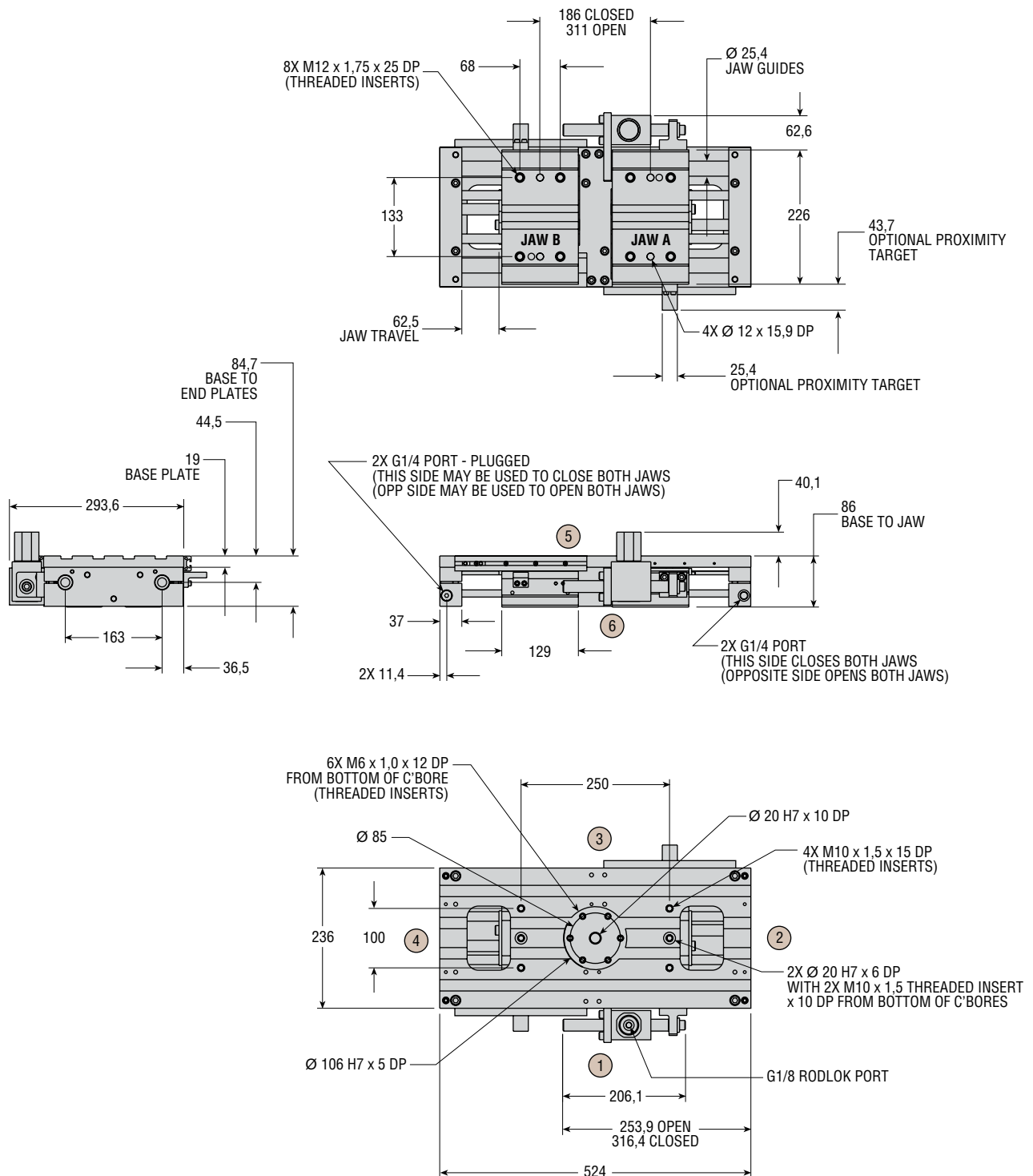
GRIP FORCE

Grip force per jaw equals the total grip force listed divided by two. Consult PHD for additional tooling length derating information.

TOOLING LENGTH (mm)	125 mm TRAVEL TOTAL GRIP FORCE (N) @ 6 bar
0	2152
50	1970
100	1846
150	1761
200	1694
250	1641
300	1596
350	1561
400	1530



DIMENSIONS: SERIES GRPL LOW PROFILE GRIPPER



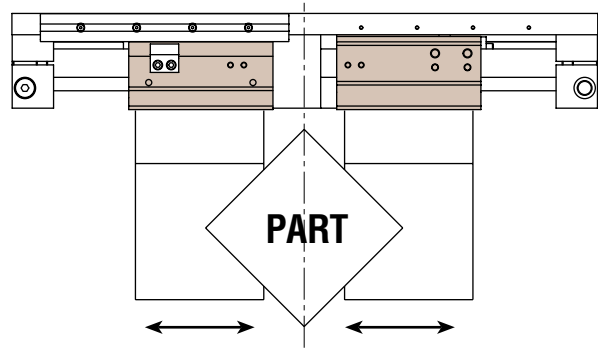
NOTES:

- 1) ALL DIMENSIONS ARE REFERENCE ONLY
- 2) INTERNAL COMMUNICATION ALLOWS USE OF 2 PORTS ON ONE END, 1 ON EACH END, 2 ON EACH END, ETC.
- 3) CIRCLED NUMBERS INDICATE POSITION
- 4) UNIT SHOWN WITH OPTIONAL RODLOK AND PROXIMITY TARGETS

MODELS/OPTIONS: SERIES GRPL LOW PROFILE GRIPPER

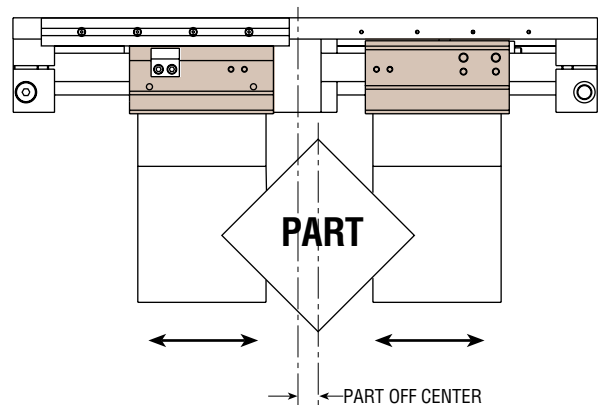
GRPL12 SYNCHRONIZED

This model synchronizes the jaws for use with parts that must be centered. Jaws are pressurized by a single set of ports.



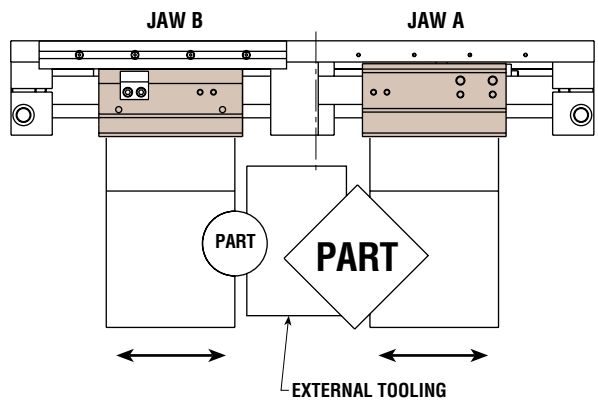
GRPL02 NON-SYNCHRONIZED

This model allows each jaw to move independently while being pressurized by a single set of ports. This feature allows the gripping of off center parts.



GRPL22 NON-SYNCHRONIZED AND INDEPENDENTLY POWERED JAWS

This model adds the ability to independently power each jaw. The jaws are not synchronized and may be cycled at differing rates or pressures.



CU SWITCH READY

With this option, the gripper includes two targets and two M6 t-nuts for use with customer-supplied proximity switches and switch mounting brackets.

NOTE: Non-synchronized units include four targets and four M6 t-nuts.

OPTIONS: SERIES GRPL LOW PROFILE GRIPPER

TRAVEL LIMITING STOPS

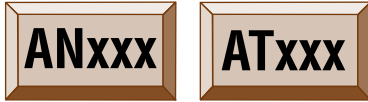
These options provide corrosion resistant jaw travel stop tubes for use in limiting jaw travel on open or close. The travel limiting stop tubes provide a repeatable positive stop.

Model GRPL12 requires identical stops for both jaws while traveling in the same direction. Synchronized units may only use the ANxxx and ATxxx options. Non-synchronized models (GRPL02

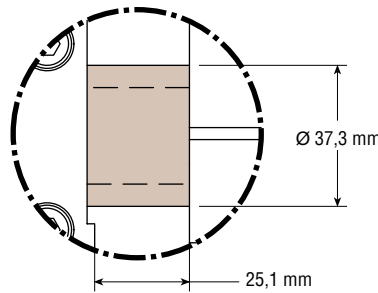
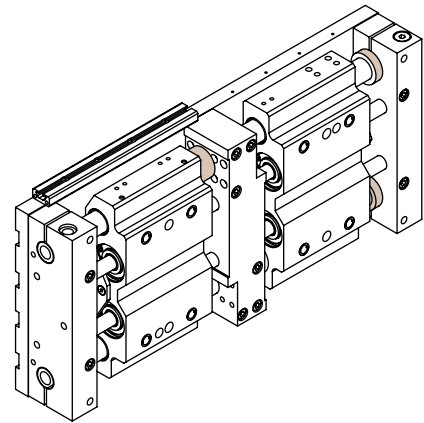
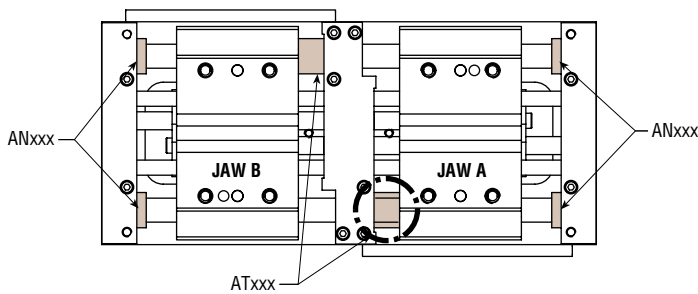
& GRPL22) may use the APxxx, ARxxx, AUxxx, or AQxxx in any combination for limiting the travel of either jaw independently.

Non-synchronized units may also be ordered with ANxxx or ATxxx options.

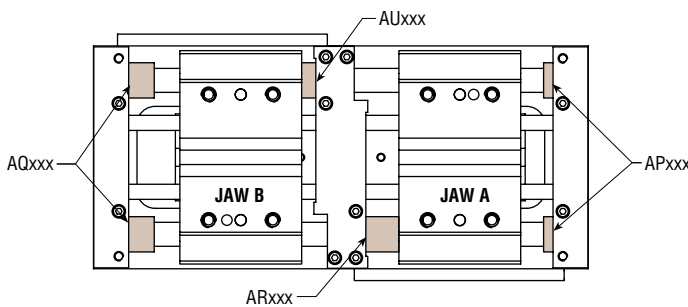
Travel limiting tubes are available in lengths to limit travel from 3,0 to 95,2 mm in 0,1 mm increments.



Available on GRPL02, GRPL12, & GRPL22



Available on GRPL02 & GRPL22



EXAMPLE:

-ATxxx stop with 25,1 mm travel limiting = -AT251

NOTE: Options' -xxx are in 0,1 mm increments with implied decimal point one place from right, and must be three digits long with values ranging between 3,0 and 95,2 mm.

Options' -xxx indicates desired amount of travel reduction for a single jaw and does not indicate actual length of tubes.

OPTIONS: SERIES GRPL LOW PROFILE GRIPPER



RODLOK®

PHD's Rodlok® is ideal for locking the jaws while in a static/stationary position. When the pressure is removed from the port of the Rodlok®, the mechanism will grip on the external guide shaft and prevent the jaws from moving. The loads are held indefinitely without power. The Rodlok® is application and environment sensitive (cleanliness of shaft or Rodlok® will also affect performance). **THE RODLOK® IS NOT DESIGNED TO BE USED AS A PERSONNEL SAFETY DEVICE.**

Option H47 provides the Rodlok® pre-assembled to the gripper. The port of the Rodlok® device will be in Position 5, but can be rotated to be in Position 6 (Rodlok® dimensions shown on page 5).

Add-on and replacement Rodlok® kits can be purchased separately. Contact PHD for details.

For non-synchronized units (GRPL02 and GRPL22), two Rodloks are provided (one on each jaw).

SIZE	STATIC LOCKING FORCE* N
40	2200

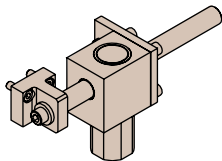
NOTE: *Locking force indicated above is the actual locking force with a dry clean rod and does not include any safety factor. It is possible to override the Rodlok® with very high force applied to the gripper.

OPERATING PRESSURE

The operating pressure for the locking device is different than the operating pressure for the gripper with the Rodlok® attached. The locking device of the Rodlok® is designed with an operating pressure range from 4 to 10 bar. The Series GRPL Gripper with a Rodlok® attached has an operating pressure range from 2 to 7 bar.

ACCESSORIES - RODLOK®

The Series GRPL is -H47 ready as standard. The following items may be added to the Design 5 Series GRPL or may be used as replacement parts. Note that the kits shown are for one jaw only.



COMPLETE RODLOK® KIT (PER JAW)

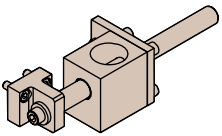
Full unit description - H9110

Kit includes Rodlok® and Rodlok® adaptor for a single (1) jaw.

RODLOK® SEAL KIT (PER JAW)

Full unit description - H9115

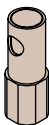
Kit includes seals and wear rings for a single (1) jaw.



RODLOK® ADAPTOR KIT (PER JAW)

Full unit description - H9105

Kit includes Rodlok® adaptor for a single (1) jaw. Does not include Rodlok®.



RODLOK® KIT (PER JAW)

Full unit description - H9100

Kit includes Rodlok® for a single (1) jaw. Does not include Rodlok® imperial port adaptor.

OPTIONS & ACCESSORIES: SERIES GRPL LOW PROFILE GRIPPER

Q1 CORROSION RESISTANT GUIDE SHAFTS

Extremely hard corrosion-resistant coating on the guide shafts for use in applications where moisture may corrode untreated hardened ground shafts. End faces of the shafts remain uncoated. Consult PHD for fully coated shafts.

Q2 HOLLOW GUIDE SHAFTS

Guide shafts are hollow for reduced weight and can be used to run air lines or wires from one end of gripper to the other.

Q3 CORROSION RESISTANT HOLLOW GUIDE SHAFTS

Combines corrosion resistant shafts (-Q1) and hollow shafts (-Q2).

Z1 CORROSION RESISTANT

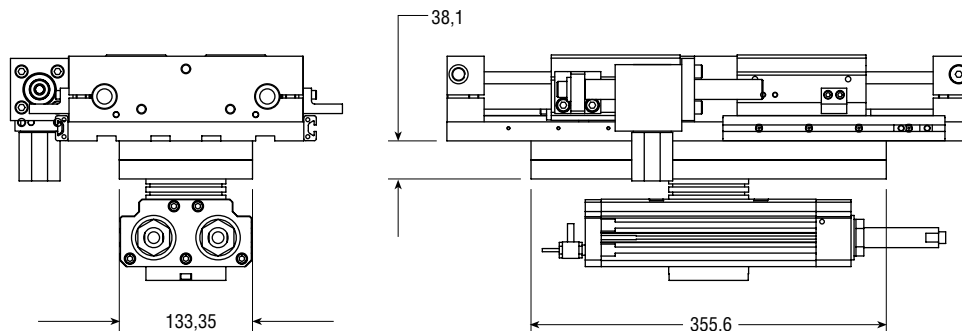
This option provides a corrosion resistant coating on all ferrous parts for use in applications where the standard parts may corrode.

NOTE: Rodlok® and Rodlok rod, part of -H47 option, are not corrosion resistant. For corrosion resistant guide shafts, see option -Q1 or -Q3.

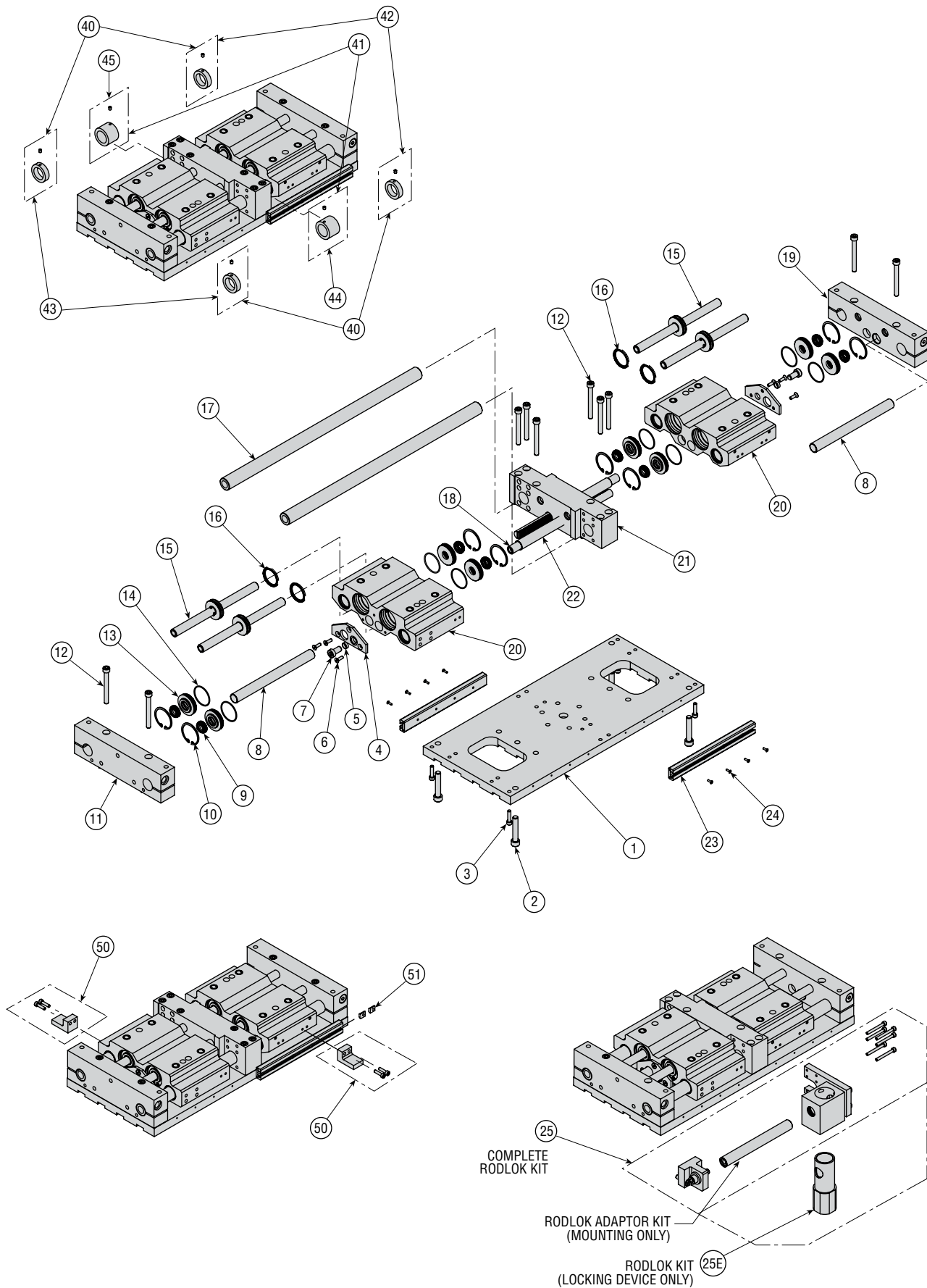
ACCESSORY - MOUNTING ADAPTOR KIT

This kit allows mounting a Series GRPL gripper to a Series RIDH550 rotary actuator. The kit includes two plates and required fasteners. Attach one plate to the gripper, one plate to the rotary actuator, and assemble the two plates together.

KIT NO.	DESCRIPTION
81316	Mounting Adaptor Kit



EXPLODED VIEW: SERIES GRPL LOW PROFILE GRIPPER



PARTS LIST: SERIES GRPL LOW PROFILE GRIPPER

KEY	PART DESCRIPTION	PART NUMBER
1	Base Plate Assembly	Full unit description required -H6100
2	SHCS	Sold as part of base plate mounting kit
3	SHCS	Sold as part of base plate mounting kit
4	Rack Mounting Plate	81061
5	Rack Mounting Spacer	75038
6	FHCS	Sold as part of rack cover mounting kit
7	LHCS	Sold as part of rack cover mounting kit
8	Rack Cover Tube (Long)	Full unit description required -H1300
9	Rod Wiper / Seal	Sold as part of seal kit only
10	Retaining Ring	Full unit description required -H7100*
11	End Plate Assembly (pos 2)	Full unit description required -H6220
12	SHCS	Sold as part of base plate mounting kit
13	Rod Bushing	79646
14	O-ring	Sold as part of seal kit only
15	Piston & Rod Assembly	Full unit description required -H1000
16	Piston Seal	Sold as part of seal kit only
17	Guide Shaft	Full unit description required -H4710
18	Rack	Full unit description required -H3310
19	End Plate Assembly (pos 4)	Full unit description required -H6210
20	Jaw Assembly	Full unit description required -H2605
21	Center Plate Assembly	Full unit description required -H4810
22	Rack Cover Tube (Short)	Full unit description required -H1310
23	Switch Slot Bracket	Full unit description required -H3000
24	FHCS	Full unit description required -H2030*
25	Complete Rodlok Kit (per jaw)	Full unit description required -H9110
25E	Rodlok Kit (per jaw)	Full unit description required -H9100
40	-ANxxx Travel Limiting Tubes	Full unit description required -H1705*
41	-ATxxx Travel Limiting Tubes	Full unit description required -H1715*
42	-APxxx Travel Limiting Tubes	Full unit description required -H1725*
43	-AQxxx Travel Limiting Tubes	Full unit description required -H1735*
44	-ARxxx Travel Limiting Tubes	Full unit description required -H1745*
45	-AUxxx Travel Limiting Tubes	Full unit description required -H1755*
50	Prox Target Kit (per jaw)	81315
51	Switch Bracket Mounting T-Nut	80639

KITS

DESCRIPTION	PART NUMBER
Complete Rodlok Kit (per jaw)	Full unit description required -H9110
Rodlok Kit (per jaw)	Full unit description required -H9100
Rodlok Adaptor Kit (per jaw)	Full unit description required -H9105
Rodlok Seal Kit (per jaw)	Full unit description required -H9115
Seal Kit**	Full unit description required -H9000
Prox Target Kit (per jaw)	81315
Base Plate Mounting Kit	Full unit description required -H9040*
Rack Cover Mounting Kit	Full unit description required -H9041*

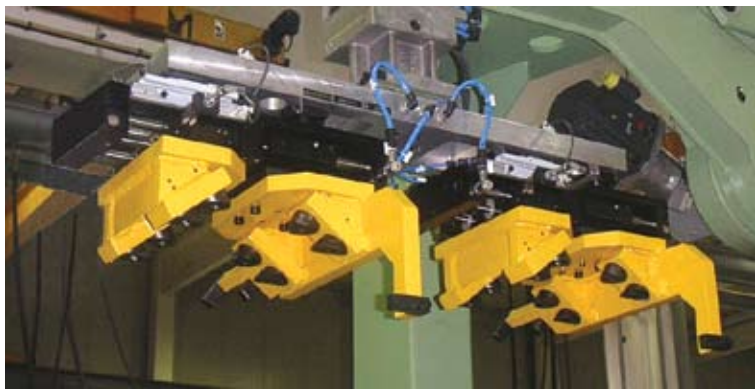
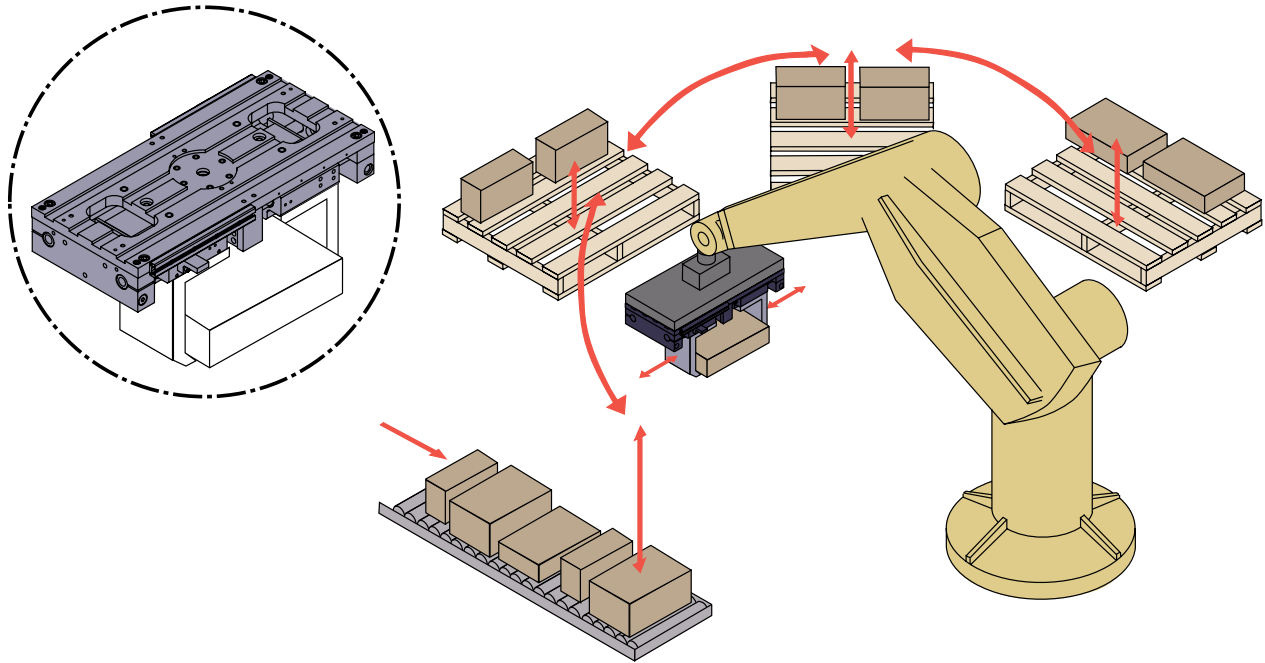
Notes:

- 1) All part numbers are for standard units. Options may affect part numbers.
- 2) *H code includes all required components for complete unit per description.
- 3) **Seal kit does not include Rodlok seals. Rodlok seals sold in Rodlok seal kit only.

APPLICATIONS: SERIES GRPL LOW PROFILE GRIPPER

Gripper For Long Travel, Low Profile Capability

The Series GRPL Gripper is designed for long stroke, low profile applications. The synchronized parallel jaw motion automatically centers items for operations such as sorting. The long stroke compensates for items of varying size or position.



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