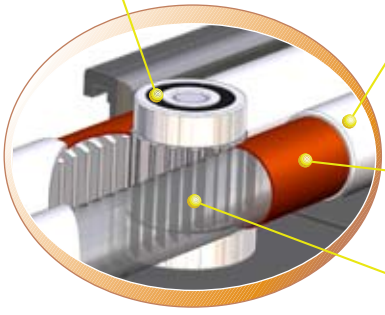
GRR

NARROW WIDTH AND LONG TRAVEL

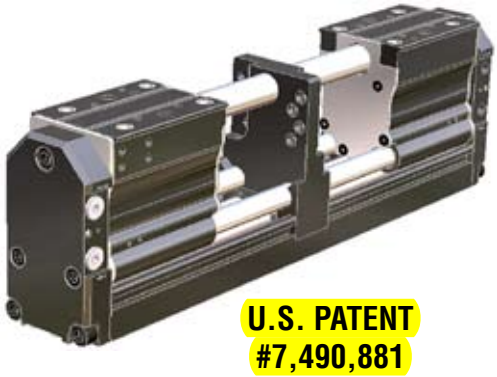


ball bearings support pinion for smooth operation and long life

stainless tubing encloses rack to protect from contamination and to maintain lubrication

NEW! **TC fluoropolymer** composite bushings provide wear resistance

rack and pinion synchronizer minimizes backlash



U.S. PATENT #7,490,881

GRR WITH NEW FEATURES

one piece case hardened ground jaw guides provide high precision and durability NEW!

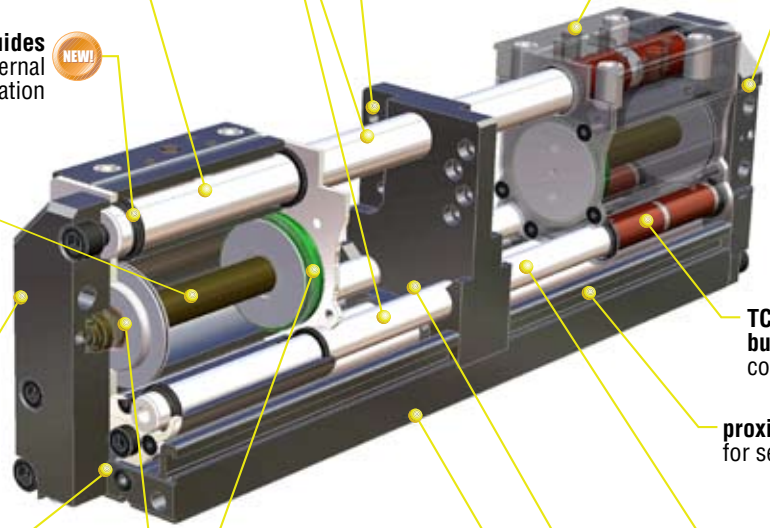
optional Rodlok® holds jaw position if air pressure is lost

coated steel inserts offer superior strength corrosion resistant mounting threads

internal lubrication is provided for extended life without maintenance

open and close port symbols simplify installation

shaft wipers on jaw guides protect bearings from external contamination NEW!



hardcoated aluminum piston rod for wear resistance NEW!

now available in **150, 200, 250 & 350 mm total jaw travels** NEW!

TC fluoropolymer composite bushings provide long life, are contamination and impact resistant

proximity switches available for sensing jaw position

keyed base and end plates ensure alignment NEW!

corrosion resistant option for increased protection

jaw position sensor available for continuous jaw position feedback NEW!

pressure energized seals for low breakaway. Seals available in Fluoro-Elastomer NEW!

rack and pinion synchronizer on model GRR12 (see details above)

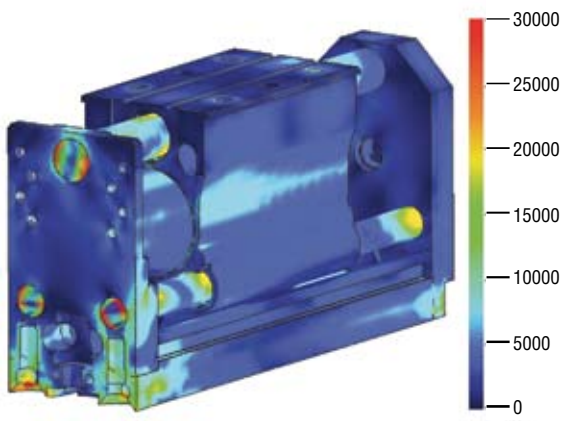
GUARDIAN®

GUARDIAN®

Design Enhancements

- 75% Higher moment capacity
- 55% Higher grip force
- 25% Higher speed
- 10% Lower weight
- Additional accessories
- Continuous feedback jaw position sensor
- Extensive engineering analysis and testing assure performance

STRESS ANALYSIS PLOT [psi]



(HALF MODEL SHOWN)

Major Benefits

- Narrow width and a wide range of available jaw travels.
- Compact design provides high grip force and large moment capacities with low overall weight.
- Rugged build withstands high impact and shock loads.
- Double acting for both internal and external gripping.
- Unique dual air-passage piston rod design promotes rapid bore pressurization for short cycle times.
- Three large diameter jaw guides spanning the length of the gripper provide stable jaw travel, long allowable tooling length, and high moment capacities.
- TC fluoropolymer composite guide shaft bushings provide long life and smooth jaw travel in demanding industrial environments.
- Synchronizer is enclosed, protecting the mechanism from debris.
- Non-synchronized and independently controlled jaws allow flexibility to support diverse applications.
- Optional Rodlok® locks the jaws in a stationary position in the event air pressure is lost.
- Optional analog output sensor continuously monitors entire jaw travel. Gripper is “sensor ready” allowing the sensor to be factory installed or easily installed in the field.
- Proximity switches are available for discrete indication of jaw position.

Industry Uses

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

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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 pre-installed (see Note 3 for compatibility)

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

SERIES Regular Duty

SYNCHRONIZATION
0- Non-synchronized
1- Synchronized
2- Non-synchronized independently powered jaws

DESIGN NO. (See Note 1)
2 - Imperial
6 - Metric

G	R	R	1	2	-	6	-	63	x	200	-	Z1 - H47

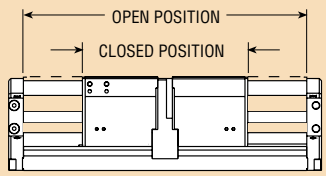
PRODUCT LINE G - Gripper

TYPE Long Travel, High Capacity, Parallel Gripper

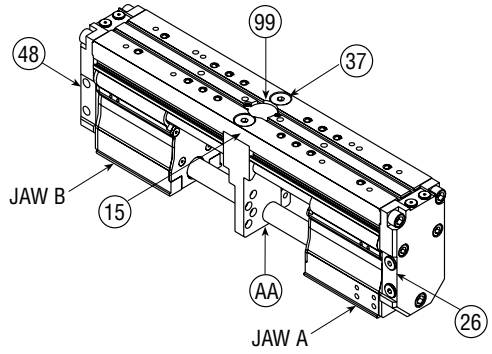
JAW Style 2

BORE SIZE

MINIMUM TOTAL JAW TRAVEL
150 = 150 mm (5.906 in)
200 = 200 mm (7.874 in)
250 = 250 mm (9.843 in)
350 = 350 mm (13.780 in)



Total Jaw Travel = (Open position - Closed Position)



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) **Standard unit is SPP99 ready. Only available on GRR1. See SPP99 option data for temperature and fluid compatibility.

JAW POSITION SENSOR KIT

STANDARD	CORROSION RESISTANT
74209-31	74209-32

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

THREADED INDUCTIVE PROXIMITY SWITCH MOUNTING BRACKET KITS

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

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

8mm THREADED INDUCTIVE PROXIMITY SWITCHES

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

THREADED INDUCTIVE PROXIMITY SWITCH TARGET KITS

STANDARD	CORROSION RESISTANT
74994-31	74994-32

Kit includes 1 proximity switch target and 2 target mounting screws.

12mm THREADED INDUCTIVE PROXIMITY SWITCHES

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

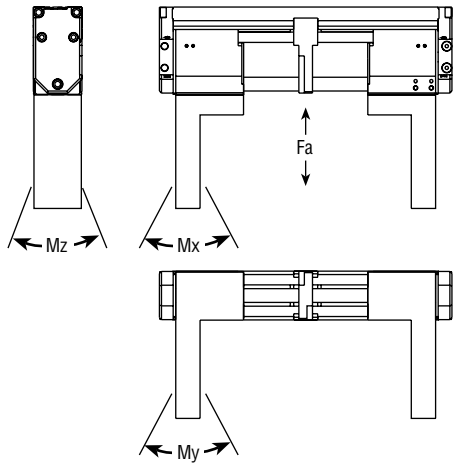
UNIQUE GRIPPERS ARE AVAILABLE.
SEE PAGES 4-139 TO 4-164.

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 in [±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.

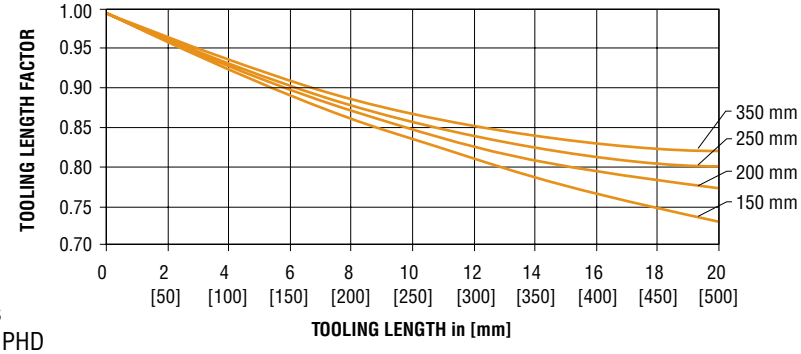
When calculating the value for Fa, include weight of tooling, part weight, acceleration, and external forces. When calculating values for Mx, My, and Mz, include the grip force per jaw, part weight, external forces, and acceleration as applicable.

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

TOOLING LENGTH FACTOR

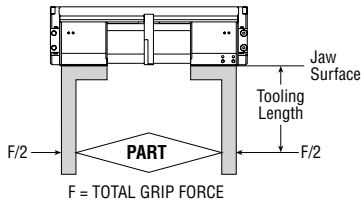
Jaw tooling should be designed so that the grip point is as close to the jaw surface as possible. As the grip point is moved away from the jaw surface, the applied moment causes jaw friction to increase, resulting in reduced effective grip force. The grip force factor (G_F) values given in the table above are for zero tooling length (jaw surface).

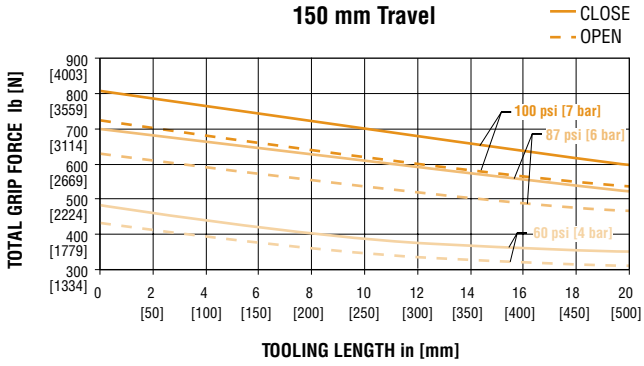
The maximum load that grippers can handle will vary based on: size of the part being picked up, shape of the part, texture of the part, speed at which the part is transferred, working pressure, shape of the fingers, etc. PHD recommends that the fingers of jaws be tooled or machined to conform to the shape of the part being gripped.

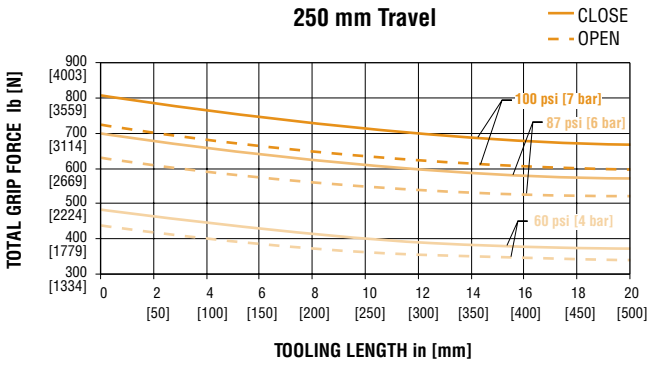


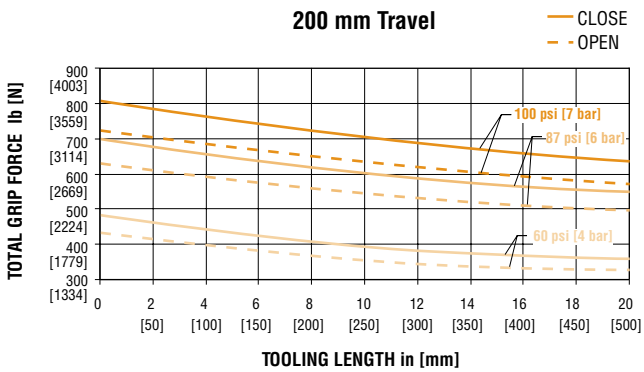
GRIP FORCE

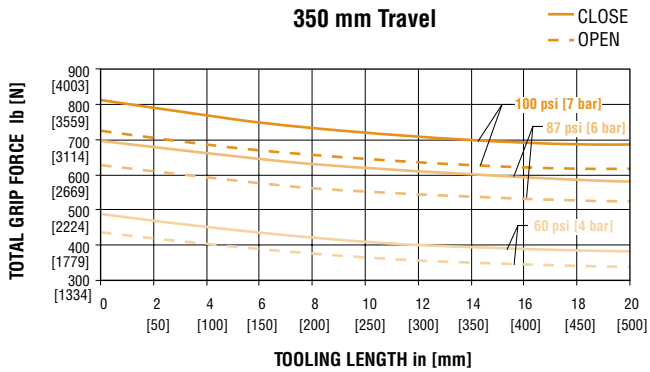
Total gripping force relative to tooling length is shown below at the stated actuating pressure. Grip force per jaw equals the total grip force divided by two. The graphs also indicate the maximum tooling length for each gripper size.











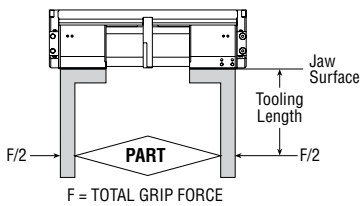
GRIP FORCE CALCULATION EQUATIONS:

IMPERIAL:

TOTAL GRIP FORCE [lb] = (Pressure [psi] x G_F) x Tooling Length Factor

METRIC:

TOTAL GRIP FORCE [N] = (Pressure [bar] x G_F) x Tooling Length Factor



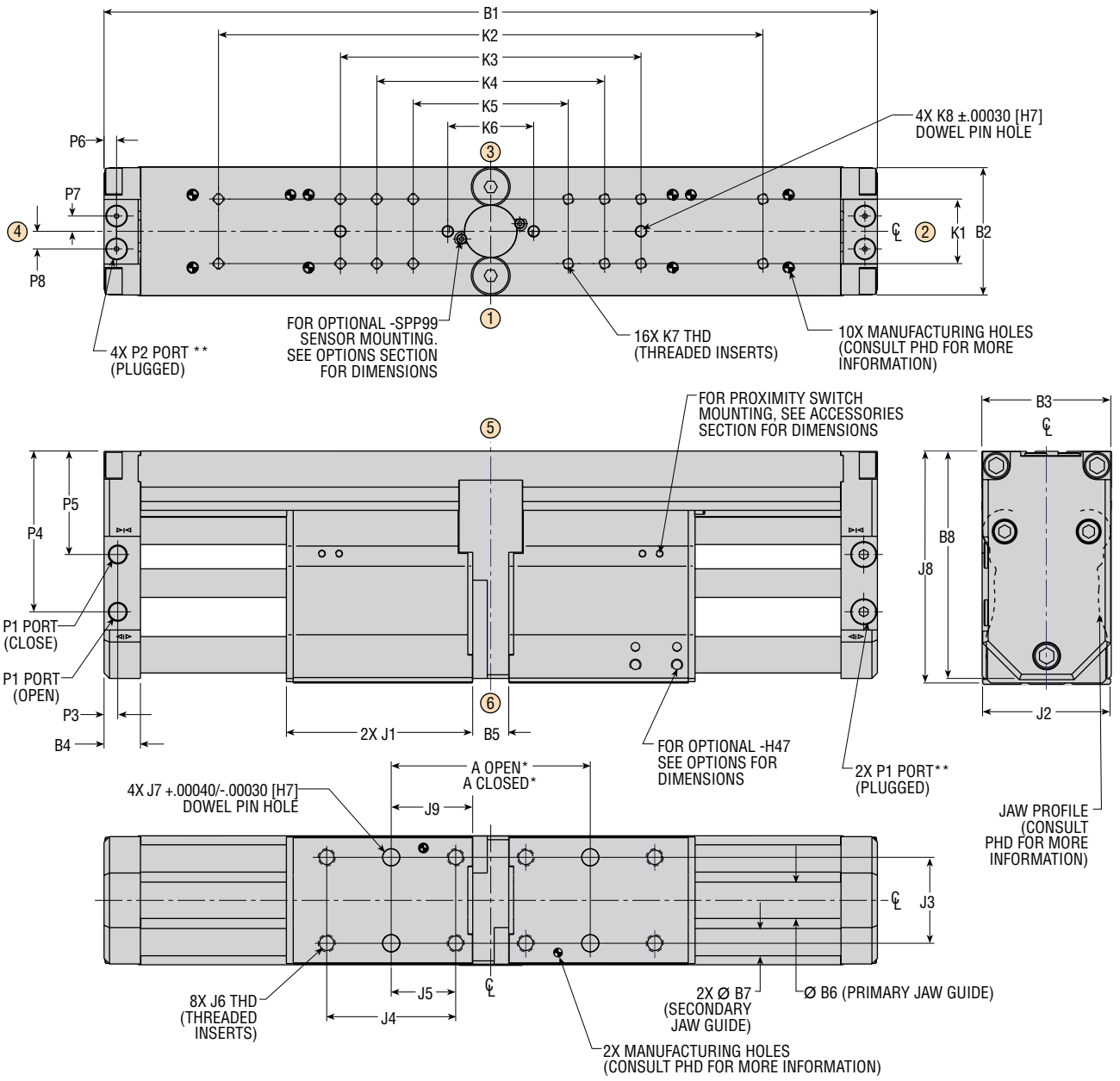
GRIP FORCE CALCULATION EXAMPLE:

Gripper: Series GRR Size 63 x 200
Common Parameters:
Operating Pressure = 87 psi [6 bar]
Tooling Length = 10 in [254 mm]

1. **Determine Grip Force Factor G_F =** 8.09 [522] (from table on page 4-90)
2. **Determine Tooling Length Factor =** 0.84 [0.84] (from Tooling Length Factor graph)
3. **Total Grip Force Calculations:**

For Standard Unit: GRR12-2-63 x 200 [GRR12-6-63 x 200]

Total Grip Force = 87 psi x 8.09 x 0.84 = 591 lb [6 bar x 522 x 0.84 = 2630 N]



NOTES:

1) DESIGNATED ℄ IS CENTERLINE OF UNIT.
2) METRIC INFORMATION SHOWN IN [ ] OR SHOWN IN COLUMNS DESIGNATED mm.
3) CIRCLED NUMBERS INDICATE POSITION.
4) *A OPEN REFLECTS THE SMALLEST POSSIBLE OPEN DIMENSION.
   A CLOSED REFLECTS THE LARGEST POSSIBLE CLOSED DIMENSION.
5) **PLUGGED PORTS P1 & P2, CAN BE USED FOR GRIPPER ACTUATION.

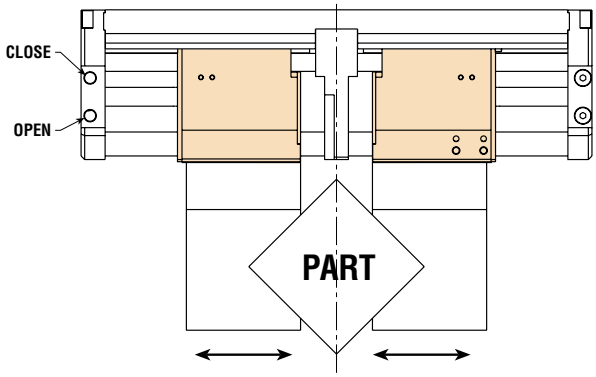
All dimensions are reference only unless specifically toleranced.

LETTER DIM	MODEL NUMBER							
	GRRx2-x-63 X 150		GRRx2-x-63 X 200		GRRx2-x-63 X 250		GRRx2-x-63 X 350	
	in	mm	in	mm	in	mm	in	mm
MIN. TRAVEL PER JAW	2.953	75.0	3.937	100.0	4.921	125.0	6.890	175.0
A CLOSED*	4.724	120.0	5.504	139.8	5.504	139.8	12.992	330.0
A OPEN*	10.630	270.0	13.379	339.8	15.347	389.8	26.772	680.0
B1	17.314	439.8	21.251	539.8	26.016	660.8	33.890	860.8
B2	3.500	88.9	3.500	88.9	3.500	88.9	3.500	88.9
B3	3.543	90.0	3.543	90.0	3.543	90.0	3.543	90.0
B4	1.000	25.4	1.000	25.4	1.000	25.4	1.000	25.4
B5	.990	25.1	.990	25.1	.990	25.1	.990	25.1
B6	1.000	25.4	1.000	25.4	1.000	25.4	1.000	25.4
B7	.750	19.1	.750	19.1	.750	19.1	.750	19.1
B8	6.250	158.8	6.250	158.8	6.250	158.8	6.250	158.8
J1	4.136	105.1	5.120	130.0	6.518	165.6	8.487	215.6
J2	3.500	88.9	3.500	88.9	3.500	88.9	3.500	88.9
J3	2.362	60.0	2.362	60.0	2.362	60.0	2.362	60.0
J4	2.598	66.0	3.544	90.0	3.544	90.0	3.544	90.0
J5	1.2990	33.0	1.7720	45.0	1.7720	45.0	1.7720	45.0
J6	1/2-13 x 1.00 DP	M12 x 1.75 x 25.0 DP	1/2-13 x 1.00 DP	M12 x 1.75 x 25.0 DP	1/2-13 x 1.00 DP	M12 x 1.75 x 25.0 DP	1/2-13 x 1.00 DP	M12 x 1.75 x 25.0 DP
J7	.47275 x .625 DP	12.0 x 15.9 DP	.47275 x .625 DP	12.0 x 15.9 DP	.47275 x .625 DP	12.0 x 15.9 DP	.47275 x .625 DP	12.0 x 15.9 DP
J8	6.375	161.9	6.375	161.9	6.375	161.9	6.375	161.9
J9	1.850	47.0	2.240	56.9	2.240	56.9	5.984	152.0
K1	1.773	45.0	1.773	45.0	1.773	45.0	1.773	45.0
K2	12.598	320.0	14.960	380.0	14.960	380.0	23.228	590.0
K3	8.260	209.8	8.260	209.8	8.260	209.8	8.260	209.8
K4	6.260	159.0	6.260	159.0	6.260	159.0	6.260	159.0
K5	4.260	108.2	4.260	108.2	4.260	108.2	4.260	108.2
K6	2.3620	60.0	2.3620	60.0	2.3620	60.0	2.3620	60.0
K7	3/8-16 x .750 DP	M8 x 1.25 x 19.0 DP	3/8-16 x .750 DP	M8 x 1.25 x 19.0 DP	3/8-16 x .750 DP	M8 x 1.25 x 19.0 DP	3/8-16 x .750 DP	M8 x 1.25 x 19.0 DP
K8	.31525 x .750 DP	8.0 x 19.0 DP	.31525 x .750 DP	8.0 x 19.0 DP	.31525 x .750 DP	8.0 x 19.0 DP	.31525 x .750 DP	8.0 x 19.0 DP
P1	1/4 NPT	1/4 BSPP	1/4 NPT	1/4 BSPP	1/4 NPT	1/4 BSPP	1/4 NPT	1/4 BSPP
P2	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP	1/8 NPT	1/8 BSPP
P3	.375	9.5	.375	9.5	.375	9.5	.375	9.5
P4	4.50	114.3	4.50	114.3	4.50	114.3	4.50	114.3
P5	3.250	82.6	3.250	82.6	3.250	82.6	3.250	82.6
P6	.344	8.7	.344	8.7	.344	8.7	.344	8.7
P7	.413	10.5	.413	10.5	.413	10.5	.413	10.5
P8	.591	15.0	.591	15.0	.591	15.0	.591	15.0

All dimensions are reference only unless specifically toleranced.

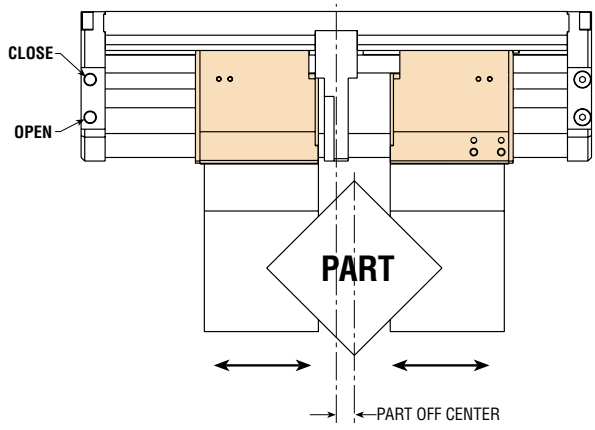
GRR12 SYNCHRONIZED

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



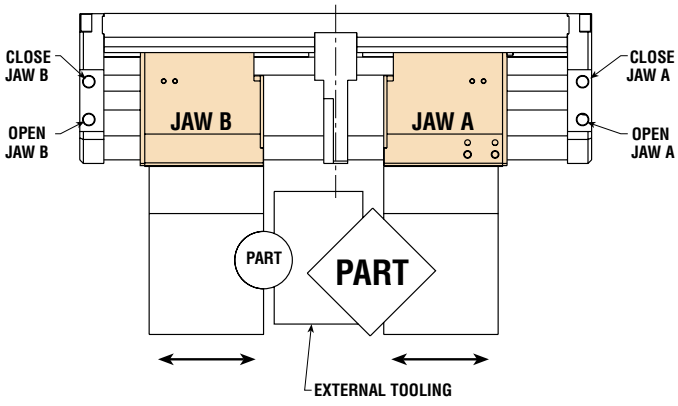
GRR02 NON-SYNCHRONIZED

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.



GRR22 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.



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.

V1 FLUORO-ELASTOMER SEALS

Fluoro-elastomer seals and PTFE jaw guide scrapers are available to achieve seal compatibility with certain fluids. Seal compatibility should be checked with the fluid manufacturer for proper application.

NOTE: Rodlok, part of -H47 option does not include -V1 components. Consult PHD for fluid compatibility with -SPP99 option. Consult PHD for high temperature use.

L9 METRIC UNIT WITH IMPERIAL (NPT) PORTS

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 GRR12 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 (GRR02 & GRR22) may use the APxxx, ARxxx, AUxxx, or AQxxx in any combination for limiting the travel of either jaw independently.

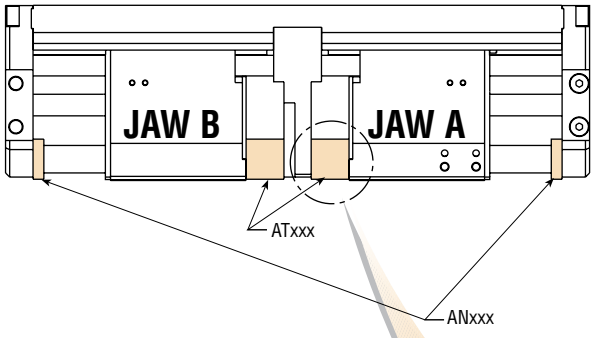
Non-synchronized units may also be ordered with ANxxx or ATxxx options.

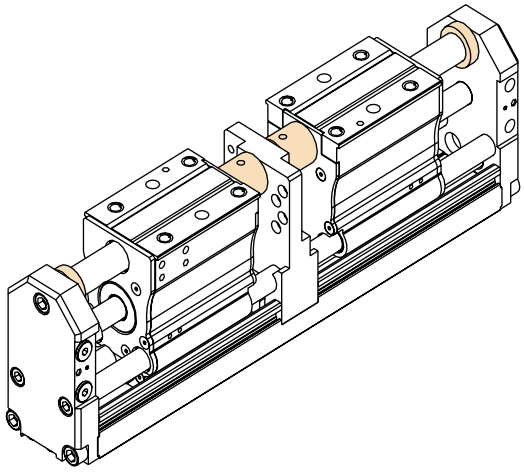
Travel limiting tubes are available in lengths from 3.0 to 99.9 mm in .1 mm increments.

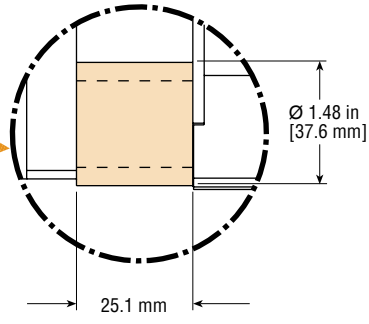
For adjustable jaw travel, see travel adjustment collars on page 4-105.

ANxxx **ATxxx**

AVAILABLE ON GRR02, GRR12, & GRR22

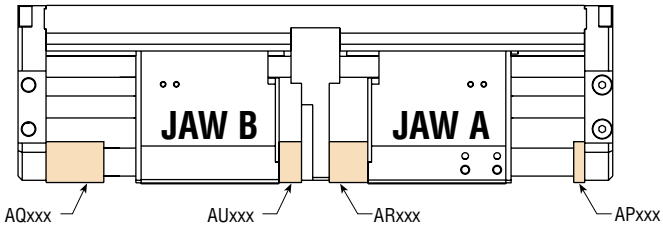






APxxx **ARxxx** **AUxxx** **AQxxx**

AVAILABLE ON GRR02 & GRR22 MODELS ONLY



EXAMPLE:
-ATxxx stop with 25.1 mm length = -AT251

NOTE: Options' xxx are in .1 mm increments with implied decimal point one place from right, and must be 3 digits long with values ranging between 03.0 and 99.9 mm.

H47 RODLOK®

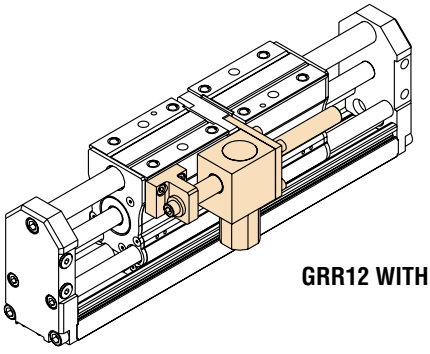
PHD's Rodlok® is ideal for locking the jaws while in a static/stationary position. When the pressure is removed from the port of the Rodlok®, the mechanism will grip on the external guide shaft and prevent the jaws from moving. The loads are held indefinitely without power. Rodlok® performance is application 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.

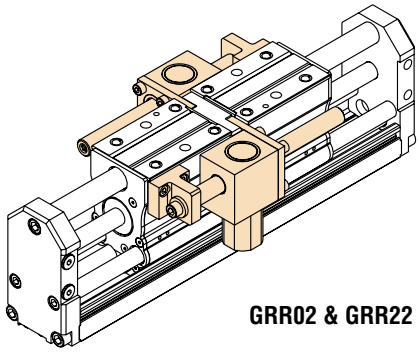
Option -H47 provides the Rodlok® pre-assembled to the gripper. The port of the Rodlok device will be in position 5.

Option -H47 may be purchased with the -Z1 (corrosion resistant) option and -V1 (fluid compatibility) option. However the Rodlok® and Rodlok® rod DO NOT PROVIDE corrosion resistance or fluid compatibility.

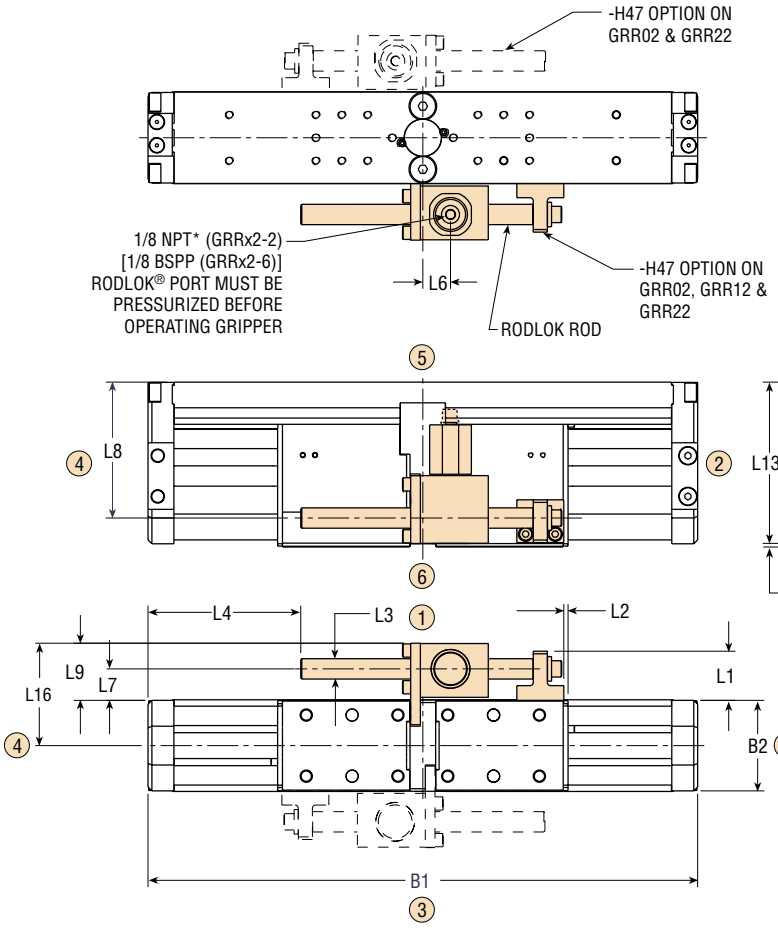
NOTE: The operating pressure for the locking device is different than the operating pressure for the gripper with the Rodlok® attached. The locking device of the Rodlok® is designed with an operating pressure range of 60 psi minimum to 150 psi maximum [4 to 10 bar]. The Series GRR Gripper with a Rodlok®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



GRR12 WITH -H47 OPTION



GRR02 & GRR22 WITH -H47 OPTION



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 of 60 psi minimum to 150 psi maximum [4 to 10 bar.]

The Series GRR Gripper with Rodlok® attached has an operating pressure range of 30 psi minimum to 120 psi maximum [2 to 8 bar.]

All dimensions are reference only unless specifically toleranced.

LETTER DIM	MODEL NUMBER							
	GRRx2-x-63 X 150		GRRx2-x-63 X 200		GRRx2-x-63 X 250		GRRx2-x-63 X 350	
	in	mm	in	mm	in	mm	in	mm
B1	17.314	439.8	21.251	539.8	26.016	660.8	33.890	860.8
B2	3.500	88.9	3.500	88.9	3.500	88.9	3.500	88.9
L1	1.900	48.3	1.900	48.3	1.900	48.3	1.900	48.3
L2	.165	4.2	.165	4.2	1.630	41.4	3.370	85.6
L3	.787	20.0	.787	20.0	.787	20.0	.787	20.0
L4	4.920	125.0	5.900	149.9	7.280	184.9	9.250	235.0
L5	.141	3.6	.141	3.6	.141	3.6	.141	3.6
L6	1.070	27.2	1.070	27.2	1.070	27.2	1.070	27.2
L7	1.217	30.9	1.217	30.9	1.217	30.9	1.217	30.9
L8	5.254	133.5	5.254	133.5	5.254	133.5	5.254	133.5
L9	2.209	56.1	2.209	56.1	2.209	56.1	2.209	56.1
L10	1.150	41.9	1.150	41.9	1.150	41.9	1.150	41.9
L11	3.618	91.9	3.618	91.9	3.618	91.9	3.618	91.9
L12	4.550	115.6	4.550	115.6	4.550	115.6	4.550	115.6
L13	6.234	158.3	6.234	158.3	6.234	158.3	6.234	158.3
L14	3.95 lb	1.79 kg	4.22 lb	1.91 kg	4.35 lb	1.97 kg	4.65 lb	2.11 kg
L15	7.90 lb	3.58 kg	8.44 lb	3.83 kg	8.70 lb	3.95 kg	9.30 lb	4.22 kg
L16	3.960	100.6	3.960	100.6	3.960	100.6	3.960	100.6
L17	1.06	27.1	1.06	27.1	1.06	27.1	1.06	27.1

L14 = WEIGHT ADDER FOR GRR12
L15 = WEIGHT ADDER FOR GRR02 & GRR22

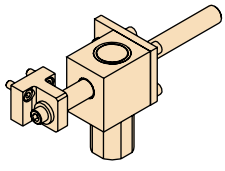
NOTES:

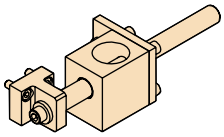
1) LOCKING FORCE INDICATED IS THE ACTUAL LOCKING FORCE WITH A DRY, CLEAN ROD AND DOES NOT INCLUDE ANY SAFETY FACTOR. IT IS POSSIBLE TO OVERRIDE THE RODLOK® WITH VERY HIGH FORCE APPLIED TO THE GRIPPER. STATIC LOCKING FORCE MAY BE INCREASED ON SYNCHRONIZED UNITS, GRR12, WITH THE ADDITION OF A SECOND RODLOK®. SEE KITS BELOW.
2) CIRCLED NUMBERS INDICATE POSITION.
3) *1/8" NPT PORT IS AN ADAPTOR INCLUDED WITH IMPERIAL UNITS.

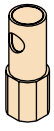
SIZE	STATIC LOCKING FORCE (see Note 1)	
	lb	N
63	495	2200

ACCESSORIES - RODLOK®

The Series GRR is -H47 ready as standard. The following items may be added to the Design 2 [6] GRR or may be used as replacement parts. Note that the kits below 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)

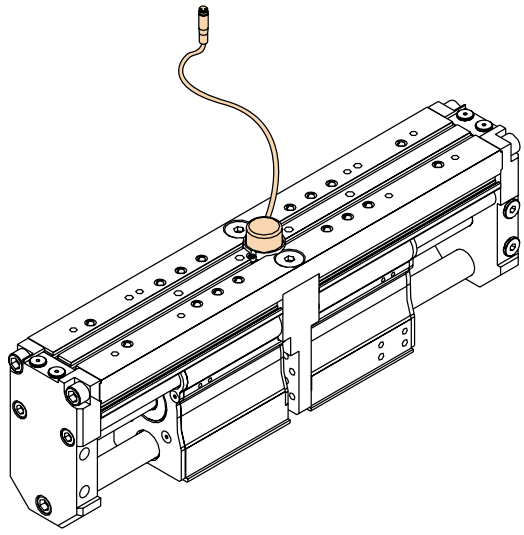
Full unit description - H9100

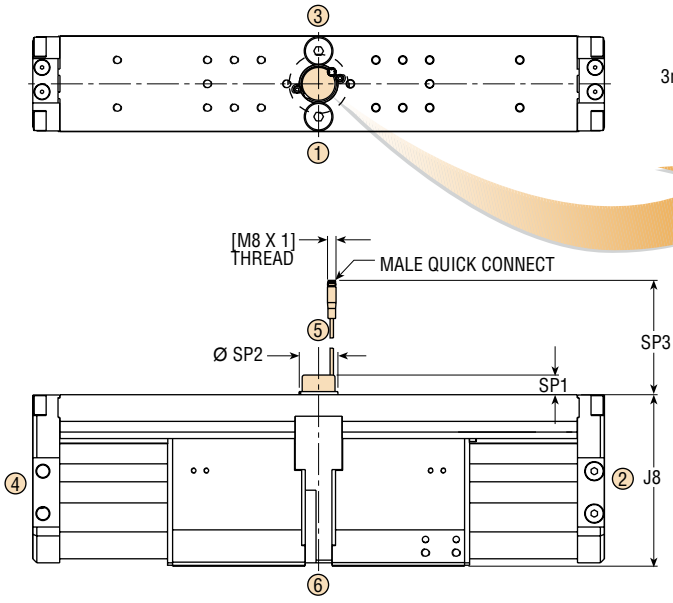
Kit includes Rodlok® for a single (1) jaw. Does not include Rodlok imperial port adaptor.

SPP99 JAW POSITION SENSOR

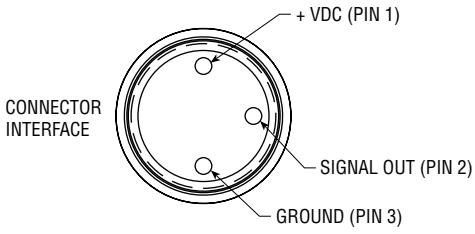
PHD's Jaw Position Sensor provides an easy to use, economical, fully integrated solution to continuously monitor the grip position of the jaws. The sensor mounts directly to the gripper making field installation or replacement quick and easy. The 3-pin quick-connect connector provides a 0-10 volt analog output compatible with standard analog control modules.

Consult PHD for use with -V1 option.





LETTER DIM	MODEL NUMBER GRRx2-x-63 in	mm
J8	6.375	161.9
SP1	.748	19.0
SP2	1.437	36.5
SP3	10.000	254



RESOLUTION

Resolution of sensor installed into gripper is 0.001 inch [0.025 mm] in conjunction with an analog control module having 15 bits or greater input resolution.

REPEATABILITY

Maximum variation of reported grip dimension when repeatedly gripping the same object is ±0.002 in [±0.05 mm].

ENVIRONMENTAL

Temperature Limits: -20 to 180°F [-28 to 82°C]
IP67 compliant when installed in gripper.

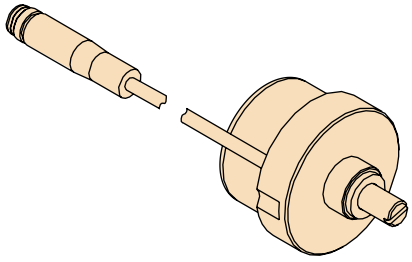
ELECTRICAL

Supply Voltage: 15-30 VDC, reverse polarity protected
Output Voltage: 0-10 VDC, short-circuit protected
Output Constant: 663 ± 1mV/inch [26.10 ± 0.04 mV/mm] of grip change
Output Voltage Offset: <10mV typical
Output Linearity: ± 0.3%

All dimensions are reference only unless specifically toleranced.

ACCESSORIES - JAW POSITION SENSOR

Series GRR is supplied -SPP99 ready. Kit below provides the same jaw position sensor and mounting hardware supplied pre-assembled with the -SPP99 option. See option details for further information.



JAW POSITION SENSOR KIT

STANDARD	CORROSION RESISTANT
74209-31	74209-32

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

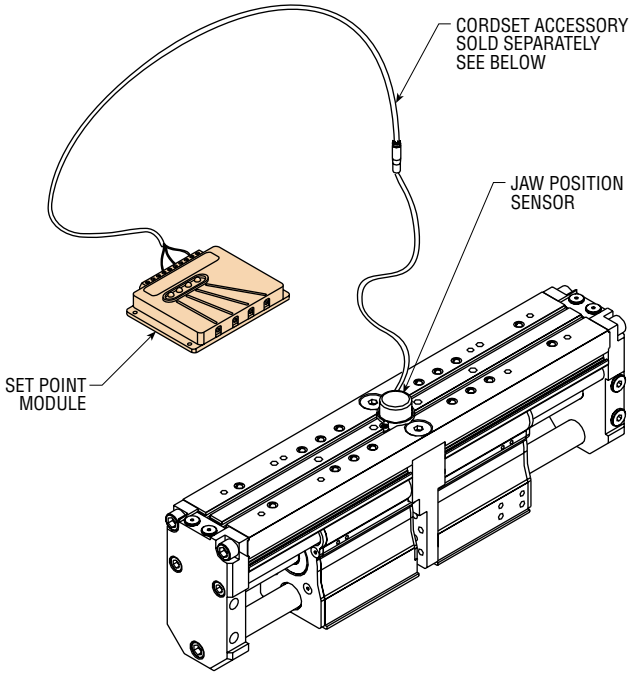
ACCESSORIES - SET POINT MODULE

Set Point Module converts analog output from sensor into discrete on-off outputs. Module provides four independently adjustable set points throughout jaw travel. Available with NPN (sink) or PNP (source) outputs.

SET POINT MODULE

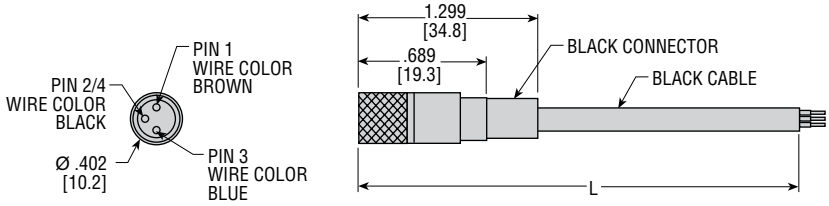
PART NO.	DESCRIPTION
9800-01-0300	4.5-24 VDC, Sink Type Output
9800-01-0400	4.5-24 VDC, Source Type Output

See Switches and Sensors section in main catalog for more information.



ACCESSORIES - CORDSET

Provides a cordset with female quick connect and additional cable. Perfect for use with the Set Point Module.

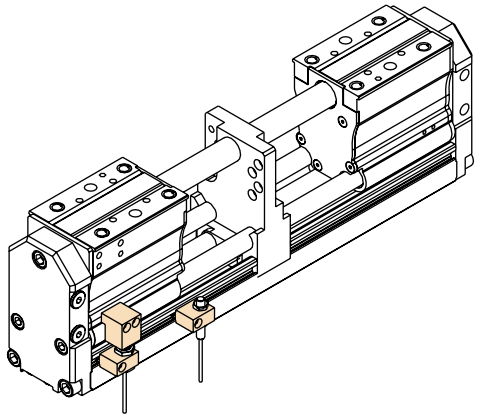


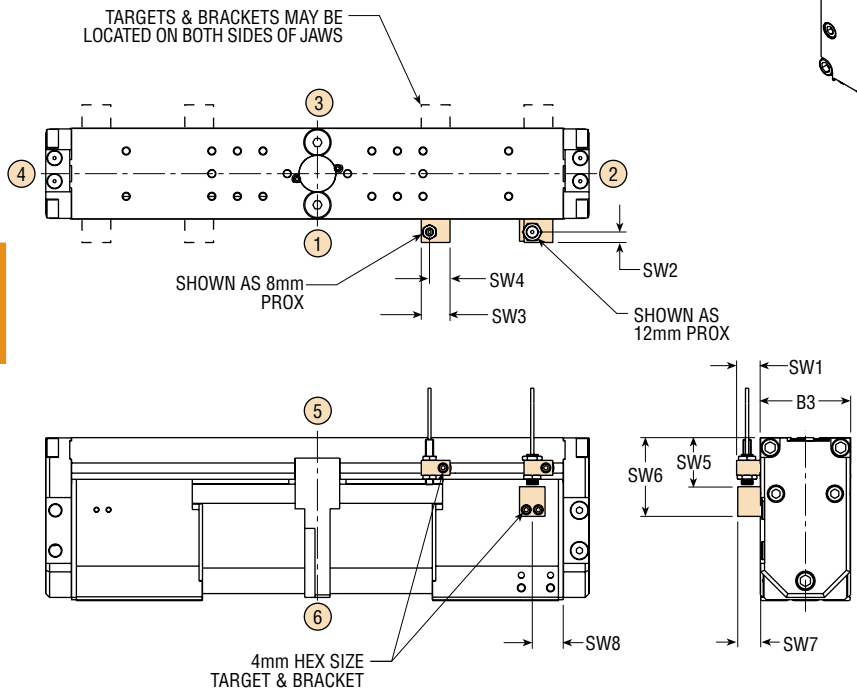
MODEL NO.	LETTER DIM. L
63549-02	78.74 [2 m]
63549-05	196.85 [5 m]

PROXIMITY SWITCHES - EXTERNAL

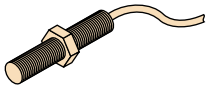
This accessory provides for the external mounting of 8 or 12 mm threaded round metal sensing inductive proximity switches. Multiple switches may be mounted using multiple brackets. Proximity switches, targets, and mounting brackets are ordered separately. See the Switches and Sensors section for complete switch specifications.

NOTE: Target and bracket kits do not interchange with Series 1 [5] GRR Grippers.



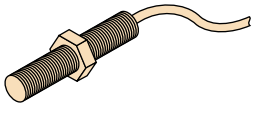


DIM LETTER	GRRx2-x-63 in	mm
B3	3.544	90.0
SW1	.920	23.4
SW2	.410	10.4
SW3	1.125	28.6
SW4	.852	21.6
SW5	1.920	48.8
SW6	3.080	78.2
SW7	.900	22.9
SW8	1.211	30.8



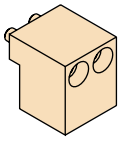
8mm THREADED INDUCTIVE PROXIMITY SWITCHES

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



12mm THREADED INDUCTIVE PROXIMITY SWITCHES

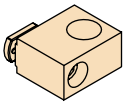
PART NUMBER	DESCRIPTION
15561-001	NPN (Sink) 3 meter cable
15561-002	PNP (Source) 3 meter cable
15561-003	VAC Solid State, 3 meter cable



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

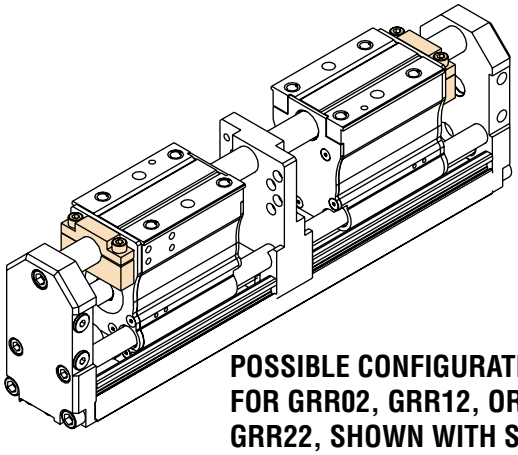
8mm SWITCH	CORROSION RESISTANT 8mm SWITCH	12mm SWITCH	CORROSION RESISTANT 12mm SWITCH
74992-31	74992-32	74993-31	74993-32

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

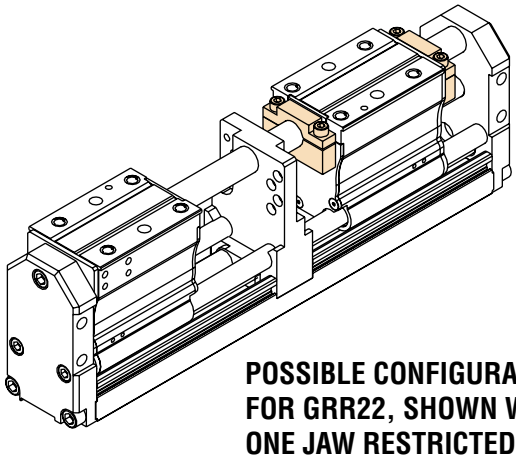
All dimensions are reference only unless specifically toleranced.

TRAVEL ADJUSTMENT COLLARS

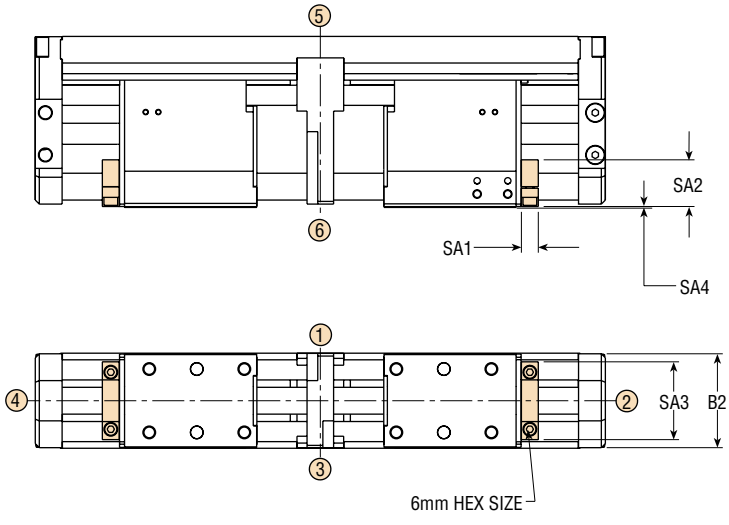
This accessory provides travel adjustment stop collars for use in limiting jaw travel on open or close. The travel adjustment stop collars provide infinite adjustment. Synchronized model (GRR12) requires travel adjustment collars to be identically located for both jaws, in the same direction of travel. Non-synchronized models (GRR02 & GRR22) do not require identical stop locations for each jaw. For non-adjustable jaw travel limiting, see options ANxxx, ATxxx, APxxx, ARxxxx, AUxxx, and AQxxx on page 4-99.



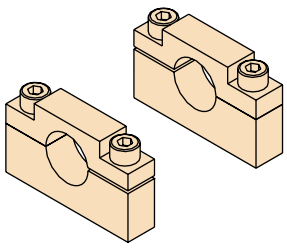
POSSIBLE CONFIGURATION FOR GRR02, GRR12, OR GRR22, SHOWN WITH STROKE LIMITED ON OPEN



POSSIBLE CONFIGURATION FOR GRR22, SHOWN WITH ONE JAW RESTRICTED



DIM LETTER	GRRx2-x-63 in	mm
B2	3.500	88.9
SA1	.630	16.0
SA2	1.740	44.2
SA3	2.900	73.7
SA4	.035	.9



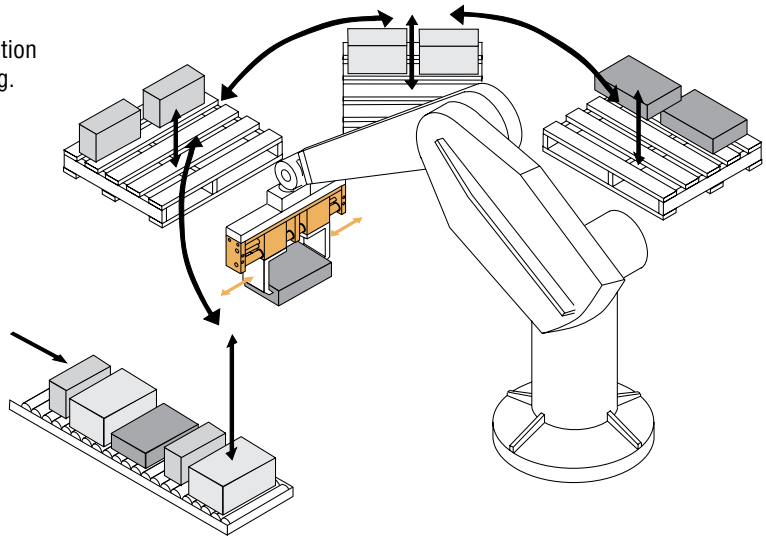
STROKE ADJUSTMENT COLLAR KITS

STANDARD	CORROSION RESISTANT
74211-01	74211-02

Kit includes 2 stroke adjustment collars and 4 mounting screws.

GRIPPER FOR LONG TRAVEL, HIGH FORCE CAPABILITY

The Series GRR Gripper is designed for long stroke, high force 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.



GRIPPER FOR HIGH FORCE AND HIGH JAW LOADS

The Series GRR Gripper is designed to withstand external forces when moving heavy parts quickly. The parallel design provides for automatic centering of parts, while the long jaw travel makes it flexible for a wide variety of applications. In this application, two Series GRR Grippers are mounted on a fixture attached to a robot. The robot will transfer rims from an in-feed conveyor station to and from three separate machining processes. Then the finished rim is placed on a conveyor, taking it from the machining area.