

phd SERIES GRR DESIGN 2 [6] GRIPPER INFORMATION SHEET

IMPORTANT INFORMATION DO NOT DISCARD!

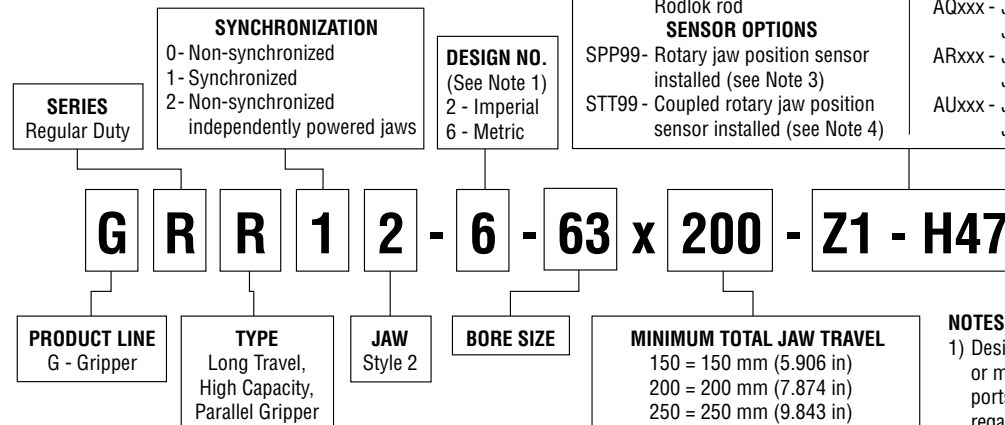
Use this information sheet to assist with gripper installation and setup.
File with maintenance or machine documentation.

ORDERING DATA



TO ORDER SPECIFY:

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



OPTIONS (OMIT IF NOT REQUIRED)

PORT OPTIONS

L9 - NPT Ports (metric units only)

UNIT OPTIONS

H47 - Rodlok (See Note 2)
V1 - Fluoro-Elastomer Seals except for Rodlok mechanism
Z1 - Corrosion resistant coating on exposed parts except for Rodlok mechanism and Rodlok rod

SENSOR OPTIONS

SPP99 - Rotary jaw position sensor installed (see Note 3)
STT99 - Coupled rotary jaw position sensor installed (see Note 4)

OPTIONS (OMIT IF NOT REQUIRED)

JAW TRAVEL LIMITING OPTIONS GRR02, GRR12 & GRR22

ANxxx - Jaw travel limitation on open, both jaws
ATxxx - Jaw travel limitation on closed, both jaws
GRR02 & GRR22 ONLY
APxxx - Jaw travel limitation on open, Jaw A only
AQxxx - Jaw travel limitation on open, Jaw B only
ARxxx - Jaw travel limitation on closed, Jaw A only
AUxxx - Jaw travel limitation on closed, Jaw B only

NOTES:

- 1) Design number indicates imperial or metric mounting holes and ports. Dowel pin holes are metric regardless of design number.
- 2) Standard unit is Rodlok ready.
- 3) Available on GRR1 only. GRR1 unit is SPP99 ready.
- 4) Available on GRR1 only. -STT99 option must be ordered with the gripper. Only sensor replacement kits are available.

SPP99 JAW POSITION SENSOR KITS

KIT	STANDARD	CORROSION RESISTANT
Sensor Replacement Kit	74209-31	74209-32

Kit includes 1 jaw position sensor, 2 mounting screws, 1 seal and 1 coupling seal

REPLACEMENT STT99 JAW POSITION SENSOR KITS

KIT	STANDARD	CORROSION RESISTANT
Sensor Replacement Kit	84404-11	84404-12

Kit includes 1 jaw position sensor, 2 mounting screws, 1 seal and spring

8 mm THREADED INDUCTIVE PROXIMITY SWITCHES

PART NUMBER	DESCRIPTION
51422-005-02	NPN (Sink), 2 meter cable
51422-006-02	PNP (Source), 2 meter cable

12 mm THREADED INDUCTIVE PROXIMITY SWITCHES

PART NUMBER	DESCRIPTION
15561-001	NPN (Sink), 2 meter cable
15561-002	PNP (Source), 2 meter cable
15561-003	VAC Solid State, 3 meter cable

8 mm & 12 mm THREADED INDUCTIVE PROXIMITY SWITCH TARGET KITS

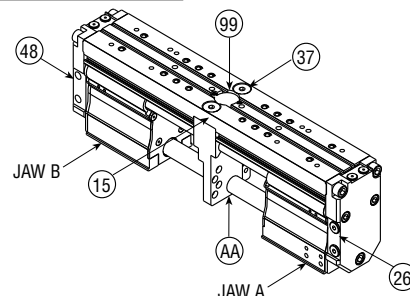
STANDARD	CORROSION RESISTANT
74994-31	74994-32

Kit includes 1 proximity switch target and 2 target mounting screws

THREADED INDUCTIVE PROXIMITY SWITCH MOUNTING BRACKET KITS

8 mm SWITCH	CORROSION RESISTANT 8 mm SWITCH	12 mm SWITCH	CORROSION RESISTANT 12 mm SWITCH
74992-31	74992-32	74993-31	74993-32

Kit includes 1 proximity switch mounting bracket, 1 mounting nut, and 1 mounting screw



U.S. PATENT #7,490,881

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ENGINEERING DATA: SERIES GRR GRIPPERS



SPECIFICATIONS	SERIES GRR
OPERATING PRESSURE STANDARD UNIT	30 psi min to 120 psi [2 to 8 bar] max air
OPERATING TEMPERATURE	-20° to +180°F [-28° to +82°C] Higher temperature service available. Consult PHD.
RATED LIFE	5 million cycles minimum with standard seals
GRIP REPEATABILITY	Within ± 0.002 [± 0.05 mm] of original centered position
CYCLE TIME	See table below
LUBRICATION	Factory lubricated for rated life
MAINTENANCE	Field repairable

MODEL NUMBER	MINIMUM TOTAL JAW TRAVEL		GRIPPER WEIGHT		CLOSE OR OPEN TIME 87psi [6 bar]	ONE DIRECTION DISPLACEMENT		GRIP FORCE FACTOR G_F GRIP FORCE VARIES WITH TOOLING LENGTH			
								EXTERNAL GRIP		INTERNAL GRIP	
	in	mm	lb	kg	sec	in ³	cm ³	IMPERIAL	METRIC	IMPERIAL	METRIC
GRRx2-x-63 x 150	5.91	150	28.0	12.7	0.28	28.8	472	8.09	522	7.27	469
GRRx2-x-63 x 200	7.87	200	33.0	15.0	0.36	38.4	629				
GRRx2-x-63 x 250	9.84	250	39.2	17.8	0.42	48.0	787				
GRRx2-x-63 x 350	13.8	350	49.0	22.2	0.57	67.0	1098				

MAXIMUM ALLOWABLE FORCES AND MOMENTS

MODEL NUMBER	Fa		Mx		My		Mz	
	lb	N	in-lb	Nm	in-lb	Nm	in-lb	Nm
GRRx2-x-63 x 150	3500	15570	8000	880	6500	715	6500	715
GRRx2-x-63 x 200	3500	15570	9000	990	7500	825	7500	825
GRRx2-x-63 x 250	3500	15570	9000	990	7500	825	7500	825
GRRx2-x-63 x 350	3500	15570	9000	990	7500	825	7500	825

Fa: Total for both jaws.

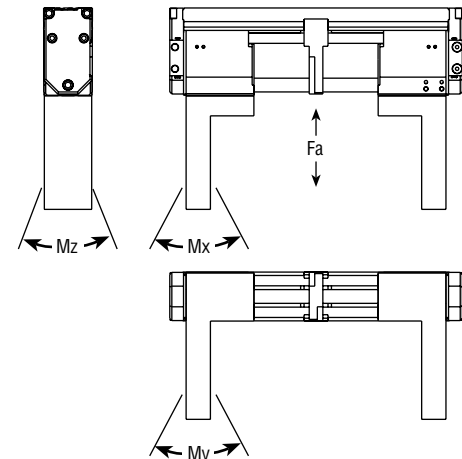
Mx: Allowable moment per jaw, measured from jaw mounting surface.

My: Allowable moment per jaw, measured from geometric center of jaw.

Mz: 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.



START-UP PROCEDURE

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. Grippers with Rodlok device will require the Rodlok to be pressurized prior to cycling of unit.

NOTE: Units with Rodlok may require removal of port screw before connecting airlines.

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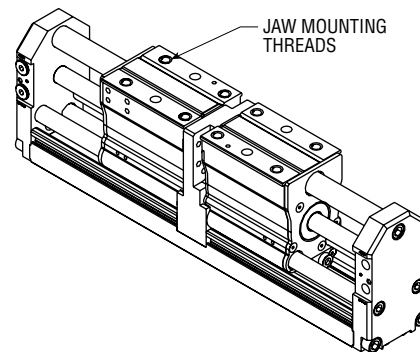
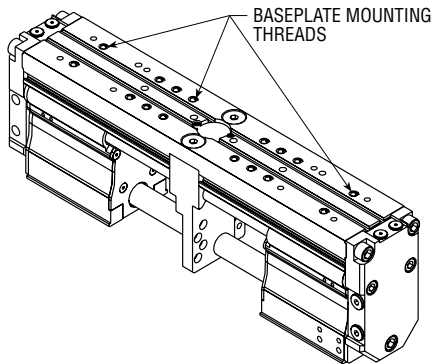
MOUNTING TORQUE INFORMATION: SERIES GRR GRIPPERS

MAXIMUM RECOMMENDED MOUNTING TORQUES

PART DESCRIPTION	TORQUE	
	in-lb	Nm
Base Plate Mounting Threads	300	33.9
Jaw Mounting Threads	450	50.8

NOTES:

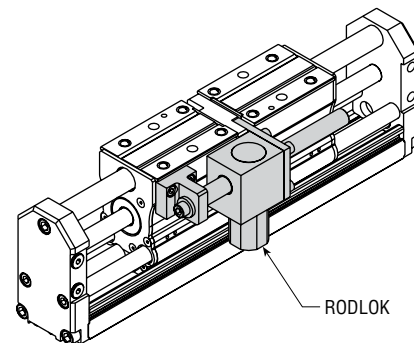
- 1) Assumes engagement of 75% of full thread depth.
- 2) Assumes use of high strength steel socket head cap screws.
- 3) PHD recommends the use of threadlocker on mounting threads.



RODLOK INFORMATION

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 jaw with Rodlok attached or synchronized jaws from moving. The loads are held indefinitely without power. The Rodlok is NOT intended for dynamic use as a gripper jaw deceleration device. Rodlok performance is application and environment sensitive.

Cleanliness of shaft or Rodlok will also affect performance. THE RODLOK DEVICE IS NOT DESIGNED TO BE USED AS A PERSONNEL SAFETY DEVICE.

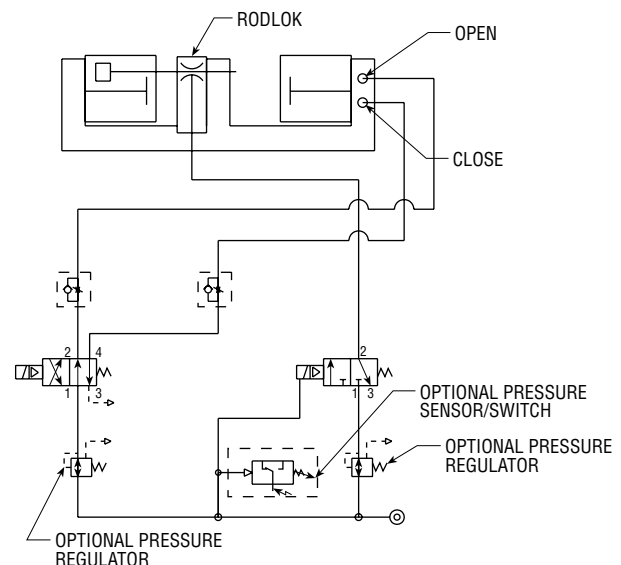


OPERATING PRESSURE

The operating pressure for the Rodlok device is different than the operating pressure for the gripper with the Rodlok attached. The locking device of the Rodlok is designed for an operating pressure range of 60 psi minimum to 150 psi maximum [4 to 10 bar]. The Series GRR Gripper with a Rodlok attached has an operating pressure range of 30 psi minimum to 120 psi maximum [2 to 8 bar].

PLUMBING SCHEMATIC EXAMPLE

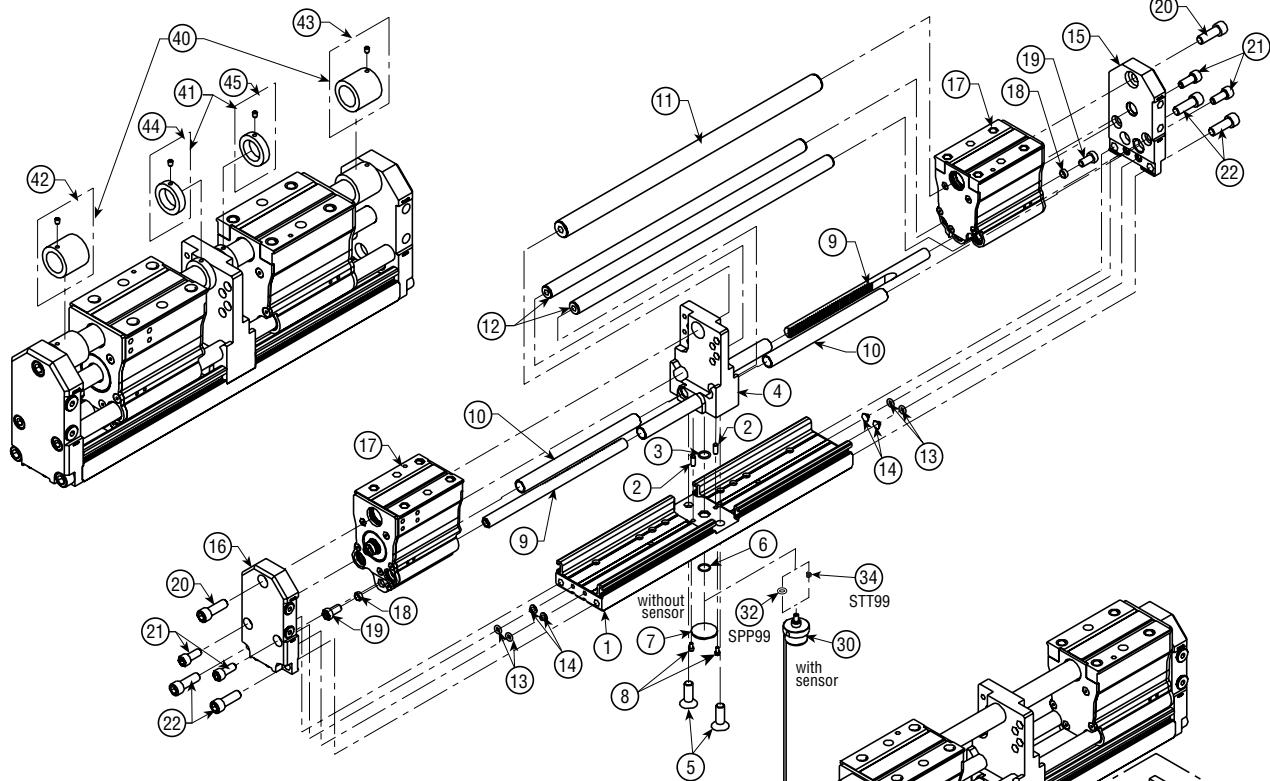
The pneumatic schematic shows typical valving for both gripper and Rodlok. The schematic shows one 4-way valve controlling the gripper and one 3-way valve controlling the Rodlok. The use of in-line regulators allows the gripper and Rodlok to be pressurized at different pressures. If the gripper is to be operated at pressures below 60 psi [4 bar], a regulator must be used between the supply line and gripper control valve to reduce the pressure to the gripper. (Do not reduce the operating pressure to the Rodlok below 60 psi [4 bar].) Once opening or closing of the gripper is complete, the Rodlok can be engaged by de-energizing its valve and releasing its pressure. The use of flow control valves is recommended. Pressure switch is optional and application specific.



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PARTS LIST: SERIES GRR GRIPPERS



KEY	PART DESCRIPTION	PART NUMBER
1	Base Plate Assembly	Full unit description required -H6100
2	Dowel Pin	17831-095
3	O-ring Seal	Sold as part of seal kit only
4	Center Plate Assembly	Full unit description required -H4810
5	FHCS	Full unit description required -H2000
6	O-ring Seal	Sold as part of seal kit only
7	Jaw Position Sensor Cover	74221
8	SHCS	Full unit description required -H2040
9	Rack	Full unit description required -H3310
10	Rack Cover Tube	Full unit description required -H1300
11	Large Jaw Guide	Full unit description required -H4720
12	Small Jaw Guide	Full unit description required -H4710
13	O-ring Seal	Sold as part of seal kit only
14	End Plate Communication Plug	74213
15	End Plate Assembly (location 48)	Full unit description required -H6210
16	End Plate Assembly (location 26)	Full unit description required -H6220
17	Jaw Assembly	Full unit description required -H2605
18	Rack Mounting Spacer	75038
19	LHCS	Full unit description required -H2020
20	SHCS	Full unit description required -H4740
21	SHCS	Full unit description required -H4740
22	SHCS	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
30	Jaw Position Sensor Assembly	Sold as part of jaw position sensor kit
32	O-ring Sensor Coupling (-SPP99 option only)	Sold as part of sensor kit
34	Spring - Sensor (-STT99 option only)	Sold as part of sensor kit
40	-ANxxx Travel Limiting Tube	Full unit description required -H1705
41	-ATxxx Travel Limiting Tube	Full unit description required -H1715
42	-APxxx Travel Limiting Tube	Full unit description required -H1725
43	-AQxxx Travel Limiting Tube	Full unit description required -H1735
44	-ARxxx Travel Limiting Tube	Full unit description required -H1745
45	-AUxxx Travel Limiting Tube	Full unit description required -H1755

Note: All part numbers are for standard units. Options may affect part numbers.

*Seal kit does not include Rodlok seals. Rodlok seals sold in Rodlok seal kit only.

(25) COMPLETE RODLOK KIT
 RODLOK ADAPTOR KIT (MOUNTING ONLY)
 (25E) RODLOK KIT (LOCKING DEVICE ONLY)

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
Sensor Replacement Kit	Full unit description required -H9305

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